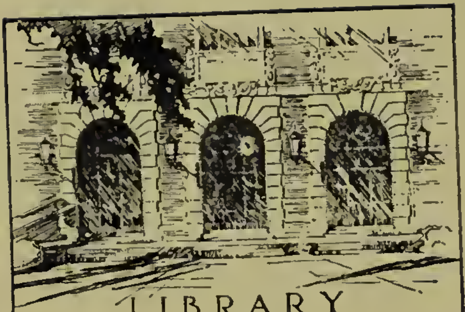

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Addresses

STATE MEDICINE: ITS FOUNDATION, SUPERSTRUCTURE AND SCOPE.

INCLUDING A SCHEME FOR A PUBLIC HEALTH SYSTEM ADAPTED TO COUNTIES, STATES AND THE NATION.*

W. H. SANDERS, M.D.
Health Officer of Alabama.
MONTGOMERY, ALA.

I should be unpatriotic and uncivil did I not deeply realize and warmly announce that this is historic ground. Here, more than a century ago, principles were proclaimed and deeds done that flashed on the world like a lightning stroke and illumined the way to liberty and law with a brilliancy that startled kings and potentates on their ancestral but treacherous thrones. Those principles found fertile soil in the courageous bosoms of colonists, who, embodying them in their creeds, vindicated them with their valor and their blood.

Near by are Plymouth Rock, Dorchester Heights, Boston Common, Bunker Hill, Cambridge, Concord and Lexington—all names that have helped to kindle the fires of patriotism in the bosoms of succeeding generations of American school boys and to keep them burning until at the close of loyal lives their bodies were laid away in the soil they so early learned to love so well.

When one recalls the momentous events of that unique and significant landing on this shore, the trials and tragedies through which those heroic pioneers passed, and the proud victories they won in forest, field and forum, it is not strange that this soil has been prolific in soldiers, statesmen, orators, jurists, historians, poets and scholars. While proclaiming that all these vocations have been adorned by illustrious sons of this Commonwealth, the words are uncoined with which to pay just tribute to the mothers who fed these men in infancy from their fertile and faithful bosoms, who guided their youthful footsteps along the paths of truth and virtue, and who fired their manly hearts with noble impulses and lofty aims.

Bostonians! Men and Women of Massachusetts! I salute you as the proud descendants of a noble ancestry, an ancestry from which you have received a royal heritage of moral heroism and of mental and material achievement. May these priceless treasures go down to your children's children in unbroken succession and with unfailing vigor.

However rich this field of thought, the duty of the hour compels me to abandon it, which I do by inviting your attention to a discussion of the following theme: "State Medicine, Its Foundation, Superstructure and Scope, Including a Scheme for a Public Health System adapted to Counties, States and the Nation."

Accepting the term, state medicine, to mean the exercise of power by a civil government for the protection of its people against disease, as well as for the promotion of their physical welfare and development, the first inquiry that meets us at the threshold of the discussion is: On what foundation does this power rest?

As the welfare of a government is but the aggregate of that of its individual citizens, this power can, in the last analysis, be reduced to the supreme law of self-defense, an inalienable and essential right that belongs to governments as to individuals.

Since a thinker so acute and profound as Herbert Spencer has argued that sanitary supervision is not a legitimate function of government, this position seems worthy of some analysis. Without undertaking to reproduce at any length Mr. Spencer's argument, it is easy to see that, among other ways, he was betrayed into error by assuming the existence of analogies where none exist.

Quoting from his "Social Statics" we find the following:

> There is a manifest analogy between committing to government guardianship the physical health of the people and committing to it their moral health. If the welfare of men's souls can be fitly dealt with by acts of parliament, why then the welfare of their bodies can be fitly dealt with likewise. . . . The arguments employed by the dissenter to show that the moral sanity of the people is not a matter for state superintendence are applicable, with a slight change of terms, to their physical sanity also.

In this argument Mr. Spencer is guilty of the amazing error of assuming that the soul and the body are analogues. Take away that premise, which no one will hesitate for a moment to do, and the fallacy of the argument quoted is at once exposed. It is evident that within reasonable limits the body can be controlled by governmental authority, but such authority is powerless to control the soul. Infection in the body may be detected and measures instituted to prevent its propagation, but the soul eludes inspection and may, in defiance of government, both harbor and propagate infection of the foulest kind. Through the fear of penalties men may be restrained from the physical act of murder, but not from the malicious desire to kill. The question is not merely one of right on the part of a government to exercise a power, but of ability to make that power effective. Although powerless to legislate wickedness out of men's minds and hearts, may not a government legislate diseases out of their bodies, in so far as its power extends? No analogy exists, therefore, betwixt legislating for the physical and for the moral sanity of a people; the one is practicable, the other impracticable; the one logical, the other illogical.

Rejecting Mr. Spencer's reasoning and endorsing a noble sentiment proclaimed by Lord Beaconsfield in

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*Oration on State Medicine before the Fifty-seventh Annual Session of the American Medical Association, Boston, June, 1906. The manuscript of this address was not forwarded to THE JOURNAL until recently, hence the lateness of its appearance.

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these words, "The health of the public ought to be one of the chief considerations of a statesman," the postulate is submitted that every government should provide itself with a complete, coherent and efficient public health system, by and through which it may exercise its inherent right of sanitary supervision over the bodies of its citizens.

In formulating such a system one fundamental and material principle must be incorporated, namely, a public health system must correspond in construction with the government to which it belongs. Under the application of this principle it is evident that the public health system of a monarchy and that of a democracy would differ in many and essential particulars, and that between these two systems, standing at the extremes, many modifications would be required in order to provide a system adapted to each existing form of government. A public health system, like any other arm of government, must derive its power from where power exists; in a monarchy from the king, in a democracy from the people, and in other and mixed forms of government from the existing source of power.

These general propositions announced, the field of discussion will be restricted to outlining a public health system believed to be adapted to our form of government. The fact that our government is a complex one surrounds the work of construction with some, but not insuperable, difficulties. The ground over which we are now assembled is a constituent part of the city of Boston, likewise of the county of Suffolk, likewise of the state of Massachusetts, and finally of the United States; that is, a series of concentric governments exist, each having jurisdiction within certain spheres over this locality. Similar conditions exist in all other localities of the United States.

In constructing a public health system for this country the relative rights and duties of the public health officials that would represent these concurrent governments must be definitely defined and accurately adjusted. To do this it is imperative that we ascertain in which one of these governments does sovereignty as to public health powers reside. All will concede that the Constitution of the United States as interpreted by the Supreme Court is the source from which this information must be derived. All will further agree that the general government is a government of delegated powers and does not possess any powers other than those delegated to it by the states, as embodied in the Constitution. It is safe to assert that not a line in that document can be pointed out delegating to the general government public health powers, and inasmuch as the spontaneous generation of power in the general government is quite as much of an impossibility as in physics, it is clear that the general government can not and does not possess a power never delegated to it. But let us appeal to the Supreme Court of the United States, the highest tribunal of the land, for an authoritative adjudication of this question.

In Gibbons vs. Ogden, 9th Wheaton, p. 203, Chief Justice Marshall said:

> Inspection laws, quarantine laws, health laws of every description, as well as laws for regulating the internal commerce of a state and those which affect turnpikes, roads, etc., form a portion of that immense mass of legislation which embraces everything within the territory of a state not surrendered to the general government. No direct general power over these subjects is granted to Congress, and consequently they remain subject to state legislation.

In Fertilizing Company vs. Hyde Park, 97 U. S., p. 667, Mr. Justice Swayne said:

> That power (the police power) belonged to the states when the federal constitution was adopted. They did not surrender it, and they all have it now. It extends to the entire property and business within their local jurisdiction.

In Patterson vs. Kentucky, 97 U. S., p. 505, Mr. Justice Harlan said:

> Hence the states, may by police regulation, protect their people against the introduction within their respective limits of infected merchandise. A bale of goods on which duties have or have not been paid, laden with infection, may be seized under health laws, and if it can not be purged of its poison, may be committed to the flames. So may the states by like regulation exclude from their midst not only convicts, paupers, idiots, lunatics and persons likely to become a public charge, but animals having contagious diseases.

Judge McLean, in the Passenger cases, 7 How., p. 400, said:

> In giving the commercial power to Congress the states did not part with that power of self-government which must be inherent in every organized community. They may guard against the introduction of anything which may corrupt the morals or endanger the heath or lives of their citizens.

In the Passenger cases, 7 How., p. 414, Mr. Justice Swayne said:

> The states of the Union may, in the exercise of their police powers, pass quarantine and health laws, interdicting vessels coming from foreign ports, or ports within the United States, from landing passengers and goods, prescribe the places and time for vessels to quarantine, and impose penalties on persons for violating the same; and . . . such laws, though affecting commerce in its transit, are not regulations of commerce.

Could stronger or clearer words be used? Can any amount of verbal legerdermain rob these decisions of their plain and obvious meaning? Do they not place sovereignty as to public health powers in the states? If so, can Congress constitutionally place it elsewhere? The question is not what the Constitution might have done, but what it did do.

Owing to outbreaks of yellow fever, which took place in the South last summer, this question of sovereignty as to public health powers has assumed a very acute stage, has been much discussed, and is now deeply and directly involved in legislation pending in Congress. While time does not permit of any extended discussion of the point at issue, one argument the speaker has heard advanced by intelligent advocates of federal supremacy, and evidently deemed by them invulnerable, will be briefly noticed. The argument is stated thus:

> If a hostile ship armed with heavy guns and manned by marines were approaching our shores, would it not be the right and the duty of the federal government to meet and repel such ship? Likewise, were a ship containing infection on board approaching our shores would it not equally be the right and duty of the federal government to repel such ship, or to render it harmless?

To some the two examples cited might seem parallel and the conclusion intended to be forced therefrom irresistible, but a moment's analysis will dispel such delusion. In the Constitution the war-making power is expressly delegated to the federal government, hence it becomes, not only the right, but the duty of that government to meet and repel the hostile ship. Not so with reference to the infected ship, no power over ships by reason of infection existing on board having been delegated by the states to the federal government. Had such delegation of power been made, then it would clearly be the duty of the federal government to meet and repel, or render harmless, the infected ship. In so far as constitutional power in the general government is concerned the two examples cited are in no wise analogous; therefore, the conclusion which advocates of federal control would draw from the sophism quoted is wholly unwarranted and untenable.

Having cleared away some preliminary questions, we will now enter on the hypothetical construction of the proposed public health system, designed as it is to apply to municipalities, counties, states and the nation, and to constitute one articulated and coherent whole.

In building up any system the adoption of a unit of construction not only facilitates the work, but tends to render the result logical and symmetrical. In this instance a county medical society, organized in accordance with a scheme to be presently unfolded, will be adopted as the first unit of construction, and naturally such an organization will be placed at the foundation of the superstructure.

I. COUNTY MEDICAL SOCIETY—COUNTY BOARD OF HEALTH.

EXECUTIVE FORCE.

(*a*) Committee of public health.
(*b*) County health officer and assistants.
(*c*) Health officer for each municipality in the county.

It will be observed that in the above scheme a county medical society is made equal to, or synonymous with, a county board of health. Objection to this arrangement might be made on the ground that the members of a county medical society would be too numerous and too scattered to serve practically and efficiently as a board of health.

If by serving as a board of health it be understood that the members are to meet, discuss and decide on the policy to be pursued in the face of every menace to the public health, and then to participate, more or less, in supervising the execution of the policy decided on, the objection would be valid, and, therefore, fatal to the scheme proposed. But in constructing a public health system for a county a deliberative body must first be provided, one composed of members capable of discussing in a scientific as well as practical way the sanitary interests of the people, so as to evolve the best principles and plans for the promotion of those interests.

Unquestionably the physicians of a county would constitute such a body, their daily vocation being to study and their highest function to prevent disease. With a board of health so constituted not only would every member feel a personal interest in studying the sanitary needs of the people, but the people would become the beneficiaries of the combined sanitary knowledge of the physicians of the county.

Inquiry might arise as to whether the physicians of the counties would voluntarily organize for public health purposes. To this inquiry an affirmative answer may confidently be given. Indeed, the physicians of many, perhaps most, of the counties in the states are already organized for scientific and social purposes, and if to these objects that of the protection of the health of the people be added, an additional and powerful incentive to organization will have been infused into the minds and hearts of the members of the medical profession that will not only bring them together, but hold them together by that magnetism which visible and valuable fruit gathered as the result of organization will arouse.

To endow a county medical society with the authority of a board of health would necessarily require an act of the state legislature, but if the members of the profession in the several states will organize by counties, with the distinct purpose of acquiring this right, it will be conferred.

Naturally a board constituted as suggested would need executive officials. These are enumerated in the scheme as: A committee of public health, which should be composed of five members; a county health officer, with assistants; and a health officer for each municipality in the county.

While the committee of public health is reckoned under "executive force," the function of such committee is intended to be advisory rather than executive, the idea being to provide a small body of judicious and experienced members thoroughly competent to represent and speak for the parent board during the intervals of its sessions; and, further, a body capable of assembling quickly, so as to give the executive officials any advice or help they might need under critical or unusual conditions.

For many and conclusive reasons the election of all officials included under the term "executive force" should be conceded by law to the board of health, the chief of these reasons being stated as follows:

1. Such concession would place the selection of these officials in the most competent hands. 2. The fidelity of officials thus selected would be materially promoted by a consciousness on their part of the fact that their electors would be the most competent, and often the most critical, judges of their efficiency, and, therefore, of their fitness to succeed themselves. 3. Such concession would effectually divorce the system from politics and protect it from domination by commercial influence, advantages of immeasurable value that can be secured in no other way.

Considering the system thus far formulated as a whole, it will be seen that it provides for a deliberative board of health, composed of the very best material a county could furnish, and then for an executive force chosen by the board itself, thus correlating head and hand in such way as to secure unity of purpose and harmony of action, a combination of forces calculated to achieve all for the health of the people of a county that modern sanitary science can do.

We now advance to the next division of the system undergoing construction, or that applying to a state. Following the plan pursued with reference to a county, the salient features of *this* division will be set forth in schematic form:

II. STATE MEDICAL ASSOCIATION—STATE BOARD OF HEALTH.

EXECUTIVE FORCE.

(*a*) State committee of public health.
(*b*) State health officer.
(*c*) State bacteriologist and pathologist.
(*d*) State chemist.
(*e*) State registrar of vital and mortuary statistics.

It will be seen that the scheme of organization proposed for a state is in harmony with that formulated for a county.

For reasons corresponding with, but more imperative than, those assigned when discussing county organization, the medical association of a state should constitute the state board of health.

To confer plenary public health power on a few medical men in a state and exclude all others from any participation whatever in either deliberating on, or shaping the policies to be pursued, will not only deprive the people of the counsels of the great body of the profession on sanitary questions, but will be in danger of leading to discord in the profession itself, a condition tending to weaken administration and seriously to impede sanitary progress. Indeed, complete success in the enforcement of any public health system whatever is impossible without the full, intelligent and hearty cooperation of the medical profession. Inspired authority tells us that "in multitude of counsels there is safety," a truth that should judiciously be applied in the construction of a public health system for state governments such as ours. To obtain this "multitude of counsels" on sanitary questions a forum must be established on which medical men who have ideas can be heard, where reports from executive officials can be rendered and discussed and, when necessary, explained, and where any disputes as to principles or policies can definitely be settled by vote.

By vesting a state medical association with the authority of a state board of health all of the difficulties pointed out will be avoided and all of the advantages claimed secured. When after due deliberation sanitary campaigns have been planned and policies fixed, execution should be wrought out under one man, a principle in perfect accord with the theory and practice of our civic governments.

Inasmuch as a state government is sovereign over its county governments, it logically follows that a state board of health should be sovereign over county boards, a principle that must be applied in practice in order to unite the latter into one homogeneous and effective whole.

The executive force a state board of health would need appears in the scheme. Here again the function of the committee of public health would be much more advisory than executive. The ten members of which such a committee should be composed ought to be men of judicial mould, thoroughly alive to the possibilities of state medicine, and capable when called on to aid in meeting emergencies of not only representing the parent board but of reflecting high credit on it.

The titles given the purely executive officials are sufficiently distinctive to indicate the nature of their duties, hence these need not be elaborated on. The method of protecting this division of the system against the baneful effects of political and commercial domination would be the same as that suggested for county boards, that is, to vest the election of all executive officials in the state board.

Having completed the superstructure undergoing erection, in so far as it applies to counties and states, the crowning position, corresponding with that of a dome, remains to be assigned to the national government.

The Supreme Court having denied to that government the possession of any public health power whatever, the inference would seem legitimate that it could not constitutionally participate in a public health system at all. This by no means follows. On the contrary, the federal government being the product of the organic union of the states in certain respects and for certain purposes, can not be otherwise than directly and deeply interested in the sanitary welfare of its constituent members. Naturally, therefore, it should stand ready to promote that welfare by whatever constitutional measures it can employ. But, obviously, before the general government can do anything in that direction it must create an official arm through which it can operate. In accordance with a principle announced in the early part of this discussion such arm should correspond in organization with a democratic form of government, that is, should include a deliberative body and an executive force.

Again adopting the schematic form, the following is submitted as an appropriate organization through and by means of which the national government could participate in public health work:

III. DELEGATES FROM STATE BOARDS—A NATIONAL BOARD OF HEALTH.

EXECUTIVE FORCE.

1. A commissioner of health.
2. Six assistant commissioners, assigned as follows:
   - (*a*) Organization and legislation.
   - (*b*) Epidemics and endemics.
   - (*c*) Maritime quarantine.
   - (*d*) Vital and mortuary statistics.
   - (*e*) Laboratories—biologic, chemical and pathologic.
   - (*f*) Demography.

It will be observed that the scheme contemplates the creation by Congress of a national board of health, such board to be composed of delegates from the state boards. One delegate from each state board would, according to the biblical requirement already quoted, supply a sufficient "multitude of counsels" to guarantee safety, but at the same time would not form a body so large as to be unwieldy.

The delegates usually selected to represent the state boards would be men who had undergone more or less training in public health work in their respective states; therefore, they would be in a favorable position for grasping and dealing with the broad sanitary problems they would understand could be completely solved in no other way than by cooperation between the states. Indeed, this spirit of cooperation, inspired by a clear conception of the benefits to accrue therefrom, would so dominate the deliberations of the national board as to lead to practical and highly fruitful results, and in many directions.

Objection might be offered to the creation of a national board of health on the ground that the general government, being itself destitute of all public health power, could not endow a board with any public health power whatever. Accepting the theoretic and constitutional correctness of the objection, it yet remains that a national board of health could aid immensely in advancing the cause of sanitary progress.

The semi-annual meetings of such a board would constitute a great school for study and a great center for disseminating education.

The subjects discussed, the demonstrations made, and the data furnished at these meetings would yield a rich and ever-growing mass of scientific and practical information that could and would be applied to the prevention and extinction of diseases. Indeed, the recommendations of the board would soon acquire a moral force and power more imperious than statutes, state or national. As many of these recommendations would apply to municipalities, counties and states, they would be cordially accepted by the representatives of the states and carried home to be enforced by municipal ordinances or state laws. In this way and in many other ways the board, although clothed with advisory authority only, might set on foot and work out great sanitary reforms.

The good work need not stop here. The Constitution provides that compacts between the states may be made, such compacts corresponding with treaties between separate and independent nations. One of the functions of a national board of health would be, or should be, to study the public health relations existing between the states, and to formulate a code of rules for so regulating these relations as to diminish friction, reduce hardships, promote mutual protection, and, at the same time, not increase exposure to internal or external dangers. With such a code formulated, the states, or any number of them, would be competent, under the constitutional provision referred to, to form a compact and legally bind themselves to abide by the rules agreed on. In this way a national board of health could be the instrument of bringing about the enactment of public health and quarantine laws that would operate across state lines, a kind of legislative work that, in the absence of all public health power on the part of the federal government, can be accomplished in no other way.

Did time permit, other fields of usefulness for a national board of health could be pointed out, in which such board could materially advance the sanitary interests of the people of the entire country, and without at all encroaching on the reserved rights of the states.

The executive force proposed for a national board of health is to consist, as shown in the scheme, of a commissioner of health and six assistant commissioners, all of whom, for reasons corresponding with those assigned when discussing the organization of county and state boards, should be made elective by the board itself.

Time does not admit of comment on the duties of this executive force in detail. The commissioner would naturally be the chairman and chief executive officer of the board. The assistant commissioners would be assigned to specific fields of duty, indicated by the designations given them, respectively.

If provided with an arm—such as that urged—for doing public health work the national government would be in a position to render prompt and efficient aid, including both skill and money, to the states in times of pestilence and peril. Take a concrete example: Suppose the existence and extensive prevalence of a formidable disease—cholera for instance—in this city. The city health officer would be here to direct the battle against the disease; the state health officer, I take it, would come to his aid; and the two together would consult as to the measures to be employed for the extinguishment of the outbreak. Suppose, further, that in accordance with the scheme contended for an assistant national commissioner, to whom had been assigned the duty of looking after epidemics, should appear on the scene and offer his help and the financial aid of the general government; would either be declined, should either be declined? The unanimous and constitutional answer would be, no!

Although the hypothetical assistant commissioner would possess no legal authority in this city, yet as sanitary science knows no bounds, but is as wide as the world, any measures he might propose would, if deemed more efficient than those being employed, be gratefully accepted and promptly enforced, thus furnishing an illustration of how, according to the system proposed, city, state and national health officials could work side by side in overcoming a common enemy.

Another example: Two of the biggest and most vital public health questions now agitating the country and claiming the attention of Congress are interstate and maritime quarantine. The removal of friction and hardships as to the former, and the establishment of uniformity and efficiency as to the latter, are the solutions demanded, and properly so, by the profession and the people. All quarantines being either scientific or unscientific, that is, based on justifiable grounds or on panic and fear, some competent and cooperative authority should exist for prescribing the conditions under which a quarantine, either domestic or foreign, should be proclaimed. The members of such a national board of health as that suggested would, by virtue of their connection with the boards of their respective states, occupy positions peculiarly favorable for enabling them to systematize the entire subject of quarantine and to formulate a code of principles and rules that would place it on a scientific and humane basis. Grant that the national board would be without authority to enforce, after having formulated, such a quarantine code, yet if the members of that board should, by virtue of occupying a dual position, be able to secure the enforcement of the measures agreed on by their respective states, the end sought would be none the less certainly, because indirectly, achieved.

The same principle would apply to public health policies of every kind, that is, the state boards would usually accept and enforce the recommendations of a national board, in the councils of which their respective health officials were permitted to participate.

In truth, a national board would focalize the best thought on sanitary questions the entire country could evolve, and would in turn radiate that thought out again, crystallized into well-digested and practical measures for the protection of the health and lives of the people.

Viewing the proposed system in its entirety, it will be seen that, like a living organism, all of its parts would be interdependent and correlated, through which would circulate from center to circumference, and back again from circumference to center, the warm and nutritious blood of altruism, vitalizing, energizing and unifying all of the divisions of the system into one homogeneous and effective whole. With such a system in operation, municipalities, counties, states and the nation could unite their sanitary forces into one aggressive army and, marching under the banner of "preventive medicine," could make war on, and conquer, and destroy, disease in many of its strongest citadels.

The scheme presented is not a visionary one. In so far as it applies to counties and to states, it was conceived and substantially formulated nearly forty years ago by my lamented predecessor in office, Jerome Cochran, the most original thinker and the profoundest philosopher on professional and public health organization that this country or any other has ever produced.

More than thirty years ago the profession of my state accepted the system by adopting constitutions for county and state organization written by Cochran's own hand, which constitutions, with some modifications, stand today as enduring monuments to the foresight and wisdom of their author. Somewhat later the people of Alabama, through their legislature, accepted the principles of the system by embodying them in a code of public health laws.

Since the inauguration of the system just created, the great scourge of the tropics, yellow fever, has never been permitted to enter the country through Alabama's seaport, and four times within the past ten years when adjacent and neighboring states were sorely smitten by this scourge—their people dying or flying, their industries silenced, and the wheels of their commerce obstructed at many points—Alabama has been safely and serenely protected, her protection being the proudest trophy that could be laid on the tomb of Jerome Cochran.

The scope of "state medicine" is practically boundless. With a complete and cooperative public health system —one extending in logical continuity from counties to nation—the principles of sanitary science could be enforced and taught in every educational institution of the land, from the humblest rural school to the most renowned university, thus securing the sturdiest physical and broadest mental growth and development of which the youth of the country are susceptible; the foul atmospheres of overcrowded workshops could be kept fresh and pure, thereby supplying the toilers with an abundance of that life-giving element without which the best work can not be done; the strength of arms digging out mineral and metallic wealth deep down in the bowels of the earth could be upheld and reinforced; the hygienic rights of helpless victims paying the penalties of crimes in the prisons of the country could be guarded and defended; crowded counting houses, where busy brains are often forgetful of the needs of the body, could be rendered safe and salubrious; our soldiers and sailors could be protected from the ravages of diseases frequently more fatal than the carnage of battle; yea, the light and the teachings of modern sanitary science could illuminate and fortify every home of the land and, like a good angel, could turn away from happy families the untimely visits of the "pale messenger."

These and much more can state medicine do to place the standard of physical manhood and womanhood on a higher, purer and better plane.

SANITATION IN THE CANAL ZONE.*

W. C. GORGAS, M.D.
Colonel and Assistant Surgeon-General U. S. Army; Chief Sanitary Officer, Canal Zone.
ANCON, CANAL ZONE.

Being a working doctor and one not accustomed to addressing audiences, I must ask your indulgence in making the attempt. Indeed, I would never have thought of making this address, except that your dean, Dr. Polk, assured me that some account of our sanitary work at Panama would be acceptable. And I can see that an outline of the sanitary work at Panama might be of use to men just being graduated into our profession, as an illustration of a new avenue of useful work in the way of tropical sanitation that has developed in the last eight or ten years.

Great advances have been made in this line of work in that period, due to important discoveries made just prior to that time, and the English and Americans have done a great deal of useful work in sanitation in their tropical colonial possessions. The discovery that the bite of a certain species of mosquito is the only means of transmitting yellow fever has enabled our sanitary workers in the tropics greatly to improve the health conditions of the whites who are necessarily employed there.

When we took possession of Cuba in 1898, the great sanitary problem was the control of yellow fever. The disovery made in 1901 by the Army Medical Board, composed of Drs. Reed, Carroll, Lazear and Agramonte, after we had been in Cuba about two years, enabled the sanitary authorities to rid that island of yellow fever. The island remained free for three years. I must not neglect to say that Dr. Coles Finlary had deduced the theory that the *Stegomyia* conveyed yellow fever, and he had in many papers steadily maintained that theory since 1881.

The government was then turned over to the Cubans, political discussions arose, governmental administration became more or less lax, and yellow fever reappeared. Last year the United States again assumed control; the same sanitary methods were reapplied and yellow fever has again disappeared. It is now generally recognized that yellow fever can be controlled by sanitary measures based on the knowledge that the *Stegomyia* mosquito alone conveys this disease. This has been demonstrated a number of times in various parts of the western hemisphere.

The control of yellow fever in Cuba was important, not alone for the protection of our own people down there, but more for the protection of the United States against this disease. Cuba is so situated commercially with regard to our gulf coast that, as long as she was infected with yellow fever, she was a constant menace to our gulf states, and to the United States generally, and she actually did give us yellow fever many times. This ability to control yellow fever by simple and inexpensive measures attracted a great deal of attention. After the announcement by the army board of the discovery they had made, our sanitary work in Havana had to be entirely reorganized, in order to adapt it to the conditions made evident by this discovery. It was, of course, of vital importance to us, and after much thought and discussion we evolved plans looking to the carrying out of three classes of work.

First, the rendering of all non-immunes immune by giving them a light attack of yellow fever. In a population such as Havana has, you know the native is not liable to yellow fever, and is spoken of as being immune. The stranger is the only one liable to this disease, and is known as a non-immune.

Second, the destruction of all *Stegomyia* mosquitoes that had, by biting yellow fever patients, become infected with yellow fever.

Third, the destruction of all *Stegomyia* mosquitoes.

We were agreed that the first method—that of rendering non-immunes immune—was the one that would most probably lead to success. After a fair trial, however, we convinced ourselves that yellow fever given intentionally by the bite of a mosquito could not with certainty be controlled, and that if this method was used on a sufficiently large scale to render the non-immune population immune it would cause a considerable number of deaths. We were not warranted, therefore, in pushing this branch of the work.

When we left Cuba after the disappearance of yellow fever, we were inclined to think that results had been obtained principally by the destruction of the infected *Stegomyia*, but further experience at Panama has convinced me that the important element is the destruction of the *Stegomyia* generally. I merely mention this as showing how practical work and experience entirely change well-grounded theories.

We took possession of the canal at Panama in the spring of 1904. The experience of our predecessors, who had built the railroad and attempted to build the canal, was ample to convince us that unless we could protect our force against yellow fever and malaria we

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[*] Address to the graduating class, 1907, in the Cornell University Medical College.

would be unable to accomplish the work. Such sanitary measures, then, as would control these two diseases, were the necessary preliminaries toward starting the construction of the canal. From the former records of the work there, we could see that if we could control these two diseases we could keep our forces in about as good condition as if they were at work in the United States. The conditions on the isthmus were radically different from those in Havana. At Panama we have the canal stretching north and south for fifty miles, with good-sized towns, Panama and Colon, at each end. About half of the population of the zone is concentrated in these two towns, and the other half, consisting principally of laborers, is scattered along the fifty miles of canal. From our experience in Cuba, we could see that the question of yellow fever pertained to these two towns, and was much the same problem as we had faced in Havana. We knew that if we could rid these two towns of yellow fever the laboring forces living in the country districts along the canal would very easily be freed from infection, but the question of protecting from malaria this force of 40,000 people scattered along the line of the canal through a country district was something with which, so far, we had had no experience.

I shall not discuss the work of the sanitary department generally, but just that directly pertaining to the control of malaria and yellow fever. About three-fourths of the expenditures of the sanitary department have no very intimate relation to the control of these diseases, but pertain to the care of the sick, disposal of night soil, disposal of garbage, examination of food supplies, and kindred matters pertaining to general conditions. We concentrated our energies at first on the question of yellow fever, though the work along all lines was pushed as much as possible. We took possession of the canal zone in May, 1904, and the last case of yellow fever occurred in December, 1905; that is, it took us about sixteen months to get rid of yellow fever. In Havana, we commenced special yellow fever work in September of the same year; that is, it took us seven months to get rid of the disease. I was chagrined and disappointed at this lack of as prompt results at Panama as I had expected and hoped for.

During 1905, while we were having yellow fever, our force on the isthmus was much demoralized thereby. It was difficult to get men to come down, and when they did come they were generally panic stricken and left us. This fear affected all ranks of employés from the highest to the lowest, and, while there were hundreds of exceptions and plenty of plucky men who were not affected by the prevailing panic, we could readily see that if the conditions as they existed in 1905 were to continue the canal would never be finished. I think I can look back now and plainly see the causes that prevented our work from being as prompt at Panama as it had been at Havana.

At Havana we were under military rule, with only one man, the governor general, to consult, and this man, fortunately for us, one who had had years of training as a doctor and who was thoroughly competent to judge fairly all sanitary matters—General Wood. The sanitary department had been established in Havana and had been running some two years when the yellow fever work was commenced. The department was, therefore, thoroughly organized in all its branches, and it took simply an order from the central office to turn all its energies in any given direction.

In Panama there was an absence of all these conditions. The authority was not so concentrated, and the department had to be built up from the beginning, with an entire lack of personnel and supplies of all kinds and the machinery for getting them, and, in addition, we were seven days' sail from our base of supplies. We foresaw these conditions to a considerable extent when we started and endeavored to meet them as far as possible.

From our experience in Havana we had concluded that the principal element in our success there was the destruction of the infected mosquitoes, not laying enough stress on the important part played by the destruction of the non-infected *Stegomyia* mosquitoes, which was pushed along at the same time. We hoped that in small areas, such as were covered by the cities of Panama and Colon, in a few months we could kill off all the infected mosquitoes, but we found that this was not successful. With the myriads of *Stegomyia* breeding everywhere in these towns, many mosquitoes would become infected from every man sick with yellow fever, and that a certain number of these mosquitoes would always escape our fumigating brigades. It would be impossible to fumigate more extensively than we did in the city of Panama in 1905. We had about four hundred men engaged in this work, and they went over the whole town three times, fumigating every house in the town, besides fumigating every block each time a case of yellow fever occurred in that block. In this work we used something like 200,000 pounds of pyrethrum and 400,000 pounds of sulphur, besides a large quantity of other fumigating materials.

The mosquito work consists in doing away with all breeding places of the *Stegomyia calopus;* that is, screening and covering every water receptacle in the city so that mosquitoes can not breed. Such work necessarily takes time to show results, and it was well on into 1905 before the *Stegomyia* were so decreased in numbers as to allow our fumigating processes to be effective.

Malaria being transmitted by the *Anopheles* mosquito, we endeavored to stamp out this disease by entirely different methods. The *Anopheles* breeds in clean water where grass and algæ grow; it is, therefore, a mosquito almost altogether of country districts. It is not much of a traveler, in general not flying further than one or two hundred yards. Therefore, if we could destroy its breeding places within two hundred yards of our camps and villages we would have protection for our laborers along the line of the canal. We did not attempt to do anything with the swamps and breeding places which were at a greater distance than this from the camps and villages and dwelling houses.

At the same time we screened all houses with wire netting, urged the people generally to use mosquito bars, explaining the object to them, and also furnished quinin, advising that three grains be taken every day. This was done with the expectation of having the men in such condition that the parasite of malaria would not thrive in the blood when introduced. By far the most important of these measures is that of destroying the breeding places, and this is successfully done by surface and subsoil drainage. This greatly decreased the number of breeding places, but with our tremendous rainfall and luxuriant tropical vegetation the ditches themselves would gradually fill with grass and would have to be cleaned out about every two weeks to keep them useful and to keep the mosquitoes from breeding in them. This was a heavy expense. We found it very much cheaper to concrete the ditches, so that the grass would not grow.

We are now subsoiling wherever we can. This seems to be the ideal method of *Anopheles* extinction. The title drain is put in, covered with broken rock, and, if desired, this is covered with soil. This leaves a perfectly smooth surface, dry, and giving no opportunity whatever for the mosquitoes to breed. Even with a concrete ditch it requires considerable work to keep it swept out so that small pools will not form where mosquitoes may breed.

We think now that we have successfully accomplished the objects with which we started in three years ago—the control of yellow fever and malaria. We have had no yellow fever anywhere on the isthmus for more than a year. We believe that in the towns of Panama and Colon the *Stegomyia* have been reduced in numbers, in fact, almost exterminated, that yellow fever would not spread if introduced. We, however, maintain a rigid quarantine against the infected points around us and thus endeavor to prevent the introduction of infection.

Malaria has been so controlled that the sick rate of our total force in the month of April, 1907, was less than seventeen per thousand; that is, out of every thousand men at work on the canal we had on an average during the month only seventeen sick in hospitals each day. Among 6,000 Americans in the employ of the commission, including some 1,200 American women and children, the families of these employés, we have but little sickness of any kind, and their general appearance is fully as vigorous and robust as that of the same number of people in the United States.

During the year 1906 our death rate from disease among American employés was less than four per thousand. We believe that we have demonstrated that the tropical diseases, yellow fever and malaria, can be entirely controlled in the Canal Zone, and will not interfere with the construction of the canal. Of course, other problems may arise, in fact have arisen, but they are not of such a character as to interfere materially with the work.

For the last sixteen months pneumonia has been very fatal among our negro laborers, being confined almost entirely to this class of labor. It affects the whites very seldom. The disease seems to be on the decline now, and I look on it as epidemic in character, a good deal as it occurs in New York and Chicago. We are endeavoring to meet this by making the general sanitary conditions of our laborers better with regard to food, clothing, and so forth.

I am inclined to think that the advances made in recent years in tropical sanitation will have a much wider and more far-reaching effect than freeing Havana of yellow fever or enabling us to build the Panama Canal. I think the sanitarian can now show that any population coming into the tropics can protect itself against these two diseases by measures that are both simple and inexpensive; that with these two diseases eliminated life in the tropics for the Anglo-Saxon will be more healthful than in the temperate zones; that gradually, within the next two or three centuries, tropical countries, which offer a much greater return for man's labor than do the temperate zones, will be settled up by the white races, and that again the centers of wealth, civilization and population will be in the tropics, as they were in the dawn of man's history, rather than in the temperate zones, as at present.

Original Articles

DIGESTIVE DISORDERS IN PULMONARY TUBERCULOSIS.*

JAMES R. ARNEILL, M.D.
DENVER.

During the past ten years I have been greatly interested in enteroptosis and have been on the lookout for this condition in my patients of all classes. The frequency of this anatomic peculiarity in slender patients, suffering with malnutrition, psycho-neuroses and tuberculosis, is decidedly impressive. Most examinations of tuberculous patients do not include an examination of the abdomen. If one palpates carefully for the kidneys, Stiller's sign, and the contracted colon; tests the succussion sounds in the stomach, or inflates it and the large intestines, he will find in a surprising number of cases evidence of enteroptosis. Woods Hutchison remarks that those people who are unusually tall are apt to develop tuberculosis. To my notion, it isn't a question of tallness alone, but of tallness combined with slenderness. Such people are very frequently enteroptotic and are decidedly prone to suffer with malnutrition, psycho-neuroses and all sorts of functional disorders of the stomach and bowels. They are usually below par and anemic, always ailing and taking tonics, and eternally suffering with digestive complaints and a bizarre collection of nervous disorders. A great many of our tuberculous patients are duplicates of these ill-nourished, anemic, psycho-neurotic, constipated, mucous colitic, dyspeptic, enteroptotic wrecks, except that in addition there are present a few symptoms dependent on the diseased lung, such as fever, cough and expectoration. The treatment most effective in one is often very useful in the other. This consists essentially of fresh air, absolute rest in some, extremely generous feeding, attention to the skin and bowels, optimistic suggestion, and isolation, modified isolation, or diversion and exercise. In many cases it will be wise to employ medicine, such as increasing doses of tincture of nux vomica up to forty or fifty drops three times daily before meals, iron in the form of Blaud's mass, arsenic, sometimes hydrochloric acid, and at other times alkalies, etc. These patients are often suffering from the effects of starvation. Eliminating one article of food after another, they finally limit themselves to toast and tea or malted milk.

The chemistry of the stomach may be normal, or it may show a hypo- or hyperchlorhydria, or may vary from day to day. The mucous membrane is likely to be hypersensitive; in fact, the entire nervous system is usually oversensitive. There may be diminished motility of the stomach. This class of cases is usually helped by Eddyism or psychotherapy; optimistic suggestion and persuasion should occupy a prominent place in the treatment, to dissipate the various phobias. If need be, analyze the stomach contents in order to assure the patient that she is able to digest a generous diet and that only her fears prevent her doing so. Considerable distress may be present at first, but if she grins and bears it, presently, as a result of improved nutrition, the motor and secretory powers of the digestive organs increase, constipation is relieved, nerve tone improves, the nervous system becomes decidedly less sensitive, the vicious circle is broken up and the invalid gets well. In the consumptive the cure must be prolonged and modified to meet conditions as they arise. Frequently a change of surroundings will accomplish all this.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Case 1.—An enteroptotic young woman, extremely neurotic, with a small healed lesion in the right apex, and a healed tuberculous hip, was seen in consultation in the Boulder Sanitarium. She had a markedly prolapsed stomach, suffered with frequent retention of food, complete loss of appetite, and greatly diminished digestive power (achlorhydria). A large quantity of albumin but no casts were found in the urine. There was marked emaciation; she was practically a bedridden, nervous wreck. A nurse was in constant attendance. She had been in Boulder for two years. It was deemed wise to send her to the Oakes Home, Denver. As a result of the change and the use of the Rose bandage, she began to improve almost immediately. She became decidedly less nervous, the stomach seldom bothered her, the appetite improved, and she gained twenty pounds in weight, and enjoyed good health. This continued for some months, when she again became psychoneurotic. Beginning to have frequent attacks of digestive disorders, with cough, slight fever, loss of appetite, loss of weight, again she became a nervous wreck as before. It seemed wise to try another change, so she was sent to Colorado Springs. Again, in a few weeks, she showed marvelous improvement; appetite improved, bowels became regular, digestion excellent, cough disappeared, stomach emptied itself, and the patient gained twenty-five pounds in weight, and felt better than she had done in years.

Notwithstanding the remarkable work done along the line of opsonic therapy, our sheet anchor in the cure of tuberculosis must be the nutrition of the patient. Here nutrition is meant to include resisting power and antibacterial power. Gain in weight and increase in adiposity are only a part of nutrition. Rest, exercise and fresh air and change of climate to higher altitudes are all of value because they increase appetite and oxidation. They give the patient the capacity to assimilate large quantities of food, increase his nutrition and thus his resisting power to the disease. Tuberculin is of value only when it increases the antibacterial power of the patients' tissues. It can never take the place of hygienic and digestive measures, but should simply supplement them, if it seems wise to use it. All medication which persistently interferes with appetite, elimination and assimilation, must necessarily do harm. Symptomatic medication is often pernicious. Probably more harm than good has been done with medicine in the treatment of this disease. However, when used judiciously as a supplement to hygienic measures, untold benefit has resulted.

The treatment of a case should be instituted on broad lines, its object being to get at the underlying causes of the trouble and to improve nutrition. One should hew to these lines with tenacity and vigor, seldom yielding to the siren voice of the innumerable symptoms which are begging for relief.

Because of the vital importance of nutrition in combating the disease it is essential that we get as much good work as possible out of the digestive organs; consequently if digestive disturbances are present they should be corrected. Likewise we should attempt to forestall their development. It is remarkable how seldom in our routine work among consumptives, both in private and sanitarium practice, careful investigation and study of digestive conditions are carried on.

Analyses of stomach contents, study of the motor power, size and position of the stomach, the careful study of the stools following or independent of test diets, have been made chiefly in hospitals by investigators who are doing original research work, not by the practitioner for the purpose of helping him treat his cases. Yet if the careful investigation of digestive conditions is of importance in the average dyspeptic, it is of even more value in the consumptive dyspeptic.

It is remarkable, however, that we do not have more digestive disturbances in this disease, when one considers the combination of over-feeding, under-exercise, fever and the various evidences of toxemia present in the consumptive. But with a high temperature he often consumes and digests, without discomfort, three large meals and several small ones each twenty-four hours.

The average case of indigestion in the consumptive can be successfully treated along symptomatic lines. Bitter tonics, hydrochloric acid and ferments, alkalies and antifermentatives are used as the symptoms indicate. Occasionally one will find it of decided advantage to give test meals, analyze them and study the motor power of the stomach and the position of the stomach and bowels. During the past three years and eight months I have analyzed the stomach contents in only thirteen of two hundred and thirty private cases of tuberculosis. It is very seldom, indeed, that I have occasion to practice lavage.

In the majority of cases requiring treatment I have been guided by the symptoms and by the experience of numerous workers in this field. In advanced tuberculosis one habitually prescribes hydrochloric acid and ferments because numerous analyses have shown them to be usually absent or reduced. Occasionally one is absolutely wrong in his guess, learning that what he supposed to be a hypochlorhydria with fermentation was a hyperchlorhydria.

In a general way, my results correspond with those of previous investigations, namely, that in incipient tuberculosis the chemism is about the same as in the average person, either normal or hyper or occasionally hypo.

In cases of moderate advancement there is a tendency to hypochlorhydria, though we may find some cases of hyperchlorhydria.

In advanced cases there is usually diminished or absent hydrochloric acid and pepsin, with diminished motor power.

1. Miss G., incipient case, healed, enteroptotic, psychoneurotic, with hypertrophied rectal valves. Free HCl, 0; total acidity, 33.

2. Mrs. W., slight involvement of long standing, enteroptotic, psychoneurotic, suspected hypochlorhydria, but found free HCl, 32; total acidity, 56.

3. Miss P., incipient and quiescent, enteroptotic, psychoneurotic. Free HCl, 24; total acidity, 50. Greatly helped by Rose bandage.

4. Mr. W., incipient, healed; free HCl, 28; total acidity, 50.

5. Mr. W., advanced, hopeless. Free HCl, 10; total acidity, 20. Diminished motility. This patient had a mass in appendix region.

6. Mrs. R., incipient, healed; enteroptotic and extremely neurotic. Free HCl, 50; total acidity, 200.

7. Mr. F., enteroptotic, moderate severity, relapsed after a number of years. Free HCl, 32; total acidity, 54.

8. Mr. F., incipient, healed, gastroptosis. Free HCl, 42; total acidity, 88.

9. Miss E., moderately advanced. Free HCl, 10; total acidity, 60. Persistent diarrhea; stools showed tubercle bacilli; bandage worn. Died a few months later.

10. Mrs. K., moderately advanced; marked enteroptosis. Free HCl, 20; total acidity, 36.5. Persistent diarrhea and stools showed tubercle bacilli.

11. Mrs. B., incipient. Free HCl. 50; total acidity, 70.

12. Mr. L., healed, incipient; markedly neurotic; probably

gastric ulcer. Free HCl, 26; total acidity, 68. Riegel test dinner, free HCl, 20; total acidity, 90.

13. Miss D., healed; markedly enteroptotic and psychoneurotic. At times greatly diminished motor power, and four different analyses showed absence of free HCl and hypopepsia. Greatly relieved by Rose bandage.

Of the thirteen patients whose stomach contents were analyzed one or more times, nine had incipient or arrested tuberculosis. Of these seven showed a hyperchlorhydria and two showed an achlorhydria. One moderately advanced case showed normal findings and one a hyperchlorhydria. Two advanced cases showed a hypochlorhydria.

The fact that the motor power is often diminished in advanced cases and in some incipient ones is an argument against giving frequent large meals to these particular patients. The stomach must have an opportunity to empty itself and to rest.

I have found the application of adhesive plaster bandages, according to the methods of Rose or Rosewater, at times extremely useful in enteroptotic cases, with diminished motor power and associated constipation or diarrhea. Patients, however, tire of wearing the adhesive bandages; frequently they can be discarded following improvement or recovery. In case such a support is needed for many months or years Glenard's La-Nea corset belt will be found very useful and convenient.

The following case illustrates the importance of a careful stool examination in diarrheas of tuberculous patients:

Subsequent to marked improvement in a closed sanitarium a patient developed serious gastrointestinal symptoms. There was loss of appetite and persistent diarrhea, with blood and mucus in the stools. The patient had passed from my hands long before this and his physicians made a tentative diagnosis of tuberculous enteritis. Cachexia and malnutrition developed, and the lung lesions became active. The case looked hopeless. By accident the patient discovered the segments of a tapeworm in his stool. Following treatment the parasite was expelled *in toto*; all untoward symptoms speedily disappeared and in a few months the patient more than regained all lost ground, and now is in excellent condition.

Occasionally our tuberculous patients must be operated on for appendicitis, cholecystitis and pyloric obstruction with dilated stomach. Such timely surgical intervention may be the means of turning the tide toward eventful recovery. If time permitted, illustrative cases could be cited.

The dangers of forced feeding are overemphasized by many. That there are real dangers, however, can not be denied.

The production of indigestion and bilious or autointoxication attacks is a frequent sequel. Pathologic obesity occasionally results. Both conditions are fraught with risks for the consumptive. The dangers of indigestion are apparent, as with a single attack the patients may retrograde much in pounds and general nutrition and a quiescent lesion may as a result be stirred into activity.

The dangers of obesity are not so evident, as with many it is thought to be the end and aim of treatment.

The motto of the physician should be to persevere in hyperalimentation till the nutrition has reached an eminently satisfactory point—at the same time guarding against the production of indigestion and pathologic obesity, with its attendant fatty heart and diminished functional capacity.

Bona fide opsonic therapy is possible for an extremely small per cent. of the vast army of consumptives, but tuberculin therapy—controlled by clinical standards and not by the tuberculo-opsonic index—is possible for a large per cent. of cases, and may prove a wonderful boon to the poor.

Let us have early diagnosis (a very rare thing) and then our simple methods of rest, controlled exercise, fresh air and generous diet will prove successful for most patients, to whom these measures are possible.

In the language of Bruce: "Do not sacrifice nutrition for the temporary advantage of relief from distress."

"The successful treatment of tuberculosis chiefly depends on intelligent guidance of spontaneous resistance and recovery."

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

DOES THE OPACITY OF INCIPIENT CATARACT EVER REGAIN TRANSPARENCY?*

LEARTUS CONNOR, A.B., M.D.
DETROIT.

Our problem is not the mere restoration of vision in a cataractous eye, as this may occur from absorption of the cortex or in traumatic opacity; nor is it the clearing of a diffuse cloudiness of the lens, as this has been observed to follow correction of eyestrain. It is rather the partial or complete transformation of opaque striæ with diffuse opacity into clear lens. Such opacities are seen in the lenses of individuals past middle life, and in some cases are associated with such general diseases as diabetes, Bright's disease, syphilis, and arteriosclerosis; some with uncorrected refractive defects, and others with as yet undefined conditions.

Progress, in the non-surgical management of incipient cataract, calls for the settlement of two questions:

First. Do the opaque striæ of incipient cataract ever become transformed into transparent lens?

Second. What are the conditions under which transformation occurs?

If the striated opacity of incipient cataract ever becomes transparent it will do so again under the same conditions and a basis be established for intelligent management of such cases. As yet we know little of the conditions associated with the development of senile cataract and less still of those attending its transformation into clear lens; both conditions are closely related to lens nutrition, and may be either within the eye or outside. Those within, like chorioiditis, may defile the lymph by which the lens is nourished, or disturb the action of capsule cells or lens fibers; or derange the intraocular circulation of blood and lymph. Those without either disturb the quality or quantity of blood and lymph currents to and from the eyeball, or the innervation, as in diabetes, renal disease, and arteriosclerosis. In the cases reported, attention was constantly given to the study of these etiologic factors and best results were noted in the replies of such correspondents as worked along similar lines.

Dr. S. D. Risley's papers in the *University Medical Magazine*, 1889, and Transactions of this Section in 1891, clearly show the close association of incipient cataract with a low grade of chorioiditis and refractive defects. The correction of the latter markedly relieved the intraocular and extraocular disturbances save the lens striæ. Hence, Dr. Risley proved that in some cases eyestrain caused chorioiditis, and this in turn incipient cataract, a most helpful generalization. But the striæ still remained. Can nothing be done for them in their early incipiency? Must they continue to multiply till the changes in the lens permit of extraction?

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

These queries led me to note the lens appearance in incipient cataract with more care than formerly and to add, to the word record, coarse diagrams of the lens striæ, their position, length, number, relationship to each other, diffuse opacity, dots, etc.

These records, taken at intervals of months or years, made evident any considerable change in the striæ and their relationships. After a time I observed a diminution of stria and finally it faded away, a most unexpected phenomena. What I had previously regarded as impossible had actually taken place under circumstances that precluded doubt.

Later a similar change was noted in another case and another till the list increased to six, brief abstracts of which are given, so far as related to the question before us.

To this list I have added a case of diabetic cataract, because the physician who first saw it said that it exhibited the striated form of incipient cataract, though the striæ were obliterated before the patient came under my observation. In these abstracts of cases the time limit compels the omission of all history of clinical conditions under which the lens capacity developed or the changed conditions under which the lens regained transparency.

Case 1.—Mrs. R. M., Adrian, Mich., a widow, aged 50, was referred to me by Dr. J. H. Reynolds for defective vision on Feb. 10, 1891. She was fleshy, of a nervous temperament and troubled with indefinite intestinal disorders. She complained of smarting, blurring and itching on using her eyes. Moderate blepharitis and conjunctivitis were present.

Treatment.—Ophthalmoscopic examination was negative except for the usual appearances of hyperopia. Vision of each eye was 8/200 increased to 20/30 by plus D. 2.00 S.; and Jaeger 1, with plus D. 5.50 s. in right and plus D. 6.00 s. in left eye.

Subsequent History.—On Oct. 17, 1896, she returned saying that recently the old discomfort in her eyes had returned. Her vision was 10/200 in each eye increased to 20/30 by plus D. 3.50 S.; and Jaeger 1, by plus D. 6.50 S. in each eye.

Oct. 13, 1905: Nine years after the previous visit, she again returned complaining of eye distress and saying that it had existed several months. His vision was now 12/200 in each eye increased to 20/30 by plus D. 4.50 S. in right and plus D. 4.00 S. in left eye. A new feature presented itself by oblique illumination and ophthalmoscopic study, viz., dark striæ in each lens. In the right lens they reached from the inner border almost across the pupil area; the left lens presented two similar striæ in the corresponding position. All striæ were shaded into clear lens by translucent opacity. Diagrams were made of these striæ as well as word description.

Oct. 4, 1906: Nearly one year later, no trace of these striæ could be detected by either the ophthalmoscope or oblique illumination. The regaining of transparency by the lenses had been perfect. Her vision was now 20/200 with either eye; increased to 20/20 by glasses ordered in 1905, Jaeger 1 was easily read by reading glasses of the previous year. During the fifteen years she was under observation vision increased from 8/200 to 20/200; with correcting glasses from 20/30 to 20/20. This latter change occurred during the year in which the striæ vanished.

Thus the net result was the yielding of lens striæ in both lenses to transparency and the gaining of normal vision for distance, as well as in reading, by proper glasses.

Case 2.—Mrs. D. C., aged 60, was first seen June 20, 1898, for failing vision. She was a widow, fleshy and a chronic sufferer from so-called rheumatism and intestinal disorder. Vision of each eye was 20/200, increased to 20/50 by plus D. 1.50 S.; Jaeger 1, with plus D. 3.50 S.

Examination.—Ophthalmoscopic examination showed a dark stria quite crossing the right lens almost vertically and seven shorter striæ extending from the lower and inner border of the lens almost to its center. In the left lens was seen a large stria extending from upper to lower border of the lens slightly inclined from the vertical, and six smaller striæ beginning at the lower and inner border of the lens and reaching near the center of the lens. Considerable haziness connected the striæ with each other and adjacent clear lens. Rough drawings of these appearances were made on the record, in connection with the written description.

Subsequent History.—About twice a year these eyes were restudied and descriptions and drawings made of the lens appearances. These show a general diminution of the striæ and associated opacity, so that on March 4, 1907, there was no trace of the long stria in the left lens, and only the extreme lower end of one of the shorter ones could be seen by turning the eye downward and inward. In the right lens one long stria had entirely disappeared, and another all but a trace; of the thirteen smaller striæ only the lower extremities of three remained, ten having entirely disappeared. On same date V. O. D. with glasses was 20/40 plus one and Jaeger No. 1; V. O. S. with glasses was 20/30 and Jaeger 1.

Though this patient was kept under conditions favoring the nutrition of the lens, there was no expectation of securing more than a retardation of the growth of the lens opacity. Hence the evidence that the striæ actually had changed into clear lens was a surprise. Especially startling was the disappearance of the large stria in the left lens during the first year. The other changes were less rapid.

Case 3.—Mrs. L. N., aged 65, on Oct. 20, 1903, sought relief from failing vision. She was a widow, slender, of nervous temperament and long a sufferer from chronic intestinal disorders.

Examination.—Vision of each eye was 20/100; the right increased to 20/70 plus D. 1.00 S.; the left to 20/30 by plus D. 1.50 S. She could read Jaeger 1, right with plus D. 4.00 S.; left with plus D. 4.50 S. The right lens showed six long striæ reaching from the lower and outer border much beyond the center of the pupil. Numerous other short striæ filled much of the space between the longer striæ, and shading all was a diffuse haziness. The left lens exhibited four striæ extending from the outer and lower border to near the center of the lens, adjacent to which were numerous minute dots and diffuse opacity.

Subsequent History.—She was restudied two or three times yearly, and the conditions of improved lens nutrition were adjusted with care. On Jan. 4, 1907, at the end of a little more than three years, her condition was: Vision right eye, 20/200; with glass, 20/100. Vision left eye, 20/100, increased to 20/20 and Jaeger 1, with glasses. In the right lens two of the six striæ had vanished, but the other four had increased, as also the irregular dots and diffuse opacity. In the left lens the four striæ had disappeared, except the lower third of one stria, which was only to be seen with difficulty; the diffuse opacity and dots had vanished, leaving practically a clear lens.

Remarks.—Thus the net results of three years was an increase in the opacity in the right lens, but practical clearing of the left.

Case 4.—On July 24, 1906, Mrs. M. A. C., aged 68, sought relief from failing sight. She was a widow, stout and subject to rheumatism and intestinal infections. About three months before consulting me she had noted difficulty in seeing, and a couple of days previous a curving of straight lines with the right eye.

Examination.—Vision of right eye was 20/200, increased to 20/70 by plus D. 1.00 C., axis ninety degrees and plus D. 0.75 S. Vision of left eye was 20/50, increased to 20/40 with plus D. 0.75 C., axis sixty degrees and minus half a diopter sphere. Plus three and one-half diopter sphere added to the cylinders in the right eye gave vision Jaeger 6; in left Jaeger

1. A recent chorioiditis was noted in the right fundus. The right lens exhibited seven small striæ reaching from the lens border below to near the center, and three from above. In the left lens were two small striæ from the lower border of the lens to near the center. About the striæ in each lens were a few dots and a considerable diffuse opacity. A drawing of these was added to the word description.

Dec. 11, 1906: The vision of the right eye was 20/40 and left 20/30 without glasses. The right fundus lesion was less troublesome. The striæ in the right lens were diminished more than two-thirds; in the left more than three-fourths.

Net result of about four months was: Striæ in right lens diminished two-thirds; in left, three-fourths.

CASE 5.—On Oct. 17, 1906, Mrs. S. E. M., aged 57, Elmira, N. Y., sought relief from failing vision. She was a widow, large, fleshy, and long a sufferer from intestinal disorders.

Examination.—Vision of each eye was 20/70, increased to 20/50 by correcting glasses for a slight hyperopic astigmatism, with the rule. The right lens presented a long stria, crossing it vertically, with adjacent cloudiness. The left lens showed a stria crossing it with the top slightly inclined to the left; both striæ were shaded by considerable cloudiness.

Subsequent History.—On Nov. 29, 1906, a little more than a month after the first visit, vision of each eye was 20/30 minus two letters without glasses; 20/30 plus three, with correcting cylinders in right eye one and one-quarter, against the rule. left eye, three-quarter diopter with the rule. A comparison of the diagrams made on the two dates showed that the stria of the right lens had disappeared, and in the left greatly diminished.

CASE 6.—On Feb. 26, 1907, Mrs. S. M., a widow, aged 58, sought relief from distress on using her eyes.

Examination.—V. R. E. was 20/70 and was not materially increased by correcting the mixed astigmatism. V. L. E. was 20/50, increased to 20/40 by correcting the mixed astigmatism. With each eye she was able to read only Jaeger 14; with correction of refraction she could only read Jaeger 4. A careful study of the lenses, by oblique illumination and the ophthalmoscope showed in the right lens an opacity from below upward to the center of the lens, containing five large striæ and between them five smaller striæ. In the left lens were one large stria and four smaller ones.

Subsequent History.—Diagrams and descriptions were made of these, and on March 14 new observations showed that the following changes had taken place:

Right lens had lost four large striæ and three small ones, the remaining ones being far less pronounced. The left lens showed that two of the smaller striæ had vanished. Vision of R. E. had changed from 20/70 to 20/30; vision of left eye from 20/50 to 20/30 plus four letters; right eye Jaeger 2, and left eye Jaeger 1 with corrected refraction.

CASE 7.—On April 23, 1877, H. R., Jackson, Mich., aged 45, was referred to me by the late Dr. J. A. Brown, for blindness. He was large and fleshy, had always been a voracious eater, and took little exercise. About a month before coming to me his physician had detected diabetes, and shortly thereafter the patient's sight failed rapidly, until he was only able to distinguish light from darkness. There was no red reflex, only a bluish gray lens to be seen by either oblique illumination or the ophthalmoscope. His physician said that the lenses were markedly striated when first observed.

After three months' treatment a second examination showed a perfectly clear lens in each eye, with normal fundus. His physician afterward told me that he faithfully followed directions and retained perfect sight until his death a few years later from pneumonia.

Thus in six cases of striated incipient cataract five lenses became quite transparent, one lens lost seven striæ, one lens lost two striæ, one lens retained a trace of a stria, in two lenses the striæ had diminished two-thirds, one lens became slightly opaque, and one more opaque. In the diabetic case both lenses became transparent and remained so till the patient's death.

In all cases the lens opacity was in its earlier stage, and so more was to be hoped from a radical change of its nutritive conditions. The patients were tractable and both able and willing to adjust themselves to prescribed conditions.

As these observations were out of the ordinary, on Dec. 19, 1906, a letter of inquiry was sent to a number of ophthalmic surgeons asking if they had seen "the opacity of incipient cataract regain transparency," attention being directed to the presence of striæ in the opacity. To this were received fifty-five negative answers; fifty-seven negative with comments, and thirty-four affirmative replies.

The replies are given in three groups:

First. Those reporting cases of opacity with opaque striæ in lenses that regained transparency, in whole or part.

Second. Those reporting cases of opacity of the lens in which the lens regained transparency—striæ not being mentioned.

Third. Those reporting cases of partial restoration of lens transparency.

It is regretted that lack of space forbids giving the verbatim answer of each correspondent, as such answers form a suggestive photograph of ophthalmologic thought on this question:

CASES OF INCIPIENT CATARACT WITH STRIÆ THAT REGAINED TRANSPARENCY.

CHARLES A. OLIVER, Philadelphia, three cases.

GEORGE F. SUKER, Chicago, two cases.

J. ELLIOT COLBURN, Chicago, seven cases.

H. V. WÜRDEMANN, Milwaukee, Wis., three cases (two entirely, one partially).

As samples of the group, the following are given in the writers' own language:

J. W. WRIGHT, Columbus, Ohio, says: "I have seen one case of incipient cataract regain transparency. In 1886 I examined the right eye of Mr. W., aged 74, for defective vision, and found a well-marked median cataract (incipient) with striæ also well marked, branching out in different directions. In about two years I again saw the patient when the lens had again regained transparency, and there was not the very least indication with a minute ophthalmoscopic examination that the lens had in any manner ever been affected. No treatment had been used."

G. ORAM RING, Philadelphia, says: "As regards the disappearance of the striæ of incipient cataract, I have only seen one case in which I could positively demonstrate an absolute disappearance of all the opacity. This case was seen about ten years ago and occurred in a lady about 40 years of age, who had a pronounced neuroretinitis, the summit of each disc being swollen to about 6. D. The vision sank from practically normal to the mere ability to count fingers at a few inches from the eyes. . . . Dr. W. F. Norris . . . saw the case in consultation with me. In expressing his opinion regarding the prognosis, Dr. Norris referred to several incipient striæ in the left lens and gave a questionable prognosis. Under specific medication—unguentum hydrargyri—followed by a long course of potassium iodid—the vision rose to 20/20 in O. D., and 20/25 in O. S. The case has remained under my care at certain intervals since that time. The vision has remained practically normal and the lens entirely transparent."

W. H. WILMER, Washington, D. C., says that he has seen one lens opacity give way to transparency. "Patient 51 years; good health; seen Nov. 3, 1904; had noticed dimness of vision in left eye three or four weeks previous to visit. Right eye vision with corrected refraction 20/20; left eye vision with corrected refraction 20/30. Lenticular opacities reached nearly to center of pupils from the lower and inner segment of each lens. Fundi and media normal. No treatment other than correction of refraction. May 31, 1905, vision normal in each eye; striæ in right lens unchanged; that in left can not be seen."

The following have been taken from medical journals:

AUGIERAS: *Ophth. Review*, Vol xxiv, p. 50, abs. from *L'Opth. Provincial*, one case.

Adolph Alt: *Amer. Jour. Ophth.*, Vol. xxiii, p. 297, one case.
J. Elliot Colburn: The Journal A. M. A., June 4, 1887, three cases.
Total: Ten observers report twenty-three cases.

CASES OF LENS OPACITY IN INCIPIENT CATARACT, REGAINING TRANSPARENCY—STRIÆ NOT BEING NOTED.

Charles S. Bull, New York, from twenty-five to thirty cases.
Frances Dickinson, Chicago, one case.
Mark Stevenson, Akron, Ohio, about five cases.
S. O. Richey, Washington, D. C., two cases detailed and a number of others mentioned.
F. P. Capron, Providence, R. I., four cases.
Frank C. Todd, Minneapolis, "more than one case."
John Chase, Denver, one case.
L. E. Maire, Detroit, one case.
H. Bert Ellis, Los Angeles, Cal., three cases.
H. B. Chandler, Boston, "several cases."
A. E. Prince, Springfield, Ill., one case.
A. D. McConachie, Baltimore, two cases.
C. M. Culver, Albany, N. Y., three cases.
S. G. Dalbany, Louisville, Ky., "a few cases."
W. H. Snyder, Toledo, Ohio, "many cases."
Ira J. Dunn, Erie, Pa., two cases.
Hiram Woods, Baltimore, "several cases."
W. J. Park, Harrisburg, Pa., "have seen lenticular opacities disappear."
W. L. Dayton, Lincoln, Neb., one case.
C. W. Hawley, Chicago, one case.
The following are taken from medical journals:
J. Seegan, two cases, and T. Tannahill, one case; both reported by E. Nettleship, Trans. Ophth. Soc. of United Kingdom, Vol. v.
R. Kalish: *Med. Record*, March 29, and Dec. 20, 1890, five cases.
Nicati: *Ophth. Rev.*, Vol. xviii, from Berlin *klin. Wochschr.*, Oct. 31, 1898, one case.
L. de Wecker: *Amer. Jour. Ophth.*, Vol. xxii, p. 204, one case.
Adolph Alt: *Amer. Jour. Ophth.*, Vol. xxiii, p. 296, one case.
Tatham Thompson: *Royal Lond. Hosp. Reports*, December, 1890, one case.
Total: Twenty-six observers report about eighty-four cases.

CASES OF PARTIAL RESTORATION OF LENS TRANSPARENCY IN INCIPIENT CATARACT.

Lewis S. Dixon, Boston, five cases.
C. H. Beard, Chicago, two or three cases.
A. J. Irwin, Los Angeles, Cal., one case.
P. Jordan, San José, Cal., one case.
L. L. Alleman, Brooklyn, five cases.
C. F. Clark, Columbus, Ohio, one case.
E. E. Holt, Portland, Maine, "a few cases."
W. E. Briggs, Sacramento, Cal., two cases.
S. C. Ayres, Cincinnati, two cases.
David Webster, New York, two cases.
B. F. Fryer, Kansas City, Mo., one case.
Dr. Ryerson, Toronto, Canada, one case.
H. Harland, Baltimore, "have seen cases fluctuate in both lens opacity and vision."
T. C. Hood, Indianapolis, four cases
Total: Fourteen observers report thirty-three cases.

SUMMARY OF OBSERVATIONS.

Ten observers report twenty-three cases in which they have seen striæ of incipient cataract disappear from one or both lenses, taking with them the diffuse opacity.

Twenty-six observers report about eighty-four cases in which they have seen the diffuse opacity of the lens in incipient cataract regain transparency—no mention being made of striæ.

Fourteen observers report thirty-three cases of incipient cataract regaining partial transparency.

Thus, including my cases, fifty-one observers report about one hundred and forty-seven cases, in which the opacity of incipient cataract has regained transparency in whole or in part.

After eliminating all indefiniteness from some of the reports enough remains to show that "opaque striæ with or without adjacent lens opacity have been seen to fade into clear lens substance."

All ophthalmologists grant that the phenomenon is rare; all agree that it is most frequent at the earliest stage of development.

In most cases the transformation of lens opacity into clear substance was quite "unexpected;" like Topsy in Uncle Tom's Cabin, "it just grow'd."

The demonstracted fact of regained transparency of the lens institutes the inquiry: How was the thing done? It also suggests the obligation of making a closer study of the conditions under which cataract develops.

103 Cass Street.

[For the discussion, see the department of Section Discussions in this issue.]

LOSS OF VITREOUS HUMOR IN THE OPERATION FOR EXTRACTION OF CATARACT:

ITS IMMEDIATE AND REMOTE EFFECT.*

J. MORRISON RAY, M.D.
LOUISVILLE, KY.

There seems to be great diversity of opinion among operators as to the exact consequences of loss of vitreous humor occurring as a complication in the operation for extraction of cataract. A general idea exists that it is an incident that they would rather not see occur, but that it has but little effect on the result of the operation. It has appeared to me that experience should give us more definite knowledge on this subject, and that we should know with exactness how much it militates against the final result.

Being a more complicated structure than the aqueous, loss of vitreous makes more demands on the reparative powers of the eye than does loss of the aqueous fluid. When once it has escaped, the replaced humor never takes on the histologic make-up of the normal structure. A new fluid secreted from the same source as the aqueous and with practically the same chemical make-up may fill out the space occupied by the lost vitreous, but the fibrillary network of the vitreous is never regenerated when lost.

Haemers found that an attempt was made to form a new structure which seemed to arise from the supporting tissues of the retina. If this be true, it is easy to see why detachments of the retina are so common as one of the later sequelæ to loss of vitreous.

There existed among the older writers a wholesome fear of loss of the vitreous humor, and as a result of this accident operations for extraction of cataract were decried.

Mackenzie stated that the operation for extraction exposes the eye to loss of a large quantity of the vitreous humor and consequently to great danger of destruction of the organ.

Since the time of Mackenzie the introduction of the antiseptic treatment of wounds, and from this the evolution of modern aseptic technic has materially changed the prognosis. We find the Pagenstechers, the early champions of the operations for removal of the lens in its capsule, affirming that loss of vitreous has no concern so long as strict asepsis prevents a primary infection, and that cases in which the vitreous contains floating particles sooner or later clear, the larger the amount of vitreous lost the more rapid their disappearance.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Of material importance in considering the dangers from this complication is the stage of the operation at which the loss takes place. It may occur immediately after the completion of the corneal section, it may take place simultaneously with the escape of the lens or after the lens has been extruded. If it occurs immediately after the completion of the corneal incision it is evidence of the presence of degenerative changes in the eye resulting in the vitreous becoming fluid or the zonule being weak. If it occur during delivery of the lens or afterward, it results either from the character of the operation, the unruliness of the patient or the lack of proper technical skill on the part of the operator, the amount lost varying under these circumstances.

Beer has asserted that at least one-third of the vitreous must be lost before it will affect the result unfavorably. When it escapes before the lens is expelled the greatest danger is that the lens will drop backward into the remaining fluid and efforts at its removal cause a greater escape, and thus the possibility of failure to extract the lens; yet Arlt affirms that, the vitreous being fluid, a better prognosis can be expected than when it is of normal consistency, because in the latter condition it is more apt to remain between the lips of the wound and thus prevent proper approximation.

The character of the operation to a very large extent materially influences the occurrence of vitreous loss as a complication. If the corneal section is too small the pressure necessary for extrusion of the lens may cause escape of vitreous. If the section is too far back it removes the support of the strip of sclera supporting the suspensory ligament and thus favors rupture.

If the lens is removed in its capsule the danger is far greater than from any other method of extraction.

Pagenstecher, in his operation, lost vitreous in from 50 to 60 per cent. of the cases; Oxley lost it in 30 per cent. of cases, and Drake-Brockman in 28.67 per cent. Major H. Smith lost vitreous in 8.2 per cent. in a total of 1,651 cases, and more recently only 6.8 per cent. in 2,616 operations in one year.

In my experience, one of the most frequent causes for loss of vitreous is an improperly fitting speculum. If the upper arm of the speculum does not stand well out from the eye the slightest amount of orbicular spasm will force it against the sclera and rupture of the hyaloid with escape of the vitreous will ensue. This generally takes place while removing cortical material or making the toilet of the wound. For this reason I am in favor of removing the speculum as soon as the lens escapes and resorting to the use of the lid elevator for subsequent manipulations.

In a collection of several thousand cases, including those reported by Marshall, Herbert, Collins and others, I found the loss of vitreous in cases in which the capsule was divided, or the anterior layer removed by forceps, was 4.5 per cent. Being of the opinion, from personal observation and experience, that loss of vitreous added largely to our percentage of failures, I asked a number of operators of recognized experience as to their personal observations, requesting answers to the following questions:

1. Does loss of vitreous at the time of the extraction increase the danger of primary infection?
2. Does it increase the danger of iridocyclitis during the stage of healing?
3. Does it tend to produce secondary degenerative changes in the eye after a few months or years?

Some of the replies are as follows:

In answer to the first question:

Dr. Knapp stated that he does not think that a small loss signifies that there is danger, but as the vitreous is a good pabulum for microbes, the danger of infection must be increased by the loss.

Dr. A. W. Calhoun does not think that loss, if slight, materially increases the danger. He has rarely seen infection which could be attributed to such an accident.

Dr. David Webster is not sure that it increases the primary danger.

Dr. D. W. Greene, Dayton, Ohio, is of the opinion that primary loss adds to the danger of infection because the vitreous is probably the best culture medium in the body.

Dr. D. B. St. John Roosa thinks that loss adds to the dangers of infection.

In answer to the second question:

Dr. Knapp thinks that it does.

Dr. Calhoun, in his experience does not think that it adds a danger in the healing stage.

Dr. Webster believes that it adds to the danger at this time.

Dr. Greene thinks that it does add to danger during healing, through prolapse and entanglement of the iris.

Dr. D. B. St. John Roosa thinks that it adds to danger from this cause.

In answer to the third question:

Dr. Knapp thinks that degenerative changes continue for months or even years in certain cases. Infection often flares up and becomes alternately better and worse, finally terminating in softening of the globe.

Dr. Calhoun does not think that slight loss has much effect on the future of the eye, but profuse loss is dangerous at all times.

Dr. Webster thinks that beyond doubt it tends to degenerative changes, especially detachment of the retina.

Dr. Greene thinks that the later dangers are from detachment of the retina and hemorrhages, especially in cases of advanced arteriosclerosis.

Dr. D. B. St. John Roosa thinks that it produces later degenerative changes. He says: "I gave up trying to remove the lens with its capsule on account of loss of vitreous, which I came to regard as a serious accident."

The amount of vitreous lost at the time of the operation is a difficult thing to estimate properly. Herbert says that both the frequency and quantity of loss of vitreous are apt to be a little underestimated, especially in operations in which the capsule is removed.

The normal amount present is estimated at from six to eight grams by weight. When the hyaloid is once impaired and the vitreous begins to escape any muscular contraction or movement of the eye increases the amount. Even after the lips of the wound have been cleaned and the eye bandaged we have no assurance but what more will escape or protrude into the wound.

In regard to the danger in primary loss, most operators join in the statement that the vitreous is a perfect culture medium for organisms. Fuchs remarks that it is a natural cultivation gelatin in which microorganisms thrive most luxuriantly, yet experience shows that the primary loss from infection so much feared by Mackenzie is not so great as would be expected, a most forcible illustration of the value of asepsis in this operatoin. Major Smith, in 2,616 operations, lost vitreous in 160 cases. Nine eyes were destroyed by primary infection, among which were included three in which vitreous escaped, showing an increased danger of primary infection in these cases. The relative danger being about one to four hundred in uncomplicated cases and one to fifty in those in which vitreous was expelled.

In a personal experience of two hundred extractions three eyes were lost by primary infection. In one case a large quantity of vitreous was lost and the conjunctiva was cicatricial from an old trachoma. In another the vitreous prolapsed into the wound and by preventing proper approximation opened up an avenue for infection.

My observation of the later results shows in every case examined in which vitreous was lost changes that seriously interfered with the maintenance of useful sight. Without exception, I find the vitreous to contain floating particles or opaque shreds attached at one end and moving about with every motion of the eye when viewed with the ophthalmoscope at the time of the discharge of the patient. It has been impossible to follow all the patients for a long time, but in those who have been under observation for years the vitreous contains masses or shreds of opaque material, and repeated examinations show that these are not absorbed. So long as such a condition exists the danger from degenerative changes exciting an infection or retinal detachment is present. A few cases recently under my observation will illustrate the changes that are more apt to occur.

Case 1.—A man, aged 70, lost an eye following an extraction in another city. I did a preliminary iridectomy, hoping to add to the chance of recovery for the second eye. At the extraction four weeks later he behaved badly and squeezed the eye, losing about one-third of the vitreous, the eye partially collapsed. In order to get the wound to approximate properly, I injected a small quantity of normal saline. The wound healed and beyond a deep ciliary injection that persisted the eye looked well. Photophobia lasted for four weeks, at the end of which time the ophthalmoscope showed a very cloudy vitreous with a faint fundus reflex. At the end of six weeks vision was counting fingers, but the ciliary injection persisted, the iris began to become discolored and an exudate slowly formed in the large distorted pupil. At the end of three months the eye began to shrink and vision was lost.

Case 2.—In a patient now under observation the eye recovered from the operation with as little reaction as occurs in uncomplicated cases and vision of 20/100 was obtained, yet the ophthalmoscope showed a number of long shreds floating about. Six months afterward, the retina became detached and an iridocyclitis caused softening and degeneration of the eye.

Another complication that has come under my observation was the leaving of a quantity of soft lens material in the capsule as a result of loss of vitreous. The eye healed slowly and six weeks later, in attempting to divide the secondary obstruction in the pupil, a retinal detachment was produced.

It would seem that a careful review of the subject leads to the following conclusions:

1. Loss of vitreous at the time of an extraction adds to the danger of primary infection, this danger being irrespective of the quantity of vitreous lost, but depending largely on the care used in the preparation of the field of operation.

2. The danger of iridocyclitis during the stage of healing is materially increased by loss of vitreous. The increased activity in the blood vessels and lymphatics during the repair of the traumatism necessary to the operation for cataract being overtaxed excites changes in the iris and ciliary body that end in a hyalitis, with closing of the pupillary space and anterior phthisis.

3. When vitreous is once lost the material taking its place is probably aqueous, the framework is never reformed and the vitreous becomes fluid throughout. Floating particles increase in amount as time goes by, fibrillary bands are thrown out from the retina to take the place of the reticulum of the vitreous. These bands contract, causing minus tension and retinal detachments, followed by the characteristic square atrophied eye due to the action of the recti muscles on the softened globe.

[For the discussion, see the department of Section Discussions in this issue.]

RUPTURE OF AN AORTIC ANEURISM IN A CHILD OF FOUR YEARS.*

ROBERT N. WILLSON, M.D.
AND
ALEXANDER MARCY, Jr., M.D.
PHILADELPHIA.

The following case is reported as of interest to the clinician as well as to the pathologist, especially in its bearing on the relation between hereditary syphilis and lesions of the heart and vessels in early life:

Patient.—M. E., a male child, was born Oct. 19, 1903. He was the first child from the union of apparently healthy parents, born five years after their marriage.

Family History.—Both father and mother are living, and both are 34 years of age. The father had the usual diseases of childhood, and hesitatingly denied having had a sore on the genitals, but admitted two distinct attacks of gonorrhea prior to marriage. At the age of 21 he began to experience convulsive seizures resembling epilepsy in all respects. He was treated for epilepsy by several neurologists in this city, but always with an increase in the number and severity of the attacks rather than relief. Mercury and the iodids had never been employed to his knowledge. These attacks still continue, though at seemingly increasing intervals. Apart from them his general health is good. The opportunity was not afforded to examine the father thoroughly, but it is of interest to note that his nose is distinctly suggestive of the saddle type. He shows no other outward marks of specific involvement, and even this is not perfectly developed. The mother is apparently well and strong. She presents no external evidences of lues, nor does she remember any symptoms that would lead her physician to suspect that she has ever been infected. The paternal grandparents of the child are alive and well at the ages of 67 and 70, respectively. The maternal grandfather is also healthy at 70. The maternal grandmother died at 35 of "lung trouble," probably tuberculosis.

Personal History.— At birth the child was cyanosed and breathless, artificial respiration being required to establish normal breathing. Weight 12 pounds, body well formed, and physical development apparently perfect. At six weeks of age he had a severe attack of bronchitis. A few weeks later he suffered from whooping cough. While examining his chest during the bronchitis his physician (Dr. Marcy) noted a loud systolic murmur, heard best over the aortic cartilage to the right of the sternum, over the second and third interspaces. The murmur was so loud, however, that it could be heard over the entire chest, both anteriorly and posteriorly. As he had never before had an acute illness this murmur was assumed to be and probably was indicative of a congenital lesion. Compensation was good, and the circulatory supply to the surface and to the extremities subsequent to birth seemed always satisfactory. In June, 1905, he experienced what his mother described as a "fainting spell," but did not lose consciousness. Nothing further of interest occurred until his last illness, beginning Nov. 17, 1906. This was ushered in by vomiting, with an active rigor, and fever, which repeated themselves time and again. A malarial infection was of course considered, and quinin given in liberal dosage. No improvement resulted. The fever came and went with painful regularity, excepting as to the time of day. The rigor did not always accompany the rise of temperature, nor did the latter persist throughout the same number of hours, nor reach the same height. Now it would appear in the morning, again in the afternoon, then toward evening, or during the night. As a rule it averaged 102 F., but on several occasions it went as high as 106 F. The interval was afebrile, and when free from fever the child was very bright and natural and wished to play. With the temperature above normal, however, he was at once dull and listless, resenting interference on the part of nurse or doctor. At times he complained of distress, generally in the epigastrium, but occasionally in the upper portion of his chest beneath the sternum. Sometimes pain was referred to the neck, and he would say that it hurt him to turn his head. Sometimes it would shoot to his feet, particularly to the great toe, sometimes of one foot, again of the other. There was a gradual loss of flesh and strength, with a noticeably increasing anemia. The urine at first showed no pathologic change. Later on hyalogranular casts were found, also a few red corpuscles, and one purely blood cast. Albumin was never detected. Frequent examinations found the lungs always normal, also the abdominal organs. On Dec. 13, 1906, we saw him in consultation, and obtained the following additional history. The boy had been happy and bright until about one month previous, when, as stated, he had begun to experience irregular and almost daily rigors and febrile attacks. During the preceding two days there had been present a slight cough. No expectoration was noted.

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* Read before the College of Physicians of Philadelphia, April 10, 1907.

Physical Examination.—The physical examination found a well-developed child, evidently under the influence of a grave toxemia. The skin was sallow, almost of a lemon yellow tint; the mucous membranes were blanched. The pharynx, mouth and teeth showed nothing of particular bearing on the case. The anterior and posterior cervical glands, the submaxillary chain, as well as the axillary, epitrochlear, and inguinal series, were all enlarged, fibroid, and painless. There was no eruption on the skin of the face or body. The chest was large and well developed. Over the episternal notch an expansile pulsation was evident. Over this and extending in all directions was a marked systolic, vibratory thrill, perceptible over the entire upper chest anteriorly and posteriorly. Beneath the membrane, and to right and left of the same for a distance of about two and one-half inches, the percussion note was absolutely flat. A loud systolic and diastolic, to-and-fro—almost continuous—bruit was heard, with greatest intensity over the second interspace to the right of the sternum, transmitted over the entire precordia, and especially to the right scapular region. Both the second aortic and pulmonic sounds seemed to be diminished. The pulse rhythm at both apex and wrist was regular. Examination of the lungs discovered no other abnormality than a rapid respiratory rate, and a slight impairment of the play of the right upper lobe. The abdomen appeared absolutely normal, including the liver and spleen, and other organs subject to examination. There was no edema of the extremities and face. The pupils were equal and normal, reacting promptly to light and distance. There was no rigidity of the nuchae. The radial pulses were similar in time and force. The arterial tension was high, and independent of this, the arterial wall appeared slightly thickened as with sclerosis. There was no tracheal tug.

Blood Examination.—The blood examination showed the following: Hemoglobin 49 per cent (Dare), red corpuscles 2,000,000, leucocytes 28,000. Considerable poikilocytosis. Malarial plasmodia not found in fresh, nor in stained specimen. No pigmentation of leucocytes. The differential count of leucocytes gave of the polymorphonuclear type 72 per cent., lymphocytes 14 per cent., large mononuclear 14 per cent.

One week later, on Dec. 24, 1906, the face became puffy, the tissues boggy, though there was no apparent pitting on pressure. The temperature was 104 F., the child now being constantly febrile. Rigors were only occasional, but very severe and distressing. The pallor had deepened to a dusky hue, the child very listless. There appeared to be a small quantity of fluid in the abdomen, and also in the right pleural cavity. It was noted also that while the left carotid was still pulsating the left radial pulse had almost disappeared, all other physical signs remaining as before. The radial arteries were both distinctly palpable, and seemingly thicker than normal.

The blood showed a hemoglobin percentage of 36 per cent.; the numerical relation of leucocytes to the red corpuscles was 1 to 50 in the fresh specimen. No malarial plasmodia were found. Many nucleated red corpuscles were evident. The father's history of epilepsy, beginning at the twenty-first year, his saddle-nose, the history of a urethral discharge following exposure to infection, a rather dubious denial of a primary sore—together with the result of our study and examination of the child—seemed to warrant the opinion formed provisionally at our first meeting that the case was one of congenital syphilis. The thoracic condition did not seem by any means clear. Aneurism was considered, and in an adult would have been determined as certainly present, but was looked on as unlikely owing to the extreme youth of the child. It appeared more probable that a mass of enlarged bronchial glands, either syphilitic or tuberculous (probably the former) was present in conjunction with a congenital syphilitic endocarditis, presumably centered on the pulmonic or aortic valve. Two days later, December 26, after seeming brighter and better than for several days, the patient suddenly screamed and, throwing up his hands, expired.

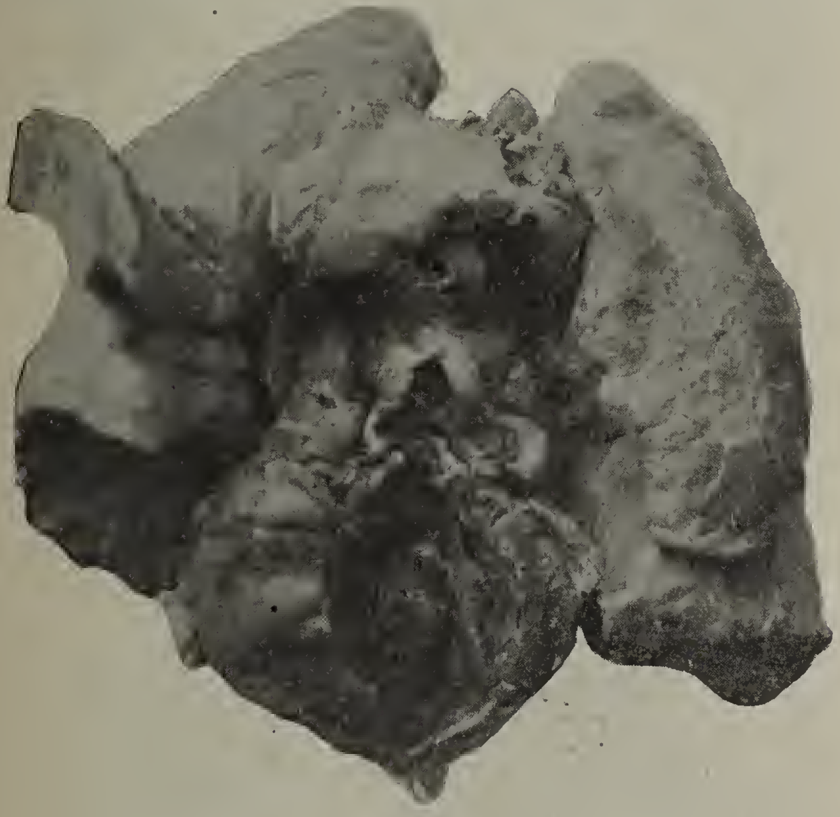
Autopsy.—The autopsy was performed by Dr. Willson at Riverton Dec. 28, 1906, and gave the following interesting data: Body edematous, pitting along tibial surfaces. Glands everywhere enlarged. Thorax: Pericardial sac distended, and of a bluish appearance from contained blood. Heart small, pale and contracted in systole. Aneurism of ascending and transverse arch (see illustration), ruptured into pericardial cavity through an ulcerated opening about 1 cm. wide. Considerable pericarditis evident along upper and outer area of visceral and parietal pericardial layers. Aortic valve showed high grade stenosis, its opening almost occluded. The aorta outside the valve showed extensive layers and patches of atheroma, the aortic wall very thick. The pulmonic valve was normal. Cardiac muscle very pale. Lungs: Pale, anemic. About an ounce of fluid in the right pleural cavity. No adhesions. No consolidation. Abdomen: Small quantity of fluid present. All tissues blanched. Liver large, hard and suggestive of fibroid change. Spleen large and congested only. Stomach shows small submucous hemorrhages, otherwise normal. Intestines pale, no ulceration. Mesenteric glands along the ileum and cecum enlarged and very dark. The kidneys showed deep congestion, and considerable yellow, fatty deposit, especially along the cortical margin. The pancreas appeared normal.

The main interest in this case centers, of course, in the etiology and in the question whether the aneurism may or may not have been a congenital condition, synchronous in formation with the congenital valvular lesions. Indeed, it seems by no means impossible that the loud systolic bruit and the rasping thrill evident over the whole chest wall shortly after birth were due to the aneurism rather than to the extremely high grade aortic stenosis which so almost completely obstructed the outflow from the ventricle as to raise a doubt whether such a murmur could have been due to the stenosis. It would appear probable to us that the incipient aneurism was of intrauterine origin; that the ulcerative process which reached an advanced state in the aortic wall progressed after birth until it finally eroded its way through the adventitia into the pericardial cavity, and that some trifling additional strain on a barrier already of gossamer thickness was sufficient to cause the rupture and the fatal outcome.

There seems, moreover, to exist no room for doubt that the aneurism was of syphilitic origin. If there were no other proof the high degree of sclerosis of the aorta, the typical patches of atheroma evident on the interior of the vessel, the thickening of the radials in a child of four, the general glandular enlargement, all this in the absence of mercurial or any other medication that could have contributed to the sclerotic tendency, together with the important evidence of a congenital heart lesion; all of these by themselves inconclusive signs, we believe to be sufficient to warrant the diagnosis of latent hereditary syphilis, with consequent degeneration of the arterial walls and aneurism. The father's spurious epilepsy and his suggestive venereal history render the conclusion practically certain.

It would appear that the case under discussion is the only instance noted in the literature of death by rupture of an aneurism of the thoracic aorta at such an early age. We find a number of instances of aneurism of the thoracic aorta, of the cerebral arteries, also of the abdominal aorta, usually discovered at the autopsy. One of the youngest subjects that has come to our notice suffering from aneurismal involvement is a child (mentioned in the Reports of the City Inspector of New York for the period 1856 to 1864) between 2 and 5 years (not of the arch), one between 5 and 10 years of the arch, two between 10 and 15 (neither of the aorta), and an increasing number as the age rises.

Le Boutillier[1] has also recently collected a series of cases of aneurism in early life, and himself reports one of the thoracic aorta in a child of 9 years, still living. In his bibliography there are noted seven cases of thoracic aneurism in children under 10 years of age, all dying of some independent pathologic condition, or still alive at the time of the report. The youngest of these cases was 2 years of age, the death being due to hemorrhagic smallpox, not to the aneurism.



Ruptured aneurism of aortic arch in child of four years.

In most instances these aneurisms are the result of hereditary syphilitic change in the vessel walls, perhaps rarely to tuberculous or rheumatic arteritis, far less frequently (probably never in the case of the aortic arch) to thrombosis and other causes. In Le Boutillier's case, as in that under discussion, there would appear to be a possibility that the paroxysmal effort in whooping cough was a contributing causal influence.

While the case reported in this paper is undoubtedly an instance of a most rare condition, it is none the less of practical interest in its bearing on the diagnosis of intrathoracic conditions in very young children.

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[1] Amer. Jour. Med. Sci., May, 1906.

NEUROFIBROMA OF THE ORBIT: KRÖNLEIN OPERATION.*

WALTER R. PARKER, B.S., M.D.
Professor of Ophthalmology in the University of Michigan.
ANN ARBOR, MICH.

Cases of neurofibromata (pseudo-neuromata, solitary neuromata) of the orbit are extremely rare, there being but two cases on record. Of these, one reported by Tersch[1] involved the lachrymal branch, and one reported by Marchetti[2] the infraorbital branch of the fifth nerve.

The ophthalmic division of the fifth nerve has been involved in multiple neuromata, and Bietti[3] has described amputation neuromata of the ciliary nerves after optic-ciliary-neurotomy. Houel[4] has described small tumors of the third, fourth, nasal and frontal branches of the fifth nerve, found postmortem, which had never caused clinical symptoms.

The extreme rarity of neurofibromata is shown by the following statement of Tersch: "A solitary neuroma is altogether a rare tumor and its location in the orbit appears at least a curiosity;" and of Marchetti, who, after eliminating the plexiform neuromata as described by Billroth and others, says: "The exposition of the case shows its importance; a tumor rare as a pathologic type and unique in consideration of the place of its development. In fact, in the literature which I have been able to consult I have found no example of tumors developing through the infraorbital nerve."

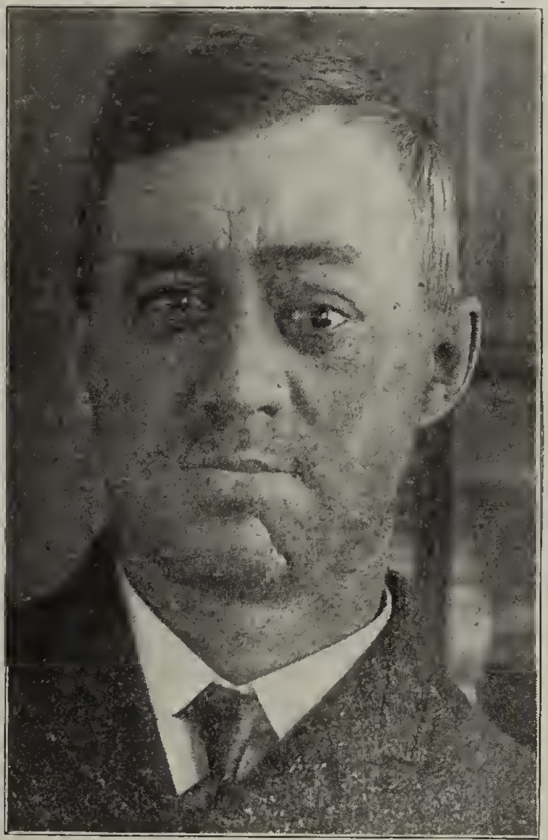

Fig. 1.—Photograph of patient before operation.

A short review of the two published cases will be given in this paper, and a report added of a tumor of similar nature removed by me. The whole will be treated from a clinical standpoint, referring those who are interested in the detailed pathologic findings to the reports of Tersch and Marchetti.

MARCHETTI'S CASE.—*History.*—Male, aged 30. At the age of 5 the mother first noticed on margin of lower lid a nodule of reddish color with smooth surface. At the end of one year it had acquired the size of a cherry, producing lagophthalmus. At the age of 14, nine years later, the tumor had reached the size of a medium-sized pear, the larger part hanging down on the cheek. There was no pain, but considerable tenderness on pressure. Other than the drawing down of the lid, the eye was apparently normal. There was a history of frequent hemorrhage following a slight abrasion. The tumor gradually increased in size and extended upward and backward into the orbit with final loss of function of the eye. The skin covering the tumefaction, at first but slightly changed, now assumed the aspect of elephantiasis and secreted a considerable quantity of limpid fluid. The tumor became extremely sensitive with frequent shooting pains extending over brow and head. Intellectually, the patient was subnormal, of fairly robust appearance and otherwise healthy. Family history negative. The tumor finally assumed the size of the head of a newborn child, extending downward beyond the chin with the stem rather large, extending into the orbit. The arch and inner wall of the orbit were normal; the outer wall, however, was pressed outward one and one-half centimeters. The lower wall could not be examined. The eye, greatly changed in appearance, was crowded upward and forward. The orbit was filled with a mass which was continuous with and formed part of the tumor. It was hard, apparently of a fibrous nature and covered with thickened skin which was movable on the growth. The orbital portion was slightly movable.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

1. Arch. f. Ophth., 1902.
2. Ann. di Ottalmologia, 1904, xxxiii.
3. Arch. f. Ophth., 1900.
4. Lagrange: Etudes sur les tumeurs de l'oeil.

Operation.—In May, 1900, under chloroform anesthesia, the tumor, together with the eye, was extirpated without difficulty, there being no attachment to the orbital wall. Recovery was uncomplicated. The lower orbital wall was found converted into a groove in which the neck of the tumor rested.

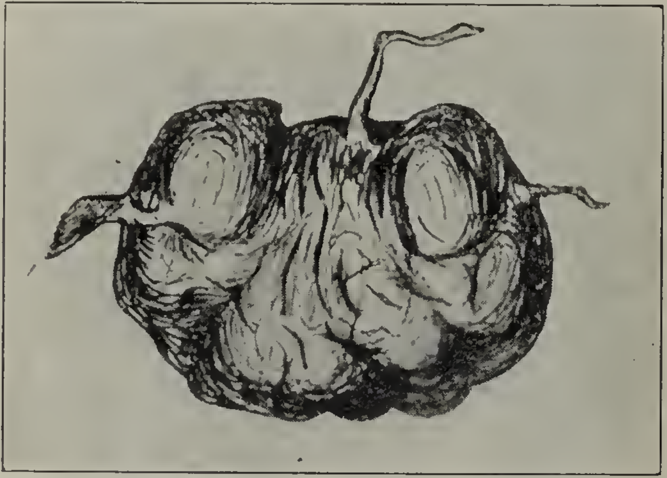

Fig. 2.—Tumor, 1½ times natural size.

Macroscopic Examination.—The tumor was found to consist of two portions well differentiated one from the other. The orbital portion about the size of a fist, egg-shaped, with well defined capsule. On the anterior surface was the eye, greatly modified. The lower part of the posterior surface was surrounded by branches of the infraorbital nerve, which were normal in appearance and size and so intimately connected with the tumor that they could not be removed from it without tearing. Attached to the lower and outer part of the orbital tumor was the mass which protruded on the cheek.

Microscopic Examination.—Only the orbital portion, it was found, could be considered as the tumor proper, the lower part being exclusively represented by the characteristics of elephantiasis of the skin.

After a detailed description of the tumor, together with the microscopic findings, the author made the diagnosis of false neuroma.

TERSCH'S CASE.[1]—*History.*—Female, aged 43. Three years previously the patient noticed that the unaffected eye was deeper in and higher up than its fellow. A diagnosis of retrobulbar tumor was made and operation advised, but this the patient refused. The condition remained the same for two and one-half years, when the tumor began to grow rapidly. The patient then consented to an operation.

Examination.—Behind the upper lid of the right eye could be felt a resistant tumor, which rested on the bulb like a cap, extending from the trochlea to the lachrymal gland without being attached to either. The finger could be easily forced between the tumor and the eyeball. The tumor pushed the eyeball down and out, so that the upper limbus of the cornea was on a level with the lower pupillary border of the other eye. The exophthalmus was 12 mm. The movement of the eyeball except upward was free. Left eye normal. Fundi normal. Examination revealed no other tumor or swollen lymph glands. Patient was not examined for disturbances of sensibility in the fifth nerve areas, but had no pain or parasthesias.

Operation.—The operator, Professor Fuchs, made an incision parallel to the eyebrow, and, entering the orbit, removed a rather large tumor, apparently a lipoma, which semed to be sharply circumscribed. Removal was not difficult, the growth being connected with the surrounding tissue merely by a few thin strands. No other tumor could be palpated. The wound healed readily. There resulted a slight ptosis. Exophthalmos disappeared and the eyeball receded. After six months the patient appeared normal, the two eyes similar in appearance, and no further tumor formation noted.

Examination of Tumor.—The tumor appeared egg-shaped, 3.5x2.75x2.5 cm. in size, of soft consistency, yellow color, lobulated upper surface. A distinct capsule could not be seen macroscopically. On account of its consistency, the tumor was diagnosticated a lipoma. At one pole of the tumor a nerve was found entering the growth.

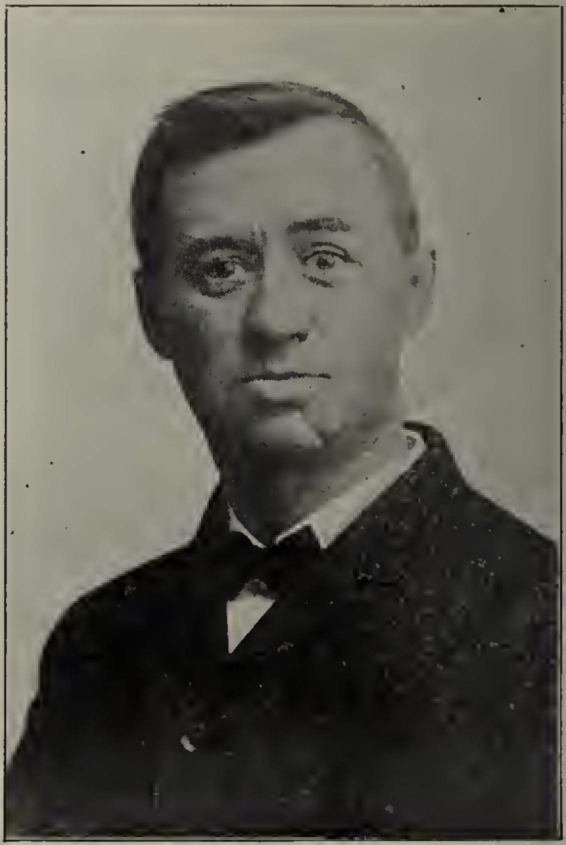

Fig. 3.—Photograph of patient six months after operation.

According to the pathologic and histologic findings, there was no doubt that the growth was a so-called pseudo-neuroma (neurofibroma), which is called in the literature a solitary neuroma. It was difficult to decide from which nerve the new growth sprang; but the author, by exclusion, concluded that it was a neuroma probably of the lachrymal branch of the fifth nerve. So much for the two cases on record.

THE AUTHOR'S CASE.—*Patient.*—Male, aged 28, referred to the ophthalmologic clinic from the oto-laryngologic clinic of the University of Michigan, in November, 1906.

History.—The patient gave a history of exophthalmus of the left eye, gradually increasing during the preceding twelve years. He had been subject to attacks of acute mania during the past six years. There was present no pain nor discomfort in the eyes except from double vision, which was especially noticeable if looking upward. No fundus changes. Vision about 20/30. The patient being illiterate and mentally substandard, accurate results could not be obtained.

Examination.—The skin of the upper lid as well as that surrounding the orbit was normal. Deep in the orbit could be felt a resistant tumor which seemed to surround the bulbus, but was found not to be attached to it. It was difficult to determine before the patient was anesthetized whether the tumor was movable or not. No well-defined demarcation between the tumor and the superior orbital wall could be felt. The exophthalmos was marked, outward about 12 mm. and downward so that the upper margin of the cornea was on a level with the lower pupillary margin. The movements of the globe, with the exception of upward, were normal. Right eye normal. Fundi normal. Patient was of medium stature and except for his mental condition, apparently healthy. The lymphatic glands were not enlarged, and with the exception of a small nodule on the brow, there were no other tumors of the skin or other parts of the body. Examination of the sensibility disturbance of the trigeminus branch was unsatisfactory. A nodule, about the size of a cherry, was situated on the brow just above the supraorbital notch. With the idea that there might be some relation between this nodule and the orbital tumor, it was determined to remove the nodule and submit it to examination. When removed, it had every appearance of a lipoma. A preliminary report from the pathologic department was fibroma, possible neurofibroma. Deep palpation while the patient was under ether revealed the fact that the orbital tumor was movable.

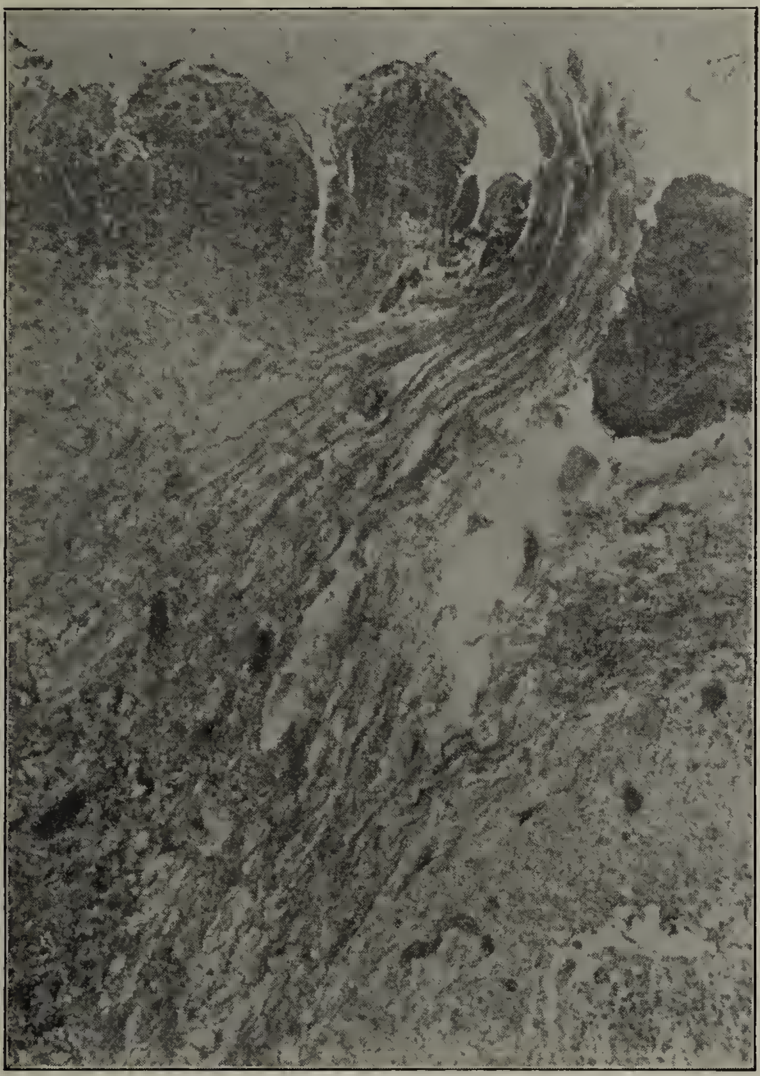

Fig. 4.—Photomicrograph of tumor showing entrance of nerve (x24).

Diagnosis.—The following diagnostic points concerning the orbital tumor were obtained: 1. A non-malignant growth as revealed by the history and pathologic report. 2. The displacement of the globe outward and downward indicated that the tumor was situated outside and above the muscle cone. 3. It was movable.

Operation.—It was decided to attempt the removal of the orbital tumor after the method of Krönlein. A curved incision was made beginning over the temple, extending along the outer margin of the orbit, dividing the periosteum, and backward along the upper edge of the zygomatic arch. The periosteum lining the inner side of the outer wall of the orbit was resected, together with the orbital contents. The lateral wall of the orbit was cut through with a chisel in two places, above, in the suture between the great wing of the sphenoid and the malar bone, and below in a horizontal plane passing outward in a line directly above the insertion of the zygomatic arch. This piece of bone with its muscle and cutaneous attachments was forced backward, giving free access to the orbit. The periosteum was divided in a horizontal direction and the tumor then extirpated without difficulty. After removal, the periosteum was sutured with catgut, the bone and soft parts replaced, and the skin sutured with silk. Union was perfect and recovery uninterrupted. The excursion of the eye became normal and the vision remained the same as before the operation.

Macroscopic Examination.—The tumor was somewhat kidney-shaped and measured 35x25x9 mm. The surface was nodular and had the appearance of a lipoma. Protruding from the tumor were three nerves, which a careful examination seemed to prove to be the frontal externally, the supratrochlear below, and the supra-orbital nasally. When held before the light, the larger nerve was seen to divide into two branches, and the course of each could be traced through the mass. The tumor apparently had its origin in the sheath of the frontal branch of the ophthalmic at the junction of the supratrochlear and supra-orbital nerves.

Following is the report from the pathologic laboratory, for which I am indebted to Professor A. S. Warthin:

Microscopic Examination.—Tumor consists of fibrous connective tissue loosely arranged in moderately coarse fibrils with large areas of a more finely fibrillar connective tissue, resembling edematous connective tissue. The spaces between the fine fibrillæ are large and contain a finely granular precipitate. The appearance is that of an edematous fibroma. Running through the center of the mass of connective tissue are nerve fibrils, in part connected as in a nerve trunk, but for the greater part separated by connective tissue. These nerve fibrils show no increase in size, and appear normal. The connective tissue hyperplasia is limited chiefly to the connective tissue of the pari- and epi-neurim, that of the endo-neurim being affected to a less degree. The growth is poorly supplied with vessels, the veins showing a chronic congestion.

Diagnosis.—Edematous neurofibroma. (Fibromatosis of nerve trunk).

Considering the three cases as a class, there are some peculiar similarities. Two of the cases were substandard mentally, suggesting the possibility of similar intracranial nodules. In two the tumors were diagnosticated macroscopically lipomata. In all three the pathologic findings were the same, although in one there was elephantiasis of the lid.

As regards the method of operating, I believe that if the exact condition present had been known the tumor could have been removed from above, as was done in the Tersch case. No procedure, however, could have been more satisfactory than the Krönlein operation, and it offers better opportunity to meet any complications that may be present.

[For the discussion, see the department of Section Discussions in this issue.]

SUPRARENAL HEMORRHAGE; AN UNUSUAL CAUSE OF SUDDEN DEATH.*

J. F. MUNSON, M.D.
SONYEA, N. Y.

I am indebted to Dr. B. F. Andrews, interne at the Colony, for the history and clinical notes in the following case:

Patient.—G. D., male, aged 25, a native of New York and by occupation a farmer, was admitted to the Craig Colony in 1901, at the age of 19 years.

Family History.—Mother was hysterical both before and after marriage; possibly tuberculous. Father had "fainting spells" between his sixteenth and thirty-fifth years; was subject to rheumatism. Both parents are said to have been subject to headaches.

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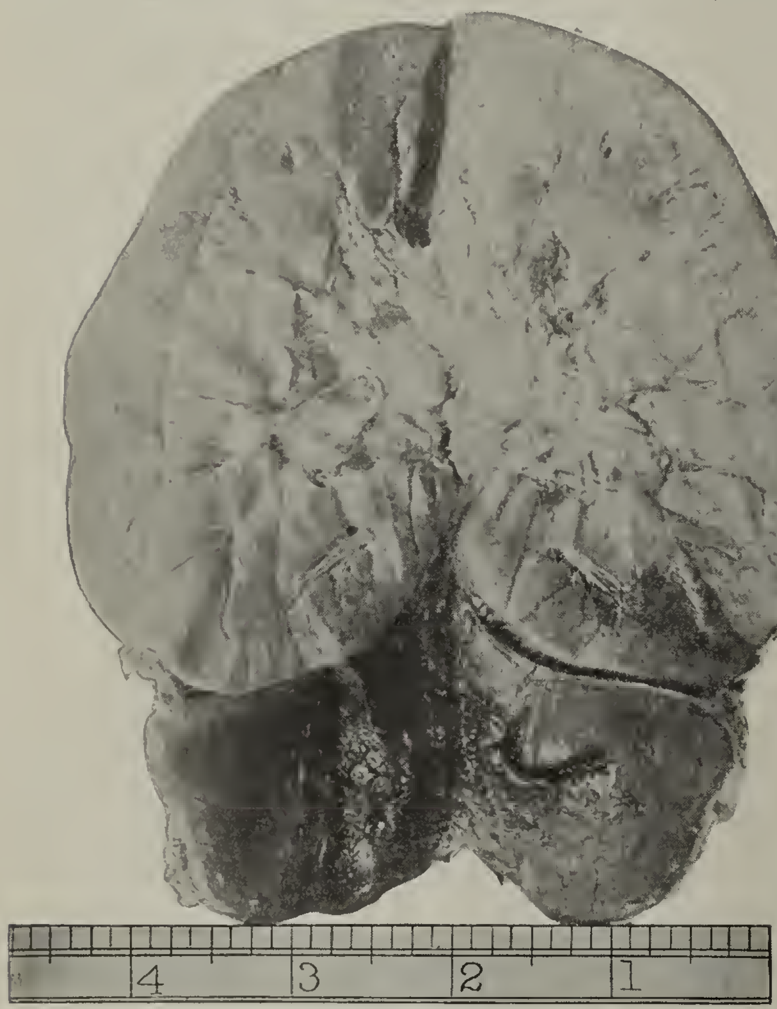
*From the Laboratory of the Craig Colony for Epileptics.

Personal History.—Was a strong healthy baby. "Worm fits" at age of 3 years. Epilepsy said to have begun at the age of 15; history blank states cause to have been worms, but none were seen. Grand mal attacks, both diurnal and nocturnal. It is stated that the right arm is "most frequently involved." When admitted, the patient was feebleminded. No abnormalities were noted at the physical examination except stigmata of degeneration. The patient began to fail progressively, till in 1906, he was described as a "filthy, idle idiot. In good physical condition."

Jan. 24, 1907. Patient had been in his usual condition. On this day patient's lip was noted to be much contused, the result of a fall during a seizure. On account of his exhausted and weak appearance he was put to bed, where later it was noted that he had a profuse diarrhea. This had been noted by the night-nurse for two nights previously but had not been reported. Milk diet ordered.



Right kidney and suprarenal.

Jan. 27, 1907. Patient was less prostrated, was somewhat interested in his surroundings, and took his nourishment well. Diarrhea continued unchecked. Physical signs of thorax and abdomen were negative; the abdominal wall was relaxed and there was no tympanites. The stools were light and watery, small in amount but frequent.

Jan. 28, 1907. Enteritis unchecked by treatment. Patient appeared well able to go to bathroom, fifty feet away, where he frequently had to be given a cleansing bath.

Jan. 30, 1907. Diarrhea was as copious as formerly. Physical examination negative. Slight mental disturbance. Appeared weaker than formerly.

Jan. 31, 1907. Patient showed no change when seen this morning. Diarrhea was unabated. Shortly before two o'clock, patient walked to bathroom with assistance of one attendant and received a tepid bath, after which he was again placed in bed, in apparently the same condition as had obtained for the previous two days. Within a few moments his condition changed for the worse, the pulse weakened and the respirations grew very shallow. He was given atropin and strychnin, but sank into a comatose state, followed by collapse and death at 2:15 p. m.

Autopsy.—This was granted and was held Feb. 2, 9:30 a. m. The following is an abstract from the protocol:

Autopsy No. 98. G. D. Dura adherent to skull posteriorly. Small osteoma of dura over upper extremity of (right) superior frontal convolution. Meninges were moderately congested. Brain negative; weighed 1,285 grams. Left suprarenal noted as a mass of torn clot while removing the left kidney; the organ was enlarged, its thickness being much increased, and it appeared as a solid mass of clot. A cortical layer could be distinguished. The hemorrhage involved principally the medullary portion. The torn condition made measurements impossible. The secreting substance of the left kidney appeared normal, except that in it were cysts filled with creamy yellow pus; the cysts had no well-marked walls; it appeared as if some cysts had been repaired by calcification. Weight of left kidney and suprarenal was 210 grams. On beginning the removal of the right kidney, a large mass was noted at the superior pole. This proved to be the right suprarenal. This was about two inches long by one and three-quarters wide and an inch thick. The cut surface had the appearance of a clot. At the border of the organ, a lighter band (cortex) could be seen, so that the hemorrhage occupied the medullary portion. Right kidney and suprarenal weighed 217 grams. The hemorrhage did not extend outside the two organs. The right kidney was negative. On the ileum, low down, there were a few hemorrhagic points. The wall of the large bowel was much thickened and about half the surface appeared to be ulcerated, the other half was elevated and rough, somewhat like the surface of a cauliflower or blackberry.

Histologic Examination.—The secreting structure of the kidneys was slightly atrophic, the capillaries were greatly congested and there was some small cell infiltration. The epithelium of the tubules showed moderate cloudy swelling. The small abscesses in the left kidney were seen to have no wall other than necrotic renal tissue, much infiltrated with cells. The left suprarenal showed the blood spaces betwen the cell cords of the cortex dilated and filled with red blood cells. The nuclei of the gland cells showed faintly in places. The boundary between the cortical and medullary portions could not be clearly made out, but the deeper portions were more obscured by red blood cells. The capsule contained some red cells and the pericapsular tissue, and its vessels, were much congested. The right suprarenal presented similar appearances. The nuclei of the cortical portion took the nuclear stain better but red blood cells were much more numerous and obscured the cell cords more than in the left; in the medullary portion blood cells only could be seen; there was no sign of organization of the clot.

One is, I think, entirely justified in ascribing G. D.'s death to suprarenal hemorrhages. The time of occurrence of the hemorrhages is a point of interest and one which, unfortunately, can not be decided; the appearance of the organs when removed was that of recent hemorrhage, but farther than that I can not state. The appearances of the gland cells might be due either to the stasis or to postmortem change, as the autopsy was not held till over forty hours after death. The mental deficiency of the patient made it impossible to ascertain the subjective condition. It would seem probable, from the microscopic appearances, that the enteritis was independent of and preceded the suprarenal condition.

Suprarenal hemorrhage is by no means a new condition. In a hasty search of the literature it was found that over fifty cases of hemorrhage in adults have been reported.

Suprarenal hemorrhage is common in still-born and very young infants, occurring in about 45 per cent. of autopsies, according to Arnaud.[1] In young children the hemorrhage is often accompanied by a purpuric eruption, with fever and sometimes convulsions, suggesting an acute exanthem. In adults the condition is much more uncommon, Arnaud's figures for adults being 1 per cent. This, however, seems very high, but the examination of suprarenals is often neglected. Males are more commonly affected than females and the right side than the left, or, in the case of the not uncommon bilateral lesions, the right side is more extensively involved.

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[1] Arch. Gen. de Med., 1900, n. s. iv, 5.

Nothing positive is known as to the etiology of the condition. Various hypotheses have been advanced, namely, trauma, changes weakening the vascular wall, stasis and thrombosis of the suprarenal vessels. The symptoms in young children simulating an exanthem and positive cultures from some cases have led to the assumption of a fulminating infection as the cause; the evidence for this view is not, however, sufficient.

Clinically, Arnaud recognizes three types: 1. Cases with signs of peritonitis or internal hemorrhage; pain, distension, collapse, hypothermia. 2. Cases of suprarenal insufficiency, without bronzing of the skin; anemia, muscular weakness, prostration, loss of weight and diarrhea. 3. Cases in which the symptoms are nervous, apoplexy often being simulated. These groups apply mainly to the adult cases. If the infantile cases are to be included we must add the classes suggested by Dudgeon:[2] Hemorrhage in the new born; cases suggesting an exanthem, and cases with purpura, etc., not suggestive of exanthemata. He also suggests as a group cases in which the lesion is only discovered at autopsy.

The diagnosis of suprarenal hemorrhage can be positively made only when the glands are sufficiently enlarged to be recognized by palpation. The blood pressure should show a striking fall in these cases, but Janeway's remarks[3] on the blood pressure in Addison's disease cast some doubt on this; however, the sudden disablement of the glands in hemorrhage as contrasted with the progressive destruction taking place in Addison's disease, may make a great difference.

Since the publication of Arnaud's paper[1] in 1900, except possibly the article by Gackawski,[4] to which I have not had access, I have found only one report of suprarenal hemorrhage in adults. This is reported by Laignel-Lavastine:[5]

> A moulder aged 46, fell unconscious in the street. When seen, he was comatose, cyanosed and his head was inclined to the left. Respiration was thoracic, rapid and superficial. Abdomen was slightly distended and appeared fixed. At the autopsy, the important findings were small papules of atheroma on the aorta and bilateral suprarenal hemorrhage. The right organ measured 60x50x30 mm.; the left 65x30x15 mm. The capsules were thick and the cortex was recognizable.

This case, with that here reported, illustrate two of the types of Arnaud. Laignel-Lavastine's case belongs to the nervous and mine to the asthetic form of the disease.[6]

In conclusion, the case here presented is one of sudden collapse and death during a severe but supposedly not dangerous enteritis. The patient had for some years been subject to epilepsy. Both suprarenals were completely hemorrhagic and the other organs showed marked congestion. One is led to believe that death was due to circulatory failure caused by the sudden removal of the tonus producing secretion of the suprarenal glands.

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[2] Amer. Jour. Med. Sci., 1904, n. s. cxxvii, 134.

[3] Clinical Study of Blood Pressure, 1904, 237.

[4] Nebenneirenblutung, Munchen, 1905; C. Wolf & Sohn.

[5] Bull. et Mem. Soc. Anat. de Par., 1903, lxxviii, 153 and 1901, 683.

[6] The following additional references are given for the benefit of those wishing to look still further into the literature on the subject: Gargano: Rivista Crit. di Clin. Med., Firenz., 1900, i, 553. Hamill: Arch. Pediatrics, 1901, xviii, 81. Wolley: Jour. Med. Research, 1902, li, 231, and Montreal Med. Jour., 1902, xxxi, 435. Dörner: Vertljschr. f. gerich. Med., 1903, xxvi, 134. Langmead: Lancet, 1904, i, 1496. Pick: Med. News, 1905, lxxxvi, 886. Oberndorfer: Wiener Klin.-therap. Wochschr., 1905, 623.

THE INDICATIONS FOR RESECTION OF THE MIDDLE TURBINAL.*

W. E. CASSELBERRY, M.D.
Professor of Laryngology and Rhinology in Northwestern University Medical School; Laryngologist to St. Luke's and Wesley Hospitals.
CHICAGO.

Since 1891, when, in a paper before the American Laryngological Association, I advocated resection of the middle turbinated body as essential to the radical treatment of ethmoiditis and nasal polypus, a review of the records shows that I have done this operation on about 120 patients, invariably with more or less benefit and never with any serious detriment resulting. Also, it is shown that many times a resection, though perhaps recommended, was omitted, when, in accordance with my present understanding, it would have remedied the conditions most promptly and effectively.

INDICATIONS FOR THIS OPERATION.

Analyzing these resections, the purposes of the operation have been:

1. To promote drainage and counter-drainage in nasal accessory sinus suppuration and for access in diagnosis and treatment.
2. To promote drainage and cleansing in certain types of atrophic rhinitis (atrophic ethmo-rhinitis).
3. To relieve edematous turgescence and to provide access for the radical treatment of non-suppurative ethmoiditis and nasal polypus.
4. To suspend pressure leading to headache, neuralgia, eye symptoms and broadening of the nasal bridge, etc.
5. To improve nasal respiration and ventilation.
6. To relieve hyperesthesia and to diminish certain reflexes, e. g., sneezing, asthmatic stimuli, etc.

Of these indications I will elaborate principally the first and second, respecting which we have been able in recent years to form new convictions based on the more extended surgical exploration of the ethmoidal labyrinth which has been rendered possible by the combined effects of cocain, adrenalin and asepsis. At the period above mentioned, when I first advocated its resection with similar objects in view, any mention of the middle turbinal would be met by the reminder that this body was a process of the ethmoid bone; hence, for surgical interference, in dangerous proximity to a vital organ. We now know this to be one reason why this structure requires surgical interference. The logic of the situation was tersely told in a recent office conversation. Said the patient, "Is it not dangerous to do?" "Well, possibly, yes, but far less dangerous than not to do it." "Won't the operation 'scatter' the disease to the brain?" "No; it will clear an outlet away from the brain." "Why, how so?" Whereon, being shown anatomically the situation of the ethmoid cells and fissure and the closing-in effect which the middle turbinal necessarily exerts on the secretions, the patient said, "I see; you simply take away the dam."

The First Indication.—To promote drainage and counter-drainage in nasal accessory sinus suppuration and for access in diagnosis and treatment.

In strictly acute frontal sinuitis, if wisely palliated, the patient usually recovers without operation. Those cases in which I have found it necessary to promote drainage of an apparently acute abscess by removal of a portion of the middle turbinal have really been examples of an acute exacerbation of a partly dormant chronic sinuitis. In two cases the resection of an impacted hypertrophied anterior end, by suspending compression near the outlet, afforded adequate relief without any additional interference. In a third case, however, this procedure afforded no relief alone, but served as a helpful preliminary to the subsequent external operation. Regarding chronic suppuration of the frontal sinus, I have recently discussed[1] the scope as well as the limitations of the so-called conservative treatment by means of middle turbinectomy, enlargement of the naso-frontal duct and curettage of the adjoining ethmoidal cells, the purpose of which is drainage. In cases of mild uncomplicated single sinus suppuration this is followed by betterment and occasionally by recovery. Moreover, even when a radical operation is the logical remedy, inasmuch as a preliminary turbinectomy is helpful, it may be or perhaps even should be first invoked, provided the symptoms be not urgent and provided, also, that the patient's available time be not thus exhausted. Sixteen of my total series of middle turbinectomies were made in selected cases to meet this indication; of these, seven patients are now well, five are improved and four are but little benefited.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

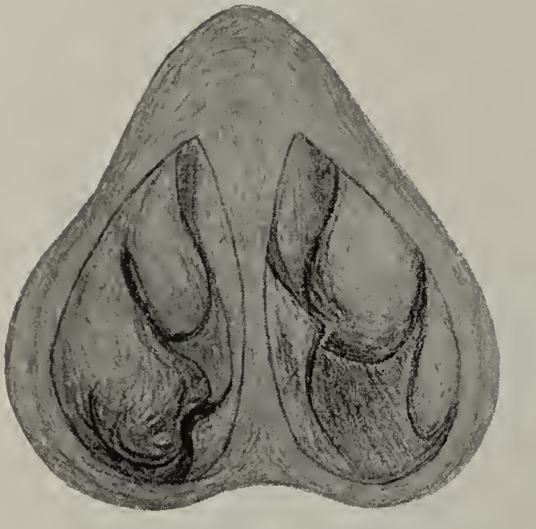
Fig. 1.—Nasal outline. Disease unilateral; first degree.

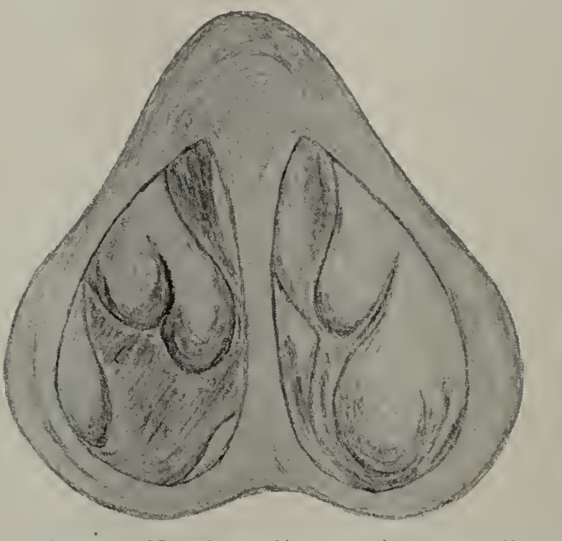
Fig. 2.—Nasal outline. Disease unilateral; second degree.

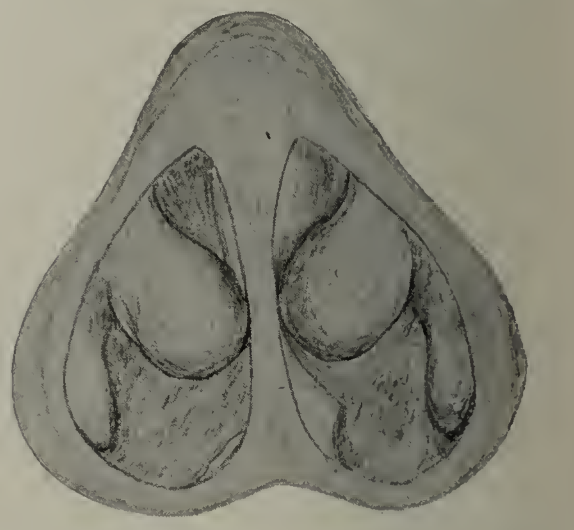
Fig. 3.—Nasal outline. Disease bilateral; first degree.

It is well known that in acute empyema of the antrum of Highmore spontaneous recovery usually takes place, but it is not generally recognized that the same fortunate outcome may occur in that class of cases which grades from the prolonged subacute condition to the partly quiescent chronic state. This recuperative effort of Nature surely may be enhanced within limits by the removal of the "dam." It so happened that in four cases of my series, cases of long duration but of varying activity, I had done middle turbinectomy, intending it to be merely a preliminary to the radical antrum operation; but the patients, content for the time, drifted away and when next seen, months or years afterward, were found to have recovered completely from the antrum suppuration. Again, it happened in two cases that having first operated radically through the canine fossa, making also a counter-opening from the antrum to the inferior nasal meatus, afterward a little pus continued to collect around a polypoid middle turbinal. After this structure was resected and the underlying distended bulla curetted away, the pus formation entirely ceased, and that within a period sufficiently brief to establish the fact that the ethmoidal cells and not the frontal sinus had been implicated, perhaps having been the fountain head of the infection. On the other hand, in a third case of the sort, after a radical antrum operation, done, by reason of the patient's advanced age, simply under cocain anesthesia, on looking across the antrum, one could see the pus trickling into that sinus from an inlet high up on its nasal wall through which a probe, projected across the antrum, would pass and enter a distended ethmoidal cell. Subsequently, middle turbinectomy and curettage of the cells was done, but the suppuration, though lessened, continued still, thus showing that not the ethmoidal but the frontal sinus was its source. This patient, however, is so far improved by the freedom of the drainage established that, at the age of 84 years, it is doubtful if more should be attempted.

These particular cases are cited, furthermore, to support my suggestion and practice when performing the radical antrum operation, opening widely from the canine fossa, that, instead of making the customary counter-opening through to the inferior nasal meatus, it is easier and better to break freely through the nasal wall from the antrum at the level of the middle meatus and incidentally to curette away part of the ethmoidal cells, making at the same time, if not before, or else afterward, a middle turbinectomy.

Even when the main surgical treatment is attempted from the nasal side by way of the inferior meatus as a substitute for the wider opening of the canine fossa, it is well to supplement it by resection of the middle turbinal. I have adopted this line of treatment in one only selected case. The patient had been under my observation for two years before consenting to any operation, notwithstanding that she was repeatedly shown Schmidt's syringe full of pus aspirated first from one antrum and then from the other. A few small polypi indicated conjoined ethmoidal disease, while the exact state of the frontal sinuses was uncertain. Bilateral inferior turbinectomy with wide penetration of the lower naso-antral wall supplemented by curettage, and bilateral middle turbinectomy with ethmoidal curettage required four major séances at varying intervals, which, together with several minor séances, extended the treatment over several months. The patient, however, was at no time wholly disabled from duty and the result is brilliantly satisfactory. At the same time I do not wish to be understood as advocating the general adoption of an exclusively nasal route to the antrum, but when it is adopted I believe it should be reinforced by resection of the middle turbinal.

The Second Indication.—To promote drainage and cleansing in certain types of atrophic rhinitis (ethmorhinitis atrophicans).

It should be noted that only certain types of atrophic rhinitis are designated as presenting conditions which call for middle turbinectomy and not the whole complex of stages, forms and separate diseases which now fall under that one name. Nor is it meant that even suitable cases are thereby wholly curable, but only that drainage and cleansing being promoted a degree of improvement follows which, by comparison with the previous state, may amount to a practical cure. Michel[2] early sought to prove that the underlying cause of *rhinitis atrophicans fœtida* is sinus suppuration—any sinus, large or small. Grunwald[3] followed with considerable proof that it was not a diffused, but a focal, suppuration which might be located either within or out of the sinuses. Bresgen[4] attributes it to suppuration in either the ethmoidal cells or sphenoidal sinuses and cites seven cases of recovery through curettage. Logan[5] ascribes it to suppuration of the ethmoidal cells, including the posterior, and cites four recoveries. Krieg[2] weighs the evidence pro and con, but leans toward the sinus theory. My own conviction is that certain types at least originate by suppuration, not in the larger nasal accessory sinuses, but chiefly in the cells of the ethmoidal labyrinth, in and around which putrefactive fermentation of the slowly escaping pus is facilitated by the small size of the cells and their anfractuous conformation, and that this pyogenic infection, though primarily focal, later may become more or less diffused over the general nasal surface. I am far from alleging, however, that all cases of atrophic rhinitis fall into this category, although an ever-increasing proportion of them I now record as ethmo-rhinitis atrophicans. I have selected for brief reference six cases from a total of twenty-four, because the consecutive steps in the atrophic process which they represent, as illustrated in Figures 1 to 6, constitute a convincing object lesson.

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[1] The Conservative Treatment of Chronic Suppuration of the Frontal Sinus, Trans. of the Amer. Laryn. Assoc., 1895.

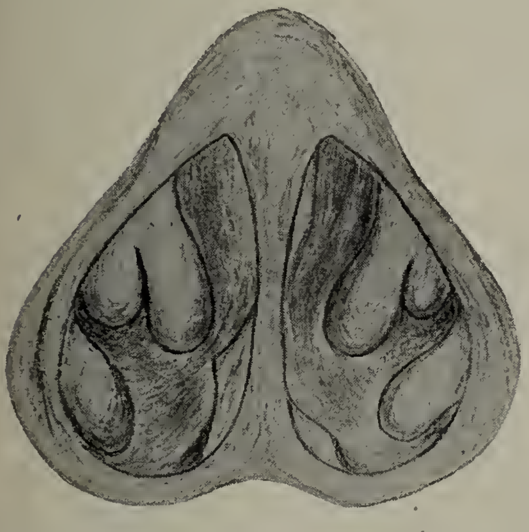

Fig. 4.—Nasal outline. Disease bilateral; second degree.

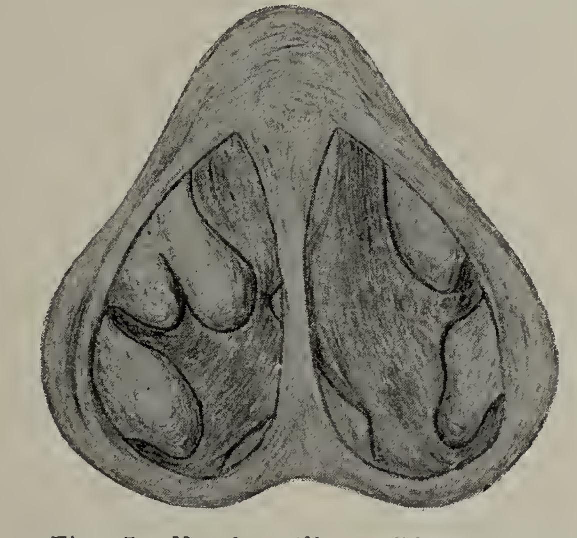

Fig. 5.—Nasal outline. Disease bilateral; one side shows first degree and the other side second degree.

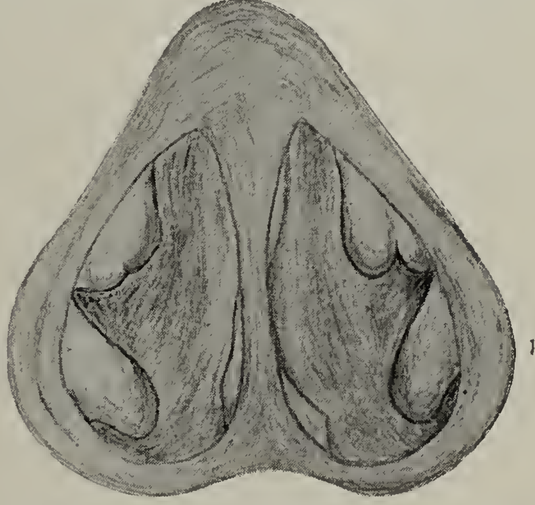

Fig. 6.—Nasal outline. Disease bilateral; third degree.

In Figure 1 is shown the nasal outline of Miss P., aged 14, in whom the disease was strictly unilateral, a limitation recorded in three out of this series of twenty-four cases. The left inferior turbinal was atrophied, the meatus too spacious and incrusted; the left middle turbinal was enlarged and had a characteristic pultaceous glazed aspect, being bathed with a viscid mildly fetid secretion which appeared to proceed from the region of the ethmoidal labyrinth and which required a strenuous effort to clear away. The right nostril presented moderate hypertrophy, the patient stating that it was often "stopped," but had no disagreeable discharge like the left side. The condition was carefully studied for a time, a small adenoid being removed without benefit. I then made a total left middle turbinectomy, partial curettage of the ethmoidal cells and abscission of the opposing spur, thus securing a wide space and good drainage to replace the former point of compressed contact and confined secretion. The annoying discharge promptly changed in quality and diminished in quantity, a practical recovery soon following.

Figure 2 depicts the next step in the progress of the disease, which I will call the second degree. Miss P., aged 21, likewise had only one nostril affected, the inferior turbinal being atrophied and the middle turbinal still in a state of glary pultaceous enlargement. The advancement of the atrophic process is shown in the lessened breadth and concave absorption of the middle turbinal from pressure toward the septum by the expanded ethmoidal bulla—one of the affected cells. The turbinectomy included removal of part of the adjoining bulla and resulted in marked benefit, but being done years ago, the operation was less thorough than would now be made.

Figure 3, taken from Master F. V., aged 5, simply represents the common bilateral form of the same initial stage of atrophic ethmo-rhinitis that was shown in the first figure.

Figure 4, in the case of Mrs. K. S., aged 45, represents the bilateral form, which has advanced to the second degree, the same as depicted for the unilateral case in Figure 2. The operation on this patient was reasonably thorough, and resulted in pronounced and lasting diminution of the crust formation and fetor.

Figure 5 represents on one side the second degree of ethmo-rhinitis atrophicans, as above defined, and on the other side, in the same person, Mr. R. S., aged 28, what I judge to be the next step in the advancement of the atrophic process, hence termed the third degree, in which the middle turbinal is reduced to a mere rudiment. It is difficult to determine whether the slight prominence is really the remains of the turbinal itself or the proximal side of the ethmoidal bulla. The fact that the two conditions, respectively, affected symmetrical anatomic features at the same moment, with the bilateral presence of crustation fetor and lower turbinated shrinkage, indicates that these two degrees are results of the same pathologic process, although it is not alleged that their sequence is regularly in the order of one, two, three.

Figure 6, from Miss A., aged 17, represents the third degree, which is almost but not quite equally advanced on the two sides. In operating, in the left nostril I was able to insinuate my specially formed scissors below and above the anterior end of the rudimentary middle turbinal and to cause the wire to engage the rest of it, but in the right nostril the very slight prominence almost without a crevice beneath, afforded no adequate grasp for scissors and wire, only the smallest fragment being detachable in this way. In other words, Nature had already done a turbinectomy. It is in this manner, I would suggest, that Nature affords that considerable relief which is known to come to these patients late in life, the atrophic process itself operating in the end to improve the drainage.

34 Washington Street.

[A GENERAL DISCUSSION ON ALL THE PAPERS ON THE TURBINATE WILL FOLLOW THE LAST PAPER OF THE SERIES, WHICH WILL BE PUBLISHED IN DUE COURSE.]

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[2] Cited by Krieg, Heyman's Handbuch d. Laryn. u. Rhinol., iii, 426.

[3] Die Lehre von den Naseneiterungen, 1896, 66.

[4] Münch. med. Wochschr., 1894, 10 and 11.

[5] Trans. Amer. Laryn. Assoc., 1900.

THE ROLE OF THE WOOD-TICK (DERMACENTOR OCCIDENTALIS) IN ROCKY MOUNTAIN SPOTTED FEVER,

AND THE SUSCEPTIBILITY OF LOCAL ANIMALS TO THIS DISEASE—A PRELIMINARY REPORT.*

H. T. RICKETTS, M.D.
CHICAGO.

THE TECHNIC OF FEEDING TICKS ON THE GUINEA-PIG.

Many embarrassments have been encountered in experiments in which the tick is allowed to feed on the guinea-pig. There are few spots on the body of the latter which he can not reach with his teeth or with the toes of his hind legs, and, since the bite of the tick is very irritating, ticks are frequently dislodged or killed, provided the guinea-pig is not restrained properly. The tick is prone to attach itself to the delicate hairless skin behind the ear or to the ventral surface of the body in the vicinity of the mammary glands. When in the former position it is readily dislodged by the nails of the pig's hind feet, and when in the latter position may be killed by biting. In order to obviate some of these accidents and to prevent the loss of valuable ticks, the following fairly satisfactory technic has been devised:

When testing or feeding an individual tick, the guinea-pig is placed in a pillory for a short time and the tick is allowed to attach itself to the ear or to the back of the head or neck. The pillory prevents the pig from scratching the head, and because of the temporary confinement he seems not to notice the presence of the tick until the latter is more or less firmly attached. Even under these conditions, however, the process is often tedious since the tick, before it is firmly attached, may be thrown off by a violent shake of the guinea-pig's head. After the tick appears to be attached, usually within ten to twenty minutes, the pillory with the pig in place is tied up in a sack having the bottom and sides of canvas and the top of cheese-cloth, this condition being maintained for one or two hours.

At the end of this time the animal is removed from the pillory and placed in a skeleton cage which is surrounded by a sack like that described above, a collar of light linoleum first having been placed about the neck of the pig. The collar is of such width (1 to 1½ inches) that it precludes scratching the head parts, and also prevents the biting of ticks which have become attached to the ventral skin. This width also permits the collar to rest on the bottom of the cage, thus removing the weight, which is slight, from the neck of the guinea-pig.

The cage is made of a frame of wood slats, and has a floor of 1/5 inch mesh wire, which is attached to the frame an inch above its bottom. This wire floor permits the escape of water and grain to the dead space below, and also gives free ticks refuge from the teeth of the guinea-pig, the mesh being sufficiently large to permit ticks of ordinary size to pass below.

When it is desired to feed a large number of ticks, the guinea-pig with its collar in place, is confined to the cage with the ticks at large, the latter being allowed to feed at will. Under this method large numbers of ticks can be fed with a minimal loss and a small expenditure of time.

INFECTION OF THE NYMPH.

Among a group of ticks received from Mr. F. D. Nichols of Hamilton, Mont., Jan. 1, 1907, were four nymphs. They had been taken from horses a few days previously, south of Hamilton, in a district not known to be infected with spotted fever. One of the nymphs was moribund at the time they were received.

January 3, at 5 p. m., the three remaining nymphs were placed on an infected guinea-pig (290), from which they were removed three days later. Guinea-pig 290 represented the eleventh consecutive guinea-pig passage of the strain which was obtained in the spring of 1906, the custom of infecting the monkey and guinea-pig alternately having been abandoned some time previously. Guinea-pig 290 ran a perfectly typical course clinically, the anatomic changes were characteristic and cultures from the heart and organs remained free from bacterial growth.

It was the intention at this time to place the nymphs individually on healthy guinea-pigs in order to test their infectivity. They entered the moulting stage, however, almost at once, and it was impossible to make this test.

Nymph 1 came out of its moult January 27, twenty-one days having been occupied in the process; whereas the moulting period of nymph 2 lasted thirty-four days. Nymph 3 died during the moulting period. Nymphs 1 and 2 appeared as females.

The further history of tick 1 is as follows: January 29 it would not feed. On February 2 it attached itself to the ear of guinea-pig 332, from which it was removed after fifty-seven hours. It had increased rather markedly in size during the feeding.

TEMPERATURE CURVE OF GUINEA-PIG 332.

February 4.......102.6 F. February 7.......104. F.

February 5.......103. F. February 8.......106. F.

February 6.......102.2 F. February 9.......105. F.

February 10..........Had been dead for some hours.

Autopsy.—Enlarged and hemorrhagic axillary, inguinal and mesenteric lymph glands. Spleen was several times the normal size and of a deep bluish-red color, and rather coarsely granular. The suprarenal glands were much enlarged and congested. The kidneys and the liver were congested, but did not appear degenerated. The abdominal viscera showed postmortem discoloration. The heart, lungs and intestines were normal. The skin of the external genitals was not congested nor hemorrhagic, and no eruption was discernible on the skin. A plate culture from the heart's blood gave no bacterial growth.

Diagnosis.—Spotted fever.

The short incubation period, the sudden and high rise in the temperature of the animal and its early death are features which indicated a highly virulent infection. Under these conditions experience has shown that the skin manifestations do not always develop.

On account of postmortem changes in the viscera, transfer of the infection from the dead animal was not attempted.

Second Transmission.—On February 9, after an interval of five days, the tick became attached to guinea-pig 363, from which it was removed after feeding for twenty-two and one-half hours.

TEMPERATURE OF GUINEA-PIG 363.

February 11.......103.4 F. February 13.......105.4 F.

February 12.......103.8 F. February 14.......105.5 F.

February 15...105.2 F. Blood taken from the heart.

February 16.......104. F. February 17.......103.9 F.

February 18..103.8 F. Scrotum swollen and congested.

February 19..........Dead.

Autopsy (Immediately after death).—Lymph glands were moderately enlarged and congested. No changes were found in the liver, lungs, heart or intestines. There were no cutaneous hemorrhages, but the skin of the face and external genitals was extremely cyanotic. A plate culture of the heart's blood remained sterile.

Diagnosis.—Spotted fever.

The 3 c.c. of blood drawn from the heart February 15 were injected intraperitoneally into guinea-pig 376 immediately. The following course of fever was recorded:

February 16.......103.4 F. February 19.......105. F.

February 17.......103.1 F. February 20.......106.2 F.

February 18.......105. F. February 21.......105. F.

February 22..96.2 F. Killed by chloroform when moribund.

The findings at autopsy were identical with those recorded above and need not be repeated. Plate cultures of the heart's blood, spleen and liver remained sterile. In making the plate cultures of the organs fragments of the tissues were triturated in bouillon and the emulsion thus obtained was mixed with the liquefied agar before plating.

Third Transmission.—On February 26 the tick attached itself to the ear of guinea-pig 406, where it was allowed to remain for thirty hours. On March 3 the temperature rose to 104.1 F., in the vicinity of which mark it remained until

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* From the Pathologic Laboratory of the University of Chicago.

March 6, when the animal died. The anatomic findings were as described above, and cultures from the heart, liver and spleen were likewise sterile. The skin of the scrotum was deeply congested.

The second nymph underwent a positive test on guinea-pig 364 on February 10, after a feeding period of twenty-two and one-half hours. Blood was drawn from the heart of this animal on the first day of fever (February 15) and 3 c.c. were inoculated into guinea-pig 377. The latter animal ran a typical course and was killed on the sixth day after infection in order to obtain material for the inoculation of monkey 26. The anatomic changes were characteristic and the bacteriologic result was, as usual, negative.

Ten cubic centimeters of defibrinated blood from guinea-pig 377 were given to monkey 26 intraperitoneally (February 21). The following course of fever developed:

February 22	103. F.	February 25	105.3 F.
February 23	104.6 F.	February 26	105. F.
February 24	105. F.	February 27	104.4 F.

Killed February 27, the blood being utilized for various experiments.

The anatomic changes were typical and cultures from the blood and viscera gave no growth.

In order to test the validity of the experiment still further three guinea-pigs were inoculated with the blood of monkey 26. All three developed spotted fever, exhibiting typical symptoms and anatomic changes.

These results are of especial importance in two particulars: In the first place it must be considered that the tick, in its rôle as the carrier of spotted fever, is itself the victim of an infection; that the transmission is not purely mechanical. The following facts support this conclusion: First, the tick called nymph 1 retained its infectivity for fifty-four or fifty-five days, having in the meantime passed through the moulting stage. Whereas, outside the living body, the viability of the virus under the most favorable conditions, i. e., in the ice chest and in the dark, is less than half this period, and may be only one-third as long.

If we assume that the virus could have remained in a moist condition on the mouth parts of the tick, infectiousness would have been retained no longer than seven or eight days, since under the conditions surrounding the tick, i. e., in diffuse light and at room temperature, the virus in one experiment lived approximately a week (from unpublished experiments). It is quite certain, however, that the virus would not remain in a moist condition on the mouth parts of the tick, but, on the contrary, that it would become dried speedily. Extreme desiccation over sulphuric acid usually destroys the virus in from twenty-four to forty-eight hours. It is probable that desiccation as it occurs under natural conditions of temperature and atmospheric moisture would not destroy the virus so soon, but it would be difficult to believe that its life could extend for fifty-four days under such circumstances.

The experiments quoted afford, in addition, some positive evidence that the virus proliferates in the tick. I have never found the blood of animals suffering from spotted fever to be infective in doses under 0.05 c.c., and usually the minimal pathogenic dose is nearer 0.1 c.c. the tick, nymph 1, infected three guinea-pigs at successive intervals, and if we assume that the blood by which the tick was infected possessed the highest virulence, and that the virus underwent no proliferation in the tick, it would have been necessary for the tick to ingest 0.15 c.c. of blood, at least, in order that it might later infect three guinea-pigs. This volume of 0.15 c.c. is greatly in excess of that of the tick, since in this instance the adult was of unusually small size. Hence it seems necessary to conclude that the tick becomes infected, that the virus proliferates in its body, and that on biting the guinea-pig the virus, equivalent in quantity or virulence to that contained in 0.05 to 0.1 c.c. of blood from an infected animal, is in some way injected.

In the second place these results have an important relation to the disease as it occurs in the Bitter Root Valley and other localities. They indicate that the adult tick which infects man in the spring does not of necessity acquire its own infection in the spring, but may have acquired it by biting any one of several possible hosts during the autumn or winter when in the nymphal stage.

It may with some reason be suggested that the experiments cited above do not prove that these ticks acquired their infection when in the nymphal stage, but, on the contrary, that they had become infected under natural conditions, that perhaps they were infected as larvæ, or that they derived their infection from the parent tick through inheritance. The possibility of these events can not be denied, although the fact that the ticks came from a vicinity not known to be infected makes it rather improbable.

Experiments are now being conducted to determine the possibilities of infecting the larvæ and of hereditary transmission, and they will be reported at a future time.

OTHER EXPERIMENTS WITH THE "WOOD-TICK."

Transmission of Rocky Mountain spotted fever by means of the adult female has already been reported by King[1] and by me,[2] and I have also reported[3] transmission by means of the adult male tick.

By means of ticks obtained from Montana in the early part of 1907 I have repeated these experiments many times. At present I shall only relate the main facts concerning the positive results, adding the statement that many irregularities have been met with, and that the ease with which individual adults become infected is subject to considerable variation.

Male tick 7 produced a course of fever in guinea-pig 339 which lasted for seven days. The animal recovered and one month later died of a bacterial infection. Female tick 4 fed on an infected monkey (22) for six hours and forty minutes, Jan. 12, 1907. Subsequent tests of a thorough character on guinea-pig 315 during the next month demonstrated that the tick had not become infected from the monkey. February 9 the tick fed on an infected guinea-pig (333) for twenty-two hours. Nine days later it was allowed to feed on a normal guinea-pig (381) for twenty-two hours. This animal died in two weeks with anatomic changes which were not characteristic of spotted fever and the test was thrown out. A second test was made February 26 (guinea-pig 404), the animal showing a course of fever, and at its death in nine days, anatomic changes which are characteristic of spotted fever in the guinea-pig. Other successful tests were made on guinea-pig 417, March 7, and later in conjunction with other ticks. Guinea-pig 415 was bitten by female ticks 4 and 7. After an incubation period of forty-eight hours fever developed, and the animal died in five days after the ticks were first attached. A similar result has been obtained several times by permitting more than one infected tick to bite a guinea-pig, hence it is very probable that the virulence of an infection has a relation to the number of infected ticks which feed on the animal.

Female tick 7 did not become infected after feeding on monkey 22 for fourteen hours, as shown by a test on guinea-pig 320, and on other pigs during the course of the next month. February 10 it was allowed to feed on an infected guinea-pig, the duration of the feeding not being noted. Ten days later the disease was transmitted to guinea-pig 386, on which the tick fed for thirty hours.

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[1] Public Health Reports, July 26, 1906.
[2] The Journal A. M. A., August 4, 1906, 358.
[3] Jour. Infect. Diseases, Jan. 1, 1907, 151.

Female tick 8 did not become infected after feeding on monkey 22 for eight and three-fourths hours. Two subsequent attempts to infect this tick failed, one feeding having lasted twenty-four hours and the other fifteen hours. Similar experiences have been encountered with several females and with many males. Female 8 subsequently died in a blackened state, when filled with blood.

Females 12, 14, 15, 17, 18, 19 and 20 were infected by single feedings which lasted from twenty to thirty hours. This was, of course, proved by tests on normal guinea-pigs.

Guinea-pig 431, bitten by female tick 17, was infected and died of spotted fever after the unusually long incubation period of eleven days.

The experience of the past winter has shown that it is much more difficult to infect the adult male than the female tick. This may have a direct relation to the fact that the male is less voracious in its feeding than the female, that it ingests a smaller quantity of blood, and hence has less chance of becoming infected.

Concerning the mechanism by which the tick produces infection, it is possible to produce only hypotheses at this time. That the tick injects a toxic secretion into the skin is manifest from the erythema, edema and softening of the epidermis which accompany the bite. Not infrequently a small area of tissue sloughs after the tick is removed. In all probability the secretion of the salivary glands is responsible for these local manifestations. It is certain that the latter have no relation to spotted fever, since they are produced by normal as well as by infected ticks. In all the experiments so far, both by the artificial inoculation of blood and by the bite of the tick, there is no reason to believe that the deposition of the virus produces a visible local reaction in the subcutaneous tissue.

That the virus of spotted fever is introduced by the tick with the salivary secretion is the most plausible assumption, although the possibility of infection by regurgitation from the alimentary tract remains for consideration.

ADDITIONAL NOTES ON THE LIFE HISTORY OF THE WOOD-TICK.

Any observations throwing light on the life cycle of the wood-tick (*Dermacentor occidentalis*) are important, because of the relation which this arachnid bears to the spotted fever.

In a previous article[4] I gave a short account of the life history of the wood-tick as it was observed under artificial conditions in a single instance. The life cycle was observed from the time the female began to lay her eggs, June 21, until the young had emerged from their second moult as young adult ticks about September 10, a period of somewhat less than three months. Through accidents it was not possible to preserve the new brood until they had ripened sexually, hence to this extent there exists a temporary gap in my observations. Inasmuch as adult ticks are rarely found in the autumn in the Bitter Root Valley, it seems evident that the comparatively rapid evolution of the cycle in the experiment cited was due to the presence of a host constantly and to the rather warm temperature under which the experiment was conducted.

In order to determine with some exactness the form in which the tick survives the winter and under what conditions, the Bitter Root Valley was visited in December, 1906. Various theories exist, locally, in reference to this point, the two more prevalent being, first, that the arachnid secretes itself under stones, beneath the bark of dead trees, or that it burrows into rotten stumps to remain there until spring; second, that ticks may be found on horses and cattle in the hills during almost any month of the winter.

Both possibilities were investigated, the former resulting largely in failure. One individual who felt perfectly confident concerning the first theory failed to discover ticks in the suspected localities after several days' search, and my own attempts were as fruitless. That the tick may occasionally be found apart from living animals in midwinter was shown by a miner who, the day before I saw him, had found one in the tunnel of his mine.

The second theory soon found ample verification, and through the kindness of Mr. F. D. Nichols, of Hamilton, Dr. E. F. Dodds and Prof. M. J. Elrod, of Missoula, I received during January and February several hundred ticks which had been picked from horses brought in from the hills for this purpose. Among those received early in January nearly all were in the second moulting stage and after varying periods emerged as adult ticks. With them, however, were four nymphs which had fed moderately and were more or less distended, and a few which had cast off the second skin. The nymphs were those used in the experiments cited above. During February all the ticks received were either in the second moulting stage or had emerged from it.

Early in March I obtained from Mr. Nichols about thirty adult females which were greatly enlarged, and some of which began the deposition of eggs within a few days.

In the laboratory experiment cited above it was noted that the ticks left the guinea-pig when they had developed sufficiently to moult. This appears not to be the rule, however, since a very large percentage of the ticks which were in the second moult when received still grasped lamellæ of dried epidermis with their mandibles, the softened epidermis having been torn loose at the time the ticks were removed.

It seems probable that the appearance of the "wood-tick" of Montana in an overwhelming "crop" during March, April and May, and its apparent absence during other periods are the results of climatic conditions, and that it is prevented from being a perennial pest only on account of these conditions. It seems to be only ignorance of the nature of the larval, nymphal, and moulting forms which has created the impression in the Bitter Root Valley that the tick disappears entirely in July to reappear only when spring comes. Description of these forms to residents has frequently shown that they have been observed, although not identified.

Examples of exceptional development have been reported to me a number of times, such as the precocious appearance of a few adult ticks in the late summer or fall. I was shown a larval tick which had attached itself to the ear of a child in December, and in April a nymph obtained from a similar source. It may be assumed that the larva seen in December represented eggs which were laid late in the summer or in the fall rather than in the early summer, and that the nymph seen in April came from an egg which had been deposited unusually early in the spring or unusually late in the fall. These examples of precocious or tardy appearance of the tick may well have a relation to the rare occurrence of spotted fever so late as August, or so early as February, rather than during the months of spring at which time the disease prevails habitually.

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[4] Further Observations on Rocky Mountain Spotted Fever and *Dermacentor Occidentalis*, THE JOURNAL A. M. A., Oct. 6, 1906, 1067.

It is difficult for the residents of the Bitter Root Valley to believe that the tick lives exclusively as a parasite on animals, on account of the widespread and more or less uniform distribution of the arachnid in nature. It is thought it must live to some extent at least on vegetable or on dead insect material. There is as yet no direct evidence to support this suspicion.

It is true that among the foothills the tick seems to be omnipresent, yet the uniformity of its distribution even in these localities is open to doubt. It is not uncommon to learn from a ranchman that more ticks may be found on one hill than another which is in close proximity. Horses and cattle roam practically all the foothills to some extent, especially during the fall and winter. During their residences in such places they collect innumerable ticks, probably in the form of larvæ chiefly. The young ticks grow and moult on the host and when they reach adult form one would be safe in assuming that large numbers drop off, or are rubbed off against bushes and small pines by the animals. A high wind may be an important factor in desseminating ticks, for a ranchman related his experience in driving home one evening in the spring during a violent windstorm. He felt particles striking his face and clothing, and on reaching home found a large number of ticks on his clothing. From my own experience I can state that ticks climb small pines to at least the full height of a man. It is probable that they ascend higher than this, and they are so light that without doubt they could be easily carried by a strong wind for some distance.

It is another fact of importance that the tick has increased greatly in numbers since the valley has been well settled and the quantity of the stock has increased. This is agreed to by all who have lived long in the valley.

CONDITIONS IN THE LO LO VALLEY.

The conditions in the Lo Lo Valley during the past two years are very important. Lo Lo Creek is tributary to the Bitter Root River, and its valley for some years has been considered as badly infected. In 1906 this locality had no infections, and there was hope that the disase had died out there. If the disease is kept alive by ticks which have bitten infected men, there would be some ground to hope that a year without an example of infection in man might result in the disappearance of the disease. If after a year of no infections cases did appear in the following year, three possibilities present themselves in the way of explanations: 1, Certain ticks may live for two years instead of one year, the latter being the usual period of life; 2, the virus may be transmitted through two generations of the tick without its renewal from an infected host; 3, each generation of ticks may acquire the disease afresh each year from some susceptible host other than man (see below). There is not sufficient ground at present for considering a fourth possibility, that the tick becomes infected from decaying organic matter.

As stated, no cases occurred in the Lo Lo Valley during 1906, and but one has appeared in 1907. It is hoped that the first two possibilities can be decided experimentally.

SUSCEPTIBILITY OF THE GOPHER AND OTHER ANIMALS.

The third possibility mentioned above, that spotted fever may be kept alive in a susceptible host other than man, has received some support this year. Assisted by Mr. P. G. Heinemann, I have found that the indigenous gopher or ground squirrel[5] may be infected by inoculation and that one attack confers immunity to second inoculations. Its susceptibility is much less than that of the guinea-pig and is not perfectly uniform. The disease was again conveyed to the guinea-pig from the inoculated gophers. I do not maintain at this time that the gopher exclusively is responsible for the maintenance of the disease, although this is possible.

The susceptibility of other animals found in the valley is being investigated. Dr. William M. Chowning cooperated with us in the inoculation of a horse, which received about 60 c.c. of blood subcutaneously from infected guinea-pigs. After a brief incubation period, the animal ran a short but rather high course of fever. The horse resisted entirely a second inoculation of 60 c.c. of infected blood from man and monkey, the experiment being conducted by Mr. Heinemann and myself. Assisted by Mr. Heinemann, a second horse was inoculated with 10 c.c. of infected blood from man. No distinct reaction followed. A calf, 2 weeks old, failed to react following the inoculation of over 30 c.c. of blood from infected guinea-pigs.

INFECTED TICKS IN NATURE.

Although the experimental transmission of Rocky Mountain spotted fever by means of the "wood-tick" attracts the gravest suspicion to this arachnid as the agent of infection under natural conditions, the theory of tick-transmission can not be considered as proved circumstantially until infected ticks are discovered in nature. Assisted by Mr. Heinemann,[5] it has been possible to demonstrate that infected ticks do exist under natural conditions on the west side of the Bitter Root Valley. The ticks were collected from vicinities in which the disease appeared this year, partly from horses and cows and partly from the woods.

A group of thirty-six males taken from the vicinity of Mr. Hickey's ranch produced the disease in guinea-pig 596, which presented a typical clinical course with scrotal hemorrhages, and died in twelve days after the ticks were first attached. The anatomic changes were characteristic of spotted fever in every detail, as it occurs in the guinea-pig, and cultures from the heart, liver and spleen remained free from discoverable bacterial growth.

I take the position that these experiments connect the tick unmistakably with the occurrence of spotted or tick fever of man in the Bitter Root Valley, and that without them the "tick theory" would lack essential support.

A CLINICAL STUDY OF BLOOD PRESSURE VARIATIONS IN DIABETES AND THEIR BEARING ON THE CARDIAC COMPLICATIONS.*

ARTHUR R. ELLIOTT, M.D.
CHICAGO.

The pathologic conditions of the circulation in diabetes and their bearing on the prognosis of that disease have been made a subject for publication by a number of observers, including Jaques Mayer, O. Israel, Schott, von Schmitz, Ebstein and Leonard Weber. My purpose in reopening the subject for discussion is to consider the question from the vascular standpoint and to submit certain observations on blood pressure in diabetes which I have conducted, covering a period of two years.

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[5] The following experiments, with others, will be reported in detail, in conjunction with Mr. Heinemann in the near future.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Reports differ widely as to the condition of the heart in diabetes. There are undoubtedly many cases in which the heart is normal or where the state of the organ corresponds to the general nutritive condition. It would be an amazing exception to the rule of toxic degenerations if the circulatory system could withstand without detriment the irritation of so prolonged and in many cases so intense a toxemia as characterizes this disease, and consequently it is not surprising that in a considerable percentage of cases some degree of cardio-vascular impairment is discoverable.

Saunby states that in 40 per cent. of his cases the heart was free from noticeable changes. In about an equal proportion it was found to be pale and soft, and in 13 per cent. enlarged. O. Israel found cardiac enlargement in 10 per cent. of cases observed. J. Mayer records an average of 21.6 per cent. of cardiac enlargements in his first series and 27 per cent. in his second series. Virchow's autopsy reports yield a total of 13 per cent. cardiac enlargements. The average for these assembled statistics is 17 per cent. cardiac hypertrophy in diabetes. No accurate particulars are forthcoming regarding the age of patients and duration of the disease. Some degree of renal change was a pretty constant accompaniment. In the severe toxic forms of diabetes the renal condition is either a functional hypertrophy or hyaline degeneration of the tubular epithelium. In the chronic milder type of cases the renal alterations are frequently of the nature of chronic nephritis.

In rapid progressive forms of diabetes occurring in young, spare individuals cardiac hypertrophy is seldom encountered, the myocardial changes being fatty rather than hyperplasic. The histologic changes in the heart wall in this type of case are neither pronounced nor definite. The myocardium may be pale and soft, or more rarely show marked fatty changes, with brown atrophy. Glycogen granules have been found between the muscle fibers (Frerichs). Degenerative conditions of the myocardium are probably much more rarely detected during life than after death, unless attention is called to their existence by pronounced symptoms. The acid intoxication and emaciation of inveterate forms of diabetes produce grave cardiac under-nutrition, with enfeeblement of the organ. The supreme result of this cardiac weakness was pointed out by von Schmitz, who described a condition of collapse or syncope from asystole, characterized by a very rapid, weak pulse, cold extremities, but without the peculiar panting respiration which marks true diabetic coma.

In seeking an explanation for the frequent existence of cardiac impairment in diabetes the state of the circulation is of the first importance. The introduction of methods for the clinical estimation of blood pressure furnishes us with the means for determining whether or not this factor is of importance in producing secondary cardiac defects in diabetes in somewhat the same manner as in other chronic intoxications. Very little light has as yet been thrown on this question. Such information as is forthcoming from a study of the literature consists mainly in dogmatic assertion unsupported by adequate statistics. Potain[1] stated in 1902 that the blood pressure is notably high in diabetes, surpassing even that observed in Bright's disease. This statement has found wide currency. Tiessier[2] states that in his opinion diabetes is one of the three great hypertensive diseases, classing it in this regard with aortic insufficiency and interstitial nephritis. He qualifies this sweeping statement by excluding the type of lean diabetes, that is so often complicated with pulmonary tuberculosis, in which he states we may observe hypotension instead of hypertension. Vaquez[3] reports that he had never found an elevated arterial tension in diabetes. Ott[4] reports observations on two cases, one with systolic pressure of 225 mm. in an old man with albuminuria and glycosuria; a second in a man of 40 with 6 per cent. of sugar, having a systolic blood pressure of 105 mm. Hensen includes in his records[5] two cases of diabetes with hypotension. Janeway[6] states that he has seen both high and low blood pressure in diabetes, the latter in severe cases, with marked emaciation and diacetic acid in the urine, the former, especially in the milder forms of the disease, in stout, elderly people, where chronic nephritis or arteriosclerosis existed.

The foregoing statements and observations practically cover the question as it stands to-day. It is apparent that they do not furnish an adequate basis on which to judge the matter, for besides lacking support from statistical observations, they are conflicting in character and leave the question in all essentials an open one. The observations submitted herewith are offered as a contribution toward its more accurate solution.

My observations cover a series of twenty-five cases of diabetes of different types, at all ages, taking them as they came under treatment for the disease. The majority of the cases were observed in private practice, a few in hospital and dispensary work. The instruments employed were Stanton's sphygmomanometer, with a 12

TABLE OF DATA OF DIABETIC PATIENTS.

Number	Sex	Age	Body Weight Pounds.	Maximum Glycosuria per ct.	Acetone Bodies	Albuminuria	Maximum Systolic Blood Pressure mm.	Minimum Systolic Blood Pressure mm.	Average Systolic Blood Pressure mm.	Complications
1	F.	21	134	1.66	0	0	120	108	114	
2	F.	46	113	4.	0	0	140	130	137	Gallstones.
3	F.	54	185	3.33	0	0	140	—.	140	
4	M.	28	130	4.	+	+	105	95	100	Alcoholism.
5	M.	46	122	3.33	+	+	125	85	100	Carbuncle, neuritis, one attack of epilepsia acetonica; Death in coma.
6	M.	56	176	2.75	0	+	156	135	147	Arteriosclerosis, myocarditis, cerebral thrombosis.
7	M.	24	136	4.	+	+	105	80	95	
8	F.	71	186	1.66	0	0	150	145	147	Arteriosclerosis, card. hypertrophy.
9	F.	50	152	2.	0	0	125	120	122	
10	F.	56	195	6.66	0	+	228	200	210	Chron. nephr., card. hypertrophy, hemor. retinitis, gallstone.
11	M.	56	205	1.	0	0	115	115	115	
12	M.	48	207	2.50	0	0	125	120	122	
13	M.	36	135	5.	+	+	110	90	100	Death in coma.
14	M.	29	133	3.75	+	0	102	100	100	
15	F.	35	149	3.	+	0	115	105	110	
16	F.	55	137	3.	0	+	165	140	150	Chron. neph., card. hypertrophy.
17	M.	54	160	3.	0	+	165	130	145	Chron. neph., retinitis, double mitral lesion. Graves' dis.
18	M.	60	185	1.33	0	0	145	140	142	Arteriosclerosis.
19	M.	76	210	1.66	+	+	173	165	170	Arteriosclerosis, myocarditis, one attack card. syncope.
20	F.	75	160	3.	0	0	140	140	140	Gallstones.
21	F.	21	107	3.	+	0	125	105	115	Graves' disease.
22	M.	13	76	5.	+	0	90	...	90	
23	F.	26	115	4.	+	+	125	80	95	Death in coma. Sister of patient 13.
24	F.	56	150	2.	0	0	170	165	168	Uterine fibroids. Operation.
25	M.	46	237	2.50	0	0	110	105	107	Chron. appendicitis. Slight pyrexia.

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[1] La pression arterielle de l'homme à l'etat normal et pathologique, Paris, 1902.

[2] Gazette des Hôpitaux, Nov. 8, 1904, 1243.

[3] Gazette des Hôpitaux, Nov. 3, 1904, 1221.

[4] Montreal Med. Jour., November, 1902.

[5] Deutsche Archiv. f. Klin. Med., 1900, lxvii.

[6] The Clinical Study of Blood Pressure, 1904, 236.

cm. arm-band for office readings, and Cook's modification of the Riva Rocci instrument, with 9 cm. arm-band, for bedside observations. A total of one hundred and fifty observations was made. In all of the cases except two (Nos. 3 and 22), numerous readings were taken. In many of the cases, especially those of the severe type, it was found exceedingly difficult to secure satisfactory estimations of diastolic pressure with the instruments employed, and for this reason only the records of systolic pressure are included in the table submitted:

SUMMARY OF BLOOD PRESSURE RECORDS.

Number of cases observed	25
Males	13
Females	12
Average age of patients	45
Average weight of patients (pounds)	156
Average systolic blood pressure (mm.)	127

Age is the most important factor in influencing the type of diabetes. It is well known that the disease is less severe and progressive in the stout and elderly than in young, spare individuals. The age of 50 years often proves to be the deciding factor between the severe toxic form of the disease and the chronic mild type. In the series under consideration thirteen patients were under 50 and twelve over that age. The average blood pressure of the former was 107 mm. and of the latter 150 mm. Their average weight was 138 for those under 50 years and 175 for those over that age. Age and weight are consequently seen to exert a marked influence in determining the degree of blood pressure. Acid intoxication (diaceturia) was observed in nine of the thirteen cases under 50 years of age and in only one of those over 50. The intensity of the glycosuria was apparently without effect in increasing the degree of blood pressure. Fifteen of the series observed presented a maximum glycosuria of over 3 per cent. The average blood pressure in these cases was 121 mm. In the remaining ten cases the blood pressure averaged 135 mm.

If we are justified in drawing any conclusion from these figures, it is that an inverse rather than a direct ratio exists between the degree of glycosuria and height of blood pressure. This is really no more than we might expect, in view of the fact that the milder types of diabetes are observed in elderly people who are apt to have arteriosclerosis and in consequence higher average arterial pressures.

Perhaps the most interesting point involved in the present inquiry is the effect of the acid intoxication of diabetes on the blood pressure. In my series there are ten cases which developed acetonuria and diaceturia. The toxemia proved to be permanent in all cases except one (No. 19), although it fluctuated considerably in intensity from time to time.

Number of cases with acid intoxication	10
Average age	33
Average weight	131
Average systolic blood pressure (mm.)	107
Number of cases without acid intoxication	15
Average age	53
Average weight	172
Average systolic blood pressure (mm.)	140

The marked difference in the average values between patients with and without acid intoxication and the apparent disposition to hypotension in the former type of cases suggests a direct depressive influence on the circulation, exerted by the acid toxins in diabetes. Before ascribing any such influence the matter is to be examined further. These patients are invariably asthenic in type and display the general causes of low pressure, i. e., emaciation, malnutrition, mental depression, which produce subnormal values in tuberculosis and the cachectic states generally. To these factors rather than to the acid toxins direct I believe are to be attributed the falling blood pressure curve.

I cite a condensed abstract of weight, pulse, blood pressure and urine records of two cases carefully observed:

Case 7.—Age 24. Diabetes first discovered in August, 1905.

				Urine	
Date.	Weight.	Pulse.	Blood. pressure, mm.	Glycosuria, per cent.	Acetone. Bodies.
Feb. 3, 1906	136	78	104	3.33	Absent.
Feb. 6, 1906	138	76	105	...	Absent.
Feb. 13, 1906	143	72	90	2.50	Traces.
Feb. 21, 1906	141	78	100	2.	Traces.
Feb. 24, 1906	143	66	90	1.66	Absent.
Feb. 28, 1906	141	72	108	2.25	Absent.
Feb. 20, 1907	138	63	80	4.	Marked.
Feb. 25, 1907	138	70	95	2.85	Marked.
March 1, 1907	135	78	100	2.50	Marked.
March 4, 1907	135	80	88	1.50	Marked.
March 6, 1907	133	80	80	3.	Marked.

In the year elapsing between Feb. 28, 1906, and Feb. 10, 1907, I am informed by patient's family physician, he was free from acid intoxication, and remained in fair activity, following his occupation.

Case 5.—Age 46. Disease first discovered October, 1905.

				Urine	
Date.	Weight.	Pulse.	Blood. pressure, mm.	Glycosuria, per cent.	Acetone. Bodies.
Jan. 3, 1906	122	90	125	3.33	Traces.
Feb. 10, 1906	116	90	120	2.	Traces.
Feb. 26, 1906	121	90	120	1.25	Traces.
March 12, 1906	120	78	120	1.66	Traces.
March 19, 1906	122	96	110	2.50	Traces.
April 2, 1906	121	90	105	1.21	Moderate.
April 23, 1906	121	84	110	2.	Moderate.
May 7, 1906	121	90	120	2.	Moderate.
May 24, 1906	121	78	112	2.	Moderate.
June 10, 1906	120	72	100	1.66	Moderate.
July 12, 1906	118	84	110	2.	Marked.
Oct. 9, 1906	114	76	110	2.	Marked.
Nov. 8, 1906	114	78	120	2.50	Marked.
Nov. 29, 1906	110	90	120	2.	Marked.
Dec. 10, 1906	110	90	100	2.50	Marked.
Jan. 8, 1907	110	90	110	2.66	Marked.
March 13, 1907	100	90	105	3.	Intense.
May 21, 1907	?	96	100	3.	Intense.
June, 1, 1907	Death in coma.				

If these records are carefully examined it will be found that while undoubtedly the blood pressure falls progressively during the stage of acid toxemia, it does so in association with a falling weight curve and increasing weakness—evidences of malnutrition which underly hypotension in chronic nutritive diseases generally. I agree with Janeway in thinking that the progressive emaciation and cardiac weakness cause the hypotension in severe cases of diabetes rather than the acid intoxication *per se*. The point is difficult to determine and perhaps not essentially important, inasmuch as the acid intoxication and malnutrition of inveterate diabetes run hand in hand.

In the tabulated record a note is made of the various complications found in many of the cases. It is of importance to appraise the influence of these various factors on the blood pressure record. In a certain number of cases chronic albuminuria was present, unassociated with diaceturia. These cases number five in all, only one of them displaying a slight and transient diaceturia (No. 19). Without exception these five cases gave definite clinical indications of arteriosclerosis or chronic nephritis. The average blood pressure was 164 mm. In five other cases albuminuria developed in small amount late in the disease, associated with prolonged intense diaceturia (acidosis). In these cases the average systolic blood pressure was 98 mm. This observation would indicate that albuminuria occurring as a result of toxic irritation of the kidneys from acid toxins in the urine and hyperfunction has no effect in increasing the blood pressure. The high blood pressure value of the first group is attributable to the complications causing the albuminuria (arteriosclerosis, chronic nephritis).

The only high blood pressures observed in the series herewith reported, with one exception, were noted in association with arteriosclerosis and chronic nephritis. Four cases (Nos. 6, 8, 18, 19) having marked arteriosclerotic manifestations gave average pressure values of 151 mm. Three cases (Nos. 10, 16, 17) complicated with chronic nephritis averaged 168 mm. One patient with uterine fibroids had a systolic blood pressure of 168 mm.

Nowhere in these records do we find the excessive hypertension declared by Potain and Tiessier to characterize diabetes. The only case displaying excessive pressure is Case 10, a female with chronic diabetes association with gallstones and chronic interstitial nephritis. The high blood pressure in this instance is fully accounted for by the complications. Indeed, if we are to accept the indications of this investigation, complications are the only factors making for high pressures in diabetes, and especially is this true of arteriosclerosis and chronic nephritis, both of which are hypertensive diseases. The average systolic blood pressure of cases with arteriosclerosis was 151 mm., and of those with chronic nephritis was 168 mm. After deducting from the series reported the cases complicated with arteriosclerosis and chronic nephritis, we find the average systolic blood pressure of the remaining eighteen to be 115 mm.—a normal average. It is well known that a strong predisposition exists in chronic forms of diabetes to the development of arteriosclerosis. The frequent association of the gouty and obese diatheses with this class of cases may help to explain this tendency to degenerative arterial change. Obesity or gout pre-existing for years before the development of diabetes may carry the individual well along the road to cardiovascular degeneration before glycosuria is discovered. In some cases there undoubtedly coexists the causes of cardiac hypertrophy from associated chronic nephritis—a not infrequent complication.

Albuminuria associated with diabetes, when due to chronic nephritis or renal sclerosis, shows increased pressure values, although toxic albuminuria due to the acid intoxication of diabetes exerts no such influence. There is nothing to show that myocardial and vascular degenerations of the chronic type of diabetes are essential to that disease. All the evidence points to the fact that the complications, especially arteriosclerosis and chronic nephritis, bring about the cardiovascular secondaries. The cardiac hypertrophy noted by pathologists is attributable to these causes and not to the diabetes *per se.*

In the severe progressive forms of diabetes met with most frequently in young, spare individuals arteriosclerosis and cardiac hypertrophy are not frequent or prominent developments. We have seen that the cardiac condition is one of enfeeblement, the myocardial changes being fatty rather than hyperplasic. Marked hypotension characterizes the arterial condition in this form of diabetes—as low reading as 80 mm. being obtained.

These patients are invariably asthenic, emaciated and depressed, and there is much reason to believe that general adynamia rather than special toxic influences are at work to produce the falling blood pressure values of severe cases of this type. The cardiac condition is a progressive exhaustion, eventuating in certain cases in cardiac collapse. The enfeeblement of the organ under these circumstances merely constitutes a part of the general denutrition and weakness. From this standpoint the myocardial changes and "cardiac collapse" described by von Schmitz in inveterate cases of diabetes can hardly be viewed as essential diabetic phenomena, inasmuch as we encounter very similar changes and a like mode of death in other severe exhausting diseases, such, for instance, as pernicious anemia and pulmonary tuberculosis. The attempt to establish the existence of certain cardiac conditions peculiar to diabetes—in other words, a "diabetic heart," has on examination little justification. None of the evidence forthcoming from an investigation of blood pressure conditions in this disease lends itself to such a theory.

The blood pressure observations submitted herewith furnish positive confirmation of the opinion expressed by Janeway in his excellent book[6] that "The disease of itself is without influence on arterial pressure; the occurrence of chronic nephritis or arteriosclerosis or angiosclerosis as a complication explains the hypertension, and the resultant emaciation and brown atrophy or fatty change in the heart causes the hypotension in severe cases."

103 State Street.

LATENT DIPHTHERIA.

A PUBLIC HEALTH PROBLEM.*

MYER SOLIS-COHEN, A.B., M.D.
Instructor in Physical Diagnosis, University of Pennsylvania.
PHILADELPHIA.

CAUSES OF DIPHTHERIA PREVALENCE.

From the public health viewpoint, diseases are studied in order to prevent their spread. Effective prophylactic measures, based on scientific observations, have caused some infectious diseases to disappear from civilized communities, while others have become comparatively rare. Yet, despite the ever-increasing knowledge as to its bacteriology and methods of propagation, diphtheria still remains a fairly common affection. Why is this?

One reason is that only the well-marked cases are isolated and placarded, while persons suffering from the milder forms of diphtheria are permitted to walk the streets, attend school and frequent public places. Another unguarded avenue of contagion is kept open through the false sense of security given by the rules now in vogue as to disinfection. Fomites, which, as shown by Chapin,† Hill, Weichard and Welch, only rarely contain the germs, are required to be disinfected, while no attention is paid to the virulent bacilli which so frequently are present and persist for long periods in the noses or throats of persons with whom the patient has been in just as intimate contact. The fault lies partly with physicians who do not recognize the latent forms of diphtheria and partly with sanitary officers who fail to seek out and guard as sources of infection all those who are liable to transmit the disease.

THE AUTHOR'S CASES OF LATENT DIPHTHERIA.

I have seen twenty-seven cases of latent diphtheria, most of them in my capacity as assistant medical inspector of the Philadelphia Bureau of Health. I regard as diphtheria any pathologic condition, local or general, due to infection by specific diphtheria organisms, as defined by Williams, and apply the term latent to those forms unassociated with pseudo-membrane.

Case 1.—J. S., a schoolgirl of about 12 years, presented enlarged and reddened tonsils on April 29, 1904, and was excluded from school for tonsillitis. A culture taken at the time and one taken later both contained diphtheria bacilli. The girl was not sick at any time.

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* Paper read at the fifty-sixth annual session of the Medical Society of the State of Pennsylvania at Bedford Springs, Sept. 11 to 13, 1906.

† Lack of space prevents the usual bibliographic references to journals and other sources of information.

CASE 2.—N. McI., a girl of about 15 years, had been undergoing treatment by her family physician for chronic sore throat. She complained of pain in the throat and a general feeling of soreness in the body while at school May 12, 1904, and on examination her tonsils were found to be red and swollen. She was excluded from school for "rheumatic sore throat." A culture showed the presence of diphtheria germs. Despite active treatment by means of disinfectant sprays, swabbings and gargles, the diphtheria bacilli persisted in the throat until May 23. The girl felt perfectly well generally the day after she was sent home, but on May 20 the throat was still sore.

CASE 3.—W. L., had a reddened throat and seemed to have fever in school on May 7. Bacteriologic examination was positive. In a day or two the throat was normal. The boy was never sick. Yet the diphtheria bacilli persisted for five days.

CASE 4.—G. W., boy, aged about 15 years, on May 9, at school, presented a reddened throat, a culture from which proved positive. The boy felt perfectly well and the next day his throat was normal in appearance. The bacilli nevertheless persisted for five days.

CASE 5.—C. R., a boy of about 8 years, was excluded from school for tonsillitis, his tonsils being reddened and swollen. He returned in a week with the throat condition unchanged and was again excluded. He had been without medical treatment. On May 12 he returned without showing improvement, and a culture was taken which proved positive. The child was not sick, but looked unhappy.

CASE 6.—F. C., a little child in a home for colored cripples, had been exposed to true diphtheria on May 15; her fauces were reddened and contained diphtheria bacilli. Her throat did not feel sore. It was examined on several occasions and never gave any evidence of diphtheria. The child was well and playing around. She was given no antitoxin.

CASE 7.—S. S., a child in the same home, was exposed to the same contagion. Her throat, though practically negative when examined on May 17, contained diphtheria bacilli. The child's pulse was rapid. There was no other sign of diphtheria.

CASE 8.—J. A., another child exposed to diphtheria in the same home, was given an immunizing dose of 500 units of antitoxin, although her throat on May 15, gave a negative culture. On May 22 she complained of her throat feeling sore, and though on inspection the throat looked clear, a culture proved positive. The child was well and about.

CASE 9.—O. P., a little colored boy, day after day, at school, would complain of headache, which, he said, had persisted since an attack of tonsillitis three weeks before. Nothing wrong could be found on several examinations. Finally, on May 23, a culture of the throat was taken which showed the presence of diphtheria bacilli.

CASE 10.—E. O. N., living in the house where her brother was sick with true clinical diphtheria, developed a mild sore throat which gave a positive culture. The child was not very ill and did not require antitoxin. There was no membrane in the throat.

CASE 11.—M. M., a girl of about 8 years, complained at school for several days of headache, nausea and sore throat. When examined on May 27, the throat contained diphtheria bacilli, which persisted until June 20. There was no pseudomembrane in the throat at any time.

CASE 12.—M. P., a girl, lived in an orphanage in which four cases of diphtheria had occurred in two weeks, despite the fact that as soon as discovered each patient was removed to the Municipal Hospital for Contagious Diseases, and the orphanage was disinfected. The medical inspector heard of seven children with tonsillitis having been isolated for several days in the infirmary and promptly took cultures of their throats on May 25. This child was one of four who gave positive cultures. Her throat was perfectly clear at the time.

CASE 13.—J. L., a boy isolated for tonsillitis at the same orphanage, when examined, had a clear throat, which nevertheless, contained diphtheria bacilli.

CASE 14.—R. S., a boy, also isolated for tonsillitis in the same way, gave a positive culture, although his throat was clear at the time.

CASE 15.—A. H., a boy, was the fourth of those isolated for tonsillitis who were suffering from latent diphtheria. His throat also was clear when examined.

CASE 16.—F. B., a boy of about 8, was told by his mother to consult the medical inspector at school to find out the cause of his having "kernels" in his neck. She said he was subject to them. On examination the tonsils were seen to be very large, but there was no sign of a deposit. The boy had not been ill at all. He was excluded for "tonsillitis," and a culture was taken on June 2 that proved positive. A culture four days later was negative. At the time of the first examination on May 2, and for two days following the child's 4-year-old brother, E. B., suffered from stiff neck. A culture of his throat was taken on June 7. Although no abnormal appearance was noted the culture was positive, and when the child (E. B.) was seen two days later he was sick that day (June 9), for the first time. A typical diphtheritic membrane covered the back part of the tonsils.

CASE 17.—H. H., a boy of about 10 years, complained June 3, while at school, of headache, belly ache, nausea, and vomiting. His throat was slightly inflamed. Otherwise the child was apparently well. A culture was taken, proved positive. Although the symptoms complained of had disappeared by the next day, the diphtheria bacilli persisted for more than a week.

CASE 18.—L. A., a girl of about 11 years of age, was sent from home the moment her brother was taken sick with undoubted clinical diphtheria, but she continued to attend school. Twelve days later her throat was examined and the tonsils were seen to be enlarged and reddened, but no patch was anywhere visible. The child complained of no subjective symptoms; her throat did not feel sore nor did she experience pain in deglutition. A culture taken on Sept. 19, 1904, contained diphtheria bacilli. On October 5 the tonsils were greatly enlarged and reddened and still gave a positive culture. The diphtheria bacilli did not disappear until October 11, on which day the tonsils were still reddened and were greatly enlarged, almost meeting in the median line. This was six days after the child sick with clinical diphtheria had given a negative culture.

CASE 19.—J. R., a girl of about 8 years, was absent from school for ten days with sore throat, but received no medical attention. She returned to school November 21, and remained in school until November 23. Her two sisters were stricken with true clinical diphtheria on November 22. The child at that time appeared perfectly well.

CASE 20.—E. G., a boy of about 11, on November 22, was in the same room with the sister of the patient in Case 19, who developed true clinical diphtheria that same day. The boy (E. G.), had always had hypertrophied tonsils and was subject to frequent attacks of tonsillitis, which was almost constant during the fall, winter and spring. He had been no worse during the past few weeks than previous to that time. His tonsils were enlarged, shiny and reddened on November 28, and contained diphtheria bacilli which persisted for five days.

CASE 21.—J. M., a girl, on December 13, was sent to the medical inspector in school on account of a swelling in the neck. The tonsils were reddened and enlarged and were prominent externally. There were no white spots and no other symptoms. The child had had pain in her ear, etc., a week previously. The throat gave a positive culture, but two days later the culture was negative.

CASE 22.—J. B., a boy, in school December 7, had a sore and reddened throat, which gave a positive culture. A week later a culture of his throat proved negative.

CASE 23.—F. S., was referred to the medical inspector at school on account of otorrhea. A routine experimental culture was taken which proved positive. When the child was seen a few days later on Jan. 9, 1905, there was no sign of diphtheria and the throat gave a negative culture.

CASE 24.—W. G. M., on January 20, complained in school of a headache and presented a mild pharyngitis. A culture taken from his throat contained diphtheria bacilli, which persisted until February 8.

CASE 25.—M. S., a girl, had tonsillitis in school on February 8 and her throat gave a positive culture. Her physician said that he found no tonsillitis, but on February 10 the medical inspector, when taking a culture that proved negative, noted that a mild degree of tonsillitis was still present.

CASE 26.—J. S., a girl, complained of headache in school on February 10. She felt ill but did not suffer pain on swallowing. There was slight reddening and swelling of the tonsils, but no white patches were visible. A culture showed the presence of diphtheria bacilli in the throat. A couple of weeks previously an aunt had had a white spot on her throat which received no treatment. On February 13, the girl still felt ill. Her throat was slightly inflamed and ulcers were present on the inside of her lower lip. Cultures from both the throat and the ulcers were negative.

CASE 27.—L. C., a little girl, developed dysphagia on June 29, 1905, the tonsils being enlarged but not reddened. The temperature was 101° F., and remained elevated for two weeks. The pulse averaged about 116. On July 7, the tonsils were still swollen and the crypts were filled with secretion. The urine at that time contained a minute trace of albumin but no casts. Breathing became very noisy, but after an application of adrenalin solution was much easier. The child was put on a gargle of 1/500 formaldehyd solution, and silver nitrate, 60 grains to the ounce, was rubbed on the throat. The breath was foul. On July 10 the crypts were still filled with white secretion and a positive culture was obtained. The next day the tonsils were still swollen, but no membrane or secretion could be seen. The following day the throat was clear. The second negative successive culture was taken on July 16.

It is only fair to state that the bacteriologic laboratory that reported these cultures as showing the presence of diphtheria bacilli regards all bacteria morphologically indistinguishable from typical diphtheria as true Klebs-Loeffler organisms and take no account of the so-called pseudo-diphtheria bacillus or Hoffman bacillus. Consequently, a question as to the identity of the bacilli found may be raised by those who believe that the two organisms belong to different species. Such persons need regard as suffering from latent diphtheria only those patients who either were in contact with patients suffering from true membranous diphtheria or who themselves appeared to give rise to cases of membranous diphtheria. This will include Cases 6, 7, 8, 10, 12, 13, 14, 15, 16, 18, 19, 20 and 27. The other cases, 1, 2, 3, 4, 5, 9, 11, 17, 21, 22, 23, 24, 25 and 26, may be regarded as conditions of sore throat caused by diphtheria-like bacilli, although it is my opinion that the greater number, if not all, of these organisms were true diphtheria bacilli.

BACTERIOLOGISTS' EXPLANATION OF LATENCY IN DIPHTHERIA.

The great variations observed in the clinical manifestations of diphtheria are explained by Abbott, Wesbrook and other bacteriologists as due to variations in the virulence of the bacillus and in the susceptibility of the individual; not so much to the bacilli as to the soil on which they grow.

One of the principal factors in the mechanism of individual immunity was believed by Behring and Schanz and proved by the researches of Neisser, Orlowsky, Fischl and Wunscheim, and Wasserman to be the presence in the blood of sufficient antitoxin, a condition which is possibly congenital.

LATENT DIPHTHERIA AS SEEN BY OTHER OBSERVERS.

The majority of physicians, according to Chapin, are skeptical about the diagnosis when they see diphtheria without exudation and the patient not confined to bed. Mild atypical cases, however, are extremely common. Years before the discovery of the Klebs-Loeffler organism J. Solis-Cohen, Mackenzie, Jacobi and others called attention to the occurrence of diphtheria without local deposit. More recently Abbott, Chapin, Cobbett, S. Solis-Cohen and Eshner, Fussell, Koplik, McFarland and Babcock, Morse, Park, Rupp, Thorne, Westbrook, and hosts of others have confirmed these earlier observations. A graphic description of latent diphtheria and of its danger to the public health was written by Jacobi in 1884:

> The symptoms are often but few. A little muscular pain and difficult deglutition are, perhaps, all that is complained of. Women will quietly bear it; men will go about their business. . . . There is as much diphtheria out of bed as in bed; nearly as much out of doors as in doors. Many a mild case is walking the streets for weeks without caring or thinking that some of his victims have been wept over before he was quite well himself. . . . Diphtheria is contagious. Severe forms may beget severe or mild forms. Mild cases may beget mild or severe cases.

The picture, however, is not always the same. The clinical features presented by nineteen cases from which Biggs obtained virulent cultures were those of typical acute follicular tonsillitis or of simple acute pharyngitis. In Koplik's cases there was little or no constitutional disturbance. In some of the patients the fauces showed a general hyperemia with enlargement of the tonsils, which became still more prominent when the patient gagged, revealing the enlarged open lacunæ. In a number of instances the lacunæ contained fibrinous plugs in which virulent Klebs-Loeffler bacilli were found. A similar condition, but without visible hyperemia around the plug, is described by Charsley. Park describes a group of cases in which the mucous membrane is only slightly swollen and hyperemic. Cobbett found diphtheria bacilli in cases of slight sore throat. In the latent forms mentioned by Williams, which are unaccompanied by obvious illness, a nasal catarrh, increased pulse-frequency, an irritable heart, a redness of the fauces, or slight tonsillitis may severally be the only symptoms.

IMPORTANCE OF LATENT DIPHTHERIA FROM THE PUBLIC HEALTH STANDPOINT.

From the public health standpoint these mild cases of diphtheria are extremely important. Crowly, Lesieur, Thorne, Wesbrook, Wilson and McDaniel, McFarland and Babcock, Morse, Park and others have called attention to the fact that persons with very slight sore throat, due nevertheless to the Klebs-Loeffler bacillus, may infect others with a severe form of diphtheria. Indeed, Cobbett and Packard believe that from the hygienic standpoint the mild cases are more responsible for spreading the disease than are the notified cases, because no precautions are usually taken in regard to them.

LATENT CASES A STARTING POINT IN DIPHTHERIA EPIDEMICS.

The part played by these unrecognized cases in the production of diphtheria epidemics has been shown by many observers. Thorne, Power, Blaxall, Parson, Page, Jacobs, Fasbroke, each reporting from different English towns and parishes, have observed concurrently with and preceding and sometimes following the prevalence of unmistakable diphtheria the occurrence of a large amount of comparatively trifling sore throat, much of it never coming under medical observation, which serves as the connecting link between groups of diphtheritic attacks. During an epidemic of diphtheria at Pirbright, according to Power, cases of trivial sore throat or "colds" that were not perhaps heard of (except by close questioning) often preceded and were seemingly responsible for later occurrences of true and fatal diphtheria in the family, especially where there were many young children. In such families, severe or fatal cases of diphtheria tended to occupy a position midway in a series of attacks that began and ended as sore throat.

Washbourn and Hapwood report the case of a child with mild coryza who was examined after diphtheria had broken out among his companions and was found to harbor virulent diphtheria bacilli. Williams mentions a case of indefinite sore throat that transmitted to two children a nasal infection containing true virulent diphtheria bacilli, but without other disturbance of health.

A house infection of diphtheria was traced by Neisser to a case of chronic sore throat with diphtheria bacilli. Swan describes two house epidemics of diphtheria, directly traceable to cases of ordinary sore throat in which bacteriologic examination showed the presence of diphtheria bacilli. After describing the occurrence of diphtheria in a household following the visit of a child who had mild sore throat for two months previously, Bissel states that there are many such fully authentic cases in Buffalo.

LATENT CASES RESPONSIBLE FOR DIPHTHERIA OUTBREAKS IN HOSPITALS.

Several outbreaks of diphtheria in hospitals have been attributed to latent cases. In a hospital for children at Frankfurt, Cuno found the source of an epidemic, which persisted in spite of the most vigorous disinfection, to be a nurse who suffered from a chronic sore throat. Andrewes found virulent diphtheria bacilli in six cases of simple sore throat with a few points of exudation occurring among the female members of the staff of St. Bartholomew's Hospital. In a ward in the Children's Hospital at Basle in which several cases of diphtheria had developed, Feer obtained diphtheria bacilli from the tonsils of two children who had sore throat, fever and enlargement of the cervical glands, but without false membrane.

THE OCCURRENCE OF LATENT DIPHTHERIA IN PUBLIC SCHOOLS.

Many cases of latent diphtheria have been found among school children. Of 586 children with sore throats examined, Goadby found diphtheria bacilli in 190 (3 per cent.). Chapin states that of 2,038 apparently benign sore throats found in children at school in Hartford, 591 (29 per cent.) gave positive cultures. Parkes examined 3,000 sore throats and found diphtheria bacilli in 343 (14.3 per cent.). Berry and Washbourn report the persistence for two months of a series of mild sore throats following the introduction of diphtheria into a girls' school. At intervals of one month a number of cases of true diphtheria would occur. Washbourn then examined all the scholars with any degree of sore throat and discovered diphtheria bacilli in 17. In a boarding school where there had been several cases of diphtheria, Peck examined five pupils with slight ailments and found that three were harboring diphtheria bacilli. Williams reports the occurrence of a case of true diphtheria contracted in a school from a boy convalescent from tonsillitis, who had an unduly frequent pulse and whose nose contained diphtheria bacilli. He also mentions another pupil in the same school who had a slight tonsillitis and was found to have the specific organisms in his throat.

THE CONTROL OF LATENT DIPHTHERIA BY THE HEALTH AUTHORITIES.

The cases cited from my personal experience and those reported by other observers prove that diphtheria may occur in a latent form which is just as contagious as are the more marked cases with membrane, and consequently more dangerous to the public health.

The duty of the sanitary authorities to protect the public from patients with diphtheria applies to mild as well as to severe cases. There are few arguments for municipal control of well-marked cases that do not apply with equal force to the latent forms. The danger to the community of a diphtheria patient does not depend on the severity of the infection, but on his liability to transmit the disease.

I believe, therefore, that the health authorities should insist on strict isolation of latent cases of diphtheria. The suggestion of Park that the attending physicians themselves determine whether cases without characteristic symptoms be treated as diphtheria or not does not seem to me practicable or fair owing to the great differences of opinion that exist among physicians as to the infectivity of such cases.

When a patient with typical membranous diphtheria is isolated at home, a placard announcing the presence of the disease should, of course, be posted at each entrance. In latent cases, however, this placard might be omitted, provided strict isolation is maintained to the satisfaction of the health authorities.

BACTERIOLOGIC TESTS REQUIRED FOR REMOVAL FROM ISOLATION.

If the isolation of either severe or mild cases of diphtheria is to be of practical value in preventing the spread of the disease, it must continue until the specific bacilli have permanently disappeared from the throat. The danger that an individual may be a focus of infection remains so long as he carries the germs about. The great variation in the persistence of these organisms makes the adoption of a time limit from the disappearance of the membrane, as practiced in Providence, ineffective in typical cases and impossible in latent forms. Although in most instances the bacilli disappear after from twenty-eight to thirty-six days, they have been known to persist for 82, 99, 154 and 167 days, for 10 months and even for several years.

The only method of discovering whether or not the organisms have disappeared from the throat is by taking cultures. One culture alone, however, as shown by Graham-Smith and Wells, has not been found a sufficiently reliable index as to their complete disappearance.

As a result of their experiences Cobbett and Graham-Smith advise a minimum of three successive negative cultures before release from isolation. The health authorities of Philadelphia, Boston and many other cities, however, require but two. This seems a good working rule. I recommend, therefore, that in all cases of diphtheria, whether severe or latent, isolation should be maintained until two successive negative cultures shall have been obtained from the patient's throat.

MEASURES INSURING THE RECOGNITION OF LATENT DIPHTHERIA.

The control of known latent cases of diphtheria by the sanitary authorities, however, will not of itself sufficiently protect the public health. Quite as important is the recognition of the latent forms. These, it has been shown, are usually mistaken for cases of tonsillitis and pharyngitis, from which they can be differentiated only by means of cultural tests. Tonsillitis and pharyngitis should be included, therefore, among the diseases to be reported or "notified." When so reported, the physician should be requested to take a culture of the throat and should be offered the services of the health department in case he does not desire to take the culture himself. Biggs believes that observations made by him, by the New York Health Department laboratories, and by Koplik and others are sufficiently conclusive in showing that when diphtheria bacilli typical in appearance are found in cultures obtained from cases of simple angina (cases in which there is no membrane) animal tests in a large majority of instances prove that the bacilli are fully virulent. Park and Beebe, and Wesbrook, Wilson and McDaniel, also declare it justifiable in such cases to assume that the bacilli are virulent and hence dangerous. On the finding of diphtheria-like bacilli, therefore, in a case of tonsillitis or pharyngitis, that case should be regarded as one of latent diphtheria and managed accordingly, unless the bacilli be shown by inoculation into guinea-pigs not to be virulent. The municipal laboratory should, however, be prepared to make tests for virulence when so requested by the attending physician.

In schools that are visited by a medical inspector much latent diphtheria would be discovered and removed as a source of contagion by enforcing the following regulations: A child in school with sore throat should be sent to the medical inspector, who should take a culture from the throat and then exclude the child. If the culture is reported negative, the child may be readmitted as soon as the throat is clear. But if bacteriologic examination discloses the presence of diphtheria-like organisms, the case should be regarded as one of diphtheria, unless inoculation tests show the bacilli to be nonvirulent.

A child who has been absent from school on account of sore throat should not be permitted to return until a culture of the throat has been taken. When this has been neglected by the attending physician, it must be done by the medical inspector. If this first culture is negative, the child may at once resume attendance. If, however, it proves positive, the exclusion must be maintained until two successive negative cultures have been obtained. A similar regulation is now in force in London during diphtheria epidemics. The London County Council has recently adopted a recommendation from the education committee to the effect that, during the presence of diphtheria in any district, the committee should be authorized to refuse to admit to school children excluded on account of sore throat until they have obtained a medical certificate of freedom from infection based on bacteriologic examination. Such action, however, seems to me just as important between epidemics as during them, for the reports of Thorne and the medical officers quoted earlier in this paper show that antecedently and subsequently to outbreaks of diphtheria, sore throat is very common, serving as the connecting link between diphtheria epidemics.

TERMINAL DISINFECTION.

Not only must latent forms of diphtheria be discovered and be subjected to municipal control, but in order to check the dissemination of diphtheria all the known avenues of contagion must be cut off whenever the disease appears, whether in severe or latent form.

The most commonly employed prophylactic measure in addition to isolation is terminal disinfection. As Chapin, Gorham and others have shown, however, fomites are of relatively minor importance as carriers of infection, and the evidence for the necessity of surface disinfection after diphtheria is very slight. Still, inasmuch as the presence of diphtheria bacilli has been demonstrated by Hill, Gorham and others, in a small percentage of infected objects, I think it wise to disinfect, with their contents, all rooms that have been occupied by a patient suffering from either severe or latent diphtheria. It should nevertheless be realized that this alone will have little effect in preventing the spread of the disease, if no precautions are taken to prevent healthy persons with virulent bacilli on their mucous membranes from mingling with other people. Consequently, I believe that terminal disinfection should be postponed until all the members of the household have been shown by bacteriologic examination to be free from diphtheria bacilli.

THE CONTROL OF PERSONS RESIDING IN THE SAME HOUSE WITH A DIPHTHERIA PATIENT.

A difficult problem confronting the health authorities in their endeavors to limit the spread of the disease is the control of those who are in more or less intimate contact with the patient. The measures recommended by writers on hygiene and sanitation and those practiced by the boards of health in this connection seem, as a rule, to be based on the supposition that such persons carry the germs on their clothing and on the exposed skin surfaces. Thus, in some cities those living in an infected house are prevented from attending school or working at certain occupations, but they may resume their accustomed duties on residing elsewhere, provided they have taken a disinfectant bath and have had their clothing disinfected. Whoever comes in intimate contact with the patient is advised, while in the sick room, to wear a gown reaching from the neck to the floor and a cap covering the hair, and on leaving the room to disinfect the face and hands. In neither case is any attempt made to determine the presence or absence of diphtheria bacilli on the mucous membranes of those persons. Yet it is well known that healthy persons who have been in contact with diphtheria may carry the germs on their mucous membranes without becoming sick themselves, though they are capable of transmitting the disease to others. Such persons are known as "carrier" cases and infected "contacts." The germ-laden throats of the infected "contacts" constitute a far greater source of danger than do their garments. Persons residing in an infected house should be prohibited from attending school or from working at any employment in which they are brought in contact with other people or with articles of food, wearing apparel and the like, and from frequenting public places. But these restrictions should not be removed until bacteriologic examination has shown the absence of diphtheria bacilli on their mucous membranes. Yet whenever isolation is effectively maintained to the satisfaction of the health authorities I believe that the restrictions might be suspended in the case of those whose throats are shown by cultural tests to be free from the Klebs-Loeffler organism and remain free when examined at frequent stated intervals.

The method employed in Bristol, England, for finding out which of the inmates of an infected house are harboring diphtheria organisms is an excellent one. As soon as a case of diphtheria is reported or "notified" the physician in charge is requested to obtain cultures from the throats of all the inmates of the house and is offered the services of the health bureau for that purpose.

I recommend the adoption of such a rule.

The measures I have advocated are stricter than those usually suggested. Welch, Park and Beebe and the Philadelphia Bureau of Health, however, regard members of an infected house as a source of more or less danger and impose certain restrictions, but Cobbett, Graham-Smith and the Massachusetts Association of Boards of Health object to causing any hardship to breadwinners.

That municipal control of infected "contacts" residing in an infected house is not, as objectors urge, impracticable is proved by the fact of its effective operation in many cities. The Bureau of Health of Philadelphia, for instance, excludes from work all inmates of houses in which diphtheria exists who are employed in the manufacture or sale of clothing, house furnishings or foodstuffs, whether breadwinners or not, and does not permit them to return to work until after the house has been disinfected and the placard removed, unless they change their places of residence and submit to other specified regulations for safeguarding the public health.

In institutions, such as orphanages and insane asylums, strict rules can and must be enforced in order to prevent an epidemic. Whenever a case of diphtheria, even of a latent form, occurs in an institution, cultures should be taken of the throats of all inmates, officers and employés, and all those giving positive cultures should be isolated until two negative cultures have been obtained successively.

THE CONTROL OF INFECTED "CONTACTS" OR "CARRIER" CASES NOT RESIDING IN AN INFECTED HOUSE.

It is recognized by all that many perfectly healthy individuals with normal throats harbor diphtheria bacilli; a still larger number are said to harbor the so-called pseudo-diphtheria bacilli. Consequently the control of "carrier" cases in which the infected individuals do not reside in an infected house presents many practical difficulties. The opinions of sanitarians differ greatly not only as to the character of the municipal supervision required for such cases, but as to whether or not any control at all is desirable. This lack of unity is a consequence of the divergent views held by bacteriologists concerning the so-called pseudo-diphtheria bacilli.

The scientific world may be divided into two principal groups: first, the French school of bacteriologists and a few Americans, Englishmen and Germans[1] insist that all these organisms are true Klebs-Loeffler bacilli. They discard the term pseudo-diphtheria bacilli, believing that the organisms so-called are merely varieties of, or attenuated, or modified, diphtheria bacilli. Second, practically the whole German school, on the other hand, and the great majority of American and English bacteriologists[2] consider the Hoffman or pseudo-diphtheria bacillus a completely different and distinct organism from the Klebs-Loeffler or true diphtheria bacillus. A number of this second group (Abbott, Bergey, De Martini, Gromakowski, Hamilton, Hewlett and Knight, Kurth, Lesieur, Park and Beebe, Veillon and Halle, and A. W. Williams) use the term "pseudo-diphtheria bacilli" to include a group of bacilli resembling, but distinct from, the Klebs-Loeffler organism, of which the Hoffman bacillus is merely one member.

Those believing in the existence of two distinct organisms see many points of difference between the Klebs-Loeffler bacillus and the so-called Hoffman bacillus. The bacteriologists, however, who insist on identity argue that the properties of the different forms of the diphtheria organism are unstable and varying, one form readily assuming the characteristics of another form. Among the points of difference given may be mentioned the morphologic appearance of the organisms, their appearance with Neisser's and with Gram's methods of staining, the appearance of their growth in bouillon and on solid media, their production of acid in glucose and in broth cultures, and their virulence when inoculated into guinea-pigs. Other tests are the agglutination test, fermentation tests in the serum-water media of His, animal inoculations controlled by antitoxin, vaccination against diphtheria with the aid of pseudo-diphtheria bacilli, the power to hemolyze the rabbit's corpuscles, the bactericidal action of diphtheria antitoxin on diphtheria bacilli, and the application of specific sera to neutralize specific toxins. Some investigators claim that they have been able to increase and to decrease the virulence of diphtheria bacilli, to convert diphtheria bacilli into pseudo-diphtheria bacilli and *vice versa*, and have noted the production of active toxins by the pseudo-diphtheria bacillus, and have established the identity of the toxins from the organisms. A difference of opinion, nevertheless, exists among laboratory workers concerning every method of differentiation suggested in which the attempt has been made to verify the findings of the original observer.

While in view of such a conflict of authorities the sanitarian will admit that academically the identity or separateness of the diphtheria and pseudo-diphtheria bacilli is an open question, in practice he must err, if at all, on the safe side. The measures he enforces must be such that the public health will be protected no matter which bacteriologic view is correct. At the same time he must be careful to avoid all restrictive regulations not justified by the facts or required by the necessities.

Many authorities, including the Massachusetts Association of Boards of Health, Parke and others, object to exercising any control at all over infected "contacts" or "carriers" not residing in an infected house. They believe that healthy persons with diphtheria bacilli in their throats are not a source of danger to the community. Moreover, owing to the ubiquitousness of the diphtheria bacilli, they regard the bacteriologic examination of "contacts" and the isolation of those found infected as unjustifiable, impracticable and unfair. Variot declares that if the medical inspectors of the city of Paris separated from their companions all the children who have in the pharynx the different forms of pseudo Loeffler and Klebs-Loeffler bacilli they would risk depopulating the schools without sufficient reason. Consequently only general sanitary measures are advised.

According to this view, persons harboring diphtheria bacilli should be warned that they are a source of danger to others, instructed to take certain precautions, induced to use antiseptic mouth-washes and gargles, and kept under observation.

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[1] Behring, Bissell, Browne, Combe, Concetti, Denny, Fraenkel (in 1893), Flugge, Gorham, Hellstrom, Koplic, L. Martin, S. and L. Martin, Mongaur, Morse, Ohimacher, Pes, Revilloid, Ritter, Roux and Yersin, Schanz, Spirig and Wesbrook.

[2] Abbott, Auché and Brindel, Babes, Baginski, Beck, Bergey, Boycott, Cobbett, De Martini, Denny, De Simoni, Dräer, Escherich, Feer, Flugge, Fraenkel (in 1896), Franke, Garratt and Washbourn, Gelpke, Gladin, Glücksmann, Graham-Smith, Grancher, Gromakowski Hamilton, Hamilton and Horton, Haushalter, Hewlett and Knight, Hewlett and Murray, Hilbert, Hoffman, Jacob, Knapp, Kruse, Kurth, Lesieur, Loeffler, Massei, Migula, Neisser, Park and Beebe, Paltauf and Kolisko, Peters, Petrie, Preisich, Prochaska, Pugh, Richardiere and Tollemer, Salmon, Schwoner, Shabad, Spronck, Ustvedt, Veillon and Halle, Welch, Williams (A. W.), Williams (P. W.), Zarniko and Zupnick.

Other sanitarians such as Abbott, Caiger, Cobbett, Dunham, McFarland and Babcock, Wesbrook and his associates, and others, on the contrary, regard a well individual with diphtheria germs in his throat as such a grave menace to the health of those with whom he comes in contact that they recommend his isolation. They believe that while such action unquestionably causes inconvenience to the individual, it is necessary for the general good.

I believe that the health authorities may properly disregard the presence of diphtheria-like bacilli in the throats of healthy persons who have not been in direct or indirect contact with a case of diphtheria, membranous or latent, and who have not themselves suffered recently from sore throat. It has been demonstrated by many investigators[3] that virulent bacilli are seldom if ever present in the throats of healthy persons who have not been in contact with cases of diphtheria or with infected "contacts." The diphtheria-like bacilli found in healthy persons who have not been subjected to such contact are practically always non-virulent and such persons consequently are not a source of danger. Denny, Graham-Smith, Kober, and Park and Beebe examined a total of 1,511 persons with normal throats in whom there has been no possibility or probability of recent infection. Non-virulent diphtheria-like bacilli were found in 30 (1.98 per cent.), but in only 2 were virulent bacilli found. In 1 diphtheria bacilli were found which were not tested for virulence (a possible 0.19 per cent.). Biggs, Garratt and Washbourn, Hewlett and Murray, and the Massachusetts Association of Boards of Health examined altogether 3,374 healthy persons, but without making any inquiry as to the possibility of contact. Non-virulent diphtheria-like bacilli were found in 134 (3.9 per cent.), virulent diphtheria bacilli in but 9 (0.2 per cent.). Bacteriologists of both schools are thus in accord concerning a point of such great importance to the sanitarian. Gorham, Kober, the Massachusetts Association of Boards of Health, Pugh, and Wesbrook, who regard all diphtheria-like bacilli as Klebs-Loeffler organisms, and Biggs, Cobbett, Graham-Smith, Park and Beebe and P. W. Williams, who believe in the existence of a distinct Hoffman or pseudo-diphtheria bacillus, are all of the opinion that only a small percentage of the diphtheria bacilli found in well persons not recently exposed are virulent.

They believe, on the other hand, that when virulent diphtheria bacilli are present in the throats of healthy persons they have been derived as a rule either directly from cases of diphtheria or from individuals who have been in contact with such cases.

Conversely, it has been observed by Graham-Smith, Pugh and Williams that the diphtheria bacilli found in persons who had recently been in contact with the disease are usually virulent. It is my opinion, moreover, that in many instances where diphtheria bacilli are found in healthy throats the subjects are in reality convalescent from latent diphtheria. In a large number of my cases of latent diphtheria, for example, all signs of sore throat or other symptoms disappeared in one or two days, the patients then presenting the appearance of perfect health. Therefore, in regarding a person harboring diphtheria bacilli as healthy or normal, the possibility that such a one may be convalescing from a recent attack of latent diphtheria must be borne in mind.

When, therefore healthy persons who have been exposed to diphtheria, although not residing in an infected house, are found to have diphtheria-like organisms in their throats they should be subjected to the same restrictions that govern infected "contacts" residing in the same house with a diphtheria patient. They should be excluded from work or school and prevented from mingling with other people until free from the bacilli, as determined by two successive negative examinations. Such restrictions, however, should not be enforced in any case in which the organisms have been proven by inoculation tests to be non-virulent, although it is questionable whether or not the state or municipality should be put to the trouble or expense of making inoculation tests in the case of infected "contacts."

DETECTION AND ISOLATION OF INFECTED "CONTACTS" IN SCHOOL.

It will be impossible to detect all "carrier" cases in a community without making bacteriologic tests of everyone—an impracticable procedure in large cities. There are certain classes of intimate "contacts," however, who can be examined for the presence of diphtheria organisms.

Most writers[4] are agreed that in a school cultures should be taken of all "contacts," and those found to be infected should be excluded and isolated. By such means Cobbett stamped out epidemics in Cambridge and Colchester, Wesbrook and his assistants were able to check the spread of the disease in Minnesota, and O'Hara, an assistant medical inspector, practically rid two Philadelphia public schools of diphtheria which for months had been unduly prevalent there. When, therefore, diphtheria develops in a child who is attending school or who has been recently in attendance, cultures should be taken from the throats of all the pupils and of the teacher in that child's classroom. All persons who are found to harbor diphtheria bacilli must be excluded from school and treated as infected "contacts" until they are shown by bacteriologic tests to be free of the germs.

DETECTION OF INFECTED "CONTACTS" IN INDUSTRIAL ESTABLISHMENTS.

I believe that many "carrier" cases become infected by fellow-workers in the shop or mill. I strongly recommend, therefore, that when a case of diphtheria develops in an industrial establishment all those who were in more or less contact with the patient, certainly all who were in immediate contact, be examined bacteriologically. This method of procedure will not only cut off further avenues of contagion when followed by the exclusion and isolation of those found infected, but may often discover the source of the original clinical case.

CONCLUSIONS.

1. The prevalence of diphtheria is due to the lack of control over latent cases of diphtheria and over the so-called "carrier" cases.
2. Diphtheria may occur in a latent form without pseudomembrane and with only slight symptoms.
3. Latent cases of diphtheria should be isolated until two successive negative cultures have been obtained.
4. All cases of sore throat should be reported to the health authorities and should be examined bacteriologically.
5. Infected "contacts" should be excluded from school or work and should not be permitted to frequent public places until two successive cultures have proved negative.

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[3] Biggs, Cobbett, Gorham, Graham-Smith, Kober, Park and Beebe, Pugh, Welch and Abbott and others.

[4] Caiger, Cobbett, Davies, Massachusetts Association of Boards of Health, Swan, Williams, and many others.

6. All who have been in contact with a diphtheria patient, whether at home, at school, or at work, should be examined bacteriologically.

7. Disinfection of fomites and terminal disinfection of rooms and their contents is insufficient and reliance thereon treacherous. Animate carriers of infection are more dangerous than the inanimate.

AN EPIDEMIC OF ACUTE PELLAGRA.*

GEORGE H. SEARCY, M.D.
TUSCALOOSA, ALA.

Last summer at the Mount Vernon Insane Hospital, the hospital for colored insane in Alabama, there appeared a few cases of a disease which had been noticed every summer since the patients had been moved there from Tuscaloosa in 1901. Some three or four cases of this disease would occur during each summer and they usually proved fatal. The true nature of the disease was not recognized, and in most instances it was supposed to be a condition of general debility.

Early last fall these cases became very numerous, and it was recognized that the disease was epidemic. At the request of the superintendent I went to Mount Vernon to assist the physicians there in studying and controlling the disease. With the assistance of Drs. McCaferty and Somerville, of Mount Vernon, and of Dr. Dyer, of New Orleans, I believe I have worked out the true nature of the disease, and have the following to report:

There occurred at the Mount Vernon Hospital during the late summer and early fall of 1906 eighty-eight cases of acute pellagra, with fifty-seven deaths—a mortality of about 64 per cent.

DESCRIPTION AND ETIOLOGY.

Pellagra is an endemic, systemic disease, usually characterized by cutaneous lesions of an erythematosquamous and pigmentary character in one or more definite locations and is associated with disturbance of the digestive tract and nervous system. It should be classed with diseases resulting from food poisoning, and in the subclass—grain poisoning along with ergotism and lathyrism. It is described in most of the American text-books on skin diseases as a chronic disease of several years duration, but in studying reports from southern Europe, where it is most prevalent, I find it may run an acute course, as at Mount Vernon, or an extremely slow one, and may exhibit few or many symptoms.

The disease occurs among the poorer classes and in institutions where the diet is at times limited. It develops most frequently among adults and in females more frequently than in males. It occasionally is met with in nearly all European countries, especially those bordering on the Mediterranean. There are endemic centers in parts of Italy, Spain, Greece and Egypt. Some cases have been reported from India, Turkey and South Africa. One authentic case has been reported from England. In the Americas pellagra has been recognized in Mexico, Brazil and the Argentine Republic. No cases have been reported as originating in the United States. Sherwell met with a case in a sailor on a vessel in New York.

As to its etiology, its relation to the continuous eating of damaged corn has long been recognized, and poverty, poor hygienic surroundings and exposure to the sun's rays have been given as predisposing factors. A number of writers ascribe the disease to certain toxic substances developed in the course of the decomposition of the grain under the influence of vegetable organisms; others attribute it to the organisms themselves. Consequently the various fungi and bacteria found on corn have all been incriminated in turn as the causative agents of pellagra.

Lombroso claims it is an intoxication due to an extractive substance similar to ergotin formed by the growth of certain fungi on corn. He has obtained watery and alcoholic extracts of damaged corn and has produced experimentally symptoms similar to those of pellagra. He calls this extractive substance pellagrazein. He calls this extractive substance pellagrazein.

A sample of the meal used at the Mount Vernon Hospital, which was supposed to be the best western meal, was sent to the pathologist in charge of the laboratory of plant pathology at Washington, and he reported the meal wholly unfit for human use; that it was made of moldy grain and contained quantities of bacteria and fungi of various sorts, some of which were identified.

In addition to the eating of damaged corn, the sun has been supposed to have much to do with the cause of pellagra, as the cutaneous lesions appear in those places exposed to the sun's rays, as back of hands, back of feet, face and neck. It is now generally accepted, however, that the chemical rays simply have more or less influence on the severity of the skin lesions and do not cause them. Gerardini, and later Hameau, obtained differently-shaped patches of erythema in cases of pellagra by means of gloves fenestrated in various ways.

One case in the epidemic at Mount Vernon, in which the patient wore a band around his wrist, showed a severe erythema above and below the band, but beneath it the skin was but slightly affected. In some cases there is no doubt that the sun makes the skin lesions more severe, but severe skin lesions do occur in those who wear shoes and are exposed to the sun but little.

Neusser pointed out that the erythema affects only the hands and feet of gypsy children in Roumania, although they go about perfectly naked, and it is also known that the disease abates in the fall as cooler weather comes on.

It is generally accepted now, however, that pellagra is caused by eating a substance formed by the growth of certain organisms in corn. This substance attacks the central nervous system, affecting trophic centers, and the chemical rays of the sun influence, more or less, the severity of the lesions in those regions whose trophic centers are affected and which are exposed to the sun.

SYMPTOMS OF ACUTE PELLAGRA.

The disease appears mostly in the summer months and first manifests itself by lassitude, weakness and a general run-down condition. The digestive tract becomes disarranged, giving rise to more or less gastric and intestinal disturbances with toxemia. The characteristic signs all appear about the same time. These are the skin lesions and those symptoms arising from the alimentary tract. The mouth becomes somewhat sore and red and there is a profuse flow of saliva accompanied by digestive disturbances, more or less diarrhea and considerable toxemia.

About the same time there appears a congestion or erythema in one or more well-defined locations, as the back of the hands and lower forearms, dorsal surface of the feet, back of the neck and on the face about the cheek bones. The skin in these regions becomes red and congested, with no pain and but slight itching or burning sensations. In a few days either vesicles and bullæ form, under which the surface is raw, weeping and not infrequently fissured, or the epidermis dries and desquamates, leaving a slightly-pigmented surface, or in some cases the skin becomes dry, thick and more heavily pigmented. In those cases where vesicles and bullæ form these break and the epidermis peels off, leaving a raw surface, which, if the patient survives, gradually heals over, leaving a thin, silk-like and slightly darker skin.

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* Read before the Alabama State Medical Association, Mobile, April 18, 1907.

When the salivation and the dermatitis appear the patient usually takes to bed from general weakness, complaining but little of any pain or discomfort, and showing more or less dulness and depression, and as the disease progresses this dull condition becomes more marked. The temperature rarely goes more than a degree and a half above normal, and the pulse follows the temperature curve very closely. The fatal cases may prove rapidly so, in a week or ten days from the time they take to bed, or they may run on several weeks, the pulse gradually getting weaker and a little more rapid and the patient finally dying from general weakness.

When recovery follows, convalescence is very slow, the patient remaining weak and more or less dull a month or more, and even for several months remains below normal.

DIAGNOSIS.

The disease is to be differentiated from scurvy, acrodynia, purpura, erythema multiforme and allied conditions by the characteristic signs. These are the parts affected: back of hands, lower forearms, face and dorsal surface of feet; the character of the skin lesion, a dermatitis followed by vesiculation or desquamation with some pigmentation; the disturbances of the alimentary tract, salivation and more or less diarrhea; the depression; the toxemia and the absence of any pain and of any swelling or hemorrhage of the gums. If to these is added the fact that the patient has lived largely on corn products the diagnosis becomes more certain.

PATHOLOGY.

The pathologic findings, as far as worked out, are pachymeningitis, some sclerosis of the brain and cord, fatty degeneration of the internal organs and those changes in the skin which follow varying degrees of erythema.

PROGNOSIS AND TREATMENT.

The prognosis in acute cases, as in the Mount Vernon epidemic, is always unfavorable, death ensuing in most cases in from two to three weeks; others run longer. Recovery in any case is very slow, the patient remaining for months feeble and more or less depressed.

As for the treatment, there are no specific remedies. The essential management consists in placing the patient in good hygienic surroundings and trying to improve the general health by good nourishing food and such tonics as may seem indicated. Arsenic, iron and pepsin preparations were the remedies on which most support was placed and which sometimes seemed to influence the disease favorably.

GENERAL CONSIDERATIONS.

Some interesting points about the Mount Vernon epidemic were as follows:

1. Of the eighty-eight cases only eight were males.
2. The average age was thirty-four.
3. Two-thirds of them had been in the hospital longer than one year. Eighty per cent. had had fair or good health previously.
4. Of the skin lesions: (a) Eighty-five per cent. showed it on the back of the hands and wrists. (b) Thirty-five per cent. had it on the dorsal surface of the feet and the same per cent. on the back of the neck. (c) Twenty per cent. had it on the face, i. e., about the cheeks. (d) Only 8 per cent., however, had the skin lesions on all of these locations, and 12 per cent. had no skin lesions at all; just the salivation, gastrointestinal disturbance and nervous symptoms.

No nurses had the disease. They handled the patients, slept in the halls near them, and the chief difference in their way of living was in the diet. They ate little corn bread, mostly flour bread, biscuits, etc., and had a little more variety of diet.

As soon as the nature of the disease was determined and the true cause suspected the patients were taken off corn bread and grits and wheat bread and potatoes substituted. The rest of their diet was continued as before. No new cases, except the one in the test case, appeared after about ten days. A set of eight patients was kept on the former diet with corn bread and grits as a test. One of these developed the disease, another began to show symptoms, and all became in such poor general health that their diet was changed also.

Since attention has been called to this disease some four or five cases have been recognized in the Hospital for the Insane at Tuscaloosa. I believe that when it becomes generally known that pellagra may occur in this country we will have more cases reported, especially in the south, where corn bread and grits are so largely used.

Reports from Italy show that the disease often occurs in jails, poorhouses, asylums, etc., where corn products are used so largely as diet, and also among the peasants who use a great deal of corn; and it is shown that in southern Italy, where the grain ripens earlier and better, there is not so much pellagra as in the provinces north of Rome.

I have been informed that much of the western corn crop of 1905 was badly damaged by wet weather at harvesting time, and since it is known that pellagra may occur in this country it behooves the government to see, under the pure food laws, that no damaged corn is used for food purposes.

I will say that the grits sent to Washington for examination came up to the standard, and during the winter this food has been added again to the diet at Mount Vernon. No new cases have developed since last summer; some of the old cases are still hanging on, and it remains to be seen whether any new cases will develop or the old ones relapse this coming summer.

Is It Possible to Improve Antitetanus Serum?—The French clinicians have recently been discussing why antitetanus serum gives better results in veterinary practice than in the clinic, as seems to be the case. Delbet suggested that possibly this was due to the fact that it was horse serum that was used on horses, and the question then arose whether it might not be possible to find some serum better adapted for man than horse serum. The *Société de Chirugie* has presented an official communication on the subject to the Paris Pasteur Institute, asking that this matter be taken up. The experience at the Paris hospitals has been decidedly in favor of preventive injections, as only 11 cases of tetanus have occurred in certain hospitals during the last seven years, and all of these have been in persons who by some mischance were not given the customary preventive dose of antitetanus serum, which is the routine practice there after a street accident.

Clinical Notes

HEMARTHROSIS OF THE RIGHT KNEE IN A HEMOPHILIAC.

CHARLES SUMNER NEER, M.D.
House Surgeon Frisco Hospital, Assistant in Bacteriology in Medical Department of St. Louis University.
SPRINGFIELD, MO.

Although the subject of hemophilic joints has received considerable attention of late, many of the surgical text-books do not give it adequate mention, and some of them fail to speak of it at all. The comparative rarity of the condition, and the importance of its diagnosis, especially of its differentiation from tuberculosis, failure of which has often led to operation with fatal results, seem to justify the reporting of the following case which occurred recently in my service as interne in the St. Louis City Hospital:

Patient.—H. C., male, aged 28, nativity American, entered the hospital on account of a swelling of the right knee.

History.—At the time of entrance, temperature was normal and he could walk on the affected limb with little inconvenience. He stated that he drank 15 or 16 glasses of whisky daily and had been a bartender for a year and half. Before that he was an electric lineman. He used considerable tobacco and was somewhat excessive sexually. His father was living and healthy at 58. Mother died of some lung affection. Three brothers and three sisters were all living. All of these were healthy with the exception of one brother who was a bleeder. One paternal uncle died of some obscure abdominal trouble. No history of hemophilia in his grandparents could be obtained. When a boy patient was subject to attacks of "rheumatism" sometimes articular and sometimes muscular. He had measles and mumps and had had malaria several times. He denied syphilis but had had gonorrhea several times. In 1889 he had what he called dysentery. He passed blood from the bowels but the passages did not produce pain. He was for two months in a hospital in Dakota for this trouble, bleeding at intervals during the time. The patient stated that when about 12 years old, he received a small wound over the right eye which bled more or less, for two weeks in spite of all efforts to stop it. Ever since he had noticed that a slight cut bled persistently. In 1904 he was in the City Hospital with a scalp wound and the bleeding was stopped with difficulty. A little later he cut his right finger and thumb with a pane of glass and was obliged to enter a hospital where the bleeding continued several days before it could be stopped. About a year ago his right eye was enucleated on account of an injury to it. There was no marked bleeding from this operation. In July, 1906, patient fell and bruised the right knee. It soon became swollen and somewhat painful but he did not go to bed on account of it and within about two weeks the swelling had largely disappeared.

There was no history of hemoptysis or of hematemesis but he had had persistent epistaxis several times, which on one occasion, necessitated the application of a plug by means of a catheter passed through the nose and out the mouth.

Present Trouble.—On October 13, 1906 at about 9 p. m. patient accidentally struck his right knee against a box. There was but little pain at the time and he slept well that night. The next morning the knee was stiff, and after walking with it for a short time, he noticed that it was swollen. The swelling had persisted ever since and there had been some pain though not severe.

Examination.—He was a fairly well developed though rather poorly nourished man. His skin was clear excepting a few scabs on the hand and a few small furuncles about the right knee. No edema. The right knee joint was enlarged and evidently full of fluid, the swelling being fluctuant and corresponding to the extent of the synovial membrane. On the right side of the external condyle of the femur was a small ecchymosis marking the point of injury. The knee was but slightly tender to pressure. It was somewhat warmer than the left one. Abdomen was soft and insensitive; spleen not palpable and liver dulness not increased. Apex beat was palpable in the fifth interspace internal to the mammillary line. There were no heart murmurs. Pulse was regular and of moderate strength and frequency. The coagulation time of the blood was about 7 minutes. The urine was clear with a specific gravity of 1.028 and contained no albumin, sugar nor casts. His temperature at no time went above 101 F. and was usually below 99 F. Patient complained of but little pain and the functional disturbance of the joint was slight.

Diagnosis.—Hemarthrosis was the diagnosis made, based on, (1) a clear and well substantiated history of hemophilia, one brother also being a hemophiliac; (2) The occurrence of a well-marked swelling of the knee joint following a slight trauma, with scarcely any tenderness, and but little pain, fever, and functional disability.

Treatment.—This consisted of putting the patient to bed with the limb at rest, bandaging the swollen joint snugly with elastic cotton, and the administration of small doses of potassium iodid and an occasional purgative. The man made a good recovery. The swelling disappeared completely and he left about the middle of November, having been in the hospital less than 4 weeks.

Subsequent History.—Jan. 13, 1907 he returned to the hospital with symptoms which at first were attributed to gastritis. The symptoms increased in severity. He vomited considerably, was constipated and intestinal obstruction was suspected. January 16, the pulse became extremely weak and frequent and the vomitus had a fecal odor. There was no pain and but little distension of the abdomen. The patient was evidently in a dying condition and an operation was advised as offering the only chance. His relatives who knew very well his tendency to bleed finally consented.

Operation.—This was performed by Dr. P. D. McMillan. On opening the abdomen the peritoneal cavity was found to contain a considerable amount of bloody fluid. Almost the entire intestines were of a dark red color like that of beginning gangrene. The mesenteric vessels were engorged. No explanation of the cause of the condition was found in the belly.

The man died within 3 hours after the operation. An autopsy was not obtained, and in its absence we have not felt quite sure as to what the condition was which caused his death. The appearance of the bowel and mesentery at the operation suggested the possibility of a sudden portal obstruction. However in view of the man's previous history, the presence of blood in the abdominal cavity as well as some of the symptoms he presented during the last day or two of his life, it seems probable that hemorrhage was an important factor in producing his death.

ABSCESS OF THE LIVER,

RUPTURING INTO THE LESSER CAVITY OF THE PERITONEUM AND GIVING RISE TO PECULIAR SYMPTOMS. OPERATION. RECOVERY.*

F. W. DUDLEY, M.D.
Attending Surgeon, St. Paul's Hospital.
MANILA, P. I.

Patient.—The patient, a robust male, was admitted to Dr. Musgrave's medical service, in St. Paul's Hospital, February 26, 1907, complaining of severe pain in the abdomen. On March 1. he was transferred to Dr. McDill's service, and during his absence came under my care

History.—He was a native of the United States, of Irish-German descent, and by occupation was a machinist and engineer. He had resided in the Philippine Islands since 1900 and had previously lived in Guatemala for six years. He was a man of large muscular build, and of great vitality. He had a chancroid in 1902, and two attacks of gonorrhea, the last in 1903-1904. In December, 1906, he had a severe attack of estivo-autumnal malarial fever. He never had dysentery to his knowledge.

Present Illness.— For seven days previous to entering the hospital he had been suffering from a pain in the abdomen not localized and not extending to the shoulders nor to the legs. He had not noticed any fever. Urination had been the same as usual. His bowels were habitually constipated, but at this time somewhat more so than usual. They had not moved for six days previous to his entering the hospital, although two large doses of magnesium sulphate had been taken. The pain in the abdomen had grown gradually worse and the patient had been unable to take any food for four days previous to admission.

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* Reported from Dr. McDill's surgical clinic, by his permission.

Physical Examination and Symptoms.—There was great pain in the abdomen resembling "girdle" pains, but no localized tenderness. The abdomen was tympanitic but dulness was found over the right pleural cavity, in the midaxillary line, extending into the axilla. Liver and spleen apparently were normal in size. The pulse was full, strong and regular, temperature 98.2 F. (36.8 C.) and obstinate obstipation. The patient was able to get two or three hours rest after the administration of 0.032 gm. (½ gr.) of morphin. Vomiting began. The patient had taken no food after admission. After repeated attempts with purgatives and enemata, the patient had three moderately large, liquid, foul smelling stools on the evening of March 1, and felt completely relieved for ten hours thereafter. Pain then returned, and rapidly grew worse, to such an extent that large doses of morphin hypodermically, gave but little relief. Vomiting again set in, the bowels rapidly distended with gas and tenderness to pressure, which had not been a marked feature, now became exquisite and diffuse. A reflex pain appeared in the right chest beneath the center of the clavicle, and then shifted to the left shoulder. This characteristic pain was the first symptom pointing to possible liver abscess. Obstructive symptoms returned and no further movement could be obtained from the bowels, although everything was tried. At this time the patient became much worse as to general condition, showing great prostration, cold perspiration and weak compressible pulse. The pain became more intense, and the patient was not comfortable in any position. He received but little and only temporary relief from morphin, and had slept but a few hours since his admission to the hospital. Examination of the feces was negative for amebæ. They were bile stained. Blood examination was negative for malarial parasites. On March 1, there were numerous red blood cells in the urine, many leucocytes, and a trace of albumin. On March 3, examination was negative for blood cells. There was a rising leucocyte count: March 1, 17,400; March 3, 22,400.

Operation.—A median incision was made and free, in all parts of the abdominal cavity, there was found a large quantity of a reddish chocolate-colored pus. The appendix, an unusually long one, was removed, though not diseased. The transverse colon was greatly distended, and a constricting band was released an the splenic flexture. On searching, an aperture was discovered in the lesser omentum, through which flowed pus of the same character as that found in the abdominal cavity. A liver abscess, situated on the under surface of the left lobe, had ruptured retroperitoneally and then into the bursa omentalis, thence, through the lesser omentum, into the greater sack. Projecting into the bursa omentalis from behind, was an organized mass, horse-shoe in shape, encircling the spinal column and pressing on the splanchnic nerves, aorta, inferior vena cava and other structures in the vicinity. An opening led from this mass into the bursa omentalis, and it is thought communication extended from the upper and left portion of the mass to the left lobe of the liver. The abdominal cavity was well flushed out with saline solution, a large rubber drainage tube, filled with gauze and wrapped in gauze and rubber tissue, was inserted into the cavity, and another in a stab-wound above the pubes, the latter tube being carried well into the pelvis. The wound was closed by through-and through silkworm-gut sutures, tension, owing to edema, gas, etc., being very great and approximation difficult.

Postoperative History.—The patient was in the exaggerated "Fowler position" and so maintained for seventy-two hours. A free discharge ensued from the drains, which were removed, the lower on March 25, and the upper the day following. On March 25, amebæ were found in the discharge from the wound, thus proving this to be a case of amebic abscess of the liver, a disease not common in the Philippine Islands. The operation afforded complete relief from pain. On March 27, amebæ were found in the stools, and treatment ordered. Recovery was uneventful.

The salient features of this case were:

1. The agonizing pain, complete relief from which was not obtained from large amounts of morphin. I have never seen a patient suffer so intensely, and yet the temperament of the man was phlegmatic. He was in the hospital previously with malarial fever, and his conduct during that illness, as well as during the present trouble after the operation, was exemplary. He never complained, even on the removal of the drainage materials.

2. The peculiar fan-shape of the painful area, which radiated from a point between the second and third lumbar vertebræ, gradually widening as it encompassed the body, until at the umbilicus the painful area was about 13 cm. (5 in.) wide, extending equidistant above and below that point. The pain seemed to extend clear through that portion of the body embraced by two planes in contact at the intervertebral disk between the second and third lumbar vertebræ and extending forward and downward, gradually separating from each other.

3. The disease ran practically an afebrile course, from the time of admission until discharge, the greatest and practically the only variation being on the mornings of the first and second days after the operation, the evenings of the third and fourth days, which were, respectively, 36.3, 36.1, 37.5 and 37.5 C. (97.3, 97., 99.5 and 99.5 F.).

4. The peculiar course taken by the pus in making its exit from the liver.

SMALLPOX AND VACCINIA.

THEODORE C. MERRILL, M.D.
COLORADO, TEXAS.

In an experience with smallpox limited to the town of Colorado and occurring between the dates of April 7 and May 20, 1907, the following conditions were encountered. They are interesting as confirming previous observations as to the coincidence of variola and vaccinia.

There were in all six cases of smallpox, five of which presented the coincidence above referred to. The sixth case was mild smallpox unmodified by vaccination and irrelevant to this report.

The patient in the first case was isolated as soon as the disease was determined and some eleven people who had been exposed were segregated in a detention camp and vaccinated. After three or four days in every instance the typical sore developed. Within twelve days after exposure to smallpox, and with a well-defined vaccination sore, five of the segregated persons presented the papular rash of smallpox, which rapidly proceeded to the vesicular and pustular stages.

These cases of varioloid were without severe constitutional symptoms and every patient recovered satisfactorily, with one exception, in whom the factors of age and constitutional depression caused a protracted convalescence.

Prophylaxis.—With all our knowledge there will always be enough of sickness in the world and enough suffering, without the preventable physical weakness and ills.—J. F. Rogers, M.D., in *Dietetic and Hygienic Gaz.*

EPITHELIOMA OF THE CLITORIS.

F. H. NEUHAUS, M.D.
HOUSTON, TEXAS.

In view of the rarity of malignant neoplasms of the external female genital organs I wish to report the following case:

Patient.—A widow, aged 52, mother of two healthy children, gave the following family history: Her mother died at the age of 32, of yellow fever, her father at the age of 40, of acquired tuberculosis; her two sisters died in infancy of some bowel trouble. She passed the menopause three years ago. There is no history of malignancy among the immediate relatives.

History of Present Illness.—The patient was first seen in the latter part of January, when she complained of a pruritus vulvæ which had existed about two years. It had been very annoying for the past six months, and had resisted several different methods of treatment. Examination was then refused. The urine showed no sugar nor evidence of any kidney disease, was alkaline and contained an excess of phosphates. The patient was very nervous and not well nourished.

Treatment and Result.—Boric acid with sodium bromid and tincture of belladonna was given internally; a hot vaginal douche of 1/2000 bichlorid of mercury solution was ordered twice daily, and an ointment of oxid of zinc with 8 per cent. phenol (carbolic acid) was applied at night. In a few days the pruritus was much better and the patient was not seen again until March 19, when she complained of much burning on urination.

Examination.—Suspecting an urethral caruncle I insisted on an examination, but I found nothing abnormal about the urethra, nor any vaginal discharge, but found a growth of the clitoris about the size of half a hazel-nut, with considerable infiltration of the surrounding tissue. The surface of the tumor was ulcerated and covered with a dirty purulent exudate; it bled easily when touched. There was no enlargement of the inguinal lymphatic glands.

Operation and Result.—Removal of the growth was advised and was done the next day under general anesthesia. The entire clitoris and upper half of the right labium minus were excised with a large amount of the infiltrated and reddened tissue surrounding same. The wound healed by primary union with exception of a small place at the lower angle at the labium minus, which healed in two weeks. So far there is no sign of any recurrence. At the upper part, near the clitoris, there was a small whitish patch of thickened epidermis known as leucoplakia, said to be suggestive of malignancy. The burning with urination has disappeared. The patient was not conscious of this little growth at any time, but thinks that it may have existed three months. The pruritus overshadowed the burning sensation until near the last. It only remains to mention that the pruritus was not dependent on the tumor but is slowly disappearing under the treatment mentioned above.

Examination of Tumors.—The tumor was hardened and examined by Dr. Baumhardt of this city, who pronounced it an epithelioma of squamous type.

ATTEMPT AT SELF-CASTRATION.

J. M. WOLFE, M.D.
KASBEER, ILL.

J. W., aged 30, was brought to my office May 13, suffering from a self-inflicted wound. He had laid open the scrotum and succeeded in getting one testicle out, but was unable to sever the cord on account of the intense pain. He had, however, mutilated the organ to such an extent that it became necessary to complete the operation. I tied off the cord and the tunica vaginalis separately with catgut ligature. Infection was feared, as he had used dirt to control the hemorrhage, but to my surprise he made an uneventful recovery without the least sign of suppuration.

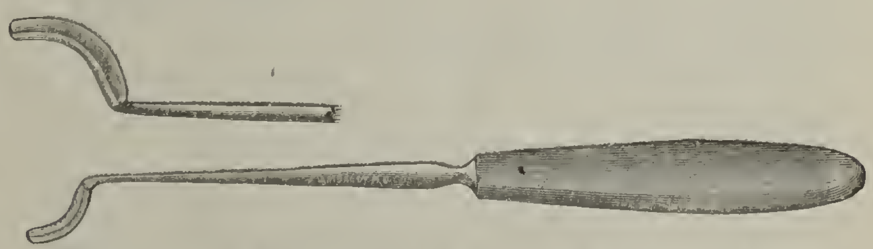
The patient was a masturbator of the most pronounced type. He said he had accomplished the act as frequently as seven times a day, and he thought that by castrating himself he would get rid of the uncontrollable passion. He was somewhat deficient in gray matter, but had laid his plans fairly well for his work. He had shaved the hair off the pubes, hence it seems that he had some idea of cleanliness.

I was censured somewhat for not removing the other testicle. This would probably have not been justifiable from a legal standpoint, and I might have laid myself open to a malpractice suit.

A TONSIL PILLAR SEPARATOR.

DANIEL S. HAGER, M.D.
Alternate Assistant Surgeon Illinois Charitable Eye and Ear Infirmary, Ear, Nose and Throat Department.
CHICAGO.

Since the tonsil snare has come into general use for removing the faucial tonsil the problem of separating the adhesions of the tonsil and pillar has brought out many instruments. I have tried a number of the different makes and none has given me as good satisfaction as the one here shown, devised by me about one and one-half years ago. It can be used equally well for separating the pillars of either the hypertrophic or atrophic variety. The blade is set at such an angle as to conform to the anatomic curvature of the tonsil and fossa and by reversing is adapted to the curvature of either back or front pillar.



The top or fossa is started with a special knife (not shown here) and then continued down with this knife. The knife is shown with the double edges sharp, and this, in my experience, is desirable in separating a tonsil with a great deal of cicatricial adhesion, and especially where the tonsil has previously been partially removed with the old tonsillatome. For the hypertrophic tonsil in the young, however, or where the adhesions are only slight, the blunt-edged instrument would be preferable.

I can recommend it as a valuable instrument for this line of work.

181 West Madison Street.

UNSUSPECTED FOREIGN BODIES IN THE STOMACH REVEALED BY AUTOPSY.

GILBERT T. SMITH, M.D.
Assistant Superintendent Dr. Barnes' Sanitarium.
STAMFORD, CONN.

The following unusual case came under my observation while I was connected with the State Hospital, Danville, Pa.:

Patient.—J. A., a Pole, aged 35, from Susquehanna, Pa., was admitted to the institution Aug. 6, 1896.

History.—The mental status was one of melancholia terminating in dementia. There appeared little physical or mental change for several years. On Feb. 7, 1905, there was noticed a marked failure in the patient's physical health. Mentally he was quiet and gave no trouble. Physically he was weak and emaciated. For a week previously he had a rise of temperature. Several weeks before he had an attack accompanied with considerable pain in the region of the bladder.

There was present marked hematuria which disappeared in a week's time under irrigations of boric acid. Several of these attacks occurred which responded to the irrigation treatment.

On Feb. 15, the patient was gradually failing and lay couched up in bed with legs flexed as if from great distress. He denied having much pain, but the expression indicated suffering. Took plenty of nourishment in the form of milk, eggs and custard. Passed urine freely which contained albumin and considerable pus. Temperature, 101 F. to 104 F. and pulse small and compressible.

On Feb. 18, the patient died early in the morning. He had had several chills during the preceding few days. His temperature before death ranged from 101 F. to 103 F. A few hours prior to death an enlargement about one and one-half inches in diameter was discovered at the lower margin of the ribs and to the right of the spine, showing slight fluctuation. On aspiration about an ounce of bloody fluid of uriniferous odor was evacuated. Prior to aspiration the patient passed a small amount of bloody urine and with it a long fibrinous clot apparently from the urethra. About the same time he vomited his nourishment the first and only time during his illness. At the brim of the pelvis was noticed puffiness as of extravasation of urine. Death occured apparently from collapse.

Autopsy.—This revealed the following conditions: Rigor mortis well developed. Body emaciated. Slight adhesion at apices of the lungs which were easily broken up. Lung tissue anthracotic, crepitant and congested. Slight adhesions of liver and stomach to the parietes. Signs of an old general peritonitis. The stomach was very large and contained the following articles: 1 piece of half-inch rubber tubing 18 inches long; 1 piece of half-inch rubber tubing 14 inches long; 5 large red bandanna handkerchiefs; 1 teaspoon; 1 necktie with scarf-pin in place; 1 pair of spectacles; 1 rodent's skull; 1 piece of rubber band of suspender. In the small intestine was found one arm of the spectacles, the other being located in the abdominal cavity. The combined weight of the collection was 20 ounces.

Handkerchiefs, necktie, rubber tubing and other articles found at autopsy in the stomach of an insane man.

Although the stomach appeared large and distended, it gave no evidence of its contents prior to the autopsy. There was no suspicion of the patient's peculiar fondness for such articles of diet. Only once was he detected in the act of attempting to swallow a foreign body. This happened to be the watch of a fellow patient. He was caught when placing the watch in his mouth. No particular attention was paid to this at the time other than attributing the occurrence to an aimless act of a dement.

The expression and position of the patient, especially in the latter stages, constantly denoted suffering, though he usually denied the existence of any pain. Throughout the course of his illness his appetite was good and he took sufficient nourishment. As a rule, he was noncommunicative, but occasionally he would smile. The mental aspect of the case was hopeless from the outset. I strongly regard his Polish nativity as a bad mental asset; these cases are not favorable and generally terminate in dementia. The physical condition of the patient was fair and he held up well for some years. Examination of the pupils showed nothing unusual, responding well to light and accommodation and were normal in size and regular in outline. The patella reflexes were slightly diminished.

Referring to the stomach contents as revealed by the autopsy, it is interesting to note that the handkerchiefs were twisted, having the appearance of being wrung out, and it is difficult to conceive how they were able to pass the glottis without the patient's choking. The pieces of rubber tubing gave evidence of having been in the stomach some time, the largest, I should say, at least a year, judging from the action of the gastric juice, which changed the consistency of the rubber to nearly that of putty. The teaspoon was discolored. The necktie and scarf-pin belonged to a fellow patient, who had missed the tie a month before. It was slightly discolored, but otherwise in good condition. The arm of the spectacles, which was found in the abdominal cavity, had penetrated the pelvis of the kidney. The skull of the rodent was well formed and complete. The photograph shows the articles contained in the stomach.

A CASE OF SCROTAL CALCULI.

HENRY BENJAMIN OERTEL, M.D.
President Pueblo County Medical Society.
PUEBLO, COLO.

History.—M. S., aged 38, white, had had for four months before I took charge of the case, (Nov. 5, 1906), swelling of and pain in the scrotum, penis and adjacent parts. He had also been troubled with leaking of the urine from two false openings through the penis situated one inch and one and three quarters inches, respectively, from the base. He gave a history of syphilitic infection of eleven months standing.

Examination.—His general condition was fair, facial expression anxious with normal temperature and exhilarated pulse. There was decided swelling of scrotum and penis and pus exuding from the meatus and the two false openings. The parts were so tender as to make a thorough examination impossible. After three days use of lead water and laudanum and codein, examination again was made, which revealed the sharp edge of a hard substance at extreme inferior border of scrotum, just to the left of the median line. The incision was enlarged and the body extracted, which latter proved to be a calculus—probably of calcium oxalate. The pain increased and the pus exuded more freely. The next day the patient was anesthetized, and with the assistance of Dr. J. W. Davis, three more calculi were removed. Collapse under the anesthetic stopped the operation. The symptoms diminished in severity and three days later the patient again was anesthetized and four more calculi removed. Two of these were in the same location as the first, and two, distinctly oval in shape, were removed from the inferior aspect of the base of the penis.

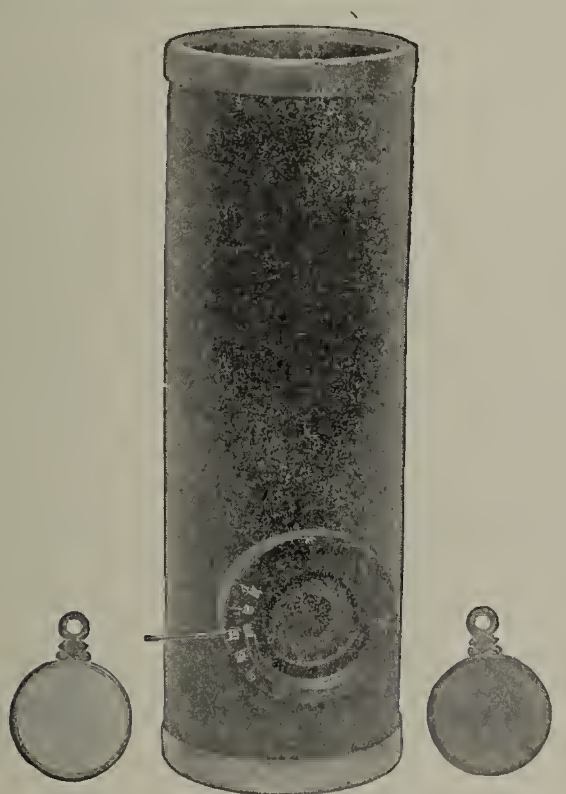
Postoperative History.—After the operation, the pain, swelling and suppuration materially decreased. Urine and pus continued leaking from the false openings. One week later another calculus was removed from the scrotum and the false openings were touched with pure phenol (carbolic acid). The following day the pain stopped. The swelling gradually subsided, the false openings healed in a few days, suppuration stopped, and one week thereafter patient was discharged. The calculi were all decidedly adherent, necessitating their being torn away. There was no involvement of the tunica vaginalis as the testicles did not enter into the process. Antisyphilitic treatment was continued and the patient had no further trouble. The patient reported April 30, 1907, with no further symptoms.

Seven of these calculi fit well together, forming an ovoid mass 12 cm. by 6 cm. (4⅝ in. by 2 5/16 in.) in circumference. Two calculi from base of penis fit together and measure 9 cm. by 5 cm. (3 ½ in. by 2 in.) in circumference.

A SIGNAL LANTERN FOR TESTING COLOR BLINDNESS.

JOHN IZARD MIDDLETON, M.D
NEW YORK CITY.

Consideration of several of the present types of lanterns for the above purpose shows them as expensive and complicated. The article, however, here described, while offering little originality, exhibits simplicity and moderate cost, being well within the reach of the mass of examining oculists.



The apparatus consists of a Thorington's asbestos chimney, with iris diaphragm, and a double cell of half a trial frame attached in front of and below the circular opening in the chimney. The light within is either electric or gas; enclosed in a frosted bulb or chimney of an Argand burner.

The glasses for testing the colors are six in number, four being contained in the usual test-case: The red, the blue, the cobalt blue (for purple) and one for London smoke. This last can also be used in the several varieties furnished by the test-case. The remaining two necessary glasses, not found in the test-case, are: One standard green and one frosted throughout, and they, together with the Thorington chimney as above arranged, represent the extra equipment desired.

To employ the test a signal color is dropped into the cell next to the chimney, and in the forward cell is placed the frosted or else the London smoke glass, the latter thus presenting varying atmospheric conditions. The quantitative light-perception can be ascertained by working the iris diaphragm on whose side is a millimeter scale, showing the size of the opening admitting light. The additions to the Thorington chimney being light, the test is made easily and quickly and without tilting the chimney. Mr. E. B. Meyrowitz, of New York, has kindly furnished the model on whose working this description is based.

BIRTH OF QUADRUPLETS.

S. V. WILKING, M.D.
ROANOKE, IND.

The birth of quadruplets is sufficiently rare (1 in 371,126) to make of interest the following data regarding a case of this kind:

History.—The mother, aged 36, Irish, weighed 125 pounds and was one of three children born singly. She had been married 14 years and this was her eleventh pregnancy. In all of her previous pregnancies she had gone to term with the exception of two, in which she aborted. Three of her children had been stillborn, one of these being a breech presentation.

The father, aged 40, American, was one of seventeen children, all born singly.

Labor was rapid and the delivery, which was exceptionally easy, occurred May 30, 1907. The weight and sex of each child was as follows: First, 2 pounds 15½ ounces, female; second, 2 pounds 12 ounces, female; third, 2 pounds 15½ ounces, male; fourth, 2 pounds 15 ounces, female. None of the infants had any visible malformation and development in each seemed complete. The fourth child lived two and one-half hours; the first, three hours; the third, thirty hours, and the second was still living six days after birth, with fair prospects.

The placenta after delivery was grossly in two parts, but later examination seemed to indicate that there was a membranous connection, probably torn during labor. The first (smaller) part presented nothing unusual except that it was smaller than the average placenta, weighing with the membrane, 11 ounces. The second portion weighed 22 ounces and was divided into two parts, the smaller resembling the one just described except that the membranous connection with the larger part was unbroken. The larger part of the second portion was itself divided into two parts connected by placental tissue—possibly a placenta succenturiata. There was a separate amnion for each child.

Suggestions on Medical Inspection.—The governor of Massachusetts recently appointed a committee to prepare a circular of advice to the school physicians of the state to aid them in performing their duties under the lately enacted law requiring medical inspection of school children. We are indebted to Dr. Robert W. Lovett, Boston, for a copy of this pamphlet. The law requires the inspection of each school child at least once a year to determine whether he is suffering from any disability tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. The information contained in the circular has been furnished by representative medical specialists of the state so that it represents the highest professional authority. The circular is suited to the use of teachers as well as school physicians and contains suggestions which will prove very valuable to them in detecting cases among the school children that afford reasonable suspicion of being affected with infectious diseases, or diseases or defects of the eye, ear, nose, skin, bones, teeth, or the nervous system. Sections on school inspectors, school furniture and school hygiene are added. The pamphlet may afford some valuable suggestions to school authorities who may desire to establish some form of school inspection even if it is not required by law.

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[For other information see second page following reading matter.]

SATURDAY, JULY, 6, 1907.

THE FREQUENCY AND THE MARITAL CONSEQUENCES OF GONORRHEA.

The process of swinging the pendulum of medical opinion is an interesting one, both to the onlooker and to the participant, and it is undoubtedly beneficial exercise for the pendulum. Probably no pendulum has been more extremely overbalanced than the one carrying the status of the frequency and the late results of gonorrhea, since it was pushed to the farthest limits by Ricord, Lesser and others, who incriminated practically the entire masculine gender. It seems to have been gladly accepted that at least 80 per cent., if not 99 per cent., of all men have suffered from gonorrhea at least once; perhaps because such a conclusion permits the man who has been infected to look on himself as quite as good as his fellows, while he who has escaped the disease can boast himself as remarkably virtuous—or fortunate. Likewise the claims of Noeggerath and others as to the prevalence of female suffering from masculine unchastity have been well received by the pessimistic majority. A vigorous shove of the pendulum in the opposite direction has been delivered recently by Erb,[1] who introduces his paper in the following modest manner: "Some time ago—in my last, larger paper on the relationship of syphilis and tabes—I had occasion also to interest myself with the statistics of gonorrhea, and published at that time the beginning of such a statistical study. For more than twenty-five years I have deteriorated into statistical studies, and as they have, it seems to me, furnished to both science and myself valuable service, I have continued this occupation, which seems to be suitable and practicable for one who has no more the time and strength for greater scientific works."

Erb first shows by what unwarranted juggling of statistics many of the widely-quoted results have been obtained. For example, one investigator found that in one year 25 per cent. of the students in the Berlin students' sick benefit list were venereally infected, and promptly deduced that every Berlin student is infected once in four years. By similar mathematical calculations another observer has determined that every man who marries at 30 has passed through two attacks of gonorrhea—no more, no less! Individuality enters not into the calculations of such statisticians. Calculations on futurities of this sort are purely gratuitous, and the only accurate way to study such a subject is to learn the histories of mature men and find out what actually has happened, rather than to attempt to estimate, on the basis of a brief portion of the history of a few individuals, just what will happen to all the rest of mankind. Erb found that of about 2,000 of his male patients, representing all circles, but chiefly of the middle classes, whose sexual history was carefully investigated just 48.5 per cent. of all had had gonorrhea, while 45 per cent. had had neither gonorrhea nor syphilis. It must be admitted that a proportion of 45 per cent. of men free from venereal infection can not be a cause of great rejoicing, yet it is a decided improvement over the doubtful 5 to 20 per cent of clean histories grudgingly admitted by other statisticians. Furthermore, we are accustomed to believe that our American youths are not so prone to venereal infection as are the Teutonic students, soldiers and officers—a belief that is probably well founded.

As to the influence of this unclean 48.5 per cent. of all male patients on the health of their wives, which has been so gloomily portrayed by many gynecologists, the experience of practitioners who are familiar with entire family careers rather than with the selected material of the specialists, seems not to be so extremely bad. Among the wives of 400 of Erb's patients who confessed to having had gonorrhea some time previous to marriage, 375 (93.75 per cent.) had never suffered from pelvic infection that could possibly be of gonorrheal origin, and but seventeen (4.25 per cent.) had had what probably were gonorrheal infections. As for the influence of antenuptial gonorrhea on fertility, among 370 couples in this class 68 per cent. had two or more children, 25 per cent. had four or more children, and but 12 per cent. were childless, and in most of these cases some reason other than gonorrhea was evident.

It can not be denied that the prevalent pessimistic view of the effects of youthful gonorrhea on future marital happiness has had a wholesome effect in many instances, but it is equally true that many conscientious men have suffered pangs of remorse and fear that were founded on not entirely warranted apprehensions. That a revision of the current figures showing that Erb's experiences are not unusually favorable would lead to any lessening of the wholesome fear of gonorrhea is not to be expected, for at the best the conditions are bad enough to create a proper respect for the penalties of unchastity, provided these are thoroughly understood. As Erb says, it is not really necessary that fear of the horrible consequences that may follow a gonorrheal infection for a whole lifetime should destroy the entire future happiness of the victim, in order to keep alive that fear of infection which is the best preventive of irregular and unclean intercourse.

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[1] Münch. med. Wochschr., 1906, liii, p. 2329.

A PLEA FOR THE STUDY OF THE HISTORY OF MEDICINE AND NATURAL SCIENCES.

An address with this title was read before the American Anthropological Association at its meeting on December 31, 1906, by Bernhard Laufer of New York.[1] There are several points in this address that are of special interest to American physicians. In the first place, Laufer emphasizes the fact that at present, in practically all branches of sciences, there is a marked and newly-awakened interest in historical investigations. The nineteenth century is now thought by many students of sciences to have been disregardful of the links connecting science with the accomplishments of former ages, while at present there is an effort to restore the connections with earlier periods and thus to place scientific knowledge on a firmer and broader basis. As evidence of this modern interest in the historical development of medicine and other branches of science, Laufer cites the increased attention given to medicoscientific historical studies and the relatively large provisions now being made for academic instruction, research and museums in these lines in Germany, in which country the young historical spirit appears to have found its fullest expression.

A comprehensive museum for the history of medicine "illustrating its development, from the times of prehistoric man down to present day, in anatomy, surgery, hygiene, endemic diseases and other phases" as yet exists nowhere. Plans for such a museum are now being discussed in Germany. Temporary exhibitions have been held in various places, most recently in Berlin, and with great success, so far as evidenced by the interest taken in them. The suggestion that larger effort toward securing such exhibitions for the annual meetings of the American Medical Association should be made than has been the case so far lies close to hand. While we in America have not yet been able to do so much as is desirable in promoting the study of historical medicine, it is proper to call attention to the fact that here, too, the interest in historical matters is growing actively. To the members of the Johns Hopkins Medical School must be given the honor of leadership in this field in this country, and *The Medical Library and Historical Journal,* published in Brooklyn, and now in its fourth volume, is in every way an adequate and creditable publication. Packard's "History of Medicine in the United States" and Mumford's "Medicine in America," as well as biographical and other studies, may be cited as further indications that the historical spirit is well represented here also. By arranging exhibitions at the annual meetings of the association popular interest in medical history and development would receive a powerful stimulus.

Laufer makes a strong plea for a comprehensive American museum representing the development of medicine, natural science and other technics in their whole range. There are few propositions that can be urged with more justification than this on our rich men who wish to do something of general benefit with their wealth. No one will question the benefit to the people and the aid to medicine and science of an institution of this kind. The temporary tuberculosis exhibits are examples of what is possible in this direction. "A full historical representation of the all endemic and the great epidemic diseases . . . would be a matter of great public service." As agencies of progress in civilization medicoscientific museums certainly will equal the museums of art and of natural history. It is curious, indeed, that this choice opportunity to promote knowledge has remained so largely neglected. If physicians would take active interest in plans like that suggested by Laufer realization would certainly be hastened.

THE PHYSIOLOGIC ACTION OF LIGHT.

As we enter on the season when the amount of light to which people are exposed is much increased, and in which it is usually thought that health is better because of the influence of sunlight, certain recent observations and investigations with regard to the physiologic action of light on living things are worthy of note. Major Charles E. Woodruff, Surgeon U. S. A., who has devoted much attention to the subject of the effects of light on animal tissues and metabolism, has reviewed the recent contributions to this subject in *American Medicine* for April, 1907. Major Woodruff states that the young rats which he raised in the full glare of sunlight were stunted to a remarkable degree, though all other conditions of their environment were extremely favorable for nutrition and growth. He seems, however, to have overlooked the fact that rats do not naturally live in the sunlight and that by exposing them to it he placed them in an abnormal environment. It may not be that the old impressions are quite so erroneous as certain recent observations would seem to indicate, but it is evident that the whole subject of the physiologic action of light in unlimited quantities must be considered as open for further observation before definite conclusions can be reached.

It is especially on the nervous system that an excessive amount of light exerts a deleterious effect. Some of the lack of initiative so common in tropical countries is now attributed to the depressing action of sunlight on the nervous system. As a consequence of this, neurasthenia is more common in tropical countries than it is in the temperate zone and much more frequent than it is in cold climates. Dr. W. King found neurasthenia of such frequent occurrence in Porto Rico that in an article in The Journal[1] he called it tropical neurasthenia. By the name he did not mean to differentiate it from neurasthenia as seen in other zones, but merely to indicate its prevalence in the tropics. Dr. Woodruff during his service in the Philippines pointed out the frequency of neurasthenia there, and Dr. Fales has done so independently since. These physicians are confident that light and not heat is the cause of the condition. While this is true to a large extent, a contributing cause is probably the fact that Americans do not adjust their habits to climatic conditions, but try to live as active lives in the tropics as in the northern United States. The symptoms that develop differ little from the undoubted actinic neurasthenia found among *x*-ray workers as a result of long-continued exposure to weak Roentgen rays or to the so-called Roentgen ray atmosphere. The nervous breakdowns among the soldiers and officers of our Army in the tropics are directly attributable, Woodruff claims, to the evil effects of light.

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[1] Science, June 7, 1907.

[1] The Journal A. M. A., May 19, 1906.

One important fact, Woodruff asserts, is being very clearly brought out by observations from all over the world: People who are deeply pigmented stand sunlight much better than others. Blonds, he states, suffer from the ill effects of strong light very soon and some are affected seriously. This fact has a definite application in certain phases of the treatment of tuberculosis. The prognosis for blonds is not so good as for brunettes because owing apparently to the evil effect of light on them, they do not respond so well to the open-air treatment. It has been recognized that the generality of men in this country are living in a climate that has somewhat more sunlight than their race was accustomed to, and that consequently the health is better the farther north the statistics of the population are gathered. In the United States Army, for instance, according to the surgeon-general's report, the average health is much better in the north and in Alaska than it is in the south. Some of that tendency to nervous symptoms which has been designated "the American disease" seems probably due to living in a climate with more light than the race is yet accustomed to.

On the other hand, emphatic attention is called in recent years to the fact that cloudy climates where there is not much light are the most suitable for neurasthenic conditions. A few weeks of life in such a climate will often relieve most of the symptoms of neurasthenia contracted in very lightsome climates, though there will often be immediate relapse if the patient returns to the sunny climate. Authorities in nervous diseases frequently recommend the darkened room for several hours daily as an important addition to the treatment in these cases. Certain of the dark, thick forests of Europe, as, for instance, in Switzerland, have been found especially favorable situations for the treatment of neurotic conditions. It is even considered that trees around houses, though they take away some of the sunlight, add to the healthfulness, because they give welcome shade and so prevent the constant reflex irritation of sunlight. There have been a few sporadic complaints on the part of some writers in recent years as to the presence of trees around houses because they obscure the sunlight, but the common practice of men for so many hundreds of years would seem after all to be founded on common sense as well as esthetic grounds.

It is evident that sunlight of itself has a definite effect on human beings quite apart from temperature, and that while this fact is often beneficial, there may be an excess of stimulation from light which may prove harmful. The whole subject of the influence of light on human beings is now under process of review from many standpoints, and the observation of many investigators will be needed before definite conclusions can be reached. The fact that sunlight kills pathogenic germs is of itself beneficial. It must not be forgotten, however, that germs are living cells, and that human beings are practically only colonies of cells, and are not different in essential vital qualities. If too much sunlight is bad for germs it may also be harmful for human beings. There is in this matter of the supposed absolute benefit of exposure to sunlight the possibility of a theory being carried too far, and so doing harm rather than good. Careful observations are needed not alone from the specialist in nervous diseases and tuberculosis, but from the general practitioner before the subject can be definitely settled.

Some of the recent observations with regard to the effect of light and darkness on men would seem to prove almost too much. Major Woodruff is sure, for instance, from many sources that suicides and crimes and misdemeanors are much less frequent during cloudy weather than during sunny weather. Certainly this is contrary to the impression that has prevailed, and even to the statistics, especially in the matter of suicides. We referred to the subject in The Journal for January 19 from the opposite standpoint. Every physician of any considerable experience knows that in cloudy weather, and especially during a succession of dark, muggy days, nervous patients are prone to feel intensely depressed and need the supporting care of the physician and every possible form of encouragement to lift the burden of their physical lowering of tone. The other side of this question—the possibility of too much light having a like effect—is, of course, extremely important, but requires much more careful observation to support it, since the universal feeling of physicians in this matter and their personal experience counts for so much in showing them that a succession of dark days acts critically on individuals of neurotic temperament.

CANINE PIROPLASMOSIS.

The study of the parasitic protozoa is now being so ardently pursued that for the time being bacteria have dropped into the background. The pathogenic trypanosomes, thanks largely to the impetus given by the work of Novy, have been the center of interest for a long time, but other protozoan parasites are rapidly coming to the front. Some of these are proving to be even more difficult to study than the trypanosomes, and we are but slightly advanced in our knowledge of their complicated life histories. Bit by bit, however, the remarkable life cycles are being worked out. Recently Nuttall and Graham Smith[1] have made an elaborate study of the infection of dogs with *Piroplasma* and have reached a number of important conclusions.

Piroplasma, it will be remembered, is a minute intracellular parasite first discovered by Theobald Smith in the blood of cattle affected with Texas fever. Similar parasites, apparently belonging to the same genus, have been found in the sheep, the horse, the dog and in some other animals. Piroplasmosis of the dog has been observed in France, Italy, South Africa and in a few other countries. It is possible that the parasites in the European and African forms are different, although this has not been proved. The symptoms produced by *Piroplasma* in all animals seem to be essentially the same. The acute form is accompanied by anemia, hemoglobinuria and usually some jaundice. As in malaria, the parasite invades the red corpuscles. Canine piroplasmosis, like all the other *Piroplasma* infections, is conveyed by tick bite.

Nuttall and Graham Smith have traced in thoroughgoing fashion that part of the life cycle of *Piroplasma canis* which is passed within the blood of the dog. The course of development may be summarized briefly as follows: A free pyriform parasite enters a normal red corpuscle and soon assumes a rounded form. It then increases in size and passes through an active ameboid stage, after which it again becomes rounded and quiescent. This stage is followed by the protrusion of two processes, which rapidly enlarge and become pear-shaped. Eventually all the protoplasm of the parasite flows into these processes and the original body of the parasite is greatly diminished in size until it becomes a minute round mass, to which the pyriform processes are attached by their pointed ends. Finally this also disappears and two similar pear-shaped parasites are left in the corpuscle. These remain joined together for a time by a thin strand of protoplasm. The parasites are eventually liberated and make their way to fresh corpuscles, in which they enter anew on the developmental cycle. During this stage the chromatin or nuclear material passes through various interesting changes, a portion of the chromatin of the original parent entering each pear-shaped process at the time division occurs. Sexual forms have never been observed.

These careful studies are sure to cause renewed interest in the study of piroplasmosis. Texas fever, which is perhaps the most important of the *Piroplasma* infections, is very common in the United States, and a piroplasmosis of the sheep also has been reported from at least one of the western states. It is possible that the spotted fever of the Rocky Mountains, which has been studied by Chowning and Wilson, Anderson, Ricketts, King and others, may prove to be a form of human piroplasmosis. It is certainly significant that, as shown by Ricketts, this disease is communicated by the bite of the tick. All known forms of piroplasmosis seem to be spread by the agency of this insect.

TENNESSEE PRACTITIONERS AND THE VERBATIM RECORDING OF LICENSES.

A decision of the Supreme Court of Tennessee makes many of the physicians of that state illegal practitioners. In passing on a suit involving the collection of certain fees for medical services, the court decided that the account could not be collected by process of law. The reason assigned was that the physician's license had not been recorded *verbatim* by the county clerk and, the time fixed by law for such recording having elapsed, that the license was, therefore, void. This seems an imposition on the physician, who certainly had conformed to the statutes so far as his part was concerned. It seems that by the failure on the part of the county clerks to do their duty the physicians of the state are unwittingly subject to the penalties for illegal practice. In addition to this they have, in the aggregate, been put to a vast amount of trouble, inconvenience and expense in having to get their licenses renewed. It is hard to see what utility there can be in the word-for-word transcription of the licenses in the registration book. A physician's license is not like a real-estate instrument or a will, containing its special descriptions and important details; it can vary only in such matters as names, dates, etc., and these presumably are all that it has been thought necessary to record. It is to be hoped that this Tennessee precedent will not be followed elsewhere. To guard against it, however, it would be well for the state society committees on legislation and political action in states with similar laws to look into the matter so that trouble similar to that which has developed in Tennessee may be avoided.

LATENT DIPHTHERIA.

While we have come to consider diphtheria as a manageable disease, it is still a troublesome problem to the sanitarian as well as serious and inconvenient to the patient. Antitoxin is a very expensive remedy, it is not always immediately available, particularly in country districts, and we can hardly consider it an infallible remedy. A still more serious embarrassment is the sometimes protean character of the disease which allows it to go unrecognized and untreated until serious consequences are inevitable. Many physicians have had to make retrospective diagnoses of diphtheria to account for formidable paralyses, etc., in their patients, while the control and prevention of the disorder is greatly hindered by this fact of its almost impossible diagnosis, in so many cases, by the ordinary clinical methods. The subject of latent diphtheria, treated of in this issue of THE JOURNAL by Dr. M. Solis-Cohen, is, therefore, a very important one. We are still in the dark, or at least in considerable obscurity, as to whether or not all the diphtheria-like bacilli are to be classed together, as is done by some bacteriologists. It is, moreover, manifestly impossible to secure a notification of every case that may be diphtheria; sore throats are too common and too little regarded by those who suffer from them, and, as Variot says, it often would depopulate the schools to isolate these patients. It would seem, therefore, that, to a great extent at least, we shall be compelled to take what comfort we can in the fact that careful investigations show but a very minute proportion of actually virulent bacilli in the throats of healthy persons. There is another satisfactory consideration, viz., that the contagion of diphtheria is generally rather direct and not, like that of scarlatina, extremely pervasive and capricious. Much can be done, however, by the use of rational methods of prevention such as the use of immunizing doses of antitoxin and the judicious control or isolation of persons who have been exposed to the disease and who have the bacilli in their throats even though they may not present any signs of the disease. It is to be borne in mind that such persons may be convalescent from slight attacks of latent diphtheria without exudate. Of course the restrictions in such cases will not have to be so rigid as in some others, but these patients should be at least kept under control and prevented from disseminating the disease. According to Dr. Solis-Cohen, if a person has not been exposed to diphtheria the presence of such germs may be disregarded, provided there has been no antecedent sore throat. The diphtheria-like bacilli found in such persons are practically always non-virulent, and the examination of several thousand throats by the Massachusetts Boards of Health, without inquiry as to exposure, showed virulent bacilli in 0.2 per cent. The bacteriology of diphtheria has not yet been fully elucidated and further investigations as to the relations of the Hoffman and the Kleb-Loeffler bacilli are still in order before we can put the sanitary control of the disease on a firm basis.

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[1] Jour. of Hygiene, 1907, p. 232.

ACCOMPLICE OR DUPE.

In the attempt to interest and benefit their readers it is but natural that literary periodicals should invade the medical field, and, as is well known, some very creditable articles on hygiene and domestic medicine have appeared in many such magazines. A recent article in *Leslie's Weekly,* however, is of an entirely different character. An account of the opening in New York of a so-called hospital for the treatment of cancer by the notorious Alexander method furnishes *Leslie's* an opportunity to present a fine example of journalistic enterprise, probably creditable to its counting room but not to the paper itself. While the description of the opening of this so-called hospital appears in the body of the paper under the title "Progress in Medical Science," it appears to be a typical "write-up" in all its glory, including carefully constructed clinical histories of cured (?) cases, well suited to delude the lay readers. Ostensibly the "progress in medical science" referred to is the opsonic theory, and the lay reader is led to believe that this Alexander method is an outcome of the application of the opsonic index to the treatment of cancer. While the opsonic theory is only a very recent one, the cases reported were under treatment years ago before the word "opsonin" was even known. A little thing like this, however, does not count in the hands of such people. Incidentally some of these remarkable "cures" recorded in *Leslie's Weekly* have been incorporated for a long time in the advertising literature sent out by the Alexander people. Admiration for this enterprise on the part of *Leslie's Weekly* gives rise to curiosity: How comes it that a paper that claims to be reputable is willing to impose on its readers a nostrum and to help delude with false hopes those suffering from malignant disease, who, in dread of the knife, are ready to grasp at anything which offers them an escape from an operation and to trifle with quackery until it is too late, or who, in their desperation, are willing to grasp at any straw? Can it be possible that the principles underlying the editorial management of *Leslie's Weekly* have been so lowered that the reading columns of that paper are open to frauds for the revenue to be derived? Either this, or that publication has been beautifully humbugged.

Medical News

ALABAMA.

Society Meeting.—At the annual meeting of the Medical Society of Franklin County, Dr. William P. Hughes, Russellville, was elected president, Dr. J. W. Nance, vice-president, and Dr. William P. Hughes, county health officer.

Personal.—Dr. Benjamin J. Baldwin and family, Montgomery, sailed from New York for Europe, June 18.——Dr. Erasmus T. Camp has been made president and Dr. Ira C. Ballard secretary of the temporary organization for the erection of a general hospital at Gadsden.

Hillman Hospital Staff.—The board of governors of the Hillman Hospital, Birmingham, recently taken over by the Jefferson County authorities, consists of the following: Drs. Thomas D. Parke, Charles Whelan, Dyer F. Talley, Hardee Johnston, and Mr. Job Going. The hospital was opened to receive patients June 1.

Opposed to Indiscriminate Prescription of Liquor.—The Jefferson County Medical Society has placed itself on record as being opposed to the indiscriminate prescribing of liquor by physicians, and suggests, to limit such illicit prescriptions, that every prescription be recorded in a book open to inspection by the county health officer, the record to show the prescriber, date, amount, kind of liquor, etc.

Medical College Plans.—President J. W. Abercombie of the University of Alabama and the dean of the medical department of that institution, held a conference with Dr. Rhett Goode and T. M. Stevens, who form a special committee appointed for arranging and carrying out the plans of improvement to the Mobile Medical College under the $40,000 appropriation recently made by the state legislature. It is believed that the improvements on the college will be completed before the session opens in October next.

ARKANSAS.

Sanatorium Ensured.—A sanatorium to cost $12,000 will soon be erected in Searcy, with initial accommodation for 50 patients. Drs. Jarrett M. Jelks, Luther E. Moore and John B. Grammar are in charge of the institution.

New Medical Examiners.—The governor has appointed the following members of the State Board of Medical Examiners: Dr. Montague Fink, Helena, vice Dr. Benjamin L. Harrison, Jonesboro; Dr. M. L. Norwood, Lockesburg, reappointed, and Dr. George S. Brown, Conway, vice Dr. Louis E. Love, Dardanelle.

Appoints Irrigation Delegates.—The president of the Arkansas Medical Society has appointed Drs. Dewell Gann, Benton; Adolphus G. Clyne, Bethel; Matt S. Dibrell, Van Buren; Clifford H. Trotter, Helena, and Andrew E. Cone, Portland, delegates to the National Irrigation Congress, to be held in Sacramento, Cal., in September next.

Personal.—Dr. Owen G. Blackwell, Pine Bluff, has returned after five months abroad.——Dr. Arthur B. Loving has been elected president and Dr. John S. Jenkins secretary of the Pine Bluff board of health. Drs. Camillus K. Caruthers, Orlando C. Hankison and Benjamin D. Luck are the other medical members of the board——Dr. Eugene H. Abington, Beebe, has been elected president of the Citizens' Association of that place.——Dr. Orange K. Judd has been elected secretary of the Little Rock board of health.

CALIFORNIA.

Physicians' Building.—A building intended for the exclusive use of medical men is being erected in San Francisco at the corner of Sutter and Stockton streets.

Personal.—Dr. Charles S. Stoddard, Santa Barbara, is reported to be seriously ill.——Dr. James T. Fisher, Los Angeles, has recently been appointed a member of the State Board of Lunacy from Los Angeles County.——The honorary degree of Master of Arts was conferred on Dr. Stanley P. Black, Pasadena, by the Northwestern University, Chicago, June 20.

Plague at San Francisco.—In the case of the patient removed from the steam tug *Wizard*, May 23, who died in the Marine Hospital four days later, and who was believed to have had bubonic plague, bacteriologic examinations on June 8 confirmed the diagnosis. The seaman in question had been sleeping on the tug, and at intervals had taken his meals at a boarding house in San Francisco. The tug was to have been disinfected on her return to port, but sunk on May 29.

COLORADO.

Wins Suit from Healer.—Louise Schneider, Colorado Springs, who sued an alleged magnetic healer for $250, was given a verdict of $155 by a jury in the Los Angeles county court.

New Medical Society.—The Clear Creek County Medical Association was organized at Idaho Springs in January, on the standard plan, with Dr. Axel Aberg as secretary and treasurer.

CONNECTICUT.

Personal.—Dr. Theodore G. Wright has been appointed medical examiner of New Britain, vice Dr. Edwin B. Lyon.

Anti-Vaccination Bill.—An adverse report by the Committee on Public Health and Safety on the bill to abolish the compulsory vaccination law, was approved by eight of the eleven members of the committee.

School Physicians.—The Senate passed, June 4, without opposition, a bill providing for the optional appointment of school physicians to examine pupils, and also teachers and janitors when necessary.

Tent Hospital.—At a meeting of the Board of Park Commissioners, Hartford, June 3, permission was granted to the Hartford Hospital to establish a free hospital tent in Riverside Park for the use of sick children.

Infectious Diseases.—During May the following infectious diseases were reported: Smallpox, 9 cases in 3 towns; measles, 543 cases in 54 towns; scarlet fever, 152 cases in 42 towns; cerebrospinal meningitis, 5 cases in 4 towns; diphtheria, 156 cases in 37 towns; whooping cough, 110 cases in 23 towns; typhoid fever, 38 cases in 21 towns, and consumption, 51 cases in 22 towns. The health officers of 59 towns reported that they had not been notified of any infectious diseases.

May Mortality.—During May 1,320 deaths were reported in the state, equivalent to an annual death rate of 15.8 per 1,000. Heart disease caused 160 deaths; diseases of the nervous system, 155; consumption, 137; pneumonia, 120; accidents and violence, 87; bronchitis, 33; diphtheria, 19; influenza, 17; measles and whooping cough, each 15; scarlet fever and erysipelas, each 10; cerebrospinal meningitis, 9, and typhoid fever, 7. The deaths from infectious diseases were 242, or 18.3 per cent. of the total mortality.

IDAHO.

Hospital for Barracks.—Advice has been received from the War Department to the effect that a hospital building to cost $20,000 will be erected at once at the barracks in Boise.

State Board Notes.—Dr. William F. Howard, Pocatello, has succeeded Dr. Jesse L. Conant, Jr Genesee, as secretary of the State Board of Medical Examiners.——Dr. Warren D. Springer, Boise, has been appointed secretary of the State Board of Health.——Dr. Orfila J. Allen, Bellevue, has been appointed a member of the State Board of Medical Examiners.

ILLINOIS.

Personal.—Dr. Allen M. King, Jacksonville, was thrown from his automobile in a collision with a telephone pole in Virginia, June 18.——Dr. Thomas W. Curry, Streator, was operated on for appendicitis in St. Mary's Hospital in that city, June 17, and is reported to be doing well.

Medical Staff Appointed.—The medical staff of the Brokaw Hospital, Bloomington, has been reorganized with the following officers: President, Dr. Joseph K. P. Hawks; vice-president, Dr. Robert A. Noble, and secretary-treasurer, Dr. John L. Yolton. The number of members on the medical staff has been restricted to twelve.

Communicable Diseases.—Three cases of smallpox are reported to exist at the University of Illinois, Champaign.——The inspector of the State Board of Health reports that there have been 112 cases of smallpox in Peoria and there are still 8 cases in the Isolation Hospital.——Dr. Tolbert F. Hill, Athens, reports a number of cases of scarlet fever.——Smallpox is reported from Aurora. Dr. Charles E. Crawford, Rockford, inspector for the State Board of Health, is in charge of the situation. At present there are nine houses under quarantine and in one house there are said to be 13 patients.

Chicago.

Automobile Ambulance.—An automobile ambulance equipped with the latest appliances has been added to the equipment of Cook County Hospital.

Mortality of the Week.—During the week ended June 29 479 deaths were reported, equivalent to an annual death rate per 1,000 of 11.85. Tuberculosis caused 59 deaths; pneumonia, 47; Bright's disease, 41; heart disease, 39; violence, 36; cancer, 33; acute intestinal diseases, 29, and nervous diseases, 22.

Tuberculosis.—The Chicago Tuberculosis Institute is preparing to distribute copies of a consumption catechism prepared by the board of health of New York, among 600,000 public school children of Chicago.——An entertainment was given by the Hull House Woman's Club, June 23, under the auspices of the Chicago branch of the Jewish Consumptives' Relief Society of Denver, to raise funds to assist in building an addition to the society's hospital in Denver.

Report of Committee on Criminal Abortion of the Chicago Medical Society.—At the annual meeting of the Chicago Medical Society, this committee reported that its work had been principally in the direction of securing the removal of advertisements of abortionists from the daily press. In this the committee has been remarkably successful, having brought about a condition which never obtained before; it has removed all criminal medical advertising from the Chicago newspapers. Three of the leading newspapers consented to this line of action after a presentation of the facts by the committee. The others complied only after being notified by the postal authorities that they must comply or have their papers excluded from the mail, the committee having furnished the government with proof that the advertisers were willing to perform abortions. This committee also rendered valuable service in the prosecution of criminal operators with the result that at least two have been sent to Joliet, others have left the city, some are being prosecuted, and the others and the newspapers are being watched. The chairman, Dr. Rudolph W. Holmes, suggested the possibility of meeting with other organizations, such as the Legal Aid Society, and the employment of a competent attorney, who should be appointed as assistant state's attorney and who would soon become versed in all matters pertaining to the prosecution of this class of cases. The work of this committee shows what can be accomplished by fearless, honest men, who are working for the good of the people.

INDIAN TERRITORY.

Personal.—Dr. Benjamin F. Fortner, Vinita, has been appointed surgeon of the Frisco Hospital, Springfield, Mo.——Dr. Louis Bagby, Vinita, has been appointed local surgeon for the M., K. & T. and Frisco systems.——Dr. Bonaparte P. Norvell has been appointed city physician of Muskogee.——Dr. John W. Hains, Muskogee, has moved to Kansas City.

Society Meeting.—At the annual meeting of the Muskogee Medical Society, May 4, the following officers were elected: President, Dr. J. Hutchings White; vice-president, Dr. James T. Nichols; secretary-treasurer, Dr. Oscar C. Klass, and censors, Drs. Ira B. Oldham, Pleasant P. Nesbitt and M. R. Thompson. The society is carrying out a systematic postgraduate course in its program of meetings for the year.

Hospital Notes.—A move is on foot to erect a hospital building in Muskogee to cost about $100,000, which will be in charge of the Sisters of Mercy.——The medical profession of Ardmore contemplates building a hospital in that city, to cost not less than $15,000. The committee having the matter in charge consists of Drs. Jerome C. McNees, Thomas S. Booth, Robert H. Alvis, William T. Bogie and Philip Stephens.——Dr. P. S. Mitchell is building a sanatorium at Haskell at a cost of $11,000.

MARYLAND.

Baltimore.

Tuberculosis.—The secretary of the Maryland Association for the Prevention and Relief of Tuberculosis reports that there are between 5,000 and 6,000 cases of tuberculosis in Baltimore, 763 being under the care of the Visiting Nurses' Association.

Herter Lectures.—The next annual course of lectures on the foundation established by Dr. and Mrs. C. A. Herter will be delivered about the end of April, 1908, by Edward A. Schaefer, LL.D., Sc.D., F.R.S., professor of physiology in the University of Edinburgh, Scotland.

Scholarship Endowed.—Mrs. Bertha Rayner Frank has endowed a medical scholarship at the University of Maryland, in memory of her late husband, to be known as "the Dr. S. Leon Frank Scholarship." The interest of $2,500 is to be applied annually to this scholarship.

Phipps Institute.—Drs. A. G. Rytina, Eugene Kerr and S. R. Clarke have been appointed examining physicians in the Phipps Tuberculosis Dispensary of the Johns Hopkins Hospital. Since its establishment, a little over two years ago, more than 1,600 patients have been enrolled on the books of this institution.

Personal.—Drs. W. S. Baer, C. C. McDowell, Elizabeth Hurdon, sailed for Europe June 26.——Dr. R. T. Taylor of the Hospital [illegible] Crippled and Deformed Children, has gone to Blue Ridge Mountains to take charge of the summer branch of that institution.——Dr. R. G. Harrison, associate professor of anatomy at Johns Hopkins and editor of the *Journal of Experimental Zoology*, has been appointed to the Bronson professorship of comparative anatomy at Yale.

MASSACHUSETTS.

Hospital Opened.—The Henry Heywood Memorial Hospital, Gardner, was formally opened June 25. The presentation of the hospital to the corporation was made by Mrs.Henry Heywood and Miss Helen R. Heywood.

Medical Inspection of School Children.—The Lawrence board of health has voted, under the present law, to take charge of the medical inspection of public school children, thus relieving the school committee of this part of their public duty.

Personal.—The governor has appointed Dr. Edward T. Worth, Edgarstown, medical examiner of Dukes County, and Dr. John C. Frazer, East Weymouth, medical examiner for Norfolk County.——Dr. George W. Holmes, Boston, has been elected resident physician of the Long Island institutions, vice Dr. Nathaniel P. Thayer, resigned.

Society Meetings.—At the annual meeting of the Hampshire Medical Society, held in Northampton, May 9, the following officers were elected: President, Dr. Justin G. Hayes, Williamsburg; vice-president, Dr. George D. Thayer, Northampton; secretary, Dr. Arthur G. Minshall, Northampton; treasurer, Dr. Alfred H. H. Hoadley, Northampton, and librarian, Dr. Wallace E. Brown, Northampton.——At the annual meeting of the Franklin District Medical Society, held in Greenfield, May 14, Dr. John W. Cram, Coleraine, was elected president; Dr. Charles L. Upton, Shellburne Falls, vice-president; Dr. Clara M. Greenough, Greenfield, secretary-treasurer, and Dr. F. E. Johnson, Erving, committee on trials.——The Essex North District Medical Society held its annual meeting in Lawrence and elected the following officers: President, Dr. William J. Sullivan, Lawrence; vice-president, Dr. Charles E. Durant, Haverhill; corresponding secretary, Dr. Robert D. Hamilton, Newburyport, and auditor, Dr. George M. Atwood, Haverhill. At its last meeting the society resolved that its members and all the profession in sympathy should not examine ordinary insurance applicants for a fee of less than $5. Copies of this resolution have been sent to each physician in the jurisdiction of the society and to each insurance company licensed in the state.

MICHIGAN.

Society Meetings.—At the annual meeting of the Blackwell Medical Society, held in Detroit, May 21, the following officers were elected: President, Dr. Harriet L. Hawkins; secretary-treasurer, Dr. Jean A. Vernier, and councilors, Drs. Lucy J. Utter, Grace M. Clarke and Juanita I. Lea, all of Detroit.——At the annual meeting of the Wayne County Medical Society, held May 20, the following officers were elected: President, Dr. Alva N. Collins, vice-president, Dr. Kenneth Gunsolus, and secretary, Dr. Walter D. Ford, all of Detroit.

NEW YORK.

Italian Hospital for Buffalo.—Dr. Charles R. Borzilleri has obtained an option on the purchase of a building at 208 Niagara Street at a cost of $25,000 for an Italian hospital.

Fresh Air Hospital. -The Buffalo Fresh Air Mission Hospital is open for the season. It is situated about 20 miles from Buffalo on the shores of Lake Erie. It is devoted to the care and treatment of cases of cholera infantum.

Communicable Diseases.—Trachoma is reported to be spreading at an alarming rate in Riverhead and vicinity.——An epidemic of diphtheria prevails at the Orphan Asylum, Gerry, where several inmates are ill and one death has occurred.

Polish Hospital for Buffalo.—Property has been purchased on Stanislaus Street, between Fillmore Avenue and Beck Street, for a site for a Polish hospital. The property has a frontage of 205 feet, but 400 feet may be had if needed. It is said that the cost of the hospital will be $100,000. The decision to build this hospital was made at a meeting at which all the Polish priests of the city were present.

Annual Report of Nyack Hospital.—At the annual meeting of the Nyack Hospital Association on June 26, the report of the work of this institution from October 1 to June 25 was presented. The finance report showed a balance in favor of the hospital. The total number of patients treated was 252, with a total of 4,199 hospital days. The officers elected were: President, S. R. Bradley; vice-president, W. B. Conrad; treasurer, Dr. Charles D. Kline.

To Fight Pollution.—The special committee on pollution of the Merchants' Association announces that Governor Hughes has begun a thorough investigation into the pollution of state rivers and streams by pulp and sulphid mills. He has ordered Dr. Eugene Porter, the state commissioner of health, to make inquiry into complaints in regard to mills at Fort Edward, Glens Falls and other points in that vicinity. A public hearing has been ordered at Fort Edward on July 8.

Conditions in Tuberculosis Wards.—As a result of the investigation recently made by the tuberculosis commission of the Buffalo Charity Organization Society, and its report to the board of supervisors concerning conditions in the tuberculosis wards of the Erie County Hospital, the supervisors have decided to fence in the tuberculosis wards at a cost of $2,000 and to construct six shacks for open-air treatment at a cost of $700 apiece and to furnish better and more food, clothing, etc., for the patients.

Society Meetings.—The annual meeting of the Alumni Association of the Medical Department of the University of Buffalo was held at the university May 29 and 30 and June 1 and 2. Dr. Charles P. Norton, vice-chancellor of the university, delivered the annual address on the subject of university extension, making an appeal for $25,000, to be expended in advancing the interests of the student body. The following officers were elected: President, Dr. Allen A. Jones, Buffalo; vice-presidents, Drs. Fitch H. Vanorsdale, Belmont; George A. Himmelsbach, Buffalo; Charles L. Preisch, Lockport; N. Victoria Chappell, Buffalo, and F. H. Stanbro; secretary, Dr. Franklin W. Barrows, Buffalo, and treasurer, Dr. Herman K. DeGroat, Buffalo.——The Blackwell Medical Society, Rochester, elected the following officers: President, Dr. M. Louise Hurrell; vice-president, Dr. M. May Allen; secretary, Dr. Harriet M. Turner; treasurer, Dr. Sarah H. Perry, and councilors, Drs. Sarah R. Adamson Dolley and Cornelia White-Thomas.

Personal.—Dr. Charles F. Howard, Buffalo, has been appointed a member of the state prison commission.——Dr. John G. Meidenbauer, Buffalo, was recently operated on for appendicitis at the German Hospital.——Dr. James W. Putnam, Buffalo, will sail for Europe in a short time.——Dr. John D. Howland, medical examiner of Buffalo, narrowly escaped losing his life June 18, while rescuing a drowning man.——Dr. Galette B. Gilbert, Rochester, was severely bruised about the head in a collision between his automobile and a trolley car, June 16.——Dr. Jessie L. Herrick, Elmira, has gone to Vienna.——Dr. Charles E. Darrow, Rochester, sailed for the Mediterranean, June 29.——Dr. George W. Clark, Waterloo, was struck by a train June 22, receiving injuries which will necessitate the amputation of his left foot.——Drs. James W. Putnam and George Himmelsbach, Buffalo, will spend the summer in Europe. The former will attend the International Neurological

Congress at Amsterdam, Holland.——Dr. John G. Meidenbauer was successfully operated on at the German Hospital for appendicitis.

New York City.

Physician Exonerated.—The case of Dr. William S. Louis, Brooklyn Hills, charged with having performed a criminal operation, has been dismissed by the grand jury of Queens County and the district attorney has discontinued all action, releasing the bondsmen and completely exonerating Dr. Louis from all blame.

Personal.—Dr. William Salant, of the department of biologic chemistry of Columbia University, has accepted the position of adjunct professor of physiologic chemistry and pharmacology at the University of Alabama.——Dr. Benjamin W. Zipser disappeared June 11, and no trace of him has been found.——Drs. W. G. McCormick, M. D. Sullivan and Edward Kennedy have resigned as resident physicians at Lincoln Hospital.

To Study Foreign Filtration.—Comptroller Metz will leave for Hamburg on July 9 to investigate the filtration plant there; he will investigate other filtration plants in Europe, and will consult in general with European authorities so that he may get continental knowledge on the subject in all its branches. No work will be done on the proposed filtration plant at the west branch of the Jerome reservoir until next autumn.

Eddyite Arrested.—Clarence Byrne, an Eddyite whose 6-year-old daughter died without medical attention, was arrested at the instance of the coroner on the charge that he failed to furnish medical attention for his child when she was dying of bronchopneumonia. At the inquest the man testified that ten of his children and his wife had died since he had taken up the faith, and that none of them had received medical attention until a few moments before death.

Junior Sea Breeze.—The open-air camp hospital opens Monday with a much wider sphere of activity than formerly. Five pavilions have been erected on the high ground overlooking the river, and are open on all sides. Instruction is given to mothers daily in the care of babies, bathing, clothing, feeding, and fresh air. Sea Breeze last year sheltered 3,000 for permanent stays, and 23,051 including day trips. It is expected that 25,000 will be provided for this year. The running expenses are $50,000 a year, collected by voluntary subscriptions.

Alumni Meet.—At the twenty-seventh annual meeting of the Alumni Association of the Long Island College Hospital, Brooklyn, held May 28, the chief addresses were delivered by Dr. Joseph D. Bryant, President of the American Medical Association; Supreme Court Justice J. E. Crane, Rev. H. P. Dewey, Drs. John Harrigan, F. E. West and William N. Belcher, retiring president of the alumni association. The following officers were elected: President, Dr. William E. Butler; vice-president, Dr. Sylvester J. McNamara; recording secretary, Dr. James Watt; treasurer, Dr. John S. Read; historian, Dr. John J. A. O'Reilly; assistant historian, Dr. T. M. Brennan, and councilors, Drs. William N. Belcher and Clarence R. Hyde, all of Brooklyn.

Garbage a Menace.—Owing to the striking drivers of the New York street cleaning department the decaying garbage has accumulated in the streets, particularly on the crowded East Side, until it has become a menace to health. It is estimated by the commissioner that over 2,000 tons of refuse are in the streets; in a number of localities the people have endeavored to dispose of this refuse by burning it in the streets. Many complaints have been made, both to the department of health and to the mayor. As a result Health Commissioner Darlington has turned the matter over to the assistant sanitary superintendent, Dr. Walter Bensel, who has put to work cleaning the worst streets all the available force at his command that could be properly guarded by the police.

Russell Sage Institute of Pathology.—Mrs. Russell Sage has given $300,000 to found the Russell Sage Institute of Pathology to perform the duties of pathologists for the City Hospital and the City Home for the department of charities on Blackwell's Island. Mrs. Sage makes a special request that this institution make a specialty of research into the problems of all diseases, and more especially to those incident to old age. This is the first time in New York that there has been a co-operation of private beneficence and city support in the development of scientific work in any institution, but there is a precedent in Frankfort, Germany. Mrs. Sage delivered to the Russell Sage Foundation securities to the market value of $300,000, the income of which is to be applied to the institution. It is provided in the gift that the institution, which will be incorporated, shall be organized according to the plans and under the direction of Drs. E. G. and T. C. Janeway, with whom are to be associated on the board of trustees, as ex-officio members, the commissioner of charities and the president of the medical board of the City Hospital, and as individual members, Dr. B. Bryson Delavan, Dr. Simon Flexner and Prof. Graham Lusk. It is provided that the salaries of the scientific workers, the expense of special research work, and the maintenance of a proper working library and the publication of results will be borne by the income of the endowment, while the buildings, their care and the cost of the routine work directly for the patients will be borne by the city.

PENNSYLVANIA.

Personal.—Dr. Benjamin M. Bartilson, Braddock, who was operated on for appendicitis, is recovering.——Dr. A. P. Hitchens, Glenolden, sailed for Liverpool, June 22.

Carnegie's Gift to Cambria.—Andrew Carnegie has presented the county of Cambria with a 600-acre tract of ground one mile from Cresson. On this property an insane asylum will be erected by the commissioners.

Anti-Spitting Crusade.—In an effort to enforce an anti-spitting ordinance, arrests by the wholesale were made in Pittsburg, June 26, by the health officers who patrol the streets of the downtown sections, and arrested many persons for spitting on the sidewalk. Nearly 100 arrests were made and the offenders were fined $1 each. There was no discrimination as to race, color, creed or station in life. The health officers assert that arrests will continue until there is a positive abatement of the nuisance. In most cases the offenders claimed that they had violated the ordinance unconsciously.

Child Labor in Pennsylvania.—The annual report to Governor Stuart of Chief Factory Inspector Delaney shows that Pennsylvania can show a less percentage of employed children under 16 than any other state in the union. In 1906 there were 40,371, a percentage of 4.75 less than any time since 1889. The inspector remarks that this is a small number out of 1,500,000 children, of which 1,245,117 are enrolled in public schools. The department learned that there were 60 accidents of a fatal character and 844 non-fatal occurring in the children's labor department in 1906.

Philadelphia.

Public Baths Opened.—Eighteen public bath-houses were formally opened June 24.

Personal.—Dr. and Mrs. Charles W. Fox have returned from Europe.——Dr. and Mrs. Arthur V. Meigs sailed for Bremen, June 25.——Dr. Wendell Reber sailed for Liverpool, June 22.——Dr. Joseph Farley sailed for Europe, June 29.

To Finish New Hospital.—After nearly two years work will be resumed on the buildings of the new Municipal Hospital. It is expected that $50,000 will be appropriated for the small-pox hospital buildings and the power-house. After they are completed additional provision will be made for the other buildings.

Chickens Pronounced Good.—After investigation by Dr. A. C. Abbott, chief of the bureau of health, and Dr. A. F. Schreiber, chief meat inspector, a consignment of chickens to the State Hospital for the Insane, at Norristown, were pronounced clean and healthful. This consignment of chickens was the balance of a shipment sent to the hospital, and the first lot was said to be the cause of ptomain poisoning in 250 attendants and inmates.

Typhoid Decreases.—It is stated by the bureau of health that during the six months ended June 29 there had been a decrease of about 1,500 cases of typhoid fever in the city, as compared with the corresponding six months of last year. Comparing the same period also, the decrease in the scarlet fever cases this year was about 100, and of diphtheria about 130. There has been a progressive decrease in scarlet fever in the last three years as marked as the 50 per cent. reduction which occurred in the six years previous thereto. This continued reduction the authorities believe means that scarlet fever can be controlled largely by daily inspection of the school children and isolation.

Health Report.—The total number of deaths reported for the week ended June 29 is 444. This is a decrease of 19 from the number reported in the preceding week, and a decrease of 59 from the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 14; measles, 5; pertussis, 2; diphtheria, 5; cerebrospinal meningitis, 9; tuberculosis, 54; apoplexy, 22; heart disease, 30; acute respiratory diseases, 27; enteritis, 25; Bright's disease, 48; congenital debility, 6; suicide, 3; accidents, 9; marasmus,

4. One hundred and thirty-six cases of contagious diseases were reported, with 20 deaths, as compared with 170 cases and 16 deaths reported in the previous week.

RHODE ISLAND.

Personal.—Dr. Arthur H. Harrington, New York City, has been appointed director of the State Hospital for the Insane at Providence, vice Dr. Jewett, who has resigned.

Society Elects Officers.—At the annual meeting of the Woonsocket District Medical Society, held June 26, the following officers were elected: President, Dr. E. D. Clark; vice-president, Dr. John J. Baxter; secretary, Dr. William F. Barry; treasurer, Dr. George R. Smith; councilor, Dr. William C. Monroe; censors, Drs. Joseph T. Roswell, Robert G. Reed and J. E. Tanguay, all of Woonsocket.

Tuberculosis Crusade.—Rhode Island manufacturers are carrying on an organized campaign against the spread of tuberculosis among their employés. For nearly a year local mill owners and executive officials, aided by physicians, have given special attention to the ravages of this disease, which claimed hundreds of victims from among the employés of textile factories. It has been shown that in the state there were 1,031 deaths from tuberculosis in 1905, or more than twice the total number of deaths from eleven other preventable and communicable diseases combined. To check the disease the Society for the Prevention and Relief of Tuberculosis has been formed, one of the chief objects of which is to secure legislation of the proper nature.

TENNESSEE.

Society Meeting.—A number of physicians of Hardin County met in Savannah recently and organized the Hardin County Medical Society. The following officers were elected: President, Dr. James K. Barlow, Savannah, and secretary, Dr. William E. McDougal, Savannah.

Commencement.—The Medical Department of the University of the South, Sewanee, held its fiftieth annual commencement June 20 to 27. Among the commencement orators were Dr. Ira Remsen, president of the Johns Hopkins University; Dr. Francis H. Smith of the University of Virginia, and Chancellor J. H. Kirkland of Vanderbilt University.

TEXAS.

New Site for College.—The management of the College of Physicians and Surgeons, Dallas, has purchased for $12,580 a new site on the corner of Richardson Avenue and Ervey Street.

Hospital Notes.—Dr. A. O. Scarborough, Abilene, has purchased a site on which he will erect a hospital to cost $100,000. ——A building permit has been issued for the construction of a hospital at El Paso to cost $7,400.——St. Patrick's Sanitarium, Paris, is to be converted into a hospital, which will be in charge of the Sisters of Mercy.——Dr. Charles H. Breuer, recently of Yoakum, has moved to Taylor to establish a private hospital in the Vance building.

Health Conference.—A health conference was held recently between the State Health Officer Brumby, Dr. Charles W. Trueheart, city physician of Galveston, and a representative of the North German Lloyd Steamship Company relative to the handling of immigrants in the port of Galveston who are suffering from contagious or infectious diseases. It is possible that a tent hospital will be erected on the beach east of the seawall, near the John Sealy Hospital, for handling such cases.

Personal.—Dr. Homer B. Jester, Corsicana, has been appointed surgeon of the T. & B. V. Railroad.——Dr. Vic Oatman, Austin, suffered a severe injury as the result of a collision between his buggy and a street car recently.——Dr. and Mrs. Eugene R. Carpenter, El Paso, sailed for Europe, June 11.——Dr. John H. Florence, Brownsville, who has been in charge of the Sabine Pass quarantine station, has succeeded Dr. James P. Tucker as quarantine physician of Galveston. ——Dr. J. A. Sadler, Sherman, is seriously ill at his home in that city.

Communicable Diseases.—Smallpox in severe type is reported to be prevalent in the neighborhood of Kenney.——The smallpox epidemic at Hillsboro has subsided and every white patient has been discharged.——There are reported to be five or six cases of smallpox in West.——In the John Sealy Hospital, Galveston, there are reported 13 cases of smallpox. Five tents have been erected outside the seawall, near the John Sealy Hospital, and nine patients are under treatment who developed the disease while en route from Bremen.——Several cases of typhoid are reported near Georgetown.——Measles is said to be epidemic at Cameron.

CANADA.

New Medical Society.—The Toronto Pathological Society, Toronto Clinical Society, Toronto Medical Society and Ontario Library Association have disbanded to form a new organization known as the Academy of Medicine. The following officers were elected: President, Dr. James F. W. Ross; vice-president, Dr. Alexander McPhedran; honorary secretary, Dr. Herbert J. Hamilton, and honorary treasurer, Dr. David J. G. Wishart.

Elections.—The Academy of Medicine, Toronto, has elected the following officers: President, Dr. James H. W. Ross; vice-president, Dr. Duncan A. McPhedran; secretary, Dr. Herbert J. Hamilton, and treasurer, Dr. David J. Gibbs-Wishart.—— The St. John (N. B.) Medical Society has elected the following officers for the ensuing year: President, Dr. Thomas H. Lunney; vice-president, Dr. Charles M. Pratt; secretary, Dr. John Bentley; financial secretary, Dr. George G. Corbet; librarian, Dr. Rowley; pathologist, Dr. William Warwick, and treasurer, Dr. James Christie.

Changes at McGill.—At the annual meeting of the governors of McGill University, June 21, the following announcements were made: Dr. Thomas G. Roddick, professor of surgery, resigned; Drs. James Bell and George A. Armstrong were appointed professors of surgery and clinical surgery; Mr. George Warrington Latham, Providence, R. I., was appointed sessional lecturer in English in the faculty of medicine for 1907 and 1908; Dr. Andrew MacPhail was appointed professor of history of medicine, and Dr. J. L. Todd was appointed professor of parasitology.——Seventy-four students passed the examination of the medical faculty.

Personal.—Dr. J. Playfair McMurrich, professor of anatomy in the University of Michigan, has been appointed professor of anatomy in the University of Toronto, vice Dr. Alexander Primrose, resigned.——Dr. John H. Leeming, bacteriologist to the city of Winnipeg, has gone on a trip to Great Britain. In his absence his department will be looked after by Dr. S. J. Pierce.——Dr. T. A. Starkey, professor of hygiene in the medical department of McGill University, has gone to Europe.—— Dr. Charles F. Martin, associate professor of medicine in McGill University, has returned from Germany.——Dr. W. Henry B. Aikins, one of the editors of the *Canadian Practitioner and Review*, Toronto, has returned from Europe.——Hon. J. S. Helmcken, M.D., Victoria, B. C., has just celebrated his eighty-second birthday. Dr. Helmcken was the first speaker of the legislative assembly of British Columbia in 1855.——Dr. Friend R. Eccles has been made dean of the Medical Faculty of the Western University, London, vice Dr. Walter H. Moorhouse, who resigned.

FOREIGN.

Subsidy for Scientific Research in Austria.—The National Academy of Sciences at Vienna has given Professor Finger $400 to aid him to continue his experimental work with vaccination against syphilis; Professor Kreidl has been given $200 to continue his research on photometry at the seashore, while Pfeffer receives $300 to aid him in his effort to produce an effectual serum for anthrax. About $60 has been given to Bayer of Innsbruck, who is conducting research on the origin of the autolytic ferments.

International Laboratory on Monte Rosa.—August 15 is the date set for the formal inauguration of the laboratory on Monte Rosa in Switzerland for research on problems involving high altitudes. There are specially equipped laboratories for botany, bacteriology, zoology, physics and meteorology, the buildings located at an altitude of about 1,000 feet. The international laboratory for study of physiology at high altitudes is located on the Gnifetti peak of the mountain, which is about 14,000 feet above the level of the sea. There are accommodations here for scientists from various countries, Italy having 5 posts at her disposal, England, Belgium, Germany, France, Austria and Switzerland having each two, and America one. Applicants for the posts can apply to Prof. Angelo Mosso of Turin, corso Raffaello 30, Turin, Italy, explaining the nature of the research they would like to take up and the length of time they wish to devote to it.

A Medical Scholarship at Oxford.—Dr. C. T. Williams has founded a medical scholarship at Oxford, his old college. The *Lancet* states that this is the first medical scholarship in the university. It is to be called the "Theodore Williams Medical Scholarship" and is to be adjudged after open competition. Natural science is to form a predominant part of the examination. Every candidate, before admission to the examination, will be required to state in writing his intention to proceed to the degree of B.M. and B.Ch. in the University of Oxford and to practice medicine or surgery. The stipend is to be $500 a year, and the scholarship will be tenable for four years and in exceptional cases for five years. It is to be administered by the master and fellows of the college, and in case the holder is found unworthy they will have power to suspend him or even to deprive him of his scholarship. Candidates will be required to pass all the examinations necessary for the degree of B.A., of which that of the Honor School of Natural Sciences shall be one. Candidates must be unmarried and not over 21 years of age at the time of election, and in addition must present testimonials of good conduct covering the two years preceding their application.

VIENNA LETTER.

(From our Regular Correspondent.)

The New Lunatic Asylum.

Vienna, June 17, 1907.

The erection of the new general hospital necessitates also the completion of the large lunatic asylum which the municipality is bound to open at the same time as the hospital. The asylum will consist of three parts entirely independent of each other: the asylum proper, the home and a sanatorium for the wealthier patients. The whole building comprises fifty-nine different buildings, among them the church (capable of seating 500 worshipers), the administrative pavilion, a theater and concert hall, pavilions for the staff and police, two large kitchens, a postoffice and a house for such patients as require occupation treatment (gardening, carpentry, etc.). There will also be laboratories and pavilions for the patients. The institution will accommodate 3,000 patients, and will be the largest of its kind on the continent, and will, of course, contain the latest appliances for the care of the patients. In connection with the public asylum, the sanatorium, a novel feature for Austria, will be managed by the municipality. This contains accommodation for 350 in-patients, who can afford to pay at least $2 a day for their care. An institution for hydro-, electro- and mechano-therapeutic measures is also at hand. The patients in all the three houses will have the utmost amount of personal liberty. Great care has been taken in regard to ventilation and heating and illumination of the pavilions; the system of low-pressure central steam heating has been adopted, and electric light and electric ventilators are employed throughout. The calculations, based on the experience of other large asylums, provide for a yearly admission of 1,800 to 2,000 new patients.

Determining Purity of Air by Electric Light.

During the last six months the Vienna board of health has, conjointly with the meteorologic observatory of the city, made systematic examinations of the purity of the air. The method used was discovered by chance. In the center of the city an illuminated fountain has been playing for some time, in which the water jets are lighted from below by means of powerful electric lights. From the observatory, about four miles distant, on certain nights a beam of light could be seen shooting upward and reflected by the clouds. Observation revealed the fact that the light beam could be seen in portions and its distinctness depended on the clearness of the air. When smoke or dust were present the ray was easily visible, while on certain days, such as Sundays and holidays, when many factories were inactive, the beam could not be seen. In the winter on clear, cold nights, when the air was remarkably dry, the beam could be seen reflected from a cloud nearly nine miles high, while its track could not be made out, proving the absence of dust and other foreign material in the air. Research is now being made to determine the relationship between impurities in the air and diseases of the respiratory tract.

Gardens on Hospital Roofs.

The committee having in charge the construction of the new General Hospital has ordered that the roofs of the 39 pavilions shall be made into gardens. The site of the hospital is such as to get the pure breezes from the mountains in the neighborhood of the city; by means of elevators, patients will be able to reach the roof of the pavilions. Acting on a suggestion of Billroth's and renewed recently by von Gleich, special beds will be put on parts of the roof where surgical patients will be able to have their wounds exposed to the action of sun and air. The dermatologic and pediatric clinics also will have beds on the roof garden of their pavilions for the same purpose.

Pharmacology

NOSTRUM ADVERTISEMENTS IN RELIGIOUS PAPERS.

The Reverse of the Shield.

From time to time we have called attention to the shameful way in which religious papers, as a class, sell their pages to the exploiters of nostrums of the most fraudulent character. Church papers come in closer touch with their subscribers than any other law publications. The influence wielded by such papers is immense and their responsibility correspondingly great. It is a matter for congratulation, therefore, to find that many of the higher class of church papers are slowly, but none the less surely, dropping this class of advertising. We have previously published[1] the fact that the *Christian Herald* and the *Alabama Baptist* either do not carry objectionable advertising or are getting rid of it as fast as contracts expire. We are glad to learn from the *Ohio State Medical Journal* that the *Lutherische Kirchenzeitung*, published at Columbus, Ohio, is one of the few religious journals that carries not only no medical advertisements, but has never done so. This record is so unusual that we quote the editor's reply to a letter from the Ohio League for the Suppression of Fraudulent Advertising:

> I am happy to state that the paper (*Lutherische Kirchenzeitung*) has never published a line of advertising for self-treatment, in fact of any medical remedy. We are opposed to the whole business of pouring unknown drugs or fluids of doubtful character into people and are using our influence against it.
>
> My church body would call me sharply to task if I took a different course.
>
> I must thank you for sending me the reprint of Collier's articles, of which I knew, but which I had not myself read. I shall endeavor to say something in my editorial items concerning this bad medicine business.
>
> R. C. H. Lenski,
> Editor *Lutherische Kirchenzeitung.*

As the *Ohio State Medical Journal* says: "This testimony does credit to one of the largest and most important church bodies in the United States."

PRESBYTERIES TAKE ACTION.

We had occasion in a previous issue[2] of The Journal to call attention to the case of the *Cumberland Presbyterian* and the correspondence that Dr. B. H. Blair, of Lebanon, Ohio, had with its editor. As an aftermath it is interesting to note that the following recommendation by Dr. Blair was recently adopted by the Miami presbytery:

> Miami Presbytery, in regular session at Covington, Ohio, this the third day of April, 1907, being convinced, by evidence furnished by those qualified to speak on the subject, that practically all medical advertisements appearing in religious papers are grossly exaggerated, misleading and fraudulent and can not consistently with the purposes of such religious papers be carried by them, we therefore wish to record our unqualified condemnation of the practice of such publications in thus transcending their province and impairing their influence by selling space for such deceptive and fraudulent advertisements, and we recommend and urge editors and publishers of all our publications to exclude all such advertisements. We are confident that the exclusion of such advertisements is not only expedient but right. Such action, we are convinced, will meet with the hearty approval of all Christian readers who are informed on this subject, and will increase the influence for good and the respect in which these publications are held. We recommend that this action be recorded in the minutes of this Presbytery and that copies of it be sent for publication to the *Herald and Presbyter*, the *Interior*, and the *Cumberland Presbyterian*.

No less encouraging is the unanimous adoption of a resolution, almost identical with the one above, by the presbytery of Lima, Ohio. After referring to the "immoralities and fraudulent practices" in the "patent-medicine" business "as conducted by the Proprietary Association of America," it goes on to say:

> We declare it our purpose to refuse endorsement to church publications which refuse to comply with this requirement. That public announcement of this our purpose may be made, a note of this action is directed to be inscribed in the minutes of this meeting by the clerk, and copies of the same sent by him to the *Herald and Presbyter*, of Cincinnati, Ohio, and the *Interior* of Chicago, for publication.

PETITION THE GENERAL ASSEMBLY.

Resolutions similar in import to the above were also adopted by the presbyteries of Mahoning, Portsmouth, Steubenville and Columbus—all in the synod of Ohio. When the general assembly of the Presbyterian church met recently, overtures

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1. The Journal, Feb. 2, 1907, 435.
2. The Journal, Feb. 2, 1907, 423.

were made asking for an official expression of opinion on this subject. The committee to which this was referred, while expressing its strong sympathy with the intent of the overture, called attention to the fact that the church has no control over journals representing themselves as organs of the Presbyterian church. As a matter of fact, such papers are not organs of the church at all, but simply private enterprises conducted for gain. This being so, the assembly had no jurisdiction and could merely recommend that fraternal council be sent to the publishers asking them to exclude from their columns "all advertisements of patent and proprietary medicines suspected of being fraudulent." It was not specified who is to do the "suspecting."

While this official action is not all that might be hoped, yet that was due, not to the committee, but to the system that permits private concerns to control the semi-official organs of the church. From a practical standpoint there can be no question as to the outcome. The church journals, of the better class at least, seeing the handwriting on the wall, will refuse to renew their contracts with the "patent medicine" vendors.

The clergy of the Presbyterian church are awakened to the questionable character of the advertisements carried in the papers which they recommend to their people. There is no doubt that this awakening is due, in general, to the work of the Ohio League for the Suppression of Fraudulent Advertising, and in particular to the energetic work of its executive committee, Drs. D. R. Silver, B. H. Blair, H. M. Lorimer, E. W. Mitchell and J. C. M. Floyd.

OXYCHLORINE.

Report of the Council on Pharmacy and Chemistry.

The following report on Oxychlorine has been submitted to the Council by the subcommittee to which it was assigned:

> *To the Council on Pharmacy and Chemistry:*—Your subcommittee submits the following report: The Oxychlorine Chemical Company, 1326 Wabash Avenue, Chicago, states in its advertising literature that:
>
> "Chemically, Oxychlorine is the tetraborate of sodium and potassium combined with oxychlorid of boron, thus: $6(NaKB_4O_7)BOCl_3$."
>
> Analysis of Oxychlorine showed:

Potassium	12.26 per cent.
Sodium	8.20 per cent.
Chloric acid—ClO_3	25.32 per cent.
Nitric acid—NO_3	21.70 per cent.
Boric acid anhydrid—B_2O_3	18.63 per cent.
Water, calculated	13.29 per cent.

> Thus, Oxychlorine is not a definite chemical substance of the composition claimed, but instead is a mixture of alkali chlorate and nitrate with boric acid. Assuming that the chlorate is present as potassium chlorate and the nitrate as sodium nitrate, the analysis above quoted corresponds to a mixture approximately as follows:

Potassium chlorate	37.19
Sodium nitrate	29.76
Sodium and potassium tetraborate	2.18
Boric acid	30.52
Undetermined	0.35
	100 00

> Your committee recommends that Oxychlorine be not approved and that this report be published.

The report of the subcommittee was adopted by the Council, and in accordance with the recommendation is published herewith. W. A. Puckner, Secretary.

In commenting on the above report it is hardly necessary to call attention to the palpable untruthfulness of the furnished formula, or to its lack of correspondence with the real composition of the preparation, to the imposing claims made by its pseudo-scientific exploiters, or to the absurdities, from a chemical standpoint, of the statements made in their literature. These features are more or less common to all nostrums. The physician who prescribes or uses Oxychlorine under the impression that he is getting a definite and unique chemical compound described as tetraborate of sodium and potassium combined with oxychlorid of boron is, according to our chemists, getting simply a mixture of potassium chlorate, sodium nitrate (or, perhaps, sodium chlorate and potassium nitrate), and boric acid in about equal amounts. More than one-third of this mixture is potassium (or sodium) chlorate, a drug by no means harmless.

In order that there may be no suspicion of unfairness to the promoters of this preparation, we quote from one of the advertising circulars sent out by the Oxychlorine Company:

> "Oxychlorine owes its recognition as a therapeutic agent to its six principal qualities:
>
> "1. It will oxygenate the blood at the seat of application, prevent infection, maintain nutrition, and heal an uninfected solution of continuity of first intention without scar formation.
>
> "2. It will disorganize all pus and ferment-producing micro-organisms, their toxins, ferments, and ptomains.
>
> "3. It will restore an inflamed mucous membrane to its normal condition, except where the membrane is sclerosed or atrophied.
>
> "4. It will destroy pathogenic micro-organism and their toxins in the blood current.
>
> "5. It will stimulate the blood to absorb more oxygen in the lungs that it at the time carries. [We do not know what this means, perhaps the Oxychlorine Company does.]
>
> "6. It is absolutely harmless to the tissues and will not destroy a living cell."

Surely these people must have access to physiologic and chemical authorities not found in modern medical libraries, or else their esoteric researches into the mysteries of life must have carried them far beyond the ken of our most advanced workers along these lines. The scientific world would receive with great interest information as to how a mixture of potassium chlorate, sodium nitrate and boric acid oxygenates blood, maintains nutrition and causes healing without scar formation. A mixture which will destroy micro-organisms and yet will not destroy a living cell certainly shows a fine sense of selection and discrimination not heretofore expected of a combination of chemicals or of a chemical compound. How like the wonderful elixir of medieval times, which was to the Christian a tonic and to the heathen a poison.

Here is another claim made for this nostrum:

> "Two or three rectal injections of a one to two per cent. solution of Oxychlorine and ten grain doses given six to eight times per day is the best and most reliable treatment for typhoid fever."

If eighty grains of Oxychlorine contain thirty grains of potassium chlorate, three rectal injections each consisting of one pint of 2 per cent. solution, would contain approximately 160 grains of potassium chlorate. Such an injection might prove decidedly dangerous, especially when used by one ignorant of its true composition. However, the physician, not the promoters, bears the responsibility.

Oxychlorine sells at $3.50 a pound; the ingredients can be obtained for about 44 cents a pound. Perhaps the margin of profit is intended as a reward due the promoters for the profound physiologic discoveries announced in their reading matter.

Proprietary Medicines in America.

Our esteemed British contemporary, the *Medical Press and Circular*, comments on the work of the Council on Pharmacy and Chemistry thus:

> There is no doubt that the general practitioner is often at a loss to know what proprietary medicines he may find of legitimate use in his practice. He has neither the time nor the ability to test the value of all the nostrums brought to his notice, and he would be ill repaid if he did so. Bearing such facts in mind, the American Medical Association a year or two ago determined to attempt a differentiation of proprietary drugs of real and legitimate value from those which a self-respecting practitioner had better avoid. The task has been to a certain extent completed and the Association has issued a list of drugs of the former class. No preparation has been admitted without its full formula having been furnished for publication, and no preparation—other than foods and disinfectants—has been admitted which is advertised to the public. Various other conditions have been imposed, and the result is a catalogue which can hardly fail to be of general utility. In its task the Association has naturally been met by violent opposition, not only from the vendors of secret preparations, but from many of the viler medical papers which are at the orders of those who advertise in their columns. It is to be congratulated in bringing its work to a successful issue in spite of this opposition.

The above in the main is correct; but "the task to a certain extent" has not been completed—rather it has only been well commenced.

Correspondence

Simple Filing Device for Case Records.

Ottawa, Ill., June 24, 1907.

To the Editor:—The article of Dr. Farr in The Journal, June 22, prompts me to mention a simple filing device which I have found useful. For years I have kept important case records on slips of paper, thick enough to be easily fingered over when filed, as in a card catalogue. At first I used cards, but found it no easier to manipulate them, and they add very materially to the bulk. With the multiplication of the records, however, it became a little troublesome to look up a case during a busy office hour. In order to lessen the number of record units to be gone over I have, for the past few months, adopted the method of placing each patient's, or in some cases each family's, history slips in a half envelope—that is an envelope sealed and cut midway between the ends. I have used slips 3½ by 4⅛ inches. These fit readily, as to width, in No. 6¾ envelopes. A good quality of envelope, as regards durability and facility of handling, is XXX white.

The slips are about one inch longer than the half-envelopes, which makes their insertion or removal easy, yet they do not fall out under ordinary handling. The face of each container is 3¼ by 3½ inches, available for printed forms or other memoranda.

Only the envelopes are touched in looking for a case, so that the slips are not soiled or worn if kept in a suitable cabinet or desk drawer. Each half-envelope will hold from six to ten slips without filling it so full that the slips can not be easily inserted. The envelopes enable one to use thinner paper for the records, thus taking less space than a card system. Of course, any size slips and envelopes could be used. The cost is nominal. The quality of envelopes mentioned sell, wholesale, at about $1.25 a thousand, which makes 2,000 containers. The envelopes can be cut at any printing office at a small cost. I have paid from 50 cents to $1 a thousand for the blank slips.

This method is not suitable for clippings or miscellaneous papers, but for any records that can be made on a nearly uniform size of paper it is convenient.

A. M. Shaw, M.D.

The First Successful Ligation of the Innominate.

Anguilla, Miss., June 17, 1907.

To the Editor:—In the June 15 issue of The Journal, page 2032, in your splendid editorial notice of that distinguished surgeon and educator, Dr. Herbert L. Burrell, President-elect of the American Medical Association, you say among other things: "He was probably the first to make a successful ligation of the innominate artery."

With no wish to pluck a single arrow from Dr. Burrell's quiver, but, on the contrary, to accord him every honor his talent and matchless will power have won for him, it may be asked: Is this statement historically correct? Both Valentine Mott and von Graefe nearly succeeded in carrying their cases to a successful termination. The patient of the former survived nearly four weeks, while Graefe's gave promise of complete success, only to succumb after a lapse of more than two months. Forty years or more ago the world accorded credit to Dr. Smythe of New Orleans for having successfully performed this difficult operation fraught with so much risk to the patient and anxiety to the surgeon. It is too well known that pleurisy or secondary hemorrhage proved to be the stumbling block in all recorded cases prior to Smythe's operation. To avoid the latter complication he ligated the common carotid and subclavian arteries on the right side, and the vertebral artery near its place of origin to obviate recurrent hemorrhage, in addition to avoidance of injury to the inferior thyroid and other deep veins, the pneumogastric and cardiac nerves, and the pleura, while carefully passing the curved anuerism needle around the innominate artery. All this occurred in the year 1865, or prior to that year, and before the modern method of antiseptic operation was dreamed of, or thought of. See the New Sydenham Society's "Biennial Retrospect" for 1865-6, page 346.

J. C. Hall.

Answer: In making the statement we were aware of the work of Mott and von Graefe, so nearly successful, but we overlooked Smythe, and we are glad to give credit where it is due and to thank our correspondent for calling our attention to this point.

Since writing the above reply a letter has been received from Dr. Hubert A. Royster, Raleigh, N. C., calling attention to the same point.

University of Nebraska in State Board Statistics.

Lincoln, Neb., June 26, 1907.

To the Editor:—In connection with the statistics regarding medical graduates, as published in The Journal, May 25, a grave injustice has been done the College of Medicine of the University of Nebraska. The figures for Nebraska state that 7 candidates passed, 7 failed. The secretary of the Nebraska State Board of Health certifies as follows:

> The 7 failures of graduates of the State University in the year 1906 were —— on his third, fourth and fifth examinations; —— on his fourth and fifth; and —— on his second and third. All of the graduates of last year from the State University who took the examination before our board passed.

The persons mentioned received no training under the State University. They were responsible for the failures in 1905 as well as those of 1906. The class of 1906 was the first to complete its training under the university. Every member of this class and of the class of 1907 has passed the state board examinations, and the average rank in these examinations has been high; accordingly, it seems unjust to estimate the work of the institution by the continued failures of earlier men who did not receive training under it.

Henry B. Ward, Dean.

[As has been frequently stated, the statistics based on state board examinations have heretofore shown *instances* of success and failure rather than individuals passing and failing. In the majority of cases the showing in this manner would not be unjust since repeated successes would reflect credit on the college the same as repeated failures would reflect discredit. In future, however, steps will be taken to eliminate duplication as far as possible. The three men alluded to in the above letter graduated in 1905 and were given diplomas bearing the name of the University of Nebraska, which makes that institution responsible for them.—Ed.]

Miscellany

Status of Yellow Fever Throughout the World.—Information published by the Public Health and Marine-Hospital Service in the *Public Health Reports* gives the status of yellow fever during the current calendar year, up to June 28, throughout the world as follows:

United States.—Aside from imported cases arriving at quarantine, there has been no yellow fever this year. In March, 4 cases, one of which terminated fatally, were brought to Galveston, Texas, on a vessel from Para; and a single case, which occurred en route, arrived in the convalescent stage at the Mississippi River Quarantine, La., on a vessel from Cuban and Central American ports.

Mexico.—Present during the first quarter of the year in the States of Yucatan and Veracruz, with a total of 6 cases and 4 deaths. In Yucatan 2 cases and 1 death occurred at Merida in March. In Veracruz 1 fatal case occurred in January at Tuxpan and 1 in March at Paraje Nuevo, a small settlement near Codoba on the Veracruz and Pacific Railroad. At the city of Veracruz there were 2 cases and 1 death in February and March, one case having been imported from Paraje Nuevo.

Salvador.—Epidemic in the month of January.

Guatemala.—One case occurred May 16, at Zacapa, and 3 cases and 1 death were reported under date of May 21, at Gualan. Both Zacapa and Gualan are inland towns, situated a short distance from each other and less than 90 miles from Livingston and Puerto Barrios, at which ports passenger traffic for southern ports in the United States is suspended. On May 29 yellow fever was reported still present at both localities.

Cuba.—One fatal case in January at Santa Clara in the person of a Spaniard who had been a resident of Santa Clara since his arrival in Cuba fourteen months previous to the attack and continuously employed in the same locality. There was no spread of infection In April a case was brought for treatment to Habana from Nueva Paz, a town of 2,000 inhabitants situated about 45 miles from Habana. A disinfecting and oiling brigade, under an experienced director, was sent from Habana to Nueva Paz to carry out measures for exterminating mosquitoes, the work to be extended to all suspected places in the vicinity. There was no recurrence of the disease at Nueva Paz and no spread at Habana. A case originating at Union de Reyes in Matanzas Province was taken to Habana for treatment May 16, and officially diagnosed May 21. The case occurred in a young Spaniard resident in Cuba eight months. May 21 a second case occurred in Habana Province at San Nicolas. It was officially declared yellow fever by the board of experts sent from Habana. The case terminated fatally May 27. May 25 a case originating at San Nicolas was removed to Habana for treatment and officially diagnosed May 31. A case was confirmed at Habana June 6, imported from Ranchuelo, Santa Clara Province. At San Nicolas 2 cases were reported June 7, and on June 12 1 case was reported, which was officially confirmed June 18.

Barbados.—A case at Bridgetown in a person arrived April 16 from Trinidad, where yellow fever was present. The case was removed to Pelican Island Quarantine Station and discharged cured May 7. No spread occurred.

Trinidad.—A case which terminated fatally occurred at Port of Spain February 4. The patient had been on the island for a month previous to the attack and the origin of the infection has not been determined. All sanitary precautions were taken by the local authorities and the contacts segregated and held under observation, but a spread of infection took place and, from the date of the outbreak to April 27, 14 cases with 7 deaths occurred. Measures of fumigation and local sanitation were officially ordered by the governor of the island under date of March 22. Two fatal cases were reported during the first two weeks in May, and 2 cases and 1 death from May 18 to 23.

Venezuela.—Two cases in January at La Guaira; present ever since, up to June 8.

Brazil.—Present in Para, Rio de Janeiro, Nictheroy, Manaos and Pernambuco. In Rio de Janeiro the disease was absent from the first week in December to the first week in February; from February 3 to April 28, 26 cases and 21 deaths occurred; during the first week in May, 5 cases and 3 deaths occurred. At Nictheroy, where no case had occurred previously for more than a year, one case appeared in February. At Manaos there were 13 deaths in March and April and 2 deaths in May. At Pernambuco 1 death occurred in January; at Para 10 deaths in January, 19 cases with 1 death in March, 15 cases with 12 deaths in April, 15 cases with 10 deaths in May, and 1 death during June 1 to 8.

Ecuador.—Continuously present since the beginning of the year at Guayaquil, with 22 deaths in January, 30 in February, 36 in March, 23 in April, and 3 during the week ended May 4. In February the disease was present at Bucay, Duran and Huigra, localities on the Guayaquil and Quito Railroad, with a total of 4 cases.

Peru.—Two cases imported at Callao by maritime route, the first case January 17 on S. S. *Limari*, the second February 17 on S. S. *Palena*. Both vessels were from Ancon, via Guayaquil. The first case was a member of the crew who did not go ashore at Guayaquil. The case was removed to the lazaretto near Lima. The second case terminated fatally at Callao on the second day after arrival.

Status of Bubonic Plague Throughout the World.—Information published by the Public Health and Marine-Hospital Service in the *Public Health Reports* gives the status of bubonic plague during the current fiscal year up to June 28, throughout the world, as follows:

United States.—At San Francisco, a seaman removed May 23 frm the tug *Wizard*, died at the Marine Hospital, May 26.

Hawaii.—From March 29 to May 22, 26 cases with 20 deaths were reported. The outbreak occurred at Aiea and the patients were taken to Honolulu for treatment. One case was reported from Honolulu proper.

West Indies.—Two deaths at Trinidad June 11.

Brazil.—Present at Rio de Janeiro, Bahia, Para, Pernambuco, Santos, Nictheroy and Sao Paulo, seaports of Brazil. At Rio de Janeiro, 93 cases with 41 deaths to April 28; at Pernambuco, 10 deaths to March 31; at Bahia, 19 deaths to April 15; at Santos 2 cases, 1 imported, in January and February; a recrudescence at Nictheroy in April.

Argentina.—A few cases at Buenos Ayres in January; present at Rosario in March.

Paraguay.—At Concepcion in January, 3 cases; at Asuncion, 5 cases in February

Uruguay.—One death in February at Montevideo.

Chile.—Continuously present at Antofagasta from the first week in January; at Santiago from January 26 to April 20; at Taltal 46 cases with 23 deaths in January and still present May 9; at Valparaiso present from March 5 to May 9.

Peru.—Continuously present since the beginning of the year in many localities, including the important port of Callao and the city of Lima.

Germany.—On May 28, 1 case at Groden, near Cuxhaven, imported on the steamship *Wharfedale*, from Buenos Aires.

Russia.—Two cases of laboratory plague in February and March at Cronstadt at the laboratory of the Imperial Institute.

Asiatic Turkey.—An outbreak at Djeddah occasioned by the anual pilgrimage to Mecca; 365 cases with 350 deaths from January 8 to May 11. Beirut and Smyrna and the quarantine stations of Camaran and Tor infected.

Arabia.—Imported at Aden in March by returning pilgrims; no spread.

Persia.—Present at Bushire, on the Persian Gulf, May 25. Epidemic on the Island of Bahrein in April.

India.—Epidemically present with an immense number of cases and deaths in many localities and a notable increase in the Punjab.

Japan.—Osaka and Matsuyama infected. At Yokohama 3 fatal cases from May 28 to June 3, after an absence of several years. At Sasebo, 1 case May 27. On the Island of Formosa plague is epidemic.

China.—A few cases and deaths reported each month at Hongkong; 1 case, foreign, at Hankau in March; at Niuchwang a serious outbreak lasting two weeks in January and February, with 57 cases and the same number of deaths.

Island of Mauritius.—Extensive epidemic; still present, April 25. Plague has been present in Mauritius for a period of eight years.

Cape Colony.—A recurrence at King William's Town; April 22 to May 8, 4 cases and 2 deaths.

East Africa.—One death at Maunsa; case imported on vessel. Continuously present at Uganda.

Egypt.—A prevalence of several years' standing exists. Seven provinces are reported infected, with a total of 857 cases and 662 deaths from January 1 to June 6. Of the cities in the Canal District, Alexandria was reported infected to May 23 with 12 cases and 9 deaths; Port Said to March 17, 3 cases and 3 deaths; Ismailia, March 11, 10 cases and 8 deaths; Suez, February 5, 3 cases and 2 deaths.

Australia.—Present in New South Wales and Queensland. In the former, Sidney, Kempsey and Townsville are infected; in Queensland the infected localities are Brisbane, Ipswich and Port Douglas.

The Surgical Treatment of Puerperal Infection.—A paper by Latzko before the Vienna Medical Society with the accompanying discussion (*Wiener klin. Wochsch.*), puts clearly before the profession the important question of the curability of puerperal septicemia or pyemia by surgical operation. As Latzko says: "We are standing at the opening of a new path in the surgical treatment of the puerperal process. He who wishes to know whither it leads must not consult merely the compass of theoretic prepossessions as to its direction, but must follow it. I propose to follow it." The surgical procedures which Latzko advocates are chiefly three: Laparotomy and drainage of the abdominal cavity in puerperal peritonitis, total extirpation of the infected uterus in cases of septic endometritis, and ligation and extirpation of the thrombosed veins in beginning parametritis. For the last operation he has devised a new technic that is offered as a possible advance on our present methods.

With regard to the treatment of peritonitis, he says (and some of his colleagues sustain him in this): "Discussion as to the technic of operation for puerperal peritonitis is possible, but as to the indication for it there is no longer room for discussion." To this dictum there is some dissent, but in general it may be said that the prognosis on cases not operated on is so hopeless that any operation that saves only a few is distinctly indicated. The importance of early diagnosis and early operation is as great here as in appendicitis or perforation. A marked difference is to be noted, however, between some of these cases and peritonitis accompanying appendicitis or perforation of some of the hollow viscera in that the puerperal peritonitis appearing late in the septic process may be merely a symptom of an underlying post-peritoneal lymphangitis or cellulitis which operation can not heal. The results of operation for puerperal peritonitis, however early undertaken, can not be as favorable as those for other conditions.

The total extirpation of the uterus for septic endocarditis is a theoretically rational procedure in certain cases where the autopsy shows that the cause of death has been merely the condition of the uterus. The results of the operation have not been encouraging, however. The impossibility of selecting those cases in which the infection is confined to the uterus and of deciding when the case is hopeless without operation necessitates the performance of the operation on many cases in which it is too late to remove the source of infection which is no longer confined to the uterus.

The third operation which Latzko discusses is the ligation or removal of the thrombosed venous plexuses which are presumably the channels by which the infection is reaching the blood. Against the operation of Bumm and of Trendelenburg who simply ligate the veins, theoretic objections are strongly urged. In the first case Bumm operates from the peritoneum and runs the serious risk of infection of that membrane. Trendelenburg avoids this danger by operating extraperitoneally, but both his procedure and that of Trendelenburg are open to the objection that the germs have still the opportunity to reach the blood through the lymphatics as well as by infecting the thrombus formed at the point of ligature. The new procedure of Latzko is designed to obviate these objections. He reaches the infected veins by an incision in the vault of the vagina and working by the aid of the sense of touch separates and removes the infected venous plexus. That the hypogastric artery must not be included in the ligature was shown by the result of one case in which the patient perished from secondary hemorrhage from the ligatured artery, although the occurrence of only one chill after the operation gave reason to hope that the sepsis would be overcome. A very serious obstacle to the success of the operation is the extension of the septic thrombosis to other veins, like the iliac and vena cava, which can not be reached by the operation. It seems impossible at present to determine the point at which intervention is necessary as a life-saving procedure, and equally impossible to say in what patients the disease has extended so far in the veins as to render operation useless. Patients have been known to recover without operation from severe infections in which as many as 70 chills had occurred. The practical results of the operation have not been encouraging. Those of Bumm, Trendelenburg and others from ligature of the veins average over 60 per cent. mortality. Latzko has operated by extirpation on four cases with one recovery.

It seems evident that the hopeless nature of puerperal infection of the severer grade under any of the present methods calls for more strenuous measures for its prevention, and the good results of serum therapy would seem to indicate that this method of treatment should be applied early in the treatment of every case. Until surgical procedures attain a greater perfection and the indications for such intervention are more clearly defined, most physicians will hesitate to subject patients to such treatment in the early stages of the infection in which alone is there much prospect of its being successful.

Quarantine and Commerce in the Pacific Arena.—The importance of the Pacific Ocean as a center of commercial activity has long been recognized, and it it is evident that this importance will be increased by the completion of the Panama Canal. Dr. L. E. Cofer Chief Quarantine Officer of the Hawaiian Islands, in a pamphlet reprinted from the *Evening Bulletin*, calls attention to the intimate connections between the commerce of the Pacific and the spread of disease. With the opening of the canal, intercourse between South America and the coasts of Asia and between America and Australia will be increased, and there will be a tendency to an exchange of diseases as well as of goods. The plague, cholera and leprosy of the orient will be carried to the ports of South America, and in return yellow fever and malarial infections will spread to China and Japan. Cofer contends that Hawaii is the natural key to the sanitary situation in this area, and that the Hawaiian ports will form a suitable clearing house for the infected vessels crossing the Pacific on the great commercial routes. The solution of the sanitary problem in the Pacific arena will depend on: 1, The organized study of tropical and quarantinable diseases; 2, the elaboration of maritime quarantine; 3, the amplification of municipal sanitation. Cofer recommends that a Pan-Pacific School of Quarantine and Tropical Diseases be established at Honolulu, Hawaii, and that a uniform course of instruction be given to physicians and others who contemplate a career in municipal sanitation or quarantine work. He also recommends that traveling or circuit quarantine officers be substituted for the present system of home port quarantine inspection in the case of the large ocean carriers.

Suicide by Fire.—An article in the *Revista de Med. y Cir.* for June 10 states that in Cuba during the last five years fifty persons have committed suicide by setting fire to their clothing. The writer, Dr. Cassa, has been able to find only 3 similar cases on record elsewhere. In Cuba the victims were 44 women and 6 men—4 per cent. of the total number of suicides during that period. He ascribes this large number to the sensational illustrated accounts in the lay press of the first case, which seemed to inspire an actual epidemic of this mode of suicide. More than half the victims were of negro blood.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending June 29, 1907:

Snoddy, C. A., asst.-surgeon, granted thirty days' sick leave of absence.

Yost, J. D., asst.-surgeon, granted thirty days' leave of absence.

Banister, J. M., deputy surgeon-general, will proceed from Fort Riley, Kansas, to Omaha, for temporary duty as chief surgeon, Department of the Missouri.

Howard, D. C., surgeon, leave of absence extended twenty-five days.

Gapen, Nelson, Davis, W. T., Morse, C. F., Lambert, S. E., Hansell, H. S., Gregory, J. C., Connor, C. H., Grissinger, J. W., Pyles, W. L., Smart, W. M., and Purnell, H. S., asst.-surgeons, advanced from the rank of first lieutenant to that of captain, to date from June 24, 1907.

Davidson, W. T., asst.-surgeon, granted fifteen days' leave of absence.

Duncan, L. C., asst.-surgeon, on return to Fort Missoula, Mont., from leave of absence, will proceed at once to join the 3d Battalion, 6th Infantry, in the field en route to Helena, Mont.

Phalen, J. M., asst.-surgeon, ordered to accompany the 2d Battalion, 30th Infantry, to San Francisco; on completion of this duty to return to station, Fort Logan H. Roots, Ark.

Phelan, H. du R., contract surgeon, ordered to transport *Crook* for duty.

Thorp, C. W., contract surgeon, ordered from Washington, D. C., to Fort McIntosh, Texas, for duty.

Pinquard, Joseph, contract surgeon, returned to Fort Leavenworth, Kan., from two months' sick leave of absence.

Wing, Franklin F., dental surgeon, left Fort D. A. Russell, Wyo., on leave of absence for ten days.

Myers, W. H., contract surgeon, ordered from Lynn Grove, Ky., to Fort Crook, Neb., to accompany the 30th Infantry to San Francisco; and to sail thence on first available transport for Philippine service.

Garcia, L. C., contract surgeon, granted an extension of six days to his leave of absence.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending June 29, 1907.

Marsteller, E. H., surgeon, unexpired portion of sick leave revoked; ordered to the Naval Recruiting Station, Baltimore, July 1.

Mayers, G. M., P. A. surgeon, detached from the *Marietta* and ordered to the *Ohio.*

Reeves, I. S. K., P. A. surgeon, detached from the *Franklin* and ordered to the *Marietta.*

Kennedy, J. T., P. A. surgeon, detached from course of instruction at the Naval Medical School, Washington, D. C., and ordered to Danville, Va., for duty with Recruiting Party No. 3.

Holcomb, R. C., P. A. surgeon, detached from course of instruction at the Naval Medical School, and ordered to the Naval Hospital, Norfolk, Va.

Brown, H. L., asst.-surgeon, detached from course of instruction at the Naval Medical School, and ordered to the Naval Recruiting Station, Oklahoma, Okla.

Heiner, R. G., asst.-surgeon, detached from course of instruction at the Naval Medical School, and ordered to duty with Marine Detachment at Camp Harrington, Williamsburg, Va.

Porter, F. E., asst. surgeon, detached from the *Rhode Island* and ordered to the *Franklin.*

Haines, B. F., acting asst.-surgeon, to Naval Hospital, Philadelphia, Pa.

Casto, D. H., acting asst.-surgeon, detached from the Naval Recruiting Station, Baltimore, and ordered to Washington, D. C., July 1, for examination for appointment as an assistant surgeon in the Navy, and then to report to the Surgeon General of the Navy for further orders.

Miller, J. T., acting asst.-surgeon, detached from course of instruction at the Naval Medical School, and ordered to the *Rhode Island.*

Donelson, M., acting asst.-surgeon, detached from duty with Naval Recruiting Party No. 3, and ordered to Washington, D. C., July 1, for examination for appointment as an assistant surgeon in the Navy, and then to report to the Surgeon General of the Navy for further orders.

Bradley, G. P., Medical Director, retired, detached from the Navy Yard, Portsmouth, N. H., and ordered home.

Derr, E. Z., medical director, detached from the Navy Yard, Boston, and ordered to the Navy Yard, Portsmouth, and to additional duty in command of the Naval Hospital at that place.

Edgar, J. M., surgeon, detached from the *Wabash* and ordered to the Navy Yard, Boston.

Ohnesorg, K., P. A. surgeon, detached from the Navy Yard, Boston, and ordered to the *Wabash.*

Byrues, J. C., medical inspector, detached from the Naval Academy and ordered to duty as fleet surgeon, first division, Pacific fleet, on board the *West Virginia,* sailing from San Francisco, about July 25.

Milligan, J. D., pharmacist, detached from the *Fish Hawk,* and, when discharged from treatment at the Naval Hospital, Norfolk, ordered home, and granted sick leave for six weeks.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended June 26, 1907:

Gassaway, Jas. M., surgeon, granted leave of absence for twelve days, from June 24, 1907.

White, J. H., surgeon, granted leave of absence for seven days.

Billings, W. C., P. A. surgeon, granted leave of absence for three days, from June 27, 1907.

Stimson, A. M., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Rucker, W. C., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Ward, W. K., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Trask, J. W., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Robertson, H. McG., asst.-surgeon, directed to report to Chairman of Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

Stiles, Ch. W., chief Division Hygienic Laboratory, directed to visit the states of North Carolina, South Carolina, Georgia, Alabama and Mississippi, for special temporary duty, on completion of which to rejoin his station.

Gleason, C. M., acting asst.-surgeon, granted leave of absence for twelve days, from June 18, 1907.

Knowles, Ralph, acting asst.-surgeon, granted leave of absence for seventeen days, from July 7, 1907.

Rodman, J. C., acting asst.-surgeon, granted leave of absence for three days, from June 16, 1907.

Rowles, J. A., acting asst.-surgeon, granted leave of absence for ten days, from July 15, 1907.

Walker, R. T., acting asst.-surgeon, granted leave of absence for ten days, from July 8, 1907.

Wetmore, W. O., acting asst.-surgeon, granted leave of absence for eight days, on account of sickness, from June 6, 1907.

Wilson, J. G., acting asst.-surgeon, granted leave of absence for seventeen days, from July 21, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 28, 1907:

SMALLPOX—UNITED STATES.

Illinois: Belleville, June 9-15, 1 case; Galesburg, 1 case; Joliet, May 1-June 15, 5 cases; Peoria, June 8-15, 7 cases; Springfield, June 13-20, 2 cases.

Kansas: Kansas City, June 9-15, 1 case; Topeka, 2 cases.

Kentucky: Covington, June 15-22, 6 cases; Louisville, June 13-20, 15 cases.

Louisiana: New Orleans, June 8-15, 6 cases.

Maryland: Baltimore, June 15-22, 1 case.

Massachusetts: Lawrence, June 9-15, 4 cases.

Missouri: St. Louis, June 9-15, 4 cases.

Ohio: Cincinnati June 14-21, 1 case; Cleveland, June 7-14, 1 case.

Texas: San Antonio, May 25-June 1, 3 cases.

Utah: General, Four counties, May 1-31, 22 cases.

Washington: Spokane, June 9-15, 9 cases, imported.

Wisconsin: Milwaukee, June 9-15, 10 cases.

SMALLPOX—FOREIGN.

Africa: Algiers, May 1-31, 8 deaths.

Argentina: Rosario, May 13-20, 12 cases, 17 deaths.

Austria: Trieste, May 18-25, 1 death.

Brazil: Manaos, May 25-June 1, 1 death; Pera, June 1-8, 6 cases, 2 deaths; Pernambuco, April 15-30, 56 deaths; Rio de Janeiro, May 16-25, 7 cases, 1 death.

Canada: Halifax, June 15-22, 7 cases.

China: Amoy, April 24-May 5, present; Hankau, May 11, 1 case; Hongkong, April 27-May 11, 27 cases, 23 deaths; Shaughal, April 27-May 11, 4 foreign deaths, 45 natives.

Columbia: Santa Marta, June 1, 1 case.

Egypt: Cairo, May 13-20, 2 cases.

Germany: General, June 1-8, 10 cases; Bremeu, May 4-11, 2 cases; May 18-25, 1 case.

Great Britain: Southampton, June 1-8, 2 cases.

India: Bombay, May 21-28, 1 death; Calcutta, May 11-18, 34 deaths; Madras, May 4-24, 2 deaths.

Hawaii: Honolulu, June 28, 1 case (imported from S. S. *Kumeric,* from Madeira.

Italy: General, May 31-June 6, 32 cases; Florence, June 2-9, 1 case; Naples, vicinity, June 2, 4 cases, 1 death.

Mexico: Aguas Calientes, June 9-15, 9 deaths; City of Mexico, May 18-June 1, 6 deaths.

Russia: Moscow, May 18-25, 7 cases, 3 deaths; Odessa, May 25-June 1, 4 cases, 1 death; Riga, May 25-June 1, 11 cases.

Siberia: Vladivostock, April 27-May 5, 2 cases.

Spain: Valencia, June 2-9, 7 cases, 2 deaths.

Straits Settlements: Singapore, April 27-May 4, 1 death.

Turkey: Bagdad, May 5-11, present; Bassorah, May 11-25; present.

Venezuela: La Guaira, May 25-June 8, present.

YELLOW FEVER.

Brazil: Para, June 1-8, 1 case, 1 death; Rio de Janeiro, May 12-26, 4 cases, 4 deaths.

CHOLERA.

India: Bombay, May 11-18, 1 death; Calcutta, 56 deaths; Rangoon, 2 deaths.

PLAGUE.

Africa: Cape Colony, King William's Town, May 4-11, 2 cases.

Brazil: Para, June 1-8, 10 deaths; Rio de Janeiro, May 12-19, 2 cases.

China: Hongkong, April 27-May 11, 19 cases, 14 deaths.

Egypt: Alexandria, May 25-30, 1 death; Assiout Province, 8 cases, 8 deaths; Beni-Souef Province, 2 cases, 1 death; Girgeh Province, 1 case, 1 death; Keneh Province, 15 cases, 15 deaths; Minieh Province, 8 cases, 3 deaths.

India: General, April 27-May 4, 89,777 cases, 77,776 deaths; Bombay, May 21-28, 95 deaths; Calcutta, May 11-18, 203 deaths; Rangoon, 34 deaths.

Japan: Osaka, May 20-37, present; Sasebo, 1 case; Yokohama, May 28-June 3, 3 cases, 3 deaths.

Persia: Bushire, May 25, present.

Peru: Lima, May 10, 2 cases, 1 death; Tambo, 1 case; Trujillo, 2 cases, 1 death.

Straits Settlements: Singapore, May 11-18, 2 deaths.

Section Discussions

DIGESTIVE DISORDERS IN PHTHISIS.

BY DR. JAMES R. ARNEILL, DENVER.

(*Concluded from page 10.*)

DISCUSSION.

DR. WOODS HUTCHINSON, New York, said that this paper emphasized the very important point that there is infinitely more in pulmonary tuberculosis than can be discovered by the stethoscope. In his experience, while a precise diagnosis depends on what is discovered in the chest, the most important information as to prognosis comes from outside the lungs, in the heart and in the abdomen. He believes that too much attention is given to the tubercle bacilli for diagnosis. By the time it is discovered in some cases, we may have a postmortem and make sure of our diagnosis. There are conditions to be detected in the heart and abdomen to aid. In the majority of the cases the heart will be found unconcerned, and a tendency to enteroptosis and gastroptosis, gastric dilatation and distension of the colon. Dr. Hutchinson thinks that one of the virtues of the overfeeding treatment lies in the mechanical effect, on the bowels of the large amount of nutriment introduced. A patient who has been constipated for months will practically have his bowels regulated merely by the mass of material placed in the stomach which passes to the bowel. Dr. Arneill quoted one of Dr. Hutchinson's statements that tall individuals are more susceptible to tuberculosis, a thing that has been proved. In the British army men were recruited, to be sent to the colonies, who were over six feet in height. Like all giants, they were not what they were cracked up to be. The artillery, on the other hand, recruited from the line, and one-half were under the standard required by the rest of the army. The death rate was just double among the giants what it was for the others. These overgrown individuals used too much of their strength in the process of growing.

Dr. Judson Daland, Philadelphia, said that all agree in the importance of a close study of the relation of the gastrointestinal canal and tuberculosis. In regard to the diagnosis of enteroptosis and gastroptosis, he believed the *x*-ray is of use in diagnosing not only the extent of the dislocation or displacement, but also whether the abdominal supporter is doing the work expected of it. Another point of great importance in the treatment of such cases is the use of the graded systematic course of exercises done to improve and strengthen the abdominal muscles.

Dr. Milton J. Lichty, Cleveland, regretted that no statistics were given regarding the frequency of gastrointestinal disturbances in tuberculosis, as well as the frequency of tuberculosis complicating gastrointestinal diseases. From 5 per cent. to 10 per cent. of the patients seen in his office presenting symptoms of indigestion are affected with tuberculosis. One can easily see that there is a relation between the two diseases. He is reminded that tuberculosis has very early symptoms of gastrointestinal disturbances, and one may safely say that gastrointestinal disturbances are a cause of tuberculosis. Those physicians who have the opportunity of seeing a number of these cases in sanatoria could get valuable figures of this condition if they would resort to the use of the stomach tube in a routine way. With patients in the first degree of tuberculosis this procedure should be carried out whenever possible, though he would not recommend it in the last stages of tuberculosis. Such statistics might be of value when carefully compiled. In his own experience he finds that there is about the same proportion of acidities, hypoacidity and hyperacidity in tuberculosis as in any other class of associated diseases. In order to feed tuberculous patients properly he believed it necessary for the physician to know the condition of the secretion of the gastric juice. He recalled the condition of a patient, tall and slender, who came to him with symptoms of hyperchlorhydria, apparently well. When the patient developed tuberculosis later, feeding was comparatively easy. The same is true in hypochlorhydria. He had had several patients whom he treated for a marked hypoacidity for some years. They had malnutrition and they developed tuberculosis while under his observation, possibly on account of the feeding, which in those cases was rather difficult.

Dr. J. A. Witherspoon, Nashville, Tenn., said that a diagnosis depends largely on the findings in the chest. He finds great difficulty in feeding these patients, especially if they have hypochlorhydria; in such cases the prognosis is invariably graver than when they have hyperchlorhydria. In tuberculosis Dr. Witherspoon has for years been in the habit of first making an analysis of the stomach contents as an aid in the treatment, the object being to know how to feed the patients. Much depends on the nutrition and the patient's power to improve that nutrition. If one has a patient who day after day shows a deficiency in the hydrochloric acid, and deficient motor activity, the prognosis will be worse than if the opposite condition prevails

Dr. James Rae Arneill, Denver, said that phthisio-therapists residing at low altitudes deny the specific value of high altitude in the treatment of this disease, maintaining that equally good results can be obtained at low altitude. Physicians living in moderately high altitudes are equally positive that the tuberculous patient does better at moderately high altitudes, other things being equal. Both classes of physicians are influenced by empiricism and clinical experience, not by exact scientific data. The general practitioner, who refers most of the cases, is in a quandary. Dr. Arneill referred to the work of four German physiologists, who attempted to throw some light on this problem by exact scientific investigations. They ascended the Alps, accompanied by a party of soldiers, on whom scientific observations were made. Laboratory apparatus and various instruments of precision were taken along, thus enabling the scientists to make as accurate experiments in the mountains as at home. Their conclusions were that in high altitudes metabolism, especially during physical exercise, is exaggerated; the laying on of proteid material is favored. The activity of the heart is stimulated, the breathing is strengthened, both of them through the medium of the nervous system operating on the heart, and respiratory mechanism. Blood formation is increased, proved by the fact that the number of embryonic red cells, found in the bone marrow on the mountains, is greatly in excess of that usually at sea level, and that the total amount of hemoglobin in the blood of animals, sojourning or born at high altitudes, is greater to the extent of 20 to 30 per cent. than in similar animals studied on the plains. The skin also is trained to more energetic activity. These scientifically proved facts certainly tend to confirm the views of many well-trained clinicians, that altitude has some specific virtues in the treatment of tuberculosis. Interesting and valuable observations—would be the determination of the tuberculo-opsonic indices of patients—before and after sojourning in moderately high altitudes.

DOES THE OPACITY OF THE INCIPIENT CATARACT EVER REGAIN TRANSPARENCY?

BY DR. LEARTUS CONNOR, DETROIT.

(*Concluded from page 13.*)

DISCUSSION.

Dr. G. Oram Ring, Philadelphia, said that Dr. Connor's paper will furnish an important stimulus to the ophthalmologists in their endeavor to arrive at definite conclusions as to which cases give promise of absorbing and the best method by which this result can be achieved.

The treatment of cases of the so-called epithelial chorioiditis of de Schweinitz by placing before the eyes the proper correcting lenses, with the induction of cycloplegia, and with proper alterative medication has almost uniformly markedly improved vision for distance and near, but it has been felt that this betterment was wrought not by absorption of opaque striæ, but chiefly by the removal of chorioidal disease, secondary vitreous haze, associated with the clearing of the lens. Reference should be made, Dr. Ring said, to the work of Dr. Walter L. Pyle, in two papers, the latter presented at the 1902 session of the Section, and the former published in the *Philadelphia Med. Jour.*, March, 1900, in which he reviewed the subject to date, and classified the reported cases of absorption of cataract as follows:

1. Cases in which there is absorption after spontaneous rupture of the anterior or posterior capsule.
2. Cases in which there is spontaneous dislocation of the cataractous lens.
3. Cases in which there is intracapsular resorption of the opaque cortex and sinking of the nucleus below the axis of vision, after degenerative changes in Morganian cataract without rupture of the capsule or dislocation of the lens.
4. Cases in which there is complete spontaneous resorption of both nucleus and cortex without reported history of ruptured capsule, dislocation or degenerative changes of the Morganian type.
5. Cases of spontaneous disappearance of incipient cataract without degenerative changes or marked difference in the refraction.

Dr. Ring referred to the literature on this subject and said that the striæ of incipient cataract do regain transparency, and quoted reported cases in proof of his statement. He also reported the following case from his own practice:

Mrs. A. C., aged 35, consulted him in December, 1894. Vision had failed very rapidly for 72 hours before her visit, but curious spots dancing before the eyes had been noted for four weeks previously. She had sore throat and falling of the hair. No gross abnormality of muscle movement was present. A pronounced acute neuro-chorioretinitis was present, the summit of each disc being swollen to about 4 diopters. Vision O. D. The patient counted fingers. O. D. 5/45. Large scotoma down and out, was present in O. D., with marked contraction of the visual field, and a paracentral scotoma in O. S., not quite reaching to the fixation point. In this eye a series of eight striæ were present in the anterior cortex, with fainter areas in the posterior cortex. About ten days later the patient was seen in consultation by Dr. William F. Norris, who, because of the very profound nutritional change, evidenced by the condition of the fundus, as well as by the presence of the lenticular striæ, regarded the prognosis as grave and dubious. The case was clearly syphilitic, and under mercurial emunctions, pilocarpin and later potassium iodid, the lens became transparent, the fundus changes disappeared and vision was restored to 20/25 in O. D. and to normal in O. S., and has so remained.

Dr. Ring stated his conviction that each case of incipient lens opacity should be studied if possible with the aid of an expert clinician, that the urinalysis should be thorough and systematic, and the blood examinations complete. The heart and circulation should be carefully studied for the beginning evidences of arteriosclerosis or other circulatory disease, and the gastric intestinal tract carefully studied for evidences of autointoxication. He called attention to the fact that except the one case of diabetes, each of Dr. Connor's cases occurred in women over 50, that each was subject to intestinal disorders, possibly association with autointoxication; that they were fleshy, flabby women of markedly nervous type, and that at least two were chronic rheumatic subjects. Syphilis, Bright's disease, diabetes and other organic conditions each will afford its special indications for treatment. When no study with a clinician is possible, the oculist can do much by instituting himself the type of examinations suggested above, and by a proper modification of the diet, the restriction of meat and starchy foods to the minimum, exercise in the open air, full, deep breathing and massage. Locally, careful and repeated refraction, accompanied with cycloplegia and alterative medication especially to improve the chorioid, vitreous and lens, are absolutely essential. Local inflammation must be looked after. Heat, dionin and local massage have in some instances proved of value. There is no one remedy, Dr. Ring said, to which we can certainly turn to remove the opacification. We can assist in accomplishing our purpose by a careful study of and an attempt to remove conditions that tend to influence nutrition unfavorably.

Dr. Willis O. Nance, Chicago, to the list of cases recorded by Dr. Connor, added that of Mrs. S., aged 52, who consulted him in 1898 on account of the twitching of some of the muscles of the face and inability to read or sew comfortably. She had been wearing glasses for about ten years and had never been examined by an oculist. She was extremely nervous, but except for this symptom was apparently in good health. Incidentally, she possessed a thyroid tumor of considerable size. Examination showed hypermetropic astigmatism of a low degree, with presbyopia and several well-marked striæ in the lens of one eye. Vision 20/80, improved to 20/40 by correction. The examination was particularly thorough, and a careful drawing of the lenticular condition was recorded. Six years later, to Dr. Nance's astonishment, the lens was found to have completely cleared and vision with the same distance correction given at first examination improved to 20/30. The goiter during the interim had disappeared without treatment. There was no history of syphilis, nor was there at any time any indication of Bright's disease or of tuberculosis. This case, so far as his observation has extended, is the only one in which opacity of incipient cataract has been noted to regain transparency.

Dr. Walter H. Snyder, Toledo, said that since answering Dr. Connor's circular letter he has seen two cases which illustrate the point exactly:

Mrs. R., aged 70; O. D. complete senile cataract; good light perception; O. S. 20/70; transparent striæ and a general cloudiness. After five weeks' treatment vision equaled 20/30.

Mrs. W., aged 64; O. D. complete senile cataract. O. S. 20/100; after four weeks' treatment 20/20.

Both of these cases are of a type in which beginning opacity of the lens is frequently found and which most frequently clear up or can be held stationary. There is high arterial tension; the patients in these cases had 185 mm. Riva Rocci. These patients are constipated, in that though the bowels moved every day, the time of retention of bowel contents is too long, and there is consequent absorption of pressure raising toxins, the ingestion of sodium chlorid is much too great and the diet generally contains too many internal organs, such as liver, kidney, sweetbreads, etc. The retina has an indistinct appearance seemingly edematous in a slight degree, and the periphery shows the beginning changes of arteriosclerosis. Dr. Snyder has seen such cases drift into chronic interstitial nephritis. His treatment, which has been more successful since using dionin, is to lessen blood pressure, prevent absorption of toxins, stimulate elimination and apply dionin locally in powder form. Hot applications are made four times daily for five minutes, followed by eye work. So many details are attended to that it is impossible to say which is of greatest importance, but he feels that since using the dionin he has been able to stimulate the lymph channels of the anterior segment of the eye more satisfactorily than ever before, especially if the tension is slightly raised in the globe, when the dionin acts more efficiently. He believes that all near work should be prohibited, and that any error of refraction for distance should be accurately corrected. He has under observation cases in which for twelve years the condition has been stationary in one eye, under this treatment, while the other eye presents the typical picture of complete senile opacity, and he is certain that the other will follow it if not prevented by the care given to the general health.

Dr. John E. Weeks, New York, said that for the last twenty years he has made sketches of every case of striation of the lens, or lenticular opacity, that has presented itself in his private practice, and he has also endeavored to arrest the development of the cataract. In this discussion the cases that have been described as most favorable for the clearing up of opacities of the lens are those that are due to some injury or some disturbance of nutrition, or to disease of the interior of the eye. Changes that take place in the lens vary. When there is senile cataract, when the health is good, it is found that the lens is shrinking, and the striæ appear, because the central portion of the lens shrinks more rapidly than the cortical portion. In cases in which the condition is not due to any general or local disease, the disappearance of the striæ is extremely rare. In the other cases, the striæ are not due so much to the cleavage between the lamellæ of the lens because of shrinkage, as to imbibition and subsequently to the presence of granular detritus between the lamellæ, the lens itself becoming somewhat swollen. These are similar to the cases in which striæ are found after injury to the lens and which may clear up. Dr. Weeks thinks that these facts give a clue as to which variety of opacities of the lens may clear up and which may be judged to be permanent. He believes that systemic treatment is of great importance, and also that something may be done toward stimulating the nutrition of the anterior segment of the globe by local treatment. He has advised hot applications, made perhaps at night by bathing with hot saline solution, and has used stimulating collyria; one that he is in the habit of prescribing is glycerine and boracic-acid solution. He has kept records of these cases for twenty years, and has not a few cases in which the striæ have not advanced for five or ten years. He has seen a very few cases in which the striæ have decreased, but he has seen none in which an entire disappearance has been positively determined.

Dr. R. S. Lamb, Washington, said that the cases that clear up are mostly cases of angiosclerosis, with resulting chorioidoretinitis, and he thinks that a good many patients have incipient angiosclerosis, which would be brought out by a little more careful examination of the patient in a general manner, in addition to the local examination. He finds the vision of these patients generally reduced to from 20/30 to 20/100, and that with glasses it is unimproved. In addition to the hot applications which he uses at least three times a day, and sometimes oftener, he uses the subconjunctival salt injections, and has seen a few striæ clear up.

Dr. Herman Knapp, New York City, said that not rarely a partial cataract is absorbed. That part between the center and periphery becomes cataractous and then may clear up except for a fine streak, like that made by a pen, in the clear substance of the lens. Dr. Knapp said that he has seen such cases and mentioned one which was typical. A splinter of iron went into the eye. A white-gray streak parallel with the optic axis was distinct. He drew the splinter out easily with a Haab magnet. There was no reaction. It was remarkable that the opacity in the temporal half of the lens fully disappeared, but the anteroposterior streak remained. Otherwise the eye was healthy. The vision was normal so long as Dr. Knapp had the patient under observation.

Dr. John Chase, Denver, said that about ten years ago a man, aged 45, in good health, of excellent habits, came into his office. Dr. Chase refracted his eyes. Two years later the man came again complaining of a disturbance of vision, and on examination I found well-marked striæ in both eyes. Some time later he wrote that he had placed himself under the care of a man who claimed to cure cataract. Two years later he returned and the striæ were gone. Just before leaving for Atlantic City, the man came into Dr. Chase's office and the striæ had returned in both eyes.

Prof. Carl Hess, Würzburg, Germany, said that the etiology of these striæ can be studied experimentally in rabbits by feeding the animals with naphthalin, and in the first twenty-four hours a good many of these striæ can be found in the lens, while if the feeding is not continued the striæ disappear completely in about eight days. This seems to be analogous to what occurs in the human eye. This condition can be studied anatomically. The first thing that happens is the destruction of the epithelial layer of the lens so that the liquid around it can get into the lens itself. The normal epithelium protects the lens, but when this epithelium is destroyed the liquid gets in and then we have a difference of the refractive index because of this fluid between the lenticular layers. When one ceases feeding the rabbits and the epithelial layer is restored, which happens frequently, the whole epithelial layer becoming normal again, no liquid can enter the lens, and it is easy to explain how these striæ disappear completely. There are reasons to believe that these same changes take place in the human eye.

Dr. Leartus Connor, Detroit, said that the single point he desired to make in the paper is that the striæ of incipient cataract do sometimes clear up. In his opinion, the evidence is conclusive that lenticular striæ disappear or are modified. He expressed pleasure that so many members of the Section agreed with him, and spoke of the benefit to patients if ophthalmologists will hold out some hope instead of telling them that nothing can be done except to wait for operation. Fraudulent institutions promising cure of cataract will be driven out of business.

LOSS OF VITREOUS HUMOR IN CATARACT EXTRACTION.

BY DR. J. M. RAY, LOUISVILLE, KY.

(*Concluded from page 15.*)

DISCUSSION.

Dr. Samuel Theobald, Baltimore, thinks that all ophthalmologists agree that loss of vitreous is an accident to be avoided. There seem to be four factors that have most to do with producing this misadventure: One is the awkwardness of the operator; about this nothing need be said. The three other factors are: First, fluidity of the vitreous. When this conditions exists the likelihood of the accident occurring is much greater. Second, the behavior of the patient. In Baltimore there are a great many negroes, and they are almost without exception intractable patients. The orbicularis muscle of the negro seems to have twice the strength of that of the white individual, and he has little or no control over it. This is a difficult thing to contend with. The third factor is the speculum. There is a great difference in the amount of pressure which the different specula exert on the eye, and I think this has an important bearing on the question of loss of vitreous. The old-fashioned spring speculum exerted an undue amount of pressure. The speculum which Dr. Theobald has used for years in this respect, and which he believes to be the best, is the self-locking speculum devised by the late Dr. Russell Murdoch of Baltimore.

Dr. Hiram Woods, Baltimore, said that in his experience the loss of clear normal vitreous is of greater significance than of fluid vitreous. The latter is usually the result of preexistent chorioiditis, and failure to restore useful vision is generally due to this underlying lesion. It is different when the vitreous comes out as a distinct bead. It is cut off and appears again. Rough handling, movement of the patient or pressure of the speculum are generally responsible. This loss of clear normal vitreous, he believes, is often responsible for postoperative infection, prolonged convalescence and, possibly, leads to subsequent intraocular degeneration. Fluid vitreous at operation makes him dread rather the discovery of old destructive fundal lesions, which will materially lessen visual acuity than the postoperative dangers mentioned.

Dr. A. R. Baker, Cleveland, stated that he does not like to have loss of vitreous, and never sleeps comfortably after such an accident. He has found that loss of vitreous is frequently due to the speculum or to an awkward assistant. For a number of years he has been making most of his extractions without a speculum, simply grasping the tendon of the superior rectus, the forceps holding the lid up, and cutting toward the forceps. It is surprising how easily this can be done, and it does away with the necessity for an assistant. The old Italian operators used this method years ago, and Dr. Baker believes that it is deserving of more frequent use.

Dr. Charles A. Oliver, Philadelphia, agreed with Dr. Theobald regarding the value of the Murdoch speculum; he uses it in preference to all others in suitable cases. Generally, he does not use a speculum in cataract operations, believing that an assistant and use of an elevator is a better plan. For years he has taught his students that the loss of the vitreous humor is one of the most distressing accidents in cataract extractions. Dr. Oliver never considers what is known as operative success, only final success. An operation can not be considered complete until the lapse of some months or years. It is in cases of ordinary cataract with loss of normal vitreous that disastrous results occur later. In other words, the true vitreous humor is just as much an organized body as the lens. There is no such thing as fluid vitreous. The condition usually so designated is simply a replacing of the normal vitreous by lymph in the vitreous chamber. No matter how minor the accident in the beginning of the operation may be, secondary inflammation and degeneration with all their disastrous consequences are nearly always sure to take place.

Dr. R. S. Lamb, Washington, mentioned two points by which one may overcome these difficulties, mentioned by Dr. Theobald, with the negro. One is to remove the speculum immediately after the incision. Dr. Lamb always puts in the speculum to make the incision, but removes it to get rid of the tension on the orbicularis. The second point is to make the incision entirely in the cornea.

Dr. D. W. Greene, Dayton, Ohio, said that an operator of average skill following regular methods of extraction should not lose vitreous in 5 per cent. of his cases, taking them as they come. When loss does occur it will usually be due to one of two causes: rough handling of the eye (imperfect technic), the vitreous being of normal consistence, or with fluidity of the vitreous the technic may or may not be faulty, yet the loss occurs. The loss of a small or even a moderate amount of vitreous, while not to be desired, is perhaps not specially dangerous to the future of an eye, so far as we can judge without special statistics covering the point. The vitreous is never reproduced, but the aqueous rapidly supplies its place and an apparently normal condition results. Dr. Greene has not seen a case of detachment of the retina that could be attributed to loss of vitreous. Having had an undesirable experience in 22 cases of extraction within the capsule and having lost vitreous in 41 per cent., and having had 3 cases of glaucoma during convalescence and one coming on more than a year after the operation (clearly traceable to displacement upward and closure of the pupil), having watched some of these cases for more than a year, and having seen the reactive processes to which such eyes are subject, he has come to regard loss of vitreous (in any reasonable amount) of far less significance and danger to the future of an operated eye than entanglements and incarcerations of iris which are the direct and unpreventable results of such a loss. The danger of the loss of the eye from primary infection of the vitreous is not great; the danger of loss from detachment of the retina is probably not greater, therefore some such explanation as that offered above is necessary to explain the complications that follow vitreous loss. He stated that in his 50 per cent. of vitreous loss or presentation after the Smith (Indian) method, the vitreous was not of normal consistence in a single case. Being a non-vascular structure (after fetal life), the vitreous is not subject to inflammation in the generally accepted meaning of the term. The changes that occur—fluidity, opacity, etc.—are degenerative and secondary to disease of the uvea and retina, and these in their turn are caused, in the majority of cases, by diffuse disease of the blood vessels, arteriosclerosis, or better, perhaps, arteriocapillary fibrosis.

Dr. L. Webster Fox, Philadelphia, said that the surgeon of to-day looks on the loss of vitreous with great seriousness and aims to prevent it at all hazards. Some of the older authorities did not take the loss of vitreous with much distrust. In his opinion the operator should aim to deliver the lens without loss of vitreous. He has had a few cases in which at least one-fourth of the vitreous was lost, but instead of allowing the globe to remain flaccid, which this loss of vitreous would entail, he immediately filled the eyeball with tepid saline solution and good results have ensued. For a trifling loss of vitreous no heed need be paid other than a careful snipping of this bead from the lips of the wound and a gentle backward stroking of the edges of the incision. Any disturbance in the media of the visual apparatus disturbs the "histologic makeup of the normal solution," and Dr. Fox is certain that an excessive loss of vitreous lowers the visual acuity, as well as the resisting forces against subsequent degeneration of the eye itself.

Dr. W. Zentmayer, Philadelphia, declared that in his experience the loss of vitreous humor in any considerable amount has proven a serious complication. Primarily it leads to the curtailment of an important step of the operation—the replacement of the pillars of the iris, the smoothing out of the conjunctival flap and other steps in the toilet. The loss of a decided amount has been followed, usually, by an iritis or an iridocyclitis, which has kept the eye irritable, prolonged convalescence and rendered capsulotomy necessary and difficult to perform. Undoubtedly, in some of these cases the loss of vitreous indicated a diseased eye, and the resulting post-operative inflammation might have followed, even though the operation had been without complications. He is confident, however, that in any event it is an error to look on this occurence as other than a serious misfortune, notwithstanding that we often hear it stated that the loss of a little vitreous is a good thing.

Dr. Francis Valk, New York, declared that this question of loss of vitreous depends on the way it is looked at. It was his good fortune in his early work to see Dr. Agnew operate for cataract and in his operations Dr. Agnew simply put the speculum in and left it there until the operation was finished, no matter what complication might occur. Dr. Valk has followed out the same plan, because he has reached the time when the loss of vitreous does not frighten him. It can not be prevented, and the only thing is to know what to do when it does happen. If a small quantity is lost Dr. Valk judges what is best to be done by the condition of the cornea and eyeball; if the lips of the wound are nicely together he does nothing; only he is careful not to put any pressure on the eye. If, on the other hand, there is collapse of the cornea, or of the anterior portion of the eyeball, then he uses injections of normal salt solution to bring the eyeball up to its normal size, puts on the bandage, and usually has a fairly good result. An eyeball in which there is a cataract is not a healthy eye. In his experience it has seemed that some of his best cases have been those in which there was a slight loss of vitreous. Recently he operated on a man for double cataract, and in both eyes there was slight loss of vitreous, but the last time he saw the man he had good vision. In making pressure to remove the lens, if the operator will make it constant, steady and in one direction, he will have no trouble and seldom a loss of vitreous.

Dr. J. M. Ray, Louisville, said that he agrees with those who believe that while the influence of loss of vitreous on the primary result is not disastrous, yet the secondary results are of much greater importance than primary infections. Fluidity of the vitreous is unquestionably a factor. Arlt has stated that when the vitreous is fluid its loss is not so important as when it is firm, due to the fact that when firm vitreous protrudes we cut it off, and a little more takes it place, so that when the eye is bandaged we have no assurance that there is not a bit of vitreous between the lips of the wound. He believes that after the section is finished, and certainly after the capsulotomy, there will be less loss of vitreous if the speculum is removed. He also thinks that the character of the speculum used is of great importance. On one occasion he lost a large quantity of fluid vitreous; he filled the eye with normal salt solution, and it did well apparently for awhile, but a short time after the patient developed an iridocyclitis that destroyed the eye. Dr. Ray thinks that when the eye is filled with normal salt solution if the case is watched for awhile it will be found that it sooner or later undergoes degeneration.

NEUROFIBROMA OF THE ORBIT.

BY DR. W. I PARKER, DETROIT.

(Concluded from page 19.)

DISCUSSION.

Dr. Edward Jackson, Denver, said that the term neurofibroma has been used so loosely that its significance is uncertain and indefinite. Restricting the term neuroma to a tumor in which there is an actual abnormal new formation of nerve elements, and designating as false neuroma, or pseudo-neuroma, any tumor which consists of other elements, in which are embedded previously formed nerve fibers from the nerve trunk in which the tumor had its origin, the mass of nerve tumors in the region of the eye probably belong to this latter class. It is possible that Dr. Parker's case, and the two previously reported cases he cited, should be classed as true neuromas, of which the tumors developed on the ends of nerves in the stump after amputation of a limb, are the most common example. The so-called plexiform neuromas, more frequently found in the region of the eye, appear to be of the false neuroma type, the proliferation of the connective tissue elements of the nerve trunk forming a tumor in which the original nerve fibrils are embedded. Contrary to what was observed in Dr. Parker's case, these fibrils generally show signs of degeneration The cases to which Dr. Parker calls attention seem to differ from plexiform neuroma, chiefly in the sharp limitation of the process resulting in the formation of a distinctly limited tumor as opposed to the extended network of the plexiform neuroma. The nodule, which he removed from the eyebrow, however, seems to illustrate the tendency of the neuromata to appear as multiple growths. It should be remembered that neurofibromatous growths are extremely rare within the cranium, although a tendency to their development elsewhere throughout the body has been noted in cases of idiocy and cretinism. In a good many recorded cases a false neuroma has developed into a sarcoma.

In a number of reported cases hydrophthalmos has been associated with plexiform neuroma. The possibility of association of hydrophthalmos with a growth such as Dr. Parker has reported, should be borne in mind. Apparently, the tendency to neurofibromatosis is congenital, although some of these growths have not attracted attention until middle life. In early childhood, when hyrophthalmos is usually seen, such a growth, if it existed, might be undiscoverable.

Dr. Jackson has never done Krönlein's operation except on the cadaver. He recognizes that there is a distinct field for it; but the number of cases that might properly be submitted to it is extremely small. Many malignant tumors of the orbit should not be operated on at all and in most of those the orbit should be completely emptied of its contents. Reports of cases of this kind, in which the patients were subjected to osteoplastic resection, instead are to be found in the literature of the past year. For probably non-malignant tumors, like that in Dr. Parker's case, Krönlein's operation is to be considered far superior to evisceration of the orbit. But even among these its use should be restricted to cases in which operation on the soft parts would not remove the tumor without sacrificing a useful eye. To do an osteoplastic resection for the removal of a malignant tumor of the orbit, or to save a hopelessly blind eye, as had been done in some of the reported cases, is hardly justifiable. Even in the cases for which the operation is especially indicated, the result is not always so satisfactory as in Dr. Parker's case. Cross says of one of his successful cases: "There is ptosis and the eyelids can not be opened; the power of all the ocular muscles is weakened—that of the external rectus is entirely lost. The eyeball lies toward the nose and can not be used, though there is good sight in it. The appearance of the patient is less satisfactory than is usually presented by a glass eye." Such an eye possessing useful vision is, of course, worth preserving, if possible without risk to life. But it can sometimes be as well preserved by an operation that does not involve the wall of the orbit. Tumors lying chiefly to the inner side of the cone of muscles may usually be reached, at least equally well, from in front; and in some orbits there is space enough to the outer side of the eyeball to make a careful exploration of that region, or to remove a cyst or solid tumor of moderate size without resecting the orbital wall. The width of the orbital opening varies greatly in different persons, and only when it is comparatively narrow, or the tumor is situated very deeply within the orbit, and, as in this case, malignancy can be excluded, does Krönlein's operation seem necessary. It is desirable that the details regarding each patient thus operated on, especially the subsequent history, should be placed on record. In some of the cases heretofore reported the nature of the growth has not been mentioned; and others, probably malignant in character, have been reported within a few weeks after the operation.

Perhaps the most important lesson taught by such a case is that non-malignant tumors of the orbit do occur, of which the patient can be thus relieved without sacrifice of a useful eye, and without serious risk to life. Tumors of this particular variety are extremely rare, but perhaps not so rare as the literature would seem to indicate. Their macroscopic resemblance to fatty tumors would cause them to be so classed if no careful microscopic examination of the growth were made.

Dr. Herman Knapp, New York, stated that he had plexiform neuroma which was operated on three or four years ago return. It was situated in the orbit. There was no relapse for eighteen months and he thought it was a good result, but before he went away there was a return and there will have to be another operation. There is nothing else but to get rid of them as well as we can. So far as he knows in the literature there is no report of perfect recovery. The case must be observed. There are small relapses; if these are removed the patient will not die from this disease.

Dr. Harry Friedenwald, Baltimore, said that several years ago he reported a case of neuroma involving the upper eyelid and orbit. The immediate result of operation was good and the appearance of the eye remained good for some time afterward. Then there was a return of the growth, and now after several years the lid is about as large as before the operation. This was a diffuse growth and not a circumscribed one like that reported by Dr. Parker.

Dr. Charles A. Oliver, Philadelphia, said that he, eight or ten years ago, in the Transactions of the American Ophthalmological Society, reported a case of neurofibroma of the orbit. It was removed successfully by operation. The patient recovered with 20/30 vision and good movement of the eyeball. Although the diagnosis was made by competent authorities at that time it proved to be malignant, and three or four years ago Dr. Oliver had to remove the eyeball and entire orbital contents, finding a sarcomatous condition.

Dr. E. C. Ellett, Memphis, after speaking of his difficulty in obtaining definite information about some details of the operation from the descriptions at his command, said that he received his best idea from Haab's hand-book of ophthalmologie operations. After making the skin incision, the periosteum is to be incised along the edge of the orbit and raised from the outer orbital wall until the spheno-maxillary fissure is exposed, not disturbing the soft parts.

Dr. W. R. Parker, Detroit, declared that it is absolutely necessary, both as to treatment and prognosis, to eliminate the so-called plexiform type, of which 35 or 40 cases have been reported. In the plexiform type the nerve fibrils are positively enlarged and are nearly always associated with elephantiasis of the skin, whereas in these cases the fibrils are perfectly normal in size. He said that there is nothing difficult in the Krönlein operation as far as exposing the orbit is concerned. The complications arising from involvement of the orbital contents would, of course, differ in each case.

BLOOD PRESSURE IN DIABETES.

BY DR. A. R. ELLIOTT, CHICAGO.

(Concluded from page 30.)

DISCUSSION.

Dr. H. S. Stark, New York, said that he believes that in attempting to establish a relationship between cardiac, vascular or muscular disease, or in fact, any form of disease, and diabetes, one is confronted by the fact that the pathogenesis of the latter disease is not known. In consequence, our conclusions of to-day, however firm they may be, may be overthrown by the discoveries of to-morrow. Therefore, in order to establish a relationship between cardiac or vascular disease and diabetes, certain prominent features of diabetes, namely, glycosuria, acetonuria and ammonuria, should be taken into consideration. Unless this is done, attempts to establish a relationship between the two diseases will fail. The modus operandi by which lesions of the heart or organs may be produced is by foreign bodies which act as chemical irritants. The best proof of this is seen in arteriosclerosis. This in turn may cause thrombosis or embolism. Another method by which cardiac disease may be brought about is by overactivity of an organ which may make a vicious circle with other organs of the body. In diabetes, the kidney is overworked because of the polyuria, which, in turn, is caused by the polydipsia. He does not believe it can be demonstrated that diabetic endocarditis is a distinct pathologic entity. His observation has shown him that the most frequent vascular change met in diabetes is arteriosclerosis, and the least frequent is endocarditis. One thing of importance must be remembered—diabetes, almost from the start in the majority of the cases, is a chronic affection. It may exist ten or twenty years, and necessarily it must manifest itself in almost every organ in the body. He did not believe it could as yet be established that there is such a distinct pathologic entity as "diabetic endocarditis." It always had seemed strange to him, in observing a large number of cases, why the most frequently encountered cardiac disease, namely, chronic endocarditis, should be the least frequently encountered in diabetes. It stands to reason that if there is a distinct toxic element it would first manifest itself on the valves of the heart.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Dr. Wyeth on Organization.

Dr. John A. Wyeth, New York City, delivered an address on "The Value of Organization in Medicine," at the annual meeting of the Arkansas Medical Society, held at Little Rock. In emphasizing the importance of organization, Dr. Wyeth said, in part:

> Intelligent cooperation between individuals for the accomplishment of a given end has marked every step of human progress. Scarcely a single page of history fails to teach the value of organization. It has been left to the medical profession in our own day to apply the lessons of organization to the amelioration of suffering and the saving of human life. Previous to the beginning of the nineteenth century practically little had been accomplished along this line. In the decade from 1840 to 1850 two important events occurred, viz., the organization of the American Medical Association and of the New York Academy of Medicine, both of which events occurred in 1847. About this time the discovery of anesthesia brought about a marked revival in surgery.

Dr. Wyeth then considered the reorganization of the American Medical Association, which, in his judgment, was the most important event in the development of medical organization in this country. After outlining the plan of organization and the success which has attended it in all of the states and territories, he said:

> With all that we have accomplished in the first six years of this movement there remains much to be done. We must win those members of our profession who are as yet "without the walls," or at least the best of them; we must teach them and the public by precept and example that our material advancement is secondary to our obligation to mankind. There are at this date in the United States probably 30,000 illegal practitioners of medicine so deficient in equipment, professionally and morally, that they are a menace to the welfare of the community. There are medical colleges not yet up to the standard of our requirements. There is scarcely a community within our border that does not in some way violate all laws of health. The real value of organization is in the influence we can bring directly to bear on the body politic, and through this medium secure legislation which will solve these serious problems. This we can only do by intelligent cooperation and by the sacrifice of much of our material interests to the public good.

Organization in Pennsylvania.

The Bucks County (Pa.) Medical Society has elected as president for the coming year, Dr. J. B. Carrell of Hatboro. Dr. Carrell has sent out a letter to all of the members of the society asking their support and cooperation in the year's work. He says:

> The county society is the unit of the state and national societies, and it behooves every reputable physician to become a member. I hope you will exert your best efforts to bring every reputable, regular physician out of the society into membership and that you will not rest until all are with us.

Insurance.

Since the publication of the last list in The Journal the following societies have taken action on this question:

Plymouth District (Mass.) Medical Society.
Utah State Medical Association.
Monongalia County (W. Va.) Medical Society.
Bullock County (Ala.) Medical Society.
Hennepin County (Minn.) Medical Society.
Medical Society of the County of Rensselaer (N. Y.).
Pratt County (Kan.) Medical Society.

Organization in Utah.

At a recent meeting of the Utah State Medical Association the state was divided into three councilor districts and the organization of district societies authorized. It is planned to hold quarterly meetings of the district societies in different sections of the district. The fourth meeting for the third councilor district will be held at Panguitch Lake in July, at Helper in October, at Eureka in January and at Cedar City in April.

Book Notices

Diagnosis of Organic Nervous Diseases. By Christian A. Herter, M.D., Professor of Pharmacology and Therapeutics at Columbia University. Revised and Enlarged by L. Pierce Clark, M.D., Visiting Neurologist to the Randall's Island Hospitals and Schools. With 109 Illustrations. Cloth. Pp. 690. Price, $3.00. New York and London: G. P. Putnam's Sons, 1907.

A well balanced, consistent book on the diseases of the nervous system is a rarity. As yet the best neurologic literature is in the monographic stage. Most of the works that attempt to cover the whole field usually follow no general scheme based on pathology, physiology or semeiology. In a haphazard way they present a mass of disjointed, disconnected, unsystematized so-called facts. Hence rare, indeed, is the neurologic treatise that does not reveal a number of inconsistencies and contradictions. When these larger compilations are compressed into compends and handbooks the inconsistencies, contradictions, inadequate explanations and general confusion stand forth in glaring emphasis. For this and other reasons we are opposed to the use of compends and handbooks in neurology. They foster the little knowledge which, in neurology especially, is infinitely more dangerous than no knowledge at all.

The present volume is one of the best of this class, especially the two chapters V and VII, devoted respectively to the diagnosis of clinical types and the examination of the patient. Being of the class, however, which we consider harmful, we can not consistently recommend the book. Like all of its class, it will mislead the beginner in neurology, while for the advanced student it will present nothing that is new or of interest.

The justifiableness of the above strictures may be illustrated in a few random selections. For instance, in the first few pages the neuron concept is presented and strongly endorsed. Anent the work of Bethe and Apathy, the author says that their views "if established may be accepted as corollaries to the neuron conception, while its principle will remain. For the purposes of this book, therefore, we shall accept the conceptions of the neuron theory." And then throughout the rest of the book the principles of the neuron doctrine are all but wholly ignored, while the word neuron scarcely appears.

The expression, "complete hemiplegia," we are told on page 89, "implies that the paralysis affects all of one side;" but on page 95 we are informed that "the terms, complete and incomplete" are used "to qualify the degree of paralysis present in any given case." More serious than this contradiction in the use of terms, however, is the misinformation conveyed in the same sentence that the expression, complete hemiplegia, "is not strictly true," as implying "that the paralysis affects all of one side." It does affect all of one side, as shown by the tests of Potain and of Legendre, though the upper face is not as profoundly involved as the lower for well-known reasons.

Brown-Séquard's paralysis is given a correct clinical description on page 92, but its physiopathologic explanation is both confusing and inadequate.

On page 91 we are told that "double hemiplegia or diplegia is a paralysis of all four extremities." This is misleading. A mere quadriplegia is not the same, pathogenetically or symptomatically as a double hemiplegia or diplegia. A multiple neuritis, for instance, that happened to involve "all four extremities" would, according to this definition, be a double hemiplegia or diplegia.

In modern neurology we do not talk of brains being "overworked" in the popular sense employed by the author. Toxemia and other blood states are the more scientifically accepted causes of the symptoms he refers to (p. 157). The same criticism is to be made of the author's description of "cerebral concussion" (p. 597). Cerebral concussion as a pathologic or clinical entity is not known in modern neurology and the most recent text-books make no mention of it. Strange, therefore, is it to see more space devoted to it in this book than is devoted to neurasthenia.

The pathogenesis of cerebral apoplexy is detailed along old and partly relinquished lines (p. 344). The same may be said of the general description of the meningites. The author thinks that "tubercular meningitis probably (!) depends on the deposition of tubercle bacilli" (p. 289).

In stating that the abuse of alcohol favors the development of the occupation neuroses (p. 313) the author confounds the latter disease with what is known as craft palsy. The former is a psychoneurosis; the latter a neuritic affection.

One wonders how "wryneck" can ever "be due solely to sexual excess" (p. 314); or how "dental irritation" may cause poliomyelitis (p. 339), or phimosis give rise to myelitis (p. 339).

On page 343 the traumatic neuroses are said to depend, in some cases, on organic changes. According to modern neurology such cases would then cease to be neuroses. They would be cases of hemorrhage, inflammation, softening or other form of well-known organic disease. The traumatic neuroses to-day are recognized as cases of hysteria or neurasthenia.

Like the older writers, the author makes masturbation the cause of many forms of trouble wherein to-day it is recognized as an effect or symptom (p. 315). He also believes in the traumatic origin of tabes (p. 338). He refers to the symptoms of syringomyelia as being both "distinctive" and "indistinctive" in such a way as to cause no little confusion.

Aside from the rather poorly executed illustrations, the publisher's part in the work is deserving of commendation. Misprints are remarkably few.

Aids to Medical Diagnosis. By Arthur Whiting, M.D., M.R.C.P., Physician to the Tottenham Hospital. Cloth. Pp. 152. Price, $1.00 net. New York: William Wood & Co., 1907.

Aids to Dental Surgery. By A. S. Underwood, M.R.C.S., L.D.S., and D. Gabell, M.R.C.S., L.R.C.P., L.D.S. Second Edition. Cloth. Pp. 126. Price, $1.00. New York: William Wood & Co., 1907.

Aids to Diagnosis and Treatment of Diseases of Children. By John McCaw, M.D., R.U.I., L.R.C.P., Edin., Physician to the Belfast Hospital for Sick Children. Third Edition. Cloth. Pp. 381. Price, $1.25. New York: William Wood & Co., 1907.

This series of books is intended for those who already possess some knowledge of the respective subjects, as do advanced students or graduates, and offers a large amount of practical information, chiefly clinical, in small compass.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Connecticut Eclectic Medical Examining Board, State Capitol, Hartford, July 9. Secretary, Dr. Thomas S. Hodge, Torrington.

Arkansas Eclectic State Medical Board, Little Rock, July 9. Secretary, Dr. A. J. Widener, Little Rock.

Arkansas Homeopathic State Medical Board, Little Rock, July 9. Secretary, Dr. V. H. Hallman, Hot Springs.

Arkansas State Medical Board, State Capitol Building, Little Rock, July 9. Secretary, Dr. F. T. Murphy, Brinkley.

Maine Board of Registration in Medicine, State House, Augusta, July 9-10. Secretary, Dr. William J. Maybury, Saco.

Connecticut Homeopathic Medical Examining Board, Grace Hospital, New Haven, July 9-10. Secretary, Dr. Edwin C. M. Hall, New Haven.

Vermont State Board of Medical Registration, Burlington, July 9-11. Secretary, Dr. W. Scott Nay, Underhill.

Wisconsin State Board of Medical Examiners, Capitol Building, Madison, July 9-11. Secretary, Dr. J. V. Stevens, Jefferson.

Missouri State Board of Health, Mexico, July 9-11. Secretary, Dr. J. A. B. Adcock, Warrensburg.

Oregon State Board of Medical Examiners, Portland, July 9-11. Secretary, Dr. Byron E. Miller, "The Dekum," Portland.

West Virginia State Board of Health, Charleston, July 9-11. Secretary, Dr. H. A. Barbee, Point Pleasant.

South Dakota State Board of Medical Examiners, Sioux Falls, July 10-11. Secretary, Dr. H. E. McNutt, Aberdeen.

Illinois State Board of Health, Great Northern Hotel, Chicago, July 25-27. Secretary, Dr. J. A. Egan, Springfield.

Massachusetts State Board of Registration in Medicine, State House, Boston, July 9-11. Secretary, Dr. E. B. Harvey, State House, Boston.

Tulane Adopts Higher Entrance Requirements.—The Medical Faculty of Tulane University decided May 29 that, not later than Jan. 1, 1910, the entrance educational requirement will be a four-year high school education or its equivalent, such high school course to be based on eight years in the elementary grades, plus one year devoted to physics, chemistry, biology and one modern language. The administrators have also endorsed the plan. Such action as this, taken by Tulane University as well as by the University of Texas, is the more commendable when one considers the educational conditions in the South, and it is an evidence that the southern schools are going to take an active part in the movement for higher standards in medical education.

What Constitutes a High School Course?

In the discussion of entrance requirements to medical schools the phrases, "a high school course," "a four-year high school course," and "a high school diploma" and a number of other expressions are commonly used. The question arises, "What constitutes a high school course, or what should be recognized as constituting a high school course?"

As with other departments of education, high schools vary widely in their curricula and in the amount of required prerequisite work in the grades. Some have only three years' work after seven years in the grades, others have three years' work after eight years in the grades, others have four years after seven years of elementary work, and still others have four years of work following eight years in the grades. Besides these differences, they vary much in regard to the subjects taught, the methods of teaching and the hours devoted to each subject.

Probably no department of education could be so advantageously made uniform as the high school course. It would draw the line at which a "common school education" would cease and the "higher," "college" or "university education" would begin. Common schools could then shape their curricula to lead up to this standard. Colleges and universities would have a more definite basis for a uniform entrance standard.

As a matter of fact, the movement for uniformity in high school courses has long since been under way. Probably no other division of education has ever been so thoroughly studied, nor has there been more discussion regarding any educational problem than that regarding what subjects should be taught in the modern high school, how these subjects should be taught and how much time should be devoted to each.

As is well known to those who have watched the progress of education in this country, in 1894 a committee of the National Educational Association, which has been entered in history as "The Committee of Ten," published their report which has been spoken of as "the most important educational document ever issued in the United States."

The report of the Committee of Ten* was based on nine special conferences, each of which took up a certain portion of the high school curriculum. Each conference was composed of ten leading educators carefully selected on account of their high standing in the branches to be discussed. These conferences were made up of 90 educators, making a total of 100 when we include the Committee of Ten. All of these were educators of national, many of international, reputation.

On the reports of the nine special conferences, therefore, the Committee of Ten based their famous report and suggested the time to be devoted to each subject. In this report four points seem to have been definitely established: 1, The subjects legitimately belonging in the program of studies of a high school were named; 2, the high school curriculum was to extend over four years; 3, it was to be preceded by eight years of graded elementary work, and 4, it was decided in all conferences without a single dissenting vote that every subject to be taught in the high school should be taught in the same manner to every pupil so long as he pursued it, no matter what the probable destination of the pupil might be.

The subjects legitimately belonging in the program of studies, together with the year in which it was suggested they be taught, as well as the suggested time to be devoted to each subject, are shown in the accompanying table, which is reproduced from the report of the Committee of Ten. This table is arranged to show how a high school could group the subjects, thereby giving the student an opportunity to elect the group which most strongly appealed to him.

In the construction of these programs the committee "adopted twenty as the maximum number of weekly periods, but with two qualifications, namely: That at least five of the twenty periods should be given to unprepared work, and that laboratory subjects should have double periods whenever that prolongation should be provided."

The committee report gives a number of valuable suggestions regarding the arrangement of work in the elementary grades, as well as regarding the selection and arrangement of courses in high schools. The groups of courses given in the accompanying table are purely suggestive and are not arbitrarily arranged. Nor is it essential that every high school teach all of the branches or any particular set of branches named in the four programs. The four programs could be carried out economically in a single school, however, because, with a few inevitable exceptions, the several subjects occur simultaneously in at least three programs and with the same number of weekly periods.

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* Published by American Book Company, Chicago.

The chief need, apparently, is a clear demarcation between what studies are elementary and what belong in the high school curriculum, as well as the clear understanding that a high school course represents four years of graded study, given to subjects clearly recognized as high school branches, preceded by eight years' study in the elementary grades. As has been seen the National Educational Association, through its Committee of Ten, has urged this standard for the high schools of the United States.

It is understood also that this same standard is the minimum requirement of preliminary education making colleges and universities eligible for the Carnegie Foundation lists.

The average of the conditions surrounding medical education throughout the United States induced the Council on Medical Education to suggest to the American Medical Association the adoption of this same standard as the minimum preliminary educational requirement to medical study. This standard was adopted by the House of Delegates of the American Medical Association at Portland in 1905, and again endorsed at the Atlantic City session in June, 1907.

It is hoped that in states where at present there are a considerable number of schools of varying standards, there will be a decided effort to secure uniformity on the above proposed basis.

It is hoped that in such states where the small number of standard high schools is due to lack of funds, legislatures may see the importance and advantage of having their high schools brought to a recognized standard, and make appropriations sufficient to bring about the needed improvements.

Finally, it is strongly recommended that the members of the medical profession both individually and collectively, lend their influence and assistance to those educators who are striving to have adopted a uniform standard high school course throughout the country, so that as soon as possible the present confusion as to what constitutes a high school course may be replaced by a fair degree of uniformity.

TABLE GIVING SUBJECTS SUGGESTED FOR A STANDARD HIGH SCHOOL.

Arranged to allow of an election by the student from four groups of subjects, as suggested by the Committee of Ten of the National Educational Association.

Year.	CLASSICAL. Three foreign languages (one modern).	LATIN-SCIENTIFIC. Two foreign languages (one modern).	Year.	MODERN LANGUAGES. Two foreign languages (both modern).	ENGLISH. One foreign language (ancient or modern).
I.	Latin .... 5 p. English .... 4 p. Algebra .... 4 p. History .... 4 p. Physical geography. 3 p. 20 p.	Latin ...., 5 p. English .... 4 p. Algebra .... 4 p. History .... 4 p. Physical geography..... 3 p. 20 p.	I.	French (or German) begun .... 5 p. English .... 4 p. Algebra .... 4 p. History .... 4 p. Physical geography. 3 p. 20 p.	Latin, or German, or French .... 5 p. English .... 4 p. Algebra .... 4 p. History .... 4 p. Physical geography .... 3 p. 20 p.
II.	Latin .... 5 p. English .... 2 p. *German (or French) begun... 4 p. Geometry .... 3 p. Physics .... 3 p. History .... 3 p. 20 p.	Latin .... 5 p. English .... 2 p. German (or French) begun 4 p. Geometry .... 3 p. Physics .... 3 p. Botany or zoology....... 3 p. 20 p.	II.	French (or German) .... 4 p. English .... 2 p. German (or French) begun .... 5 p. Geometry .... 3 p. Physics .... 3 p. Botany or zoology. 3 p. 20 p.	Latin, or German, or French...........5 or 4 p. English.............3 or 4 p. Geometry .... 3 p. Physics .... 3 p. History .... 3 p. Botany or zoology ...... 3 p. 20 p.
III.	Latin .... 4 p. *Greek .... 5 p. English .... 3 p. German (or French) 4 p. Mathematics (algebra, 2; geometry, 2) .... 4 p. 20 p.	Latin .... 4 p. English .... 3 p. German (or French)..... 4 p. Mathematics (algebra, 2; geometry, 2) .... 4 p. Astronomy ½ yr. and meteorology ½ yr..... 3 p. History .... 2 p. 20 p.	III.	French (or German) .. .. 4 p. English .... 3 p. German (or French) 4 p. Mathematics (algebra, 2; geometry, 2) .... 4 p. Astronomy ½ yr. and meteorology ½ yr. .... 3 p. History .... 2 p. 20 p.	Latin, or German, or French .... 4 p. English (as in others, 3; additional, 2) .... 5 p. Mathematics (algebra, 2; geometry, 2) ...... 4 p. Astronomy ½ yr. and meteorology ½ yr...... 3 p. History (as in Latin scientific, 2; additional, 2) 4 p. 20 p.
IV.	Latin .... 4 p. Greek .... 5 p. English .... 2 p. German (or French) 3 p. Chemistry .... 3 p. Trigonometry and higher algebra, or history.......3 p. 20 p.	Latin .... 4 p. English (as in classical, 2; additional, 2)...... 4 p. German (or French).... 3 p. Chemistry .... 3 p. Trigonometry and higher algebra or history..... 3 p. Geology or physiography ½ yr. And anatomy, physiology and hygiene ½ year... 3 p. 20 p.	IV.	French (or German) .... 3 p. English (as in classical, 2; additional, 2) .... 4 p. German (or French) 4 p. Chemistry .... 3 p. Trigonometry and higher algebra, 3, or history ...... 3 p. Geology or physiography ½ year. And anatomy, physiology and hygiene ½ yr. .... 3 p. 20 p.	Latin, or German, or French .... 4 p. English (as in classical, 2; additional, 2) .... 4 p. Chemistry .... 3 p. Trigonometry and higher algebra .... 3 p. History .... 3 p. Geology or physiography ½ year. And anatomy, physiology and hygiene ½ yr.... 3 p. 20 p.

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* In any school in which Greek can be better taught than a modern language, or in which local public opinion or the history of the school makes it desirable to teach Greek in an ample way, Greek may be substituted for German or French in the second year of the classical program.

The letter "p" means "periods," and the figures show "periods per week."

Marriages

Carlyle Pope, M.D., to Miss Mary Kline, both of Cleveland, Ohio, June 20.

Raymond Samuel Brown, M.D., Chicago, to Miss Mabel Collins, June 18.

H. S. Church, M.D., Modoc, Ill., to Miss Ella Beare of Ellis Grove, Ill., June 25.

Martin J. Ivec, M.D., Chicago, to Miss Elizabeth Schall of Joliet, Ill., June 12.

S. Q. Elmore, M.D., Gretna, Neb., to Miss Nellie Caples of Omaha, Neb., June 19.

Peter J. McDermott, M.D., to Miss Nora I. Gulshen, both of Kewanee, Ill., June 19.

John Zeigler, M.D., Farmer City, Ill., to Miss Clara Squires of Godfrey, Ill., June 20.

Philip Abrahamson, M.D., to Miss Hettie Edith Gillis, both of Philadelphia, June 18.

Thomas J. Kaster, M.D., to Miss Rose Agnes McMahon, both of Chicago, June 22.

Claud A. Searcy, M.D., to Miss Harryette Mayo, both of Hempstead, Texas, June 9.

Arthur M. Heilman, M.D., to Miss Alice Collier Patterson, both of Butler, Pa., June 18.

Dennis James Normoyle, M.D., to Miss Alice Virginia Dunn, both of Chicago, June 25.

William Polk Longmire, M.D., to Miss Grace May Weeks, both of Sapulpa, I. T., June 19.

William Henry Bahl, M.D., to Miss Edith Bruce, both of Chicago, at Joliet, Ill., June 14.

Florian Edward Schmidt, M.D., to Miss Anna Elizabeth Feeney, both of Chicago, June 12.

William West MacFarland, M.D., Pittsburg, to Miss Rose Minear of Athens, Ohio, June 12.

Wallace S. Grayston, M.D., Marion, Ind., to Miss Dessie B. Kitch of Huntington, Ind., June 4.

Herbert L. Taylor, M.D., Portsmouth, N. H., to Miss Mabel A. Grundy of Lowell, Mass., June 29.

Samuel M. Freedman, M.D., to Miss Theresa May Baerwald, both of Dallas, Texas, June 20.

George Graves, M.D., Herkimer, N. Y., to Miss Margaret Hering of Jersey City, N. J., June 20.

Grover William Wende, M.D., to Mrs. Christine Smith Kerr, both of Buffalo, N. Y., recently.

Charles W. Gardiner, M.D., Batavia, N. Y., to Miss Susan L. Sherman of New York City, June 21.

George Frank Carroll, M.D., Biloxi, Miss., to Miss Ada Claire Keith of Louisville, Ga., June 19.

John Warren Achorn, M.D., Boston, Mass., to Miss Harriet Priscilla Sawyer of St. Louis, Mo., June 22.

B. Harry Warren, M.D., West Chester, Pa., to Miss Etta May Kremer of Philadelphia, Pa., June 19.

Cecil McCoy, M.D., Brooklyn, N. Y., to Miss Eleanor C. Mercereaux of Binghamton, N. Y., June 12.

Ord O. LeMaster, M.D., Kettlerville, Ohio, to Miss Emma Garmhausen of New Bremen, Ohio, June 12.

Henry Reginald Fairfax, M.D., McComas, W. Va., to Miss Nell Virginia Randolph of Logan, Ohio, June 26.

Robert Courtney Loving, M.D., Louisville, Ky., to Miss Anna Belle Cassel of Philadelphia, Pa., June 18.

Lee F. McKay, M.D., Martin, Tenn., to Miss Linnie Allen Myles of Fulton, Ky., at Paducah, Ky., June 26.

John Eugene Brooks, M.D., Bangor, Maine, to Miss Gertrude Josephine Gorman of Salem, Maine, June 18.

Walter Scott Moonlight, M.D., Eureka, Kan., to Miss Adelaide Blanche Patterson of Leavenworth, Kan., June 19.

Deaths

George Wheaton Carr, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1860; a member of the Rhode Island and Providence District medical societies; surgeon of the Providence Cadets and assistant surgeon general of Rhode Island before the Civil War; during the Civil War assistant surgeon of the First Regiment Detached Militia; assistant surgeon and later surgeon of the Second Rhode Island Volunteer Infantry; medical director of the State Militia for 13 years after its reorganization; for many years physician of the Rhode Island State Prison; surgeon of the Rhode Island Hospital for 20 years, and for six years a member of the board of examiners of the Rhode Island Medical Society; a surgeon of exceptional ability and one of the most widely known practitioners of the state; died at his home in Providence, June 18, after an illness of three years, from senile debility, aged 73.

Orville Anderson Kennedy, M.D. Hospital College of Medicine, Louisvile, Ky., 1889; a member of the Kentucky State Medical Association and Jefferson County Medical Society, Louisville Academy of Medicine, Louisville Medical and Surgical Society, and Louisville Medical Examiners' Association; professor of chemistry in his alma mater, and formerly professor of chemistry in Central University, died at the Jewish Hospital, Louisville, June 22, after an illness of about three weeks, from acute septicemia, supposed to be due to glanders, aged 42.

Henry E. Muhlenberg, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1871; at one time a cadet in the United States Naval Academy, Annapolis; for several years a surgeon in the United States Marine-Hospital Service; a member of the Medical Society of the State of Pennsylvania and the Lancaster County Medical Society; city councilman of Lancaster, and mayor of the city in 1899; died at his home, June 17, from heart disease, aged 57.

W. F. Kremer, M.D. University of Iowa College of Medicine, Iowa City, 1864; of Grant's Pass, Ore.; for several terms mayor of that city; a member of the Oregon State Medical Association, Southern Oregon Medical Association and Josephine County Medical Society; physician and health officer of Josephine County; died suddenly at the home of his son, in San Francisco, June 14, aged 64.

James Henry Dwight Worsham, M.D. Medical College of the State of South Carolina, Charleston, 1853; surgeon of the Second Georgia Infantry, C. S. A., during the Civil War; for about 19 years county physician of Bibb County, Ga, an honorary member of the Macon Medical Society, died at his home in Macon, May 25, from cerebral hemorrhage, after an illness of three days, aged 74.

William P. Youkey, M.D. Medical College of Indiana, Indianapolis, 1879; a veteran of the Civil War; first surgeon of the Soldiers' Home, Lafayette; at one time secretary of the city board of health; and medical director of the Detention Hospital, died at his home in Lafayette, June 17, from heart disease, after an illness of several weeks, aged 61.

James Medford Williams, M.D. University of Georgia, Medical Department, Augusta, 1839; a member of the Medical Association of the State of Alabama and Bibb County Medical Society; for many years a practitioner of Centerville, Ala., died at the home of his daughter in that city, June 20, after an illness of several weeks, aged 92.

Lewis W. Hodgkins, M.D. Albany (N. Y.) Medical College, 1855; surgeon of the Sixty-eighth Indiana Volunteer Infantry during the Civil War; afterward acting assistant surgeon United States Marine-Hospital Service, died at his home in Ellsworth, Maine, June 11, from chronic bronchitis, after a brief illness, aged 77.

Arthur Douglas Hayes, M.D. Dartmouth Medical School, Hanover, N. H., 1896; a member of the Connecticut State, Hartford County and Hartford medical societies, and secretary of the latter organization, died at his home in Hartford, June 17, from tuberculosis, after a long illness, aged 40.

Charles Munger, M.D. Bellevue Hospital Medical College, New York City, 1871; a member of the American Medical Association, and a prominent practitioner of Oneida County, N. Y., died at his home in Knoxboro, June 19, from cerebral hemorrhage, after an illness of three days, aged 66.

Alfred H. Champlin, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1869; for a number of years a director of the school board of Englewood and later a member of the Chicago board of education, died at his home in Chicago, June 25, from diabetes, aged 66.

Daniel P. Van Court, M.D. Albany (N. Y.) Medical College, 1875; of Mohawk, N. Y.; a veteran of the Civil War; a member of the Medical Society of the State of New York and Herkimer County Medical Society, and county health officer, died at his home, June 15, aged 69.

Alexander Porter Brown, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1858; surgeon in the Confederate army during the Civil War; president of the State Medical Association of Texas in 1884; died at his home in Fort Worth, June 20, aged 73.

Henry Long, M.D. Eclectic Medical Institute, Cincinnati, 1862; of Indianapolis; at one time a professor in that institution, and a charter member of the State Medical Association, died at his summer home in Anderson, Ind., June 23, from cancer of the liver, aged 69.

Peter Walker McMurrick McLay, M.D. Medical Department of Victoria College, Toronto, 1870; one of the oldest and best known practitioners of Elgin County, Ont., died at his home in Aylmer, June 14, after an illness of more than a year, aged 62.

Thomas A. Elliott, M.D. University of Tennessee, Medical Department, Nashville, 1878; died at his home in Poland, Ind., June 15, aged 56.

William Ward Hubbard, M.D. Bellevue Hospital Medical College, New York City, 1872; a surgeon in the Confederate service during the Civil War; died at his home in Perth Amboy, N. J., June 18, from cerebral hemorrhage, after an illness of six days, aged 68.

Henry Pineo Clay, M.D. New York University Medical College, New York City, 1879; secretary of the Cumberland County (N. S.) Medical Association, and county health officer, died suddenly, June 15, at his home in Pugwash, from heart disease, aged 48.

Joseph Stewart Freeling, M.D. Medical Department of the University of Tennessee, Nashville, 1880; for 22 years a practitioner of Scott County, Mo., died at his home in Benton, from rheumatism, after an illness of more than three years and a half, aged 57.

Thomas Hill, M.D. Niagara University Medical Department, Buffalo, N. Y., 1886; hospital steward in the United States Army for many years, died at his home in Brooklyn, June 19, from cerebral hemorrhage, after a brief illness, aged 62.

Israel Hart, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1853; assistant surgeon of the Thirty-eighth New Jersey Volunteer Infantry during the Civil War, died at his home in Pennington, N. J., June 23, aged 79.

John A. Stillwell, M.D. Howard University, Medical Department, Washington, D. C., 1882; a prominent colored practitioner of Orange, N. J., died at his home in that city, June 18, from kidney disease, after a short illness, aged 50.

Willard Parker, M.D. College of Physicians and Surgeons in the City of New York, 1870; a well-known physician of New York City, died at his home June 24, from rheumatic endocarditis, after an illness of one month, aged 60.

Henry W. Fulton, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1872; of East Liberty, Pittsburg, Pa.; a veteran of the Civil War died at a hotel in Atlantic City, N. J., June 23, from heart disease, aged 69.

Sylvester Dudley Lewis, M.D. Albany (N. Y.) Medical College, 1861; for many years a practitioner of Amsterdam, N. Y., and coroner of Montgomery County; died June 17, at the home of his son, in Syracuse, aged 79.

Emanuel Manny Koblitz, M.D. Western Reserve University Medical College, 1904; a member of the Ohio State Medical Association and Cuyahoga County Medical Society, died at his home in Cleveland, June 7, aged 24.

Archibald R. Small, M.D. Rush Medical College, Chicago, 1874; a member of the American Medical Association, died at his home in Chicago, June 21, from disease of the liver, after an illness of two months, aged 56.

James D. Folsom, M.D. Dartmouth Medical School, Hanover, N. H., 1850; for many years a prominent physician of St. Johnsbury, Vt., died at his home in that city, June 20, after an illness of two years, aged 79.

Edward H. Birckhead, M.D. Bellevue Hospital Medical College, New York City, 1883; a member of the Medical Society of Virginia and Piedmont Medical Society, died at his home near Rivanna, June 14, aged 46.

John Henry Howard, M.D. Medical Department of Fort Worth (Texas) University, 1906, of Dibble, I. T., is reported to have been shot and instantly killed in a fight in a lodge room at Dibble, June 24, aged 38.

A. H. Manier, M.D., a pioneer practitioner of Tennessee and for more than forty years a resident of Washington, died from pneumonia, February 2, at his home in Olympia, Wash., after a brief illness, aged 84.

John Deetrick, M.D. Homeopathic Medical College of Missouri, St. Louis, 1873; of Youngstown, Ohio; died at the City Hospital, in that city, June 23, from injuries sustained in a fall two weeks before, aged 62.

Henry Shaefer Hutchinson, M.D. University of Pennsylvania Department of Medicine, Philadelphia, 1907; is reported to have committed suicide, by cutting his throat at Lansdowne, Pa., June 19, aged 25.

Orpheus B. Bird, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1864; formerly resident of Ocean Grove, N. J., died June 3, at his home in Santa Barbara, Cal., from diabetes.

Laurel E. Robinson, M.D. Rush Medical College, Chicago, 1874; for five years a hospital steward in the Army, died at his home in Clyde, Ohio, June 17, from cerebral hemorrhage, aged 61.

Mary Brewer, M.D. New York Medical College and Hospital for Women, New York City, 1894; died at her home in Germantown, Philadelphia, June 20, after a protracted illness.

Charles E. Severance, M.D. New York University Medical College, New York City, 1858; died at his home in Brattleboro, Vt., June 20, after an illness of three days, aged 72.

George C. Irwin, M.D. Atlanta (Ga.) Medical College, 1889; a member of the American Medical Association, died at his home in Young Harris, Ga., June 15, aged 43.

Carlos Fred Higgs, M.D. Detroit (Mich.) College of Medicine, 1902; of Deerfield, Mich., died June 17, in Harper Hospital, Detroit, after an operation, aged 27.

James J. Sharp, M.D. Eclectic Medical College of the City of New York, 1871; died at his home in Arcade, N. Y., June 17, from paralysis, aged 78.

B. F. A. Kueny, M.D. Hahnemann Medical College and Hospital, Chicago, 1878; of Dayton and Sheridan, Wyo., died in Sheridan, June 18.

Harley L. Leonard, M.D. Eclectic Medical Institute, Cincinnati, 1880; died suddenly at his home in Syracuse, N. Y., June 16, aged 57.

Deaths Abroad.

Moritz Litten, M.D., professor of internal medicine at Berlin, died at Liebenstein, May 31, aged 62. He was the first to call attention to the changes in the fundus of the eye in septic affections, and the introduction of the centrifuge into medicine is attributed to him, as also the diaphragm sign called by his name. His works on embolism of the lungs, "contusion pneumonia," palpation of the kidney, etc., have carried his name far and wide. His latest article on pneumonia after traumatism was recently reviewed in these columns, page 1729 of the last volume.

A. Charrin, M.D., professor of general pathology at the Collége de France at Paris and agrégé libre in the medical faculty, died May 21, aged 50. He was one of the most untiring workers in the study of biologic problems and solved a number relating to soluble poisons, vaccines, the defense of the body against microbian invasion and pathologic heredity, while keeping up his work in the maternity.

E. Mendel, M.D., professor of psychiatry at Berlin, died June 24, from heart disease, aged 68. His experience and works on nervous and mental diseases have won him international fame as an authority on lunacy, etc. He served as a member of the German Reichstag from 1877 to 1881, and has always taken a prominent part in the organization of the profession.

T. von Jürgensen, M.D., professor of materia medica and chief of the medical polyclinic at Tübingen, died May 8, of a postinfluenzal heart affection, aged 67.

Society Proceedings

COMING MEETINGS.

Oregon State Medical Association, Seaside, July 12-13.
Minnesota State Medical Association, Duluth, August 13.
Ohio State Medical Association, Cedar Point, August 28.
Wisconsin State Medical Society, Superior, August 20-22.

MASSACHUSETTS MEDICAL SOCIETY.

One Hundred and Twenty-sixth Annual Meeting, held in Boston, June 11-12, 1907.

Under the Presidency of Dr. George W. Gay of Newton.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. George W. Gay, Newton; vice-president, Dr. Francis J. Canedy, Shelburne Falls; secretary, Dr. Francis W. Goss, Roxbury; treasurer, Dr. E. N. Buckinham, Boston; librarian, Dr. E. H. Brigham, Boston; Dr. Arthur P. Cabot, chairman, and Dr. Thomas F. Harrington, secretary, of the Associated Committee on Tuberculosis. Dr. F. Forchheimer, Cincinnati, Ohio, was named as Shattuck lecturer for 1908, and Dr. Thomas F. Harrington, Boston, will deliver the annual oration.

Reports of Officers.

The secretary, Dr. Goss, announced that 169 new members had been added to the list during the year, and that 37 deaths had occurred. The treasurer's report showed current receipts of over $28,000 and a permanent fund of over $40,000.

The governor of Massachusetts and the members of the state legislature were unanimously voted the thanks of the society for the stand taken on matters pertaining to medicine and surgery. The committee on legislation reported that the osteopathy bill had been defeated, and extended its thanks to the auxiliary legislative committee. The committee on medical diplomas was ordered to revise the list of colleges whose graduates are eligible to membership in the Massachusetts Medical Society. The recent report of the relative standing of medical colleges which appeared in The Journal was referred to in complimentary terms. The committee on legislation was instructed to secure action in the matter of regulating expert medical testimony in the courts.

The committee on tuberculosis was voted an appropriation of $300, and a like sum was voted as a contribution to the N. S. Davis memorial fund.

Exhibits.

The scientific exhibit was of more than usual interest, and the commercial exhibit approached nearer to the standard set by the American Medical Association than the exhibit of any previous year, hence was considered more valuable to the members of the society.

At the annual dinner of the society, which was attended by over 1,400 physicians, Dr. Joseph D. Bryant, President of the American Medical Association, outlined the aims of the Association, and referred to the great value of cooperation and organization of the medical profession.

Class Method for Home Treatment of Tuberculosis.

Dr. J. H. Pratt, Boston, gave a detailed account of the class method for the home treatment of tuberculosis. Membership in the class is confined to those in whom the clinical diagnosis has been confirmed, either by finding tubercle bacilli in the sputum, or by a positive tuberculin test. Fifty-two patients had been admitted to the class since it was started, nearly two years ago. About 75 per cent. of 24 incipient and moderately advanced cases recovered. No member of the class is graduated until the disease is arrested and the member is able to return to work. Seventeen patients have been graduated. The average gain in weight was 25.2 pounds, the greatest gain 60 pounds. Eight patients have been at work 20 weeks or over, and in none has the disease returned.

Channels of Infection in Tuberculosis.

Dr. Theobald Smith, Boston, stated that the coughing consumptive is the chief source of infection, and that most cases of tuberculosis are due to inhalation or aspiration of the tubercle bacillus. Dr. Smith is reported as having said that in infants bacilli probably gain entrance through all portals more easily than later in life and that the disease becomes more easily generalized. There are said to be no rational grounds for believing that latency in infancy plays any appreciable rôle in the disease of later decades, but ingestion probably does play an important part in infant tuberculosis. Bovine tubercle bacilli are often associated with a certain at present not fully calculable proportion of cases of abdominal and cervical lymph-node tuberculosis in infants and children. There is no evidence that bovine bacilli may be transformed and assume the human type in the human body. The discharge of tubercle bacilli into the milk of cows may take place abundantly in udder tuberculosis in a small proportion of manifestly tuberculous cows. Without evidence of udder disease it may take place at times in very small numbers. The reasonable restriction of bovine tuberculosis below the danger limit to man is possible with the aid of tuberculin, segregation and the removal of clinical cases of udder disease. Eventually complete elimination can be brought about in this way in any herd, provided other domestic animals, such as pigs, cats and dogs, are kept under control as possible reintroducers of the infection. Complete elimination of bovine tuberculosis may be hoped for in the distant future. The factor of bovine tuberculosis in the human malady is not of such importance that it should be permitted to imperil the proper execution of measures to relieve and cure the strictly human disease or divert attention from it as the chief evil.

Lead Poisoning in Rural Communities.

Dr. W. N. Cowles, Ayer, related a number of instances of lead poisoning, the result of drinking water conveyed in lead pipes, or well water in which lead had accidentally been dropped.

Roentgen Ray in Pediatrics.

Dr. T. M. Rotch, Boston, emphasized the value of the Roentgen ray in the diagnosis of diseases of bones of children. The paper was illustrated by a large number of lantern slides, which represented the author's experiences at the Children's Hospital. He advocated the use of the Roentgen ray in all cases.

Medical Expert Testimony.

Hon. Louis C. Southard, Boston, directed attention to the fallacy of so-called expert testimony because it is a common occurrence to have two experts of equal reputation take opposite sides, one arguing that the plaintiff is severely injured and the other claiming that the plaintiff is hysterical. He suggested that the court appoint one or more medical experts, whenever such are needed, in substantially the same manner, in which masters and auditors are appointed in civil cases. Let either side make application to the court, and on good cause shown have the judge appoint one or more experts. If neither side makes the application, let the court have the authority to make the appointment on its own motion should the judge consider that occasion demands. If both sides agree on one expert, let the court be authorized to make the appointment in its discretion, but not be compelled to accept the choice of the parties should the judge deem it necessary, in the interests of justice, to make a different selection; let the expert or experts so appointed be called to the witness stand and subjected to the same examination, so far as possible, as that now customary. It would seem to be also reasonable to provide that on the application of either side and on good cause shown, the court expert should have the right and privilege of examining the injured or insane person before the trial. It should also be provided that the compensation of the experts should be fixed in the same way that provision is now made for the pay of masters and auditors.

Other Papers Read.

Because of lack of data it is impossible to present abstracts of the following papers:

"Operative Treatment of Varicose Veins," by Dr. J. T. Bottomley, Boston; "The Prostate from the Surgical Standpoint," by Dr. C. S. Benson, Haverhill; "Stenosis of Pylorus in Infants," by Dr. C. L. Scudder, Boston; "Treatment of Stricture of Urethra," by Dr. F. S. Watson, Boston; "Subacute Polymyositis," by Dr. B. T. Burley, Worcester; "Opsonins and Bacterial Vaccines," by Drs. L. S. Medalia and T. Leary, Boston; "Bacterial Vaccines in Treatment of Joint Diseases," by Dr. C. F. Painter, Boston; "Treatment of Typhoid Fever by Serum Therapy," by Dr. N. W. Richardson, Jamaica Plain; "Factory Inspection," by Dr. F. G. Wheatley, North Abbington; "Health Inspectors, Their Function," by Dr. Charles Harrington, Boston; "The Past, Present and Future of Tuberculosis," by Dr. F. C. Shattuck, Boston.

AMERICAN ACADEMY OF MEDICINE.

Fifty-Second Annual Meeting, held at Atlantic City, June 1 and 3, 1907.

(Concluded from page 2206.)

What Is the Primary Cause of Non-Legislation and Mal-Legislation with Regard to Medical Matters?

Dr. Thomas H. Shastid, Marion, Ill., claimed that there is much amiss in the way of legislation in this country with regard to matters medical. A central operative vicious condition accounting for this was said to reside in the ridiculous character of the instruction (or the total absence of instruction) given to-day in the courses on legal medicine and allied topics in the vast majority of our schools of law. The extent and character of medical instruction as it ought to be imparted in the law schools was described with the inevitable effect of such instruction, with a comparison of the extent and character of medical instruction as it actually is given in the law schools, with its inevitable effect. It was asserted that the extra time and effort required of the law student to acquire a proper knowledge of medical matters would, in the end, be to him no burden, but rather a benefit.

The State Board of Medical Examiners.

Dr. Henry Beates, Jr., Philadelphia, gave the following suggestions for the self-evident and necessary modifications of medical legislation: Enlightenment of the public as to the present status of medical education, so-called, and parallel therewith, education as to the actual needs of the hour. He thought it incumbent on public opinion to demand proper medical education. The profession and the public should be taught that the laws must be so amended as to compel medical colleges to admit as students only those who have had proper preparatory training; that the laws require the examinations to be real tests of qualification and practice; that the boards having proof that the catalogue announcements and diploma signaturized by its faculty and proper officials are misrepresentations of facts be empowered to refuse legal recognition of such institutions, and if persisted in, to recommend revocation of its charter. These responsible duties of higher citizenship, it was said, could be performed only by men of education, sterling integrity, undaunted courage; in fine, by men of experience, tact and character.

Necessity for Cooperation in the Movement for a National Department of Health.

Prof. J. Pease Norton, New Haven, Conn., said that the success of the movement for a federal organization of public health work requires widespread cooperation among all learned, philanthropic and fraternal associations. The appointment of a committee of one hundred was the result of a vote passed by the American Association for the Advancement of Science at its Ithaca meeting, June 30, 1906. Since that date Prof. Irving Fisher, chairman, has appointed such a committee, consisting of persons identified with the leading learned and philanthropic societies which hold these objects in whole or in part. The purpose of this committee is to secure cooperation among many great associations capable of wielding vast influence and representing the power requisite for accomplishing the definite objects proposed. To work out the problem special committees have been appointed on legislation, finance, publicity, organization of health clubs, and cooperation. Beyond the work of these committees a far larger problem is the practical one of adequately presenting the movement. It is thought that $100,000,000 appropriated annually by the federal government would not be large for 80,000,000 population. To accomplish the thorough rousing of the people to the necessities of the movement, it is stated that no more effective means could be imagined than the endowment by a Carnegie or a Rockefeller of a great International Institute of Peace at The Hague. International conferences should be held. Great laboratories should be endowed and equipped for experts devising inventions and discoveries against disease and death.

Criminal Abortion.

Dr. Henry W. Cattell, Philadelphia, regarded the criminal abortionist as one of the greatest menaces to civilized society. That he exists in numbers, both within and without the medical profession, can not be denied. He thought it important that the public should be educated as to the wide extent to which the practice is now in vogue in order that popular sentiment may be made to condemn its performance. The medicolegal aspects of abortion, especially with regard to state and national legislation, were discussed and a plea made for revoking the license of any registered physician found guilty of performing criminal abortion.

DISCUSSION ON PAPERS OF DRS. SHASTID, BEATES, NORTON AND CATTELL.

Dr. S. A. Knopf thought it preposterous to expect that every physician, after he had been in practice for ten or fifteen years, on going to another state must submit to certain examinations in chemistry, physiology and anatomy. He, therefore, believes that an established bureau of health should make a standard for permission to practice throughout the United States.

Dr. Ernest B. Hoag, Pasadena, Cal., thought men should qualify for position on the state boards. The questions usually propounded, he thought, do not tend to ascertain the final result of a man's education, but what he remembered of the things that he ought to forget.

Dr. John B. Roberts said that because a man had practiced medicine ten or fifteen years ago he is not necessarily competent to practice at the present time; and any man with a good medical education who had been licensed to practice, who can not within six or eight weeks refresh his memory sufficiently to answer questions of the average examining board has no business to try to practice medicine.

Dr. Edward Jackson, Denver, asserted that no medical board has been devised that would work well, except it be composed of men who desire to serve the community and to deal justly with those coming before it. In the Colorado state board rules of the preliminary examination are drawn up, but the examiners are not tied down to a particular form.

Dr. M. G. Motter, Washington, D. C., said that from the fact that every one before examinations balks at anatomy, chemistry and physiology, it is evident that these three studies are not taught properly in medical schools.

Dr. Gardner T. Swartz questioned whether a national examining board would be satisfactory to any number of states.

Dr. Leartus Connor claimed that before there could be any effective regulation of the practice of medicine the people must be educated regarding conditions that should prevail.

Dr. Edwin B. Harvey said that the crime of abortion is not a medical question; that he who commits abortion is not practicing medicine, but is committing a crime against the statute of every commonwealth in the country.

Dr. Shastid said that a national examining board is a practical impossibility, the government having no power to appoint an examining board. This power can be given to the government by the individual states by amendment to the Constitution, brought about by a two-thirds vote of the states. This is practically an impossibility.

Dr. Winfield S. Hall, Chicago, made a brief plea for rational examinations, not only before state boards, but before hospital boards and in the departments of medical schools to advance students from one year's work to another. The whole subject of examinations, he thought, has been on a wrong basis and the effort should be rather to ascertain the real knowledge of the one examined than of memory of textbook instruction.

Dr. Cattell said regarding the Pennsylvania law on abortion, the committee had been assured that no medical law should pass the legislature that did not provide for the revocation of license in the event of the performance of criminal abortion. This promise had been kept so well that the osteopathic bill recently passed by the senate had a provision for the revocation of license for the performance of criminal abortion.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. Thomas D. Davis, Pittsburg; vice-presidents, Drs. James H. McBride, Pasadena, Cal.; Frederick T. Rogers, Providence, R. I.; Lewis S. McMurtry, Louisville, Ky.; secretary-treasurer, Dr. Charles McIntire, Easton, Pa.; assistant secretary, Dr. Alex. R. Craig, Easton.

MICHIGAN STATE MEDICAL SOCIETY.

Forty-Second Annual Meeting, held at Saginaw, May 15 and 16, 1907.

The President, Dr. C. B. Stockwell, Port Huron, in the Chair.

The registration at this meeting was 341, the largest since the Detroit meeting in 1903. The secretary, Dr. B. R. Schenck, Detroit, reported that there are 2,011 members, from 55 counties.

Officers Elected.

The following officers were elected: President, Dr. Herman Ostrander, Kalamazoo; vice-presidents, Drs. Walter R. Parker, Ann Arbor; E. E. Curtis, Saginaw; H. J. Kinne, Frankfort, and

H. H. Bower, Greenville; secretary, Dr. B. R. Schenck, Detroit; delegates to American Medical Association, for two years, Dr. H. O. Walker, Detroit; Dr. Reuben Peterson, Ann Arbor; alternates, Drs. D. K. Black, Greenville; Dr. C. H. Johnson, Grand Rapids.

The place of meeting for 1908 is Manistee; the time to be announced later.

The house of delegates held three sessions. In the report of the council, Dr. C. B. Burr paid an eloquent tribute to the memory of Dr. Herdman, formerly councilor of the first district.

The work of Dr. J. N. McCormack was reviewed, and it was shown that postgraduate courses had been established in six county societies.

Reports of Committees.

The committee on legislation and public policy reported through Dr. J. W. Inches of St. Clair County. It was shown that the bill amending the criminal malpractice act, which was prepared pursuant to a resolution offered in the gynecologic section at the 1906 meeting, had been referred to the house committee on judiciary, and that this committee had refused to report it "on the ground that such an amendment would lessen the probability of a conviction by rendering unavailable evidence which can now be used. Your committee, after further consideration, is of the opinion that the point raised by the committee on judiciary is well taken and nothing further has been done in the matter."

The bill prepared by the committee on the "patent medicine" evil and presented by the legislative committee was found by the house committee on public health to be entirely too drastic. A substitute bill, conforming more strictly to the provisions of the national law, has, therefore, been prepared. It was shown by the committee's report that the L'Esperance bill, amending the medical practice act, is not receiving the endorsement it deserves from the members of the state society. Resolutions were later unanimously adopted endorsing the L'Esperance bill and the secretary was ordered to transmit a copy of the resolution to each member of the legislature.

Dr. G. A. Hafford, chairman of the committee on the "patent medicine" evil, said in his report that the committee had made an effort to call the attention of the lay press to the pernicious effects of much of the advertising matter carried in the periodicals of the state. A letter had been sent to the secretary of the press association, but it apparently received no attention as the committee did not receive even the courtesy of a reply. The committee had been able to get resolutions before religious and ministerial conventions on several occasions regarding the advertisements in the religious press. "With the medical press we have as great difficulty as with any other. Not alone the cheaper and irresponsible publications which cater to the uneducated physician and whose main assets are the voluminous advertisements, which fill their cheaply printed pages, but some of the higher grade of medical journals, and even our own organ might, in the opinion of the committee, be open to criticism."

The committee's bill relative to pure food and drugs was reported as in the hands of the attorney general of the state. It was recommended that the members of the society keep copies of the reprinted Collier articles on their office tables.

On recommendation of the council, the house of delegates defined the position of the state journal, regarding advertising as follows: "Advertisements of remedies approved by the Council on Pharmacy and Chemistry of the American Medical Association may be admitted. Remedies disapproved by the Council shall be excluded. Remedies advertised to the laity shall be excluded. The journal does not necessarily approve of the remedies, articles, hospitals, schools, etc., advertised. Reading notices in 'The Advertiser' shall be excluded after existing contracts expire. The journal invites professional criticism of individual advertisements. The editor is instructed to exclude advertisements of remedies which seem questionable."

Dr. W. R. Parker, chairman of the committee to encourage the systematic examination of the eyes and ears of school children, reported that the State Board of Health and the State Board of Education had adopted resolutions to the effect "that measures be taken by boards of health, boards of education and school authorities, and, where possible, legislation be secured looking to the examination of the eyes and ears of all school children, that disease in its incipiency may be discovered and corrected."

A resolution was adopted requesting the committee on legislation and public policy to ask the legislature for an appropriation of $500 to be placed at the disposal of the committee.

Dr. Fleming Carrow, Michigan member of the National Legislative Council, American Medical Association, reported regarding the work accomplished during the year.

Contract Practice.

One session of the general body was given up to the consideration of the contract practice problem. The committee on contract practice, through Dr. T. S. Langford of Jackson, gave a detailed report of conditions throughout the state. The conclusion of the report is as follows: "Your committee would call attention to certain facts sought out by correspondents in their reports. Not all forms of contract practice should be subject to condemnation, as for example, contract practice as carried on for certain mining corporations. In some communities men of unquestionable moral integrity and high standing in the profession have been and a few seem yet to be engaged in forms of contract practice which seem to the committee objectionable. In most instances local societies are totally unable to control the evil without serious danger of disruption, although a few counties, notably Marquette, Mason and Emmet, have succeeded in holding the practice in check.

Resolutions were adopted as follows:

WHEREAS, In the State of Michigan there is a large amount of medical and surgical service rendered to individuals in accordance with some form of contract entered into by physicians and certain organizations; and

WHEREAS, This form of practice in a great number of instances works to the serious detriment of the interests of the profession and of the general public; and

WHEREAS, This form of practice is not diminishing, but on the contrary seems to be increasing at a rapid rate; be it

Resolved, That the Michigan State Medical Society heartily commends and supports judicious action of the component county societies to the end that objectionable practice of this character be abolished or limited as far as possible; and be it further

Resolved, That the secretary of each county society be urged to file with the state secretary as much data as possible regarding the character of such contracts and the name of organizations seeking to make such arrangements with physicians with an approximation of the number of patients affected thereby, and to secure as complete a list as possible of members who agree not to do contract practice, and that these reports and names be compiled and published in a regular issue of the *Journal,* further, be it

Resolved, That the state secretary send a copy of these resolutions to all employers' liability companies, sick benefit and fraternal organizations doing business in Michigan which solicit physicians to enter into such contracts.

WHEREAS, The average medical student graduates with little other than intuitive knowledge regarding the ethics of his profession; be it

Resolved, That the council endeavor to establish in each Michigan medical school a course of instruction on this vital topic, and that special attention be thereby called to the evils of contract practice and the division of fees, and to the importance of early affiliation with the county and state society.

Dr. A. P. Biddle was presented with a magnificent silver platter as a token of appreciation for his six years of arduous labors as secretary-editor. Dr. Burr, chairman of the council, made the presentation speech.

The Uplands of Medicine.

DR. C. B. STOCKWELL, Port Huron, referred to the inspiring progress of medicine, urged more effective and expert teaching of medical students, recommended instruction of the public especially in preventive medicine, condemned contract practice and the lowering of fees for insurance examinations, and emphasized the need of cooperation of all medical men, and exclusion from the regular ranks only of those grossly unworthy as abortionists and drug habitués. "Harmony in feeling and coordination in action mean a united profession, mean power, mean life, mean success, mean the elevation of the physician to the place where it was ever meant he should stand, the first and highest place among the sons of men."

Methods of Diagnosis.

DR. J. B. HERRICK, Chicago, pointed out the need for the close association of the clinician with laboratory methods of diagnosis. So far as possible each practitioner should make his own laboratory tests. But new laboratory methods in diagnosis do not always prove reliable and important, and after all the essential instrument in arriving at a comprehensive diagnosis in the brain, aided by the direct use of the five senses. In represents both sides without bias. The skilled diagnostician adds to the saturated solution of shapeless data the one needed fact that crystallizes out the all-including diagnosis. The price of skill in diagnosis is work.

Surgical Features of Typhoid Fever.

Dr. H. C. Wyman, Detroit, said that a third of the deaths from typhoid are due to hemorrhage or perforation. Other causes of death are meningeal, pleural, gall bladder and medullary infections. Surgery can remedy hemorrhage by intravenous infusion, celiotomy and iliocolostomy. For perforation only a short search for the perforated area should be made, and if not then found a simple enterostomy should be performed. Surgery may also be invoked to drain meninges, pleura, bile passages and periosteum or medullary cavity. In any severe case of typhoid, direct irrigation of the affected gut with 2 per cent. silver nitrate solution is to be considered.

Meningitis Following Chronic Tympanitis.

Dr. R. B. Canfield, Ann Arbor, presented this case with necropsy specimen showing spontaneous perforation of the temporal bone into the cranial cavity.

Dr. C. S. Oakman, Detroit, said that the arterial degeneration found in this case, although the patient was young enough to be in school, pointed to chronic infection as a cause of arterial disease.

Dr. T. S. Conover, Flint, said that the early removal of the adenoids in this case would probably have prevented all the later trouble.

Direct Tracheoscopy as an Aid to Diagnosis.

Dr. J. E. Gleason, Detroit, said that tracheoscopy is becoming constantly of more value in diagnosis, not only in determining disease in the air passages, but also lesions in the neck, which press on them. Direct laryngo-tracheoscopy, with the head extended, and the base of the tongue pressed forward, allows one to get the normal image of all structures, as contrasted with the indirect or mirror method, which gives a reversed image. He uses a 15 or 20 per cent. cocain solution in adults, but in children a general anesthetic is required. By means of direct tracheoscopy local medication can be applied and foreign bodies removed by the aid of direct vision.

New Apparatus for the Treatment of Fractured Patella.

Dr. A. I. Lawbaugh, Calumet, applies spiral strips of adhesive plaster on the front of the thigh to overcome the extensor muscles. The whole leg rests in an anterior wire splint, which is slung by oblique ropes at a comfortable elevation, in such a way as to exert traction against the thigh muscles. The spiral strips of plaster are connected by webbing or cord to the foot of the splint so that they exert a steady pull. This apparatus has the advantages of being clean, comfortable, efficient, and allowing constant access, without disturbance, to the injured part.

Opsonic Treatment in Surgical Practice.

Dr. T. A. McGraw, Detroit, reported cases of phlegmon of hand and arm, retroperitoneal iliac abscess, suppurating bunions, suppurating appendicitis, infection of legs following compound fractures, all treated according to the opsonic therapy. There was marked improvement, in each instance, of the local condition, but it was rathe striking that the general condition was sometimes worse—although not necessarily because of the treatment.

A Plea for the Prostate.

Dr. E. C. Taylor, Jackson, said that hypertrophy of the prostate gives no symptoms, but when it causes symptoms of obstruction, nephritis and uremic poisoning, and when a reasonable trial of conservative measures fails to relieve, prostatectomy should be promptly undertaken.

Dr. H. O. Walker, Detroit, said that in spite of the greatest care the operation was sometimes followed by incontinence, fistula, increased cystitis and rectal fistula.

(To be continued.)

CONNECTICUT STATE MEDICAL SOCIETY.

One Hundred and Fifteenth Annual Meeting, held in Hartford, May 22-23, 1907.

(Concluded from page 2204.)

Recent Advances in the Study of Cancer, with Preliminary Note on a New Line of Investigation.

Dr. J. Mayhew Wainwright, Scranton, Pa., said that recent studies in the general field of cancer work have shown that cancer is not confined to civilized peoples, but is to be found in all races. Of course, exact statistics are not possible to obtain in regard to the percentage affected in less civilized peoples. Cancer is not infrequently found in the domestic animals and also in all classes of vertebrates as low down as fishes, even in the wild state. It seems now that it is not proven that cancer is increasing, and also it is not proven that heredity is a factor. It seems definitely disproven that forests, climate, or other external factors, have any effect in the prevalence.

The older theories, including Cohnheim's, are fast losing ground. Bishford states that there is evidence to absolutely disprove all present theories. The theories now receiving most attention are, first, the theory of a parasitic cause, and, second, that the cause lies entirely within the cells themselves and is a perversion of the normal physiologic growth.

Those in favor of the parasite theory argue that the disease is increasing in a way that could not be accounted for except by infection. That infection is indicated by the increased presence of cancer in certain localities and certain homes. That there are cases where infection in small animals confined in an infected cage. That recovery from cancer is accompanied by immunity. That one of the alleged parasitic bodies or one soon to be discovered is it.

Those believing in the exaggeration of physiologic growth argue that 70 per cent. of cancers come in parts the subject of frequent injury, where there is more or less constant stimulation to growth and repair. That new cells in any tissue are not supplied by division of the functionating cells, but by mother cells, and cancer is due to an abnormal activity on the part of these mother cells. In advancing years the demand for functionating cells is lessened and the mother cells divide into cells retaining more nearly their normal type. They do not develop into cells with the power of function, but instead keep closer to the mother type, with greater reproductive processes, and finally assume the limitless growth known as cancer.

An experimental plan that may ultimately shed some light on the exaggerated physiologic growth lies in animals such as newts, frogs, salamanders and fishes which have the power of regeneration of parts after repeated amputation. The enormous stimulation to growth which such repeated amputations cause should, if the exaggerated growth theory has any foundation, some time lead to an overgrowth or cancer. Experiments undertaken with this view have so far proven negative, but are suggestive and are being continued.

Reduction of Dislocations.

Dr. D. Chester Brown, Danbury, gave in this paper his method of reducing dislocations. It aims to avoid muscle spasm, which is a cause of pain and an obstacle to the reduction of a dislocation.

Case of Avulsion of the Tubercle of the Tibia.

Dr. Seldom B. Overlock, Pomfret, spoke of the rarity of this accident, which, according to Stimson, occurs in youths from 16 to 18 years of age, and is usually due to violent exertion, like jumping. The case he detailed was in a woman, aged 35, who was kicked by a horse while her leg was flexed on the thigh, the force of the blow being directed upward and backward, impinging on the tubercle of the tibia. The injury was repaired by drilling and nailing the fragment in place. Subsequently the leg and thigh were kept fixed in plaster for ten weeks. At the end of a year a perfectly useful limb resulted. It is a question, Overlock states, whether this should not be considered a fracture by direct violence rather than an avulsion by a force exerted through the ligamentum patellæ.

NORTH DAKOTA MEDICAL ASSOCIATION.

Annual Meeting, held at Minot, May 14-15, 1907.

The President, R. D. Campbell, in the Chair.

The attendance was not up to the average, the experiment of going to the extreme northwestern portion of the state to interest the doctors who had previously not been identified with the state organization proved disappointing. The good feeling existing among those in attendance and the spirit of the discussions were excellent.

President's Address.

Dr. R. D. Campbell made the following suggestions: It is to be regretted that a large number of our physicians are still outside of the association. The association misses them and needs their assistance and support in furthering the good work and they, on their part, miss much from the lack of meeting with men of their own profession. Especially do they miss the broadening influence which arises from all scientific and social gatherings of this nature. There are in the State of North Dakota about 475 physicians. Of this number only 275 affiliate with the state association. It is to be hoped that in the near future every medical man in the state who is in good standing as a physician and a citizen, will avail himself of such membership. Medical men are beginning to take a much more prominent part in framing the laws of the Nation. In the last session of Congress there were four physicians, and in our state we were represented by two medical men in the upper house.

During the last two years the question of uniform medical legislation has received much attention and efforts are being made to make reciprocity between the different states general in the entire country. There seems, however, to be a great diversity of opinion in many of the states as to the extent of reciprocity granted. Some states will reciprocate only when the applicant has received his license by examination, thus excluding all practitioners who have been licensed by virtue of their previous status as practitioners in the state previous to the time of the enactment of the license laws. The State Board of Medical Examiners of this state has ruled that only those who have received their licenses since July 1, 1905, are entitled to reciprocate. This seems to me to be a very one-sided arrangement; the only one benefited is the recent graduate coming from other states, who is well qualified to take this examination, and does not offer any relief to the physician of this state, who for reasons of health or the health of some member of his family may wish to remove to another climate. It would seem that this reciprocal arrangement should be extended at least to all those who have taken an examination in their respective states where the standard of such examination is equally as high as that held in this state.

Life Insurance Examination Fees.

The association reaffirmed its position taken in 1906 relative to the fees for life insurance examinations, and authorized the secretary to have printed an official agreement in blank form to be furnished the secretaries of the local societies for distribution among the members; these blanks to be signed by the licensed physicians of the several localities and returned to the secretary to be filed. This agreement is expected to determine who are the loyal doctors, and settle a question of veracity between the physicians and insurance agents.

The agreement is as follows: I, as a licensed practitioner of North Dakota, hereby agree to maintain the fee bill adopted by the State Medical Association, to-wit: $5 for each ordinary examination, including urinalysis; $10 for each examination when microscopic examination of urine, sputum or other secretion is required; $3 for each certificate of health for renewal of lapsed policy.

Committee on Tuberculosis.

The committee on tuberculosis was continued, and an appropriation was made for the distribution of literature on the subject among the laity. The importance of taking active and energetic steps to check the ravages of the white plague was dwelt on, and the cooperation of the physicians throughout the state was earnestly solicited. The committee is composed of Drs. H. H. Healy, J. D. Taylor and James Grassick, superintendent of health.

The papers read were meritorious, and showed much care and research in their preparation and the discussion was spirited and received kindly.

The Kidney of Pregnancy.

Dr. Zella White Stewart presented the following conclusions: 1. The kidney of pregnancy is only a symptom of a toxic state. 2. The toxin which is responsible for this condition of the kidney is also the cause of the symptoms of the pre-eclamptic state and of eclampsia. 3. This toxin is either the result of a hepato-toxemia or is of placental origin, with the greatest evidence in favor of the latter. 4. The most constant pathologic changes are found in the liver and kidney, the changes in the former being more characteristic. 5. Premonitory symptoms of eclampsia are always present. 6. Since the condition of the kidney is only a symptom of the disease, an examination of the urine alone can not be relied on.

Eclampsia.

Dr. A. J. McCannel presented an exhaustive résumé of the subject and summed up the treatment of eclampsia as follows: The best way to treat the condition is to prevent it, if possible, and here as elsewhere, eternal vigilance is the price of liberty. When the condition does occur, do not expect one line of treatment to answer in every case, and do not overwhelm your patient with drugs, for all treatment of eclampsia is depressing and overtreatment may be worse than none at all. Until the etiology and pathology of eclampsia are definitely settled, no absolutely rational line of treatment can be laid down, but in the present state of our knowledge the three indications in treatment are: (1) to control the convulsions; (2) to eliminate the toxins, and (3) to empty the uterus at once with as little danger to the mother and child as possible.

Tubercular Cystitis.

Dr. Thor Moeller presented an ingenious treatment for this condition with fuchsin combined with methylene blue, and alluded to it as a probable specific in tuberculosis, by the staining and killing of the bacteria infecting the bladder. He cited several cases of increasing difficulty and pain in urination when tubercle bacilli were discovered that yielded promptly to the treatment.

Intussusception.

Dr. J. D. Windell reported the history of a case in which he had made an end-to-end anastomosis with the Murphy button. The patient recovered.

Diagnosis of Gallstones.

Dr. H. H. Chown, dean of the Medical School of Manitoba, urged that gallstones once diagnosed belong to the surgeon, and can only be removed rapidly and safely by operation. Their first dwelling place is in the gall bladder, and if removed before they have acquired the traveling mania or before they have started riotous uprisings in the neighborhood, the operation is an easy and safe one.

Dr. Fred H. Bailey and Henry A. Beaudoux read papers, respectively, on the "Significance of Nasal Discharges" and "The Care and Treatment of Deep and Superficial Injuries of the Eyeball."

The physicians of Minot and vicinity furnished a sumptuous banquet on the evening of the first day's session, at which were gathered many of the prominent citizens and business men with their wives. The responses to the toasts were exceptionally good and the evening was a joyous one.

Officers Elected.

The following officers were elected to serve for the ensuing year: President, Dr. Charles McLachlan, New Rockford; vice-presidents, Drs. R. D. Campbell, Grand Forks; John E. Countryman, Grafton; H. A. Beaudoux, Fargo, and W. H. M. Philip, Hope; secretary, Dr. H. J. Rowe, Casselton; treasurer, Dr. J. D. Taylor, Minot.

The next meeting will be held at Grand Forks, May 27-28, 1908.

Association News

SECTION TRANSACTIONS.

Explanation of the Bound Volumes of Proceedings of the Sections at the Annual Sessions.

Those who wish Transactions of any of the sections of the 1907, Atlantic City, session should order them at once. For the benefit of those who are not informed on the subject, it may be stated that the "Transactions" of a section of the American Medical Association contain the papers read before that section at the annual session, with illustrations and the discussions, and are bound in cloth, making a handsome volume for preservation in the library. The various sections are named on advertising page 4 of this issue. Each section volume is separate. Since only enough books are printed to supply the demand, many physicians, who have not attended the Association sessions, or who have neglected to send in their subscriptions before the books were published, have been disappointed in not being able to secure the Transactions desired. To avoid this, a permanent subscription list has been established, to the great satisfaction of all concerned. The books specified are sent to the subscriber each year without any further notification from him. Order may be cancelled when desired. Any one who wishes copies of these Transactions, either annually or of 1907 only, should write at once to the American Medical Association, 103 Dearborn Avenue, Chicago, and specify the books desired, stating also either "permanent list" or "1907 only." When the books are published, copies will be sent with a bill at $1 for each volume. If the books are not ordered in advance the price is $1.50 a volume. It should be noted that this announcement has nothing whatever to do with the paper-covered presessional reprints issued by some sections. Concerning these, correspond with the secretary of the section.

THE ATLANTIC CITY REGISTRATION.

List of Members and Guests Who Registered at the Atlantic City Session, June, 1907.

The total registration at the Atlantic City session was over 3,700. At Boston, in 1906, the registration was over 4,700, the largest in the history of the Association. Previous to that the record had been in 1904, at Atlantic City, 2,890.

In addition to the names below, of members and guests, a number registered whose names are not given. Some of these have not forwarded credentials for membership, some failed to sign the application blank, some names were not decipherable, etc.

Below are given two summaries, one by sections and one by states.

REGISTRATION BY SECTIONS.

Practice of Medicine	954
Obstetrics and Diseases of Women	299
Surgery and Anatomy	795
Hygiene and Sanitary Science	100
Diseases of Children	171
Ophthalmology	302
Stomatology	45
Nervous and Mental Diseases	141
Cutaneous Medicine and Surgery	86
Laryngology and Otology	183
Pharmacology and Therapeutics	52
Pathology and Physiology	69
Registered without specifying any one section	463

REGISTRATION BY STATES.

Alabama	22	Maine	23	Oklahoma	11
Arizona	3	Maryland	117	Oregon	5
Arkansas	12	Massachusetts	176	Pennsylvania	1,019
California	39	Michigan	93	Rhode Island	31
Colorado	31	Minnesota	29	South Carolina	19
Connecticut	69	Mississippi	5	South Dakota	6
Delaware	24	Missouri	72	Tennessee	38
Dist of Colum.	46	Montana	9	Texas	27
Florida	14	Nebraska	22	Utah	7
Georgia	30	New Hamp.	14	Vermont	21
Idaho	1	New Jersey	249	Virginia	40
Illinois	183	New Mexico	2	Washington	8
Ind. Territory	2	New York	560	West Virginia	55
Indiana	76	Nevada	2	Wisconsin	35
Iowa	61	North Carolina	31	Public Service	9
Kansas	13	North Dakota	4	Foreign (Including Canada)	9
Kentucky	55	Ohio	213		
Louisiana	18				

Practice of Medicine.

Aaron, Charles D., Detroit, Mich.
McAboy, C. B., Pittsburg, Pa.
Acheson, Harry Martyn, Washington, Pa.
Adams, F. B., Rockland, Maine.
Adams, W. E., Madison, Ga.
Alkier, Stanislaw Joseph, Brooklyn, N. Y.
Allyn, H. B., Philadelphia, Pa.
Alter, J. G., New Kensington, Pa.
Ambler, C. P., Asheville, N. C.
Amerland, J. H., St. Louis, Mo.
Amster, L., Atlanta, Ga.
Anders, Howard S., Philadelphia, Pa.
Anders, James M., Philadelphia, Pa.
Anderson, Guy R., Barnesboro, Pa.
Anderson, Lewis Nostrand, Brooklyn, N. Y.
Anderson, William Edward, Farmville Va.
Andrews, J. H., Goshen, Ohio.
Arneill, James R., Denver, Colo.
Arnold, C. A., Allegheny, Pa.
Ash, John H., W. Quincy, Mass.
Ashcraft, Samuel F., Mullica Hill, N. J.
Ashford, Bailey K., Washington, D. C.
Atkins, J. C., Red Lion, Pa.
Atkinson, A. D., Baltimore, Md.
Alkisson, James A., Morehouse, Mo.
Bailey, Mark L., Carbondale, Pa.
Bailey, Samuel, Mt. Ayr, Iowa.
Baker, F. Kline, Philadelphia, Pa.
Baker, Francis N., Media, Pa.
Bannan, Theresa, Syracuse, N. Y.
Bannister, Murdoch, Ottumwa, Iowa.
Bannon, J. H., Lawrence, Mass.
Bansbach, J. J., St. Joseph, Mo.
Barbash, Samuel, Atlantic City, N. J.
Barker, James F., Albany, N. Y.
Barker, Lewellys F., Baltimore, Md.
Barnum, R. E. L., Richland, Ga.
Barrett, Edward W., Medford, Miss.
Barshinger, M. L., York, Pa.
Bartlett, Clara K., Atlantic City, N. J.
Barton, E. W., Akron, Ohio.
Basch, Seymour, New York, N. Y.
Bassett, Henry Linn, Yardley, Pa.
Bastian, J. W., Wilmington, Del.
Bauer, Chas., Philadelphia, Pa.
Bauer, L. Demme, Philadelphia, Pa.
Beal, Frederick E., New York, N. Y.
Beardsley, E. J. G., Philadelphia, Pa.
Beck, Harvey G., Baltimore, Md.
Bee, A., Cairo, W. Va.
Begley, Baxter, Inglefield, Ind.
Bell, John M., St. Joseph, Mo.
Bellows, George A., Waterloo, N. Y.
Bemus, Wm. M., Jamestown, N. Y.
Benner, Charles T., Tiffin, Ohio.
Bennett, John W., Long Branch, N.J.
Bennett, Joseph M., Providence, R. I.
Bennett, R. M., Mound Valley, Kan.
Berner, David, Atlantic City, N. J.
Bettman, Henry Wald, Cincinnati, Ohio.
Bice, G. R., Walker, Iowa.
Bickerton, John W., New York, N. Y.
Bigelow, Enos H., Framingham, Mass.
Billings, Frank, Chicago, Ill.
Birney, H. H., Philadelphia, Pa.
Bishop, Fred J., Scranton, Pa.
Bishop, Louis F., New York, N. Y.
Black, Stanley P., Pasadena, Cal.
Blackburn, Ella, New Vienna, Ohio.
Blair, B. H., Lebanon, Ohio.
Blodgett, A. G., Ware Mass.
Bloomhardt, Fred H., Altoona, Pa.
Blount, Rufus F., Wabash, Ind.
Blundell, Wm., Paterson, N. J.
Boal, G. Fay, Freedom, Pa.
Boal, Geo. Y., Baden, Pa.
Bobo, C. S., Norman, Okla.
Boerstler, Geo. W., Lancaster, Ohio.
Bold, Valentine J., Philadelphia, Pa.
Bond, L. L., Dennison, Iowa.
Boston, L. Napoleon, Philadelphia, Pa.
Boucher, Richard P., Providence, R. I.
Bowcock, C. M., Springfield, Ill.
Bower, J. L., Reading, Pa.
Bowman, H. C., Mahanoy City, Pa.
Boyers, James S., Decatur, Ind.
Bozovsky, Vacil D., Dunkirk, N. Y.
Bradshaw, L. L., New York, N. Y.
Branson, Thomas F., Rosemont, Pa.
Bronson, Wm. T., Danbury, Conn.
Brown, Ellen E., Chester, Pa.
Brown, Frank E., Baltimore, Md.
Brown, H. MacVeagh, Philadelphia.
Brown, Orlando J., No. Adams, Mass.
Brown, Otis S., Warren, Pa.
Brown, Philip King, San Francisco.
Brown, W. G., Plymouth, Mass.
Buckingham, Frederick S., Lakewood, N. J.
Bucklin, G. W., Muncie, Ind.
Buermann, William, Newark, N. J.
Bullman, W. S., New York, N. Y.
Burd, E., Lisbon, Iowa.
Burd, Wm. J., Belvidere, N. J.
Burdick, Alfred S., Chicago, Ill.
Burdick, Frank E., Providence, R. I.
Burckhardt, Louis, Indianapolis, Ind.
Burroughs, H. S., Pittsburg, Pa.
Burroughs, James, Asheville, N. C.
Buswell, Henry C., Buffalo, N. Y.
Butler, W. H., Fall River, Mass.
Buxton, W. E., West Salem, Ill.
Buzard, I. S., Russell, Iowa.
Cabot, Richard C., Boston, Mass.
Cadwallader, J. C., Norwood, Ohio.
Cairnes, Geo. H., Baltimore, Md.
Cameron, George A., Philadelphia.
Campbell, Donald, Butte, Mont.
Cassady, John B., Burlington, N. J.
Capwell, D. A., Scranton, Pa.
Carleton, Charles G., Lawrence, Mass.
Carlisle, Robert J., New York.
Carpenter, H. B., Philadelphia, Pa.
Carpenter, Lily F., Cincinnati, Ohio.
Carpenter, William H., Salem, N. J.
Carr, Lloyd Layan, New York.
Cathell, D. W., Baltimore, Md.
Celce, F. F., Holyoke, Mass.
Chamberlin, Edwin Crosby, New York.
Champlin, John, Westerly, R. I.
Chandlee, W. H., Philadelphia.
Chaney, H. M., Sardinia, Ohio.
Chapman, George L., Toledo, Ohio.
Chapoton, Edward A, Detroit, Mich.
Chase, Richard F., Boston.
Chatard, J. A., Baltimore, Md.
Chestnut, James C., Philadelphia.
Chew, E. C., Atlantic City, N. J.
Cheyne, Walter, Sumter, S. C.
Chittick, W. R., Detroit, Mich.
Christopher, F. E., Isney, Ala.
Clark, Colin R., Youngstown, Ohio.
Clark, H. E., Sheridanville, Pa.
Clarke, Claude Y., Mt. Pleasant, Tenn.
Clarke, Robert C., Pittsburg, Pa.
Cleveland, F. Mortimer, Philadelphia.
Coble, T. J., Shelbyville, Tenn.
Coburn, Elwyn S., Plumstead Mills, Pa.
Cochran, L. B., Hartford, Conn.
Codman, Charles A. E., Philadelphia.
Coe, John W., New York.
Coffman, John J., Scotland, Pa.
Coggeshall, G. A., Oxford, N. C.
Cole, Albert T., Millersburg, Ohio.
Cole, Rufus I., Baltimore, Md.
Coleman, N. R., Columbus, Ohio.
Coleman, Thomas D., Augusta, Ga.
Comstock, Ira M., New York Mills, N. Y.
Congdon, W. O., Cuba, N. Y.
Conklin, Gustavus, Orwell, Pa.
Cook Frank B., Laurel Springs, N. J.
Cooley, Abbott L., Chicopee, Mass.
Coons, J. J., Columbus, Ohio.
Cooper, Frank S., Giatto, W. Va.
Cooper, J. Cardeen, Philadelphia.
Cordell, Eugene F., Baltimore, Md.
Cormick, Boyd, San Angelo, Texas.
Cornell, Walter S., Philadelphia.
Cowen, Lewis C., Rising Sun, Ind.
Cox, James A., Morgantown, W. Va.
Crane, F. Marion, Pittsfield, Ill.
Crawford, James Rea, Philadelphia.
Crawford, John K., Cooperstown, Pa.
Critchfield, John B., Ralphton, Pa.
Croft, T. G., Aiken, S. C.
Cruice, John M., Philadelphia.
Cudworth, L. M., Perry, Mich.
Culp, Isaac J., Farmington, W. Va.
Cure, M. D., Weston, W. Va.
Custer, D. D., Philadelphia.
Da Costa, John C., Jr., Philadelphia.
Daggette, Alvin S., Pittsburg, Pa.
Dahl, L. A., Stanley, Wis.
Dameron, L. D., Phoenix, Ariz.
Dare, George S., Rising Sun, Ind.
Daugherty, C. G., Paris, Ky.
Davis, E. Webster, New York.
Davis, James D., Louisiana, Mo.
Davis, N. S., Chicago.
Davis, Sidney, Milton, Pa.
Davis, Thos. D., Pittsburg, Pa.
von Deesten, Henry T., Hoboken, N.J.
Dercum, Clara T., Philadelphia.
Despard, D. L., Philadelphia.
Dexter, Charles Amary, Columbus, Ga.
Dickes, John T., Portland, Ind.
Dickes, Philip, Greenville, Ohio.
Dickson, R. E., Holyoke, Mass.
Dierking, Albert W., Oolitic, Ind.
Diverty, Henry B., Woodbury, N. J.
Dock, George, Ann Arbor, Mich.
Dodin, Henry A., New York.
Dolan, T. E., Elizabeth, N. J.
Donaldson, John B., Canonsburg, Pa.
Doolittle, Edgar B., Hazleton, Pa.
Dorris, Thos. B., Grapevine, Texas.

Daugherty, Sherborne W., Philadelphia.
Douglass, E. P., Groton, Conn.
Downing, Franklin Chace, Lanesboro, Mass.
Downs, A. S., Saratoga, N. Y.
Doubleday, Charles E., Penn Yan, N. Y.
Drake, E. L., Philadelphia.
Drawbaugh, J. H., Shiremanstown, Pa.
Dripps, J. H., Philadelphia.
Driscoll, Daniel M., Bridgeport, Conn.
Drummond, Winslow, Philadelphia.
Dubbs, J. H., Philadelphia.
Dubell, J. E., Columbus, N. J.
Duchein, Chas. F., Baton Rouge, La.
Duckworth, Milton, Carolina, R. I.
Dudley, S. B., Canton, Ohio.
Dunham, John Dudley, Columbus, O.
Duncan, Wm. E., Chicago.
Dunham, Kennon, Cincinnati, Ohio.
Dunlap, Thomas G., Atlantic City, N. J.
Dutton, Walton Forest, Walkers Mills, Pa.
Eastman, H. A., Jamestown, N. Y.
Eckman, Philip N., Philadelphia.
Edsall, David L., Philadelphia.
Eddy, W. L., Milan, Ill.
Edwards, H. T., South Bethlehem, Pa.
Edwards, J. Gaunt, Williamstown, N. J.
Egbert, Joseph C., Wayne, Pa.
Eirley, Clara S., Hagerstown, Md.
Eldon, Roswell T., Altoona, Pa.
Ellinger, T. J., Philadelphia.
Elliott, Arthur R., Chicago.
Elliott, John B., Jr., New Orleans, La.
Ellis, Charles M., Elkton, Md.
Elmer, William, Trenton, N. J.
Elsner, Henry L., Syracuse, N. Y.
Elwell, Alfred M., Camden, N. J.
Ely, William S., Rochester, N. Y.
Emery, Chas H., Bedford, Ind.
Emery Z. Taylor, New York.
England, Albert C., Pittsfield, Mass.
Einhorn, Max, New York.
Erdman, William B., Macungie, Pa.
Erdman, William S., Buckingham, Pa.
Evans, Charles W., Springfield, Ohio.
Evans, D. W., Scranton, Pa.
Evans, Frank B., Dow City, Iowa.
Ewens, Arthur E., Atlantic City, N. J.
Ewing, James B., Uniontown, Pa.
Ewing, William B., West Grove, Pa.
Fabyan, Marshal, Baltimore, Md.
Fairbanks, James R., Amsterdam, N. Y.
Faries, Clarence T., Narberth, Pa.
Farley, Joseph, Philadelphia.
Farnum, Charles George, Brimfield, Ill.
Farrington, John M., Binghamton, N. Y.
Fassett, Chas. Wood, St. Joseph, Mo.
Feinberg, Sol E., Scranton, Pa.
Ferris, Francis S., Philadelphia.
Fiet, Harvey J., Philadelphia.
Fihe, C. C., Cincinnati, Ohio.
Fish, Clyde M., Pleasantville, N. J.
Flick, Harry W., Bridgeport, Conn.
Flegal, I. S., Karthaus, Pa.
Flint, E. P., Rockville, Conn.
Fly, Edward M., National City, Cal.
Fretz, Alfred E., Sellersville, Pa.
Foltz, J. Clinton, Philadelphia.
Foote, Charles J., New Haven, Conn.
Ford, Starr, Cincinnati, Ohio.
Forsyth, C. B., Alexandria Bay, N. Y.
Foster, W. S., Pittsburg, Pa.
Francine, Albert Philip, Philadelphia, Pa.
Franklin, W. T., Orange, La.
Frantz, C. J., Warren, Pa.
French, Howard T., Deep River, Conn.
Frey, J. H., Cheap Hill, Tenn.
Friedenwald, Julius, Baltimore, Md.
Fronfield, J. Harvey, Media, Pa.
Fry, H. M., Rush, Pa.
Fuller, G. E., Monson, Mass.
Fulton, Z. M. K., Philadelphia.
Furman, Davis, Greenville, S. C.
Gaddis, Levi S., Uniontown, Pa.
Gaither, Ernest H., Baltimore, Md.
Gallagher, Morton, Bay City, Mich
Gardiner, Charles F., Colorado Springs, Colo.
Garlock, Wm. D., Little Falls, N. Y.
Gaston, Ida E., Philadelphia, Pa.
Geisler, Howard D., Philadelphia, Pa.
Gerhard, Saml. P., Philadelphia, Pa.
Gibbs, L. J., Chicopee, Mass
Gifford, John H., Fall River, Mass.
Gilbert, O. M., Boulder, Colo.
Gildersleeve, John R., Richmond, Va.
Gillette, Arthur A., Rome, N. Y.
Gilmon, W. N., Lisbon, Ohio.
Githens, Thos. S., Atlantic City, N.J.
Glover, Oliver W. H., Laurelton, Pa.
Godfrey, E. L. B., Camden, N. J.
Godfrey, Henry G., Philadelphia.
Goepp, R. Max, Philadelphia.
Goff, Waldo Percy, Clarksburg, W.Va.
Gompertz, Louis M., New Haven, Conn.
Good, A. P., Philadelphia.
Goodman, Edward H., Philadelphia.
Goodwin, Ralph S., Thomaston, Conn.
Goodwin, T. F., Mt. Vernon, N. Y.
Goodyear, Miles D., Groton, N. Y.
Gordon, Altamont L., Burlington, N. J.
Gordon, J. W., Belle Vernon, Pa.
Gorgas, W. C., U. S. Army.
Gorter, Nathan R., Baltimore.
Goss, Charles, Philadelphia.
Graber, C. Lee, Cleveland, Ohio.
Graber, F. J., Stockport, Iowa.
Gray, T. N., East Orange, N. J.
Groff, J. W., Harleysville, Pa.
Grandy, Charles R., Norfolk, Va.
Gray, D. F., Providence, R. I.
Green, Edgar Moore, Easton, Pa.
Green, George D., Lock Haven, Pa.
Green, James H., North Vernon, Ind.
Greenbaum, Harry S., Baltimore.
Greene, C. W., Binghamton, N. Y.
Greene, E. B., Chicago.
Greene, Ray W., Worcester, Mass.
Greenley, T. B., Meadow Lawn, Ky.
Griffin, Charles E., Fair Haven, Vt.
Grigsby, C. M., Kaufman, Tex.
Grim, G. M., Ottsville, Pa.
Griscom, Mary W., Philadelphia.
Grosh, Lawrence C., Toledo, Ohio.
Grover, John B., Peckville, Pa.
Guthrie, D. Clinton, Philadelphia.
Gutshall, Frank A., Blain, Pa.
Hagadorn, J. Lee, Los Angeles, Cal.
Hagadorn, J. W., Lansing, Mich.
Hagadorn, Mary E., Pasadena, Cal.
Hahn, E., Leetonia, Ohio.
Haig, Charles R., Philadelphia.
Hall, Joseph, Westfield, Ill.
Hall, J. N., Denver, Colo.
Hall, Walter E., Burlington, N. J.
Hall, William Thomas, Pittsburg, Pa.
Halsey, John T., New Orleans, La.
Halsey, L. M., Williamstown, N. J.
Hamburger, Louis P., Baltimore, Md.
Hamilton, J. H., Union, S. C.
Hamilton, Ralph A., Washington, D. C.
Hannum, J. W., Ludlow, Mass.
Happel, T. J., Trenton, Tenn.
Hare, H. A., Philadelphia.
Harkey, William Cathey, Gardner, Kan.
Harrington, James L., New London, Conn.
Harrington, Michael W., Indian Orchard, Mass.
Harris, H. F., Atlanta, Ga.
Harris, Levy I., Syracuse, N. Y.
Harris, Lurty Noel, Mill Creek, W. Va.
Hartford, P. C., E. Palestine, Ohio.
Hartman, Frank T., Waterloo, Iowa.
Hartman, Irvin H., Reading, Pa.
Hartman, W. F., Swoope, Va.
Harvey, Edwin H., Atlantic City, N. J.
Harwood, W. E., Eveleth, Minn.
Hatchett, John A., El Reno, Okla.
Hatfield, Charles J., Philadelphia.
Hayford, Ernest L., Chicago.
Heard, James L., North East, Pa.
Heilman, R. P., Emporium, Pa.
Heller, I. M., New York.
Helwig, Frank A., Akron, N. Y.
Henry, Frederick P., Philadelphia.
Henry, J. Norman, Philadelphia.
Henry, John P., New York.
Henry, William P. S., Everett, Pa.
Heritage, Chas. S., Glassboro, N. J.
Herrick, James B., Chicago.
Hershey, George B., Gap, Pa.
Hertz, J. L., Lititz, Pa.
Hewett, Adelbert, Saratoga Springs, N. Y.
Hickman, Napoleon, Philadelphia.
Hickman, Walter Atlee, Atlantic City, N. J.
Higbee, William S., Philadelphia.
Hills, Charles E., So. Natick, Mass.
Hinsdale, Guy, Hot Springs, Va.
Hirsh, A. B., Philadelphia.
Hirschfelder, Arthur D., Baltimore, Md.
Hoban, C. J., Philadelphia.
Hobson, Abraham J., Hampton, Ia.
Hobson, Thomas A., Parkersburg, Ia.
Hofstetter, G. A., Corsicana, Texas.
Holcombe, Luman C., Milton, Vt.
Holden, Timothy N., New York.
Holder, R. E., Columbus, Ind.
Holland, P. C., Bloomington, Ind.
Hollingshead, Enoch, Pemberton, N. J.
Hollister, F. P., Scranton, Pa.
Holmes, W. W., Keokuk, Iowa.
Holton, David C., Brooklyn, N. Y.
Holtzapple, G. E., York, Pa.
Hoole, Lester Page, Brooklyn, N. Y.
Hoopes, W. H., Newport, Pa.
Hoover, C. F., Cleveland, Ohio.
Hornbeck, J. L., Catasauqua, Pa.
Horne J. A., Philadelphia.
Horner, Joseph A., Hot Springs, Ark.
Hoskins, Percy C., West Chester, Ill.
Hough, Frank P., Binghamton, N. Y.
Howard, J. Edgar, Haddonfield, N. J.
Howell, J. Morton, Dayton, Ohio.
Huber, John Bessner, New York.
Huffaker, R. O., Chuckey, Tenn.
Hull, A. P., Montgomery, Pa.
Hultgen, J. F., Chicago.
Humphrey, G. E., Cambridge Springs, Pa.
Humphrey, W. J., Union City, Pa.
Hunter, J. Ross, Marting, W. Va.
Hurd, Edward F., New York City.
Huselton, William Sterling, Pittsburg, Pa.
Hutchison, James C., Troy, N. Y.
Hutchinson, Woods, New York.
Huyck, Emory B., Oak Harbor, Ohio.
Hyde, E. E., Chicago.
Illman, G. Morton, Philadelphia.
Isaacs, L. J., Chicago.
Jack, Cecil M., Decatur, Ill.
Jacobs, L. Clive, San Francisco.
James, Henry C., Mays Landing, N. J.
Janeway, Edward G., New York.
Jarrett, H. S., Towson, Md.
Jefferis, D. W., Chester, Tenn.
Jenks, Harrison D., Detroit, Mich.
Jennings, W. B., Haddonfield, N. J.
Jennings, Walter B., New York.
Johnson, A. Rankin, Henderson, Ky.
Johnston, James I., Pittsburg, Pa.
Johnson, P. S., Richmond, Ind.
Johnson, W. S., Philadelphia.
Johnson, William A., Lowell, Mass.
Jones, Allen A., Buffalo, N. Y.
Jones, Clement R., Pittsburg, Pa.
Jones, Phillip Mills, San Francisco.
Jones, Rilus E., Clayton, Ind.
Jonsson, Christian, Clinton, Iowa.
Joy, J. Addison, Atlantic City, N. J.
Judy, C. S., Miamisburg, Ohio.
Jump, Henry D., Philadelphia.
Kahlo, George D., French Lick Springs, Ind.
Kalteger, Fred J., Philadelphia.
Karpeles, Maurice Joseph, Philadelphia.
Kaufmann, Jacob, New York.
Keefe, Daniel E., Springfield, Mass.
Keever, B. W. Dudley, Centerville, O.
Kelley, Ernest J., Chandlers Valley, Pa.
Kelly, Francis J., Philadelphia.
Kemper, G. W. H., Muncie, Ind.
Keogh, John V., Dubuque, Iowa.
Kerns, S. P., Philadelphia.
Kerr, William E., Steubenville, Ohio.
Kibler, James M., Newberry, S. C.
Kice, H. W., Wharton, N. J.
Kimberlin, A. C., Indianapolis, Ind.
Kimmell, J. A., Findlay, Ohio.
Kincaid, James W., Catlettsburg, Ky.
King, H. O., Curwensville, Pa.
King, Joseph M., Los Angeles, Cal.
Kinsman, D. N., Columbus, Ohio.
Kionka, Paul B., Melrose Park, Ill.
Kirk, J. W., Oblong, Ill.
Kistler, George B., Newcomerstown, Ohio.
Kistler, Edwin H., Lansford, Pa.
Kite, Walter C., Milton, Mass.
Klaus, E., Cleveland, Ohio.
Klemm, Adam, Philadelphia.
Kline, C. F., Portsmouth, Ohio.
Klopp, Peter P., Philadelphia.
Knapp, D. M., Mendon, Ill.
Knapp, Harry B., Philadelphia.
Knauf, Nicholas J., Chilton, Wis.
Knight, Arthur L., Cincinnati, Ohio.
Knowles, G. A., Philadelphia.
Kollock, H. G. M., Newark, Dela.
Koons, Philip Rankin, Mechanicsburg, Pa.
Koons, Ralph F., El Reno, Okla.
Kunkel, Henry, Wilkes-Barre, Pa.
Kurtz, C. S., Malvern, Pa.
Lambert, Alexander, New York.
Langfitt, W. J., Allegheny, Pa.
Langholz, H., Oak Harbor, Ohio.
Lantz, Percival, Alaska, W. Va.
Larkin, Albert E., Syracuse, N. Y.
Larned, Ezra Read, Chicago.
Latham, H. W., Latham, Mo.
Latimer, Guy W., Hyattsville, Md.
Lauderdale, Walter E., Geneseo, N.Y.
Laughlin, Mary A., Hagerstown, Md.
Lawrence, Geo. W., Lakewood, N. J.
Lawrence, R. G., Hammondsport, N. Y.
Laws, George C., Paulsboro, N. J.
Lawton, F. L., Hartford, Conn.
Large, O. P., Philadelphia.
Leavitt, R. H., Terre Haute, Ind.
Leech, D. Olin, Washington, D. C.
Leitzell, P. W., Portland Mills, Pa.
Le Roy, Irving D., Pleasant Valley, N. Y.
Le Seur, J. W., Batavia, N. Y.
Lester, F. W., Seneca Falls, N. Y.
Lewis, Dorsey W., Middletown, Del.
Lewis, W. H., Donora, Pa.
Lichty, John Alden, Pittsburg, Pa.
Lichty, M. J., Cleveland, Ohio.
Lindeman, C. E., Pittsburg, Pa.
Linebaugh, H. W., New Cumberland, Pa.
Litchfield, Lawrence, Pittsburg, Pa.
Littell, Elton Gardner, Poughkeepsie, N. Y.
Little, Wilbur T., Canon City, Colo.
Livingston, G. M., Manistique, Mich.
Logan, W. A., Lehigh, Okla.
Leonard, I. E., Atlantic City, N. J.
Love, Geo. T., Dana, Ill.
Long, F. A., Madison, Neb.
Loose, D. N., Maquoketa, Iowa.
Loughridge, Samuel S., Philadelphia.
Love, Frank W., Buffalo, N. Y.
Lowber, Alex., Wilmington, Del.
Lower, J. D., Coshocton, Ohio.
Lucas, Charles G., Louisville, Ky.
Luce, Charles R., Washington, D. C.
Ludlum, Chas. H., Hempstead, N. Y.
Lull, Cabot, Birmingham, Ala.
Lundgren, C. E., Harris, Minn.
Lutz, H. L., Philadelphia.
Lyell, R. O., Warsaw, Va.
Lyles, A. R., Virginia, Ill.
McAlister, John B., Harrisburg, Pa.
McCaskey, G. W., Ft. Wayne, Ind.
McClain, W. L., Scottsburg, Ind.
McCollin, S. Mason, Philadelphia, Pa.
McCorkle, W. P., Sheradenville, Pa.
McCormick, Horace G., Williamsport, Pa.
McDevitt, Charles H., Philadelphia.
McDonald, W. B., Baltimore, Md.
McDowell, H. F., Franklin, Pa.
MacFarlane, Andrew, Albany, N. Y.
Macfarland, Frank H., Philadelphia.
McGahan, C. F., Aiken, S. C.
McGavran, Chas. W., Columbus, O.
McGlenn, J. A., Mt. Pleasant, Ohio.
MacGuire, Const. I., New York.
McGuire, James J., Trenton, N. J.
McGuire, M. F., Montpelier, Vt.
McIlhaney, Wm. H., Easton, Pa.
McIlmoyle, H. A., Ogdensburg, N. Y.
McKean, Geo. E., Detroit, Mich.
McKenzie, Wm., Conshohocken, Pa.
McKinnon, Charles L., McKees Rocks, Pa.
McLean, John D., Philadelphia.
McNamara, William E., Freda, Mich.
McParlan, John P., New York.
Mackintosh, M. A., Paterson, N. J.
Madison, J. D., Milwaukee, Wis.
Mahady, C. R., Rome, N. Y.
Malaun, M. E., Carbondale, Pa.
Mallet, Ovila, Troy, N. Y.
Mann, E. S., Dallastown, Pa.
Mansfield, James A., Boston.
Marchand, J. F., Canton, Ohio.
Marey, Alex., Jr., Riverton, N. J.
Marsden, Henry I., Somerset, Pa.
Marshall, George W., Milford, Del.
Martin, J. R., Merwin, Mo.
Martin, William, Bristol, Pa.
Marvel, Philip, Atlantic City, N. J.
Mather, H. H., Chicago.
Mathewson, D. P., Bath, N. Y.
Matlock, Clarence E., Steelville, Mo.
Matthews, M. F., Athens, Ga.
Maxwell, C. H., Morgantown, W. Va.
May, A., Crothersvill, Ind.
Mead, Harry, Buffalo, N. Y.
Megargee, Geo. L., Philadelphia.
Meltzer, S. J., New York.
Mercur, Wm. H., Pittsburg, Pa.
Merkle, Albert E., Carsfon City, Nev.
Merrill, B. E., Dents Run, Pa.
Merzbach, Joseph, Brooklyn, N. Y.
Metcalf, H. M., Elyria, Ohio.
Metzler, Victor W., Atlantic City, N. J.
Meyer, Alfred, New York.
Middleton, Wm. J., Steelton, Pa.
Miesse, Kate DeWitt, Easton, Pa.
Miles, Horine, Webster Groves, Mo.
Milan, M. B., Providence, R. I.
Miller, A. I., Brattleboro, Vt.
Miller, C. D., Pottsville, Pa.
Miller, DeWitt Clinton R., Mason and Dixon, Pa.
Miller, John H., Harrisburg, Pa.
Miller, Laird O., Allegheny, Pa.
Miller; William W., Gotebo, Okla.
Millikin, C. W., Akron, Ohio.
Millikin, Mark, Hamilton, Ohio.
Millikin, T. N., Waynesburg, Pa.
Mills, O. P. M., Grant City, Mo.

Milnamow, J. T., Chicago.
Minor, Charles L., Asheville, N. C.
Minor, O. Raymond, Louisville, Ky.
Mix, Charles Louis, Chicago.
Monroe, Nathan A., Syracuse, N. Y.
Mooney, Edward L., Syracuse, N. Y.
Moore, Albert H., Ashland, Ky.
Moore, Hugh M., Oxford, Ohio.
Moorehouse, G. W., Cleveland, Ohio.
More, C. W., Eveleth, Minn.
Morgan, A. C., Philadelphia.
Morris, Joseph P., St. Clair, Pa.
Morris, Wm. E., Lisbon, Ohio.
Morrissey, John J., New York.
Morrison, Robert, Sheridanville, Pa.
Morrow, E. O., Canton, Ohio.
Morrow, H. Wilson, Swissvale, Pa.
Mosher, Clelia Duel, Palo Alto, Cal.
Moulton, Milo W., Bellevue, Iowa.
Mowery, J. L., Lancaster, Pa.
Moyer, S. R., Monroe, Wis.
Moylan, J. J., Philadelphia, Pa.
Moylan, P. F., Philadelphia.
Mudgett, John H., Philadelphia.
Muench, William G., Syracuse, N. Y.
Mullarky, Hugh, Manson, Iowa.
Mullarky, W. G., Cedar Falls, Iowa.
Mulligan, Wesley T., Rochester, N. Y.
Murphy, Franklin E., Kansas City, Mo.
Musser, John H., Philadelphia.
Myers, Albert William, Milwaukee, Wis.
Neary, P. M., Cortland, N. Y.
Neer, Henry C., Park Ridge, N. J.
Neier, O. C., Indianapolis, Ind.
Neill, William, Charlestown, W. Va.
Neilson, W. H., Milwaukee, Wis.
Nelson, Audley E., Centerville, Iowa.
Nelson, Stuart W., Old Forge, N. Y.
Nettleton, Francis I., Shelton, Conn.
Newcomb, M. W., Burlington, N. J.
Nichols, Hebard B., Pulteney, N. Y.
Nock, Thos. O., Philadelphia.
Norris, George W., Philadelphia.
Northrup, A. H., Markle, Ind.
Northrop, T. S., St. Pauls, N. C.
O'Connor, John H., Hyde Park, Mass.
Olmstead, D. S., Millersburg, Ohio.
Osmond, Anna R., Philadelphia.
Otis, L. J., Grand Rapids, Mich.
Oyster, L. C., Lumberport, W. Va.
Page, Henry F., Philadelphia.
Palm, Howard F., Camden, N. J.
Palmer, A. H., Marlboro N Y,
Palmer, Elbert A., Saratoga Springs, N. Y.
Palmerton, R. K., Cannonsville, N. Y.
Parker, G. A., Southampton, Pa.
Parrish, Henry, Philadelphia.
Parsons, R. H., Mt. Holly, N. J.
Patrick, Ellwood, West Chester, Pa.
Pattee, W. H., Manchester, N. H.
Patterson, Ross V., Philadelphia.
Paul, Thomas Morrison, St. Joseph, Mo.
Paulson, David, Hinsdale, Ill.
Peables, A. M., Auburn, Maine.
Pearson, D. M., Louisiana, Mo.
Pearson, M. M., Bristol, Tenn.
Peck, Albert F., Spencer, Mass.
Peck, Welland A., Scranton, Pa.
Pemberton, Ralph, Philadelphia.
Pepper, W. L., Philadelphia.
Pepper, William, Philadelphia.
Pettit, Albert, Pittsburg, Pa.
Pfaff, Otto, Oneida, N. Y.
Pfahler, G. E., Philadelphia.
Pfromm, George W., Philadelphia.
Phelps, Robt. H., Norwich, N. Y.
Phillips, M. O., Fremont, Ohio.
Philo, D. W., Woodville, Ohio.
Pierson, John C., Hartford, Conn.
Pietrowicz, Stephen R., Chicago.
Pitcher, Herbert F., Haverhill, Mass.
Pleasants, J. Hall, Baltimore.
Plummer, H. S., Rochester, Minn.
Pohl, H. C., Nazareth, Pa.
Pomeroy, Nelson A., Waterbury, Conn.
Pope, Geo. C., Ottumwa, Iowa.
Porch, E. H., Philadelphia.
Porch, G. B., Johnstown, Pa.
Porter, D. R., Kansas City, Mo.
Porter, H. L., Seneca, Mo.
Post, Chas. D., Syracuse, N. Y.
Potter, N. Bowditch, New York.
Potter, Theodore, Indianapolis, Ind.
Pratt, Charles S., Brattleboro, Vt.
Pratt, John H., Manchester, N. Y.
Preble, Robert B., Chicago.
Presbrey, Silas Dean, Taunton, Mass.
Price, F. Fraley, Carbondale, Pa.
Priestley, Jas. Taggart, Des Moines, Iowa.
Pursell, Howard, Bristol, Pa.
Putnam, F. D., Auburn, N. Y.
Putney, James, Charleston, W. Va.
Quinn, William A., Chewsville, Md.
Rahter, C. A., Harrisburg, Pa.
Rankin, Theo. W., Columbus, Ohio.
Rea, Charles, York, Pa.
Reed, Arthur P., Geneseo, N. Y.
Reese, J. Mitchell, Phillipsburg, N. J.
Reiley, Edward A., Atlantic City, N. J.
Reynolds, J. C., Lake Geneva, Wis.
Reynolds, Walter, Atlantic City, N. J.
Rhein, Robert D., Philadelphia.
Rich, Herbert Lowne, Port Deposit, Md.
Richards, Florence Harvey, Philadelphia.
Richmond, W. W., Clinton, Ky.
Rickert, C. M., Harrisburg, Pa.
Riddle, Adeline, Oshkosh, Wis.
Ridgway, Wm. F., Atlantic City, N. J.
Ridpath, R. F., Philadelphia.
Riegel, Henry H., Catasauqua, Pa.
Roberts, Frederick C., Easton, Pa.
Roberts, H. H., Lexington, Ky.
Robertson, H. L., Ward, W. Va.
Robinson, Ernest F., Kansas City, Mo.
Robson, J. A., Hall's Corners, N. Y.
Rodman, W. E., Hodgenville, Ky.
Roebuck, J. Paul, Lititz, Pa.
Rogers, Henry W., Cleveland, Ohio.
Rogers, Edw. B., Collingswood, N. J.
Rohrer, T. M., Quarryville, Pa.
Rolls, James A., Watrous, N. M.
Root, Edward K., Hartford, Conn.
Rosenkrans, J. H., Hoboken, N. J.
Roughlin, Louis C., Atlanta, Ga.
Rousseau, I. Zotique, Troy, N. Y.
Roussel, Albert G., Philadelphia.
Royer, B. Franklin, Philadelphia.
Ruff, William F., Philadelphia.
Runkle, Stuart C., Philadelphia.
Russell, Edward E., North Adams, Mass.
Rutherford, J. E., Straight, Pa.
Sailer, Joseph, Philadelphia.
Saliba, M. M., Savannah, Ga.
Sanford, Merton J., Suffern, N. Y.
Sapp, Clinton E., South Omaha, Neb.
Satterlee, Albert R., Buffalo, N. Y.
Sauer, J. George, New York.
Sautee, G. O. O., Cressona, Pa.
Sawyer, Frank W., Castle Hot Springs, Ariz.
Sawyer, John P., Cleveland, Ohio.
Saxer, Leonard A., Syracuse, N. Y.
Schauffler, William Gray, Lakewood, N. J.
Scheifly, John E., Edwardsdale, Pa.
Schmidt, Marie, Chicago.
Schock, Harvey E., Philadelphia.
Scott, George, Atlantic City, N. J.
Scott, S. H., Coatesville, Pa.
Seiberling, Fred C., Allentown, Pa.
Seibert, J. L., Bellefonte, Pa.
Seiple, Samuel C., Center Square, Pa.
Seymour, W. H., Charles City, Iowa.
Shallcross, W. G., Pittsburg, Pa.
Sharp, Ezra B., Camden, N. J.
Sharpe, Frank M., Brooklyn, N. Y.
Sharpless, William T., West Chester, Pa.
Shaw, Clayton E., Hoosick Falls, N. Y.
Shearer, James T., Sinking Spring, Pa.
Sheldon, Charles S., Madison, Wis.
Shellenberger, J. R., Philadelphia.
Shellito, A. G., Independence, Iowa.
Sherman, Paul, Shawneetown, Ill.
Shields, D. E., Morristown, Tenn.
Shimer, H. Burton, Atlantic City, N. J.
Slingerland, I. M., Fayetteville, N. Y.
Sickler, E. H., New Baltimore, Mich.
Silliman, J. E., Erie, Pa.
Simmons, J. Gorse, New York.
Simonson, A. R., Calumet, Mich.
Sitler, W. R., Suffern, N. Y.
Slater, C. R., Erlanger, Ky.
Smith, C. Urban, Baltimore, Md.
Smith, D. G., Elizabeth, Ill.
Smith, E. Franklin, New York.
Smith, Frank C., Fleming, N. Y.
Smith, George C., Boston, Mass.
Smith, H. Boydston, Philadelphia.
Smith, Henry O., Hudson Center, N. H.
Smith, J. Gardner, New York.
Smith, Joseph J., New York.
Smith, Julian C., Oneonta, N. Y.
Smith, W. G., Ravenna, Ohio.
Snipe, Langdon T., Bath, Maine.
Snow, E. E., Batavia, N. Y.
Solis-Cohen, Myer, Philadelphia, Pa.
South, John, Ouray, Colo.
Southworth, Chas. T., Monroe, Mich.
Sowder, Chas. R., Indianapolis, Ind.
Spaulding, Frank W., Clifton Springs, N. Y.
Spitler, S. W., Wellington, Kan.
Springer, Willard, Wilmington, Del.
Stahl, Alfred, Newark, N. J.
Stahl, B. Franklin, Philadelphia.
Staneff, D., Chicago.
Stanhope, A. H., Dover, Maine.
Stanton, T. P., Chariton, Iowa.
Stark, Henry S., New York.
Starke, G. H. E., New York.
Steele, J. Dutton, Philadelphia.
Stegner, Adam, Rendham, Pa.
Steinke, Hermann C. O., Brooklyn, N. Y.
Stengel, Alfred, Philadelphia.
Stevens, M. L., Asheville, N. C.
Stevenson, Alexander F., Chicago.
Stevenson, John R., Haddonfield, N. J.
Stewart, Charles W., Salt Lake City, Utah.
Stilley, V. A., Benton, Ky.
Stilwagon, Philip Eugene, Bridgeport, N. J.
Stix, Walter H., Cincinnati, Ohio.
Stockdale, T. F., Rural Valley, Pa.
Stokes, Joseph, Moorestown, N. J.
Stover, Chas., Amsterdam, N. Y.
Stout, Harry A., Wenonah, N. J.
Stover, A. R., Little Rock, Ark.
Strickler, Albert W., Scottdale, Pa.
Strietmann, W. H., Cincinnati, Ohio.
Stroud, Frank G., Moorestown, N. J.
Strouss, U. S., Beaver, Pa.
Summerill, J. M., Penns Grove, N. J.
Swan, John M., Philadelphia.
Swaney, A. G., Lee's Summit, Mo.
Taylor, J. E., Rockland, Pa.
Taylor, J. Gurney, Philadelphia.
Taylor, L. H., Washington, D. C.
Taylor, Lewis C., Springfield, Ill.
Terry, G. H. B., Wyalusing, Pa.
Thomas, E. G., Benton, Ky.
Thomas, Frank Wister, Philadelphia.
Thomas, J. Quincy, Conshohocken, Pa.
Thomas, John D., Washington, D. C.
Thompson, W. Gilman, New York.
Thornhill, G. T., Herndon, W. Va.
Thornton, Wm. H., Buffalo, N. Y.
Thurston, D. M., Beeville, Texas.
Tileston, Wilder, Boston.
Timmerman, C. T., Amsterdam, N. Y.
Tindall, Wm. J., Williamstown, Vt.
Tinney, R. M., Kirwin, Kan.
Tolson, F. R., Lafayette, La.
Towsley, William D., Camden, N. Y.
Traver, S. N., Steelton, Pa.
Trice, Wm. G., Axtell, Texas.
Tucker, Henry, Philadelphia.
Tukey, Frank M., Bridgeport, Conn.
Turner, Matthew L., Des Moines, Ia.
Turner, S. T., El Paso, Texas.
Tyson, James, Philadelphia.
Ullman, Julius, Buffalo, N. Y.
Ullom, Josephus L., Germantown, Pa.
Unger, D. F., Mercersburg, Pa.
Unger, J. W., West Point, Miss.
Upshur, J. N., Richmond, Va.
Urquhart, J. E., Ashfield, Mass.
Van Allen, Harvey W., Springfield, Mass.
Vanderhoof, F. D., Phelps, N. Y.
Van Dervoort, C. A., Philadelphia.
Van Dyke, Arthur D., Marysville, Pa.
Van Gasken, Frances C., Philadelphia.
VanKorh, Wm., Philadelphia.
Van Sickle, F. L., Olyphant, Pa.
Varner, S. W., Glenville, W. Va.
Vickers, F. D., Canajoharie, N. Y.
Waddington, B. A., Salem, N. J.
Wade, John W., Millville, N. J.
Wadsworth, J. E., Skowhegan, Me.
Wagner, Henry E., Chicago.
Wagoner, A. L., Scottsville, Ky.
Wahrer, C. F., Ft. Madison, Iowa.
Wainwright, Chas. W., Princess Anne, Md.
Wakefield, Homer, New York.
Wakeman, B. R., Hornell, N. Y.
Walker, J. B., Effingham, Ill.
Walker, Robert J., Chicago.
Walker, Samuel J., Chicago.
Waller, W. H., Angola, Ind.
Wallis, J. Edw., Philadelphia.
Walsh, Joseph, Philadelphia.
Warden, Alfred R., Grafton, W. Va.
Warren, G. A., Black Rock, Ark.
Warthen, W. B., Bartow, Ga.
Wasdin, Eugene, Memphis, Tenn.
Watson, Wm. T., Baltimore, Md.
Way, Eugene, Dennisville, N. J.
Weidner, Calvin, Manchester, Conn.
Weir, L. J., Marshall, Ill.
Weir, Silas W., West Union, Ill.
Welch, Edward H., Winsted, Conn.
Welch, H. E., Youngstown, Ohio.
Welker, Franklin, New York.
Wenrich, Geo. G., Wernersville, Pa.
Wentz, A. C., Hanover, Pa.
Wentz, B. F., Philadelphia.
Werfelmann, Walter J., Syracuse, N. Y.
Wert, A. K., Oklahoma City, Okla.
Wert, B. S., Chattanooga, Tenn.
Weston, H. R., Windsor, Vt.
Wey, H. D., Elmira, N. Y.
Whaley, Lewis, Birmingham, Ala.
Whitcomb, Harry H., Norristown, Pa.
White, Claude H., Cataract, Ind.
White, F. W., Philadelphia, Pa.
White, Franklin W., Boston, Mass.
White, Wm. R., Providence, R. I.
Whitney, H. L., Plymouth, Pa.
Wholey, C. C., Pittsburg, Pa.
Wilbur, Ray Lyman, Stanford University, Cal.
Wiegand, Wm. E., Baltimore, Md.
Wilkins, J. C., Oil City, Pa.
Williams, Pearl, Providence, R. I.
Williams, T. R., Punxsutawney, Pa.
Williams, W. T., Mt. Carmel, Pa.
Willson, Robert N., Philadelphia.
Wilson, T. D. M., Washington, Pa.
Wilson, J. C., Philadelphia.
Wilson, J. H., Beaver, Pa.
Wilson, Gordon, Baltimore.
Wilson, Robert, Jr., Charleston, Pa.
Wister, James W., Philadelphia.
Witherspoon, J. A., Nashville, Tenn.
Woehnert, Albert E., Buffalo, N. Y.
Wolfe, Samuel, Philadelphia.
Wolter, H. A., Green Bay, Wis.
Wood, Edward J., Wilmington, N. C.
Wood, Louis C., Poughkeepsie, N. Y.
Wood, Walter H., Greeley, Colo.
Woodhull, J. B., North Bennington, Vt.
Woods, George L., Springfield, Mass.
Woodside, H. A., Lumber City, Pa.
Woodyard, S. W., Greeneville, Tenn.
Wright, Frederick T., Douglas, Ariz.
Wright, M. F., Burlington, W. Va.
Yarian, Norman C., Cleveland, O.
Yates, Frederick, Washington, D. C.
Yeager, George C., Philadelphia.
Zern, J. G., Lehighton, Pa.
Zepp, James A., Baltimore, Md.
Ziegel, H. Fred Lange, New York.
Zinninger, George F., Canton, Ohio.

Obstetrics and Diseases of Women.

Abbott, B. T., Ocean City, N. J.
Alexander, W. H., Blakely, Ga.
Allen, Frederick B., North Wales, Pa.
Allen, Jesse Hall, Philadelphia.
Anspach, Brooke M., Philadelphia.
Applegate, John C., Philadelphia.
Arnold, J. O., Philadelphia.
Ashton, W. E., Philadelphia.
Astley, G. Mason, Philadelphia.
Bacon, Charles S., Chicago.
Baer, B. F., Philadelphia.
Baer, J. S., Camden, N. J.
Bagshaw, D. E., Saginaw, Mich.
Baker, F. J., Lockport, N. Y.
Baldy, John Montgomery, Philadelphia.
Bandler, S. Wyllis, New York.
Barber, Annetta E., Glens Falls, N. Y.
Barker, T. Ridgway, Philadelphia.
Barlow, C. H., Portsmouth, Va.
Barnes, Charles S., Philadelphia.
Barnes, Ida C., Topeka, Kan.
Barney, Delbert, Wilkesbarre, Pa.
Bernardy, Henry L., Philadelphia.
Beyea, Henry D., Philadelphia.
Bigelow, I. S., Dubuque, Iowa.
Bigham, Earl, Grand Rapids, Mich.
Bland, Curtis, Greensburg, Ind.
Boldt, H. J., New York.
Bonifield, Charles L., Cincinnati, O.
Bourdeau-Sisco, P. S., Takoma Park, Md.
Bovée, J. Wesley, Washington, D. C.
Boyd, G. M., Philadelphia.
Brack, Charles Emil, Baltimore, Md.
Branham, Joseph H., Baltimore, Md.
Branson, Laura House, Iowa City, Ia.
Briggs, Henry W., Wilmington, Del.
Broadrup, Geo. L., Cumberland, Md.
Brown, George C., Dunmore, Pa.
Bruin, M. R., Strasburg, Va.
Bulluck, D. W., Wilmington, N. C.
Bunn, Ralph A., Dayton, Ohio.
Buvinger, Charles Winfield, East Orange, N. J.
Campbell, Harry M., Parkersburg, W. Va.
Carey, Harry K., Philadelphia.
Carney, Edward J., Durand, Mich.
Carpenter, Frank B., San Francisco.
Carpenter, Julia W., Cincinnati, Ohio.
Carstens, J. H., Detroit, Mich.
Carver, R. H., Providence, R. I.

Chandler, Swithin, Philadelphia.
Charlesworth, Irving E., Bridgeton, N. J.
Chase, Walter B., Brooklyn, N. Y.
Clapper, Wm. B., Victor, N. Y.
Clark, Emma C., Dover, N. J.
Clark, John G., Philadelphia.
Clark, Samuel M. D., New Orleans, La.
Cogill, Lida Stewart, Philadelphia.
Conner, Annie L., Philadelphia.
Corbett, H. C., Arlington, Va.
Coumbe, A. G., Vienna, Va.
Craig, Daniel H., Boston.
Crandall, T. V., Philadelphia.
Cullen, Thomas S., Baltimore, Md.
DaCosta, John C., Philadelphia.
Darnall, Wm. Edgar, Atlantic City, N. J.
Davenport, James Henry, Providence, R. I.
Davis, Edward P., Philadelphia.
Davis, J. D. L., Birmingham, Ala.
Davis, Wm. H., Camden, N. J.
Day, Harriet M., Moweaqua, Ill.
Day, S. Thomas, Port Norris, N. J.
Delaney, Wm. J., Nangatuck, Conn.
Denning, Edward J., South Boston, Mass.
DeVenney, J. C., Harrisburg, Pa.
Dial, W. H., Laurens, S. C.
Ditchburn, D. T., Arnot, Pa.
Dix, J. Morgan, Cape May C. H., N. J.
Doering, E. J., Chicago.
Doherty, William B., Louisville, Ky.
Donnell, James O., Paterson, N. J.
Donoghue, Francis D., Boston.
Dorsett, E. Lee, St. Louis, Mo.
Dorsett, Walter B., St. Louis, Mo.
Downs, P. S., Dover, Del.
Dumm, J. M., Mackeyville, Pa.
Eastman, Thomas B., Indianapolis, Ind.
Edgerton, Howard K., Lebanon, Tenn.
Elsner, S. L., Rochester, N. Y.
Erck, Theo. A., Philadelphia.
Everett, Edward, Millville, Pa.
Fayerman, W. B., Atlantic City, N. J.
Fendler, Amelia Mollie, New York.
Fisher, John M., Philadelphia.
Fithian, J. W., Camden, N. J.
Fitts, Alston, Tuscaloosa, Ala.
Fleming, C. K., Denver, Colo.
Floyd, J. C. M., Steubenville, Ohio.
Forrest, George W. K., Wilmington, Del.
Francis, Nelson W., Starke, Fla.
Frederick, C. C., Buffalo, N. Y.
Fry, Henry D., Washington, D. C.
Gallant, A. Ernest, New York.
Garceau, Edgar, Boston.
Gardner, William S., Baltimore, Md.
Garton, Albert F., Philadelphia.
Gates, L. M., Scranton, Pa.
Gilliam, D. Tod, Columbus, Ohio.
Gillmore, Robert T., Chicago.
Girvin, John H., Philadelphia.
Godfrey, W. L., Battle Creek, Mich.
Goelet, Augustin H., New York.
Goffe, J. Riddle, New York.
Goldspohn, A., Chicago.
Good, Frederick L., Boston.
Goodwin, Wm. W., Newark, N. J.
Gordon, Seth C., Portland, Maine.
Grad, Hermann, New York.
Graham, Thomas E., St. Louis, Mo.
Greene, Mary T., Castile, N. Y.
Grimes, R. B., Philadelphia.
Haehnlen, W. Frank, Philadelphia.
Hall, William L., Spokane, Wash.
Hamilton, Annie Lee, Boston.
Hammond, Frank C., Philadelphia.
Healy, William P., New York.
Hetrick, David Joseph, Harrisburg, Pa.
Higgins, Charles W., Providence, R. I.
Hodgson, Fred G., Atlanta, Ga.
Hoffman, J. Louis, Ashland, Pa.
Hofmann, Ottokar, Jr., Kansas City, Mo.
Hotchkiss, Norton Royce, New Haven, Conn.
Huggins, Raleigh R., Pittsburg, Pa.
Huggins, W. L., Schenectady, N. Y.
Humphrey, John F., Saratoga, N. Y.
Hunner, Guy L., Baltimore, Md.
Huson, Florence, Detroit, Mich.
Ill. Charles L., Newark, N. J.
Irish, R. H., Troy, N. Y.
Jack, Harvey H., Canisteo, N. Y.
Jackson, Daniel F., Pittsburg, Pa.
Jacob, Louis H., Philadelphia.
Jamieson, Robert A., Detroit, Mich.
Jeffords, H. M., Sylvester, Ga.
Jewett, Charles, Brooklyn, N. Y.
Johnson, F. W., Boston.
Johnson, H. L. E., Washington, D. C.
Johnston, J. Ambrose, Cincinnati, Ohio.

Johnson, Ray H., Buffalo, N. Y.
Jones, Charles N. D., New York.
Kauffman, J. W., Reading, Pa.
Keller, F. J., Paterson, N. J.
Kelley, J. Thomas, Jr., Washington, D. C.
Kelly, J. G., Hornell, N. Y.
Kemble, C. C., Tidioute, Pa.
Kennedy, James W., Philadelphia.
Kercher, Delno E., Philadelphia.
Kieffer, Alonzo R., St. Louis, Mo.
Kingman, Rufus A., Boston.
Kinnear, C. H., Tacoma, Wash.
Knickerbocker, H. J., Geneva, N. Y.
Krusen, Wilmer, Philadelphia.
Lalor, W. S., Trenton, N. J.
Langworthy, S. B., Leavenworth, Kan.
Leonard, Charles Lester, Philadelphia.
Liell, Edward N., Jacksonville, Fla.
Lillibridge, Alice, Scranton, Pa.
Locke, Melvin, Bellefonte, Pa.
Lockrey, Sarah H., Philadelphia.
Long, John B., Indianapolis, Ind.
Long, John Wesley, Greensboro, N. C.
Longaker, Daniel, Philadelphia.
Longeneeker, Christian B., Philadelphia.
McAdory, Wellington Prude, Birmingham, Ala.
McAlexander, R. O., Indianapolis, Ind.
McBean, J. C., Applegate, Mich.
Maclay, Joseph A., Paterson, N. J.
McDonald, Ellice, New York.
McDougald, John Q., Philadelphia.
McGuire, Edward, Richmond, Va.
McKee, E. S., Cincinnati, Ohio.
McKirahan, J. R., Minden, Neb.
McMahon, John J., New York.
McMurtry, Lewis S., Louisville, Ky.
Maier, F. H., Philadelphia.
Malone, Wm. F., Milwaukee, Wis.
Marcy, Henry O., Boston.
March, E. J., Canton, Ohio.
Manton, W. P., Detroit, Mich.
Martin, Elizabeth L., Pittsburg, Pa.
Massey, G. Betton, Philadelphia.
Mastin, N. W., Wellsboro, Pa.
Mathis, Edgar G., Manor, Texas.
Metcalf, Wm. F., Detroit, Mich.
Miller, C. Jeff, New Orleans, La.
Miller, Mary Thomas, Philadelphia.
Miller, S. M., Knoxville, Tenn.
Mills, Henry M., Brooklyn, N. Y.
Monash, David F., Chicago.
Montgomery, Edw. E., Philadelphia.
Moran, John F., Washington, D. C.
Morris, Lewis C., Birmingham, Ala.
Mount, H. A., Waitsburg, Wash.
Neff, E. E., Altoona, Pa.
Newland, Frank H., Clifton Springs, N. Y.
Nicholson, Wm. R., Philadelphia.
Noble, Charles P., Philadelphia.
Norris, Richard C., Philadelphia.
Pantzer, Hugo O., Indianapolis, Ind.
Parke, Wm E., Philadelphia.
Peck, Elizabeth L., Philadelphia.
Peterson, Reuben, Ann Arbor, Mich.
Pfaff, O. G., Indianapolis, Ind.
Pierce, Eudora, Brooklyn, N. Y.
Picree, Louis R., Newburg, N. Y.
Polak, John O., Brooklyn, N. Y.
Porter, Wm. D., Cincinnati, Ohio.
Potter, Marion Craig, Rochester, N.Y.
Potter, Wm. Warren, Buffalo, N. Y.
Powell, W. S., Defiance, Ohio.
Pratt, W. H., Camden, N. J.
Prescott, Eva, Chicago.
Putt, Maurice O., Oberlin, Pa.
Pyle, W. T., Swissvale, Pa.
Raab, E. P., Belleville, Ill.
Rafferty, T. N., Robinson, Ill.
Ramsay, Robert N., Philadelphia.
Raudenbush, J. S., Philadelphia.
Reddick, James T., Paducah, Ky.
Reed, James D., Covina, Cal.
Reese, Frank D., Cortland, N. Y.
Regar, Horace K., Philadelphia.
Reynolds, C. B., Philadelphia.
Reynolds, Edward, Boston.
Richards, J. N., Fallsington, Pa.
Richardson, Emma M., Camden, N. J.
Ritter, Ella N., Williamsport, Pa.
Robertson, Colin G., Sandusky, Mich.
Robinson, F. J., Fairfield, Maine.
Rothrock, J. L., St. Paul, Minn.
Salade, Louis A., Philadelphia.
Schroeter, Ludwig, Buffalo, N. Y.
Schumann, Edward A., Philadelphia.
Scott, James W., Sandusky, Mich.
Scull, Wm. B., Philadelphia.
Sellers, Ira J., Birmingham, Ala.
Sellman, William A. B., Baltimore, Md.
Selover, C. W., Stanley, N. Y.
Shillito, Nicholas, Allegheny, Pa.
Shoemaker, Geo. Erety, Philadelphia.
Shultz, P. David, New York.

Simpson, F. F., Pittsburg, Pa.
Smith, Clarence A., Seattle, Wash.
Smith, George E., Fredonia, N. Y.
South, Lillian H., Bowling Green, Ky.
Sprigg, Wm. M., Washington, D. C.
Spurney, Albert F., Cleveland, Ohio.
Stein, George N., Norristown, Pa.
Stevens, A. B., South Canaan, Pa.
Stevens, Frank W., Bridgeport, Conn.
Stevens, William A., Hamlinton, Pa.
Stevenson, G. E., Gorham, N. Y.
Steward, William J., Lancaster, Pa.
Stillwagen, Charles A., Pittsburg, Pa.
Stone, Isaac Scott, Washington, D. C.
Strasser, August Adrian, Arlington, N. J.
Strauss, S., New York.
Strobell, C. W., Rutland, Vt.
Strother, W. H., Big Spring, Ky.
Taneyhill, G. Lane, Baltimore, Md.
Thomas, Geo. H., Holland, Mich.
Thompson, Hannah M., Wilmington, Del.
Titlow, Bennetta I., Springfield, Ohio.
Tobias, John B., Wilkesbarre, Pa.

Todd, Frank L., Allegheny, Pa.
Tompkins, Christopher, Richmond, Va.
Torbert, James R., Boston.
Van Eman, Frederick T., Kansas City, Mo.
Vernier, Jean A., Detroit, Mich.
Walker, Edwin, Evansville, Ind.
Ward, George Gray, Jr., New York.
Warren, Franklin L., Bridgewater, Mass.
Weeks, Albert, Phoenixville, Pa.
Weeks, J. Frank, New Bedford, Mass.
Weida, George A., Frederick, Pa.
Weller, Miles, Denver, Colo.
Wenck, Mary McCay, Sunbury, Pa.
Werder, D. H., Pittsburg, Pa.
Wertenbaker, Wm., New Castle, Del.
West, John W., Philadelphia.
Wetherill, Horace A., Denver, Colo.
Whipple, Electa B., Buffalo, N. Y.
Willetts, T. L., Harrisburg, Pa.
Wilson, Abram S., Bristol, Pa.
Witter, G. H., Wellsville, N. Y.
Woodbury, Herbert Elwell, Indianapolis, Ind.
Woodhead, H. Irvin, Forksville, Pa.
Yarbrough, L. A., Covington, Tenn.
Yates, H. Wellington, Detroit, Mich.

Surgery and Anatomy.

Abbott, C. S., Laconia, N. H.
Abell, Irwin, Louisville, Ky.
Adams, Charles F., Carthage, N. Y.
Adams, Frank L., Oakland, Cal.
Adler, L. H., Jr., Philadelphia.
Albee, Fred Houdlett, New York.
Allaben, J. E., Rockford, Ill.
Allen, W. L., Davenport, Iowa.
Allis, Oscar H., Philadelphia.
Amerman, I. W., Nevada, Mo.
Anderson, Jas., Salem, Ohio.
Andrews, Wyllys, Chicago.
Armstrong, Alex., Trenton, N. J.
Armstrong, Alfred W., Canandaigua, N. Y.
Arthur, Wm. H., Washington, D. C.
Ashby, A. A., Red Oak, Iowa.
Ashley, Dexter D., New York.
Asher, Joseph M., Philadelphia.
Ashhurst, Astley P. C., Philadelphia.
Attee, John L., Lancaster, Pa.
Ayres, Douglas, Fort Plain, N. Y.
Ayres, Winfield, New York.
Babcock, W. Wayne, Philadelphia.
Bacon, Wm. F., York, Pa.
Bailey, Charles H., Bloomfield, N. J.
Bain, Frank D., Kenton, Ohio.
Baker, Morton W., U. S. Navy.
Baldwin, James H., Philadelphia.
Balich, Charles A., Wadsworth, O.
Ball, Francis P., Lock Haven, Pa.
Ballin, Max, Detroit, Mich.
Banes, Samuel Thompson, Philadelphia.
Barber, V., Brooklyn, N. Y.
Barker, Frederick D., Dayton, O.
Barkley, A. H., Lexington, Ky.
Barnes, B. F., Newark, Ohio.
Barnett, Charles E., Ft. Wayne, Ind.
Barnum, Merritt Wright, Ossining, N. Y.
Barr, Richard A., Nashville, Tenn.
Bartlett, Willard, St. Louis, Mo.
Batchelor, W. A., Milwaukee, Wis.
Baugh, A. W., Paoli, Pa.
Baumann, J. J., Jersey City, N. J.
Beach, William M., Pittsburg, Pa.
Beck, Carl, Chicago.
Beck, Carl, New York.
Beede, S. C., David City, Neb.
Behle, Augustus C., Salt Lake City, Utah.
Behrend, Moses, Philadelphia.
Bell, G. Franklin, Williamsport, Pa.
Bentley, Edwin, Little Rock, Ark.
Berg, A. A., New York.
Bernstein, A. H., Scranton, Pa.
Bevan, Arthur Dean, Chicago.
Biedler, Hampson H., Baltimore, Md.
Bishop, William Thomas, Harrisburg, Pa.
Bissell, Joseph B., New York.
Black, John F., White Plains, N. Y.
Blackburn, John H., Bowling Green, Ky.
Blair, J. E., Burlington, N. J.
Blake, Charles F., Baltimore, Md.
Blasucci, Ernesto, New York.
Bodine, John A., New York City.
Bosher, Lewis C., Richmond, Va.
Bosworth, Robinson, Barton, Vt.
Bottomley, John T., Boston.
Boucher, J. B., Hartford, Conn.
Bowers, Charles E., Wichita, Kan.
Bowers, Walter P., Clinton, Mass.
Bowman, Frank S., Philadelphia.
Boyce, D. C., Allegheny, Pa.
Boyd, John R., Oakvale, W. Va.
Braasch, W. F., Rochester, Minn.

Bradford, Edward H., Boston.
Bradford, Walter C., Shawnee, Okla.
Bradley, N. R., Saginaw, Mich.
Brady, Franklin, Philadelphia.
Bradshaw, John H., Orange, N. J.
Brant, Austin C., Canton, Ohio.
Brant, Edward D., Canton, Ohio.
Brav, Herman A., Philadelphia.
Brennan, John J., Scranton, Pa.
Brick, J. Coles, Philadelphia.
Briekner, Walter M., New York.
Bristow, Algernon T., Brooklyn, N. Y.
Brödel, Max, Baltimore, Md.
Brown, D. C., Danbury, Conn.
Brown, Daniel J., Springfield, Mass.
Brumbaugh, A. B., Huntingdon, Pa.
Bryan, Robert C., Richmond, Va.
Bryant, Joseph D., New York.
Buchanan, John J., Pittsburg, Pa.
Buck, A. W., Fall River, Mass.
Buechner, W. H., Youngstown, Ohio.
Buford, Coleman, Chicago.
Bull, H. R., Grand Junction, Colo.
Bunce, Philip D., Hartford, Conn.
Burge, A. J., Iowa City, Iowa.
Burnam, Curtis F., Baltimore, Md.
Burns, Reed, Scranton, Pa.
Burrell, H. L., Boston.
Burroughs, W. M., Chicago.
Byrne, John I., St. Joseph, Mo.
Cabot, Hugh, Boston.
Cale, George W., Jr., St. Louis, Mo.
Calkins, Frederic R., Watertown, N. Y.
Calkins, Irving R., Springfield, Mass.
Campbell, O. Beverly, St. Joseph, Mo.
Campbell, R. F., Watertown, S. D.
Campbell, William Francis, Brooklyn, N. Y.
Canedy, Charles F., Greenfield, Mass.
Cannaday, J. E., Hansford, W. Va.
Cannon, T. Harris, Baltimore, Md.
Cantrell, C. E., Greenville, Texas.
Carmalt, William H., New Haven, Conn.
Carmany, Harry S., Philadelphia.
Carnett, J. B., Philadelphia.
Carpenter, Edwin J., Corning, N. Y.
Castle, Frank E., Waterbury, Conn.
Caylor, Charles E., Pennville, Ind.
Chandler, Wm. J., South Orange, N. J.
Chapman, George H., Glens Falls, N. Y.
Chase, R. R., Eau Claire, Wis.
Cheesman, Wm. S., Auburn, N. Y.
Chute, Arthur L., Boston.
Christie, G. L., Long Prairie, Minn.
Christian, Hilary M., Philadelphia.
Clark, Edmund D., Indianapolis, Ind.
Clark, Irving T., Rochester, N. Y.
Clark, J. A., Bellaire, Ohio.
Clark, John D., Auburndale, Mass.
Clayland, J. M., Brooklyn, N. Y.
Cleaver, Israel, Reading, Pa.
Cleaver, J. V., Akron, Ohio.
Clemons, E. Jay, Aberdeen, S. D.
Clifford, Raymond A., Ypsilanti, Mich.
Coe, Ben F., Dixonville, Pa.
Cokenower, James W., Des Moines, Iowa.
Colcord, A. W., Clairton, Pa.
Cole, Carter S., New York.
Coley, William B., New York.
Collins, Alva N., Detroit, Mich.
Collins, Clifford U., Peoria, Ill.

Collins, Foster K., Philadelphia.
Collom, Spencer Allen, Hateliff, Tex.
Conant, James B., Amsterdam, N. Y.
Connell, F. Gregory, Oshkosh, Wis.
Conner, Milton C., Middletown, N. Y.
Conaway, Walt Pouder, Atlantic City, N. J.
Cooke, A. B., Nashville, Tenn.
Cooke, Joseph A., Meriden, Conn.
Cooley, Judson C., Sandy Lake, Pa.
Cooney, H. C. Princeton, Minn.
Cooper, O. O., Hinton, W. Va.
Cordier, A. H., Kansas City, Mo.
Comstock, Geo. F., Saratoga Springs, N. Y.
Cory, Horace C., Newark, N. J.
Cotton, Albertus, Baltimore, Md.
Cottis, G. W., Batavia, N. Y.
Crain, M. K., Rutland, Vt.
Craig, Alexander R., Philadelphia, Pa.
Crawford, J. Kinnier, Philadelphia, Pa.
Craythorn, C. J., Trenton, N. J.
Crile, George, Cleveland, O.
Crowley, D. D., Oakland, Cal.
Culbertson, N. U., Massillon, O.
Cummins, John P. J., Ticonderoga, N. Y.
Curran, Geo. R., Mankato, Minn.
Da Costa, J. Chalmers, Philadelphia, Pa.
Dandurant, L. J., St. Joseph, Mo.
Darling, Byron C., Boston, Mass.
Darling, C. G., Ann Arbor, Mich.
Darrington, John, Yazoo City, Miss.
Darrow, Daniel C., Moorhead, Minn.
Darrow, Edward M., Fargo, N. D.
Daugherty, Charles A., South Bend, Ind.
Davies, O. C. S., Augusta, Me.
Davis, B. B., Omaha, Neb.
Dawbarn, Robert H. M., New York, N. Y.
Day, Frank L., Providence, R. I.
Day, J. A., Jacksonville, Ill.
Deaver, H. C., Philadelphia, Pa.
Deaver, John B., Philadelphia, Pa.
Deaver, Richard W., Germantown, Pa.
De Garmo, William B., New York, N. Y.
De Groot, I. C. E., Muskogee, I. T.
Dingman, J. Clarence, Spring Valley, N. Y.
Dixon, J. W., Wilkinsburg, Pa.
Dixon, Taylor Boyd, Washington, D.C.
Doege, Karl, Marshfield, Wis.
Dolphin, Benjamin E., New York, N. Y.
Donnelly, Peter, Toledo, O.
Donovan, J. A., Lewiston, Me.
Dorris, S. M., Bandana, Ky.
Dowd, Charles N., New York, N. Y.
Drake, H. H., Norristown, Pa.
DuBose, F. G., Selma, Ala.
Duncan, James A., Toledo, O.
Dunn, J. B., St. Cloud, Minn.
Dwyer, William M., Amsterdam, N.Y.
Dye, Frank H., Philadelphia, Pa.
Eads, B. Brindley, Chicago, Ill.
Eagleson, James B., Seattle, Wash.
Earhart, E. B., Saltsburg, Pa.
Earl, Robert, St. Paul, Minn.
Earle, Curran Bertram, Greenville, S. C.
Earle, Saml. T., Baltimore, Md.
Eaton, Albert M., Philadelphia, Pa.
Eberhard, Le Roy C., Akron, O.
Eddy, W. J., Shelbyville, Ill.
Edwards, Lewis, Edwardsville, Pa.
Ehrmann, Fred J. E., Chicago, Ill.
Eisenberg, Philip Y., Norristown, Pa.
Elder, T. H., Philadelphia, Pa.
Elsberg, Charles A., New York, N. Y.
Essig, N. Fred, Spokane, Wash.
Estes, W. L., So. Bethlehem, Pa.
Evans, George B., Dayton, O.
Fairchild, D. S., Clinton, Iowa.
Falconer, R. C., Lexington, Ky.
Farquhar, Geo. W., Pottsville, Pa.
Farrar, Joseph D., Philadelphia, Pa.
Faulds, Robert C., Abrams, Wis.
Fell, Alexander G., Wilkes-Barre, Pa.
Fetherolf, Fred A., Allentown, Pa.
Finn, Fred A., Jersey City, N. J.
Finney, John M. T., Baltimore, Md.
Fisher, Elbert E., Iowa City, Ia.
Fleming, J. C., Elkhart, Ind.
Foley, J. C., Waukegan, Ill.
Foley, M. F., Hoboken, N. J.
Foote, Charles G., Cleveland, O.
Forwood, J. L., Chester, Pa.
Fowler, H. A., Washington, D. C.
Frank, Jacob, Chicago, Ill.
Franklin, A. Leo, Cumberland, Md.
Franklin, Melvin M., Philadelphia, Pa.
Frauenthal, Henry W., New York, N. Y.
Free, Spencer M., DuBois, Pa.
Fretz, H. G., Philadelphia, Pa.
Frick, W. J., Kansas City, Mo.
Fuller, Edwin M., Bath, Me.
Fuller, William, Chicago, Ill.
Gable, Isaac C., York, Pa.
Gale, Jos. A., Roanoke, Va.
Gallager, Harry, Glenolden, Pa.
Gallagher, J. V., Cleveland, O.
Gant, S. G., New York, N. Y.
Gardner, H. D., Scranton, Pa.
Gaub, Otto C., Pittsburg, Pa.
Gay, George W., Boston, Mass.
Gilbride, John J., Philadelphia, Pa.
George, Wm. A., College View, Neb.
Gibbon, John H., Philadelphia, Pa.
Gibby, Herbert B., Pittston, Pa.
Given, Ellis E. W., Philadelphia, Pa.
Glendon, W. P., Cedarville, N. J.
Godfrey, Alfred C., Denver, Colo.
Godfrey, Andrew, Ambler, Pa.
Golden, William M., Elkins, W. Va.
Goldstein, David D., New York, N.Y.
Goldthwait, Joel E., Boston, Mass.
Goodhue, George, Dayton, O.
Goodwin, James J., Clinton, Mass.
Gottschalk, Leon, Marcus Hook, Pa.
Graham, David W., Chicago, Ill.
Grant, J. C., Lena, Wis.
Grant, W. W., Denver, Colo.
Gray, Frank D., Jersey City, N. J.
Gray, H. A., Keokuk, Ia.
Green, Chas. O., Hornell, N. Y.
Green, Frederick R., Chicago, Ill.
Green, James S., Elizabeth, N. J.
Greene, F. C., Chicago, Ill.
Gregor, G. D., Watertown, N. Y.
Griffith, Jefferson D., Kansas City, Mo.
Grigsby, Guy P., Bardstown, Ky.
Grimm, Alva S., St. Marys, W. Va.
Gromann, John, Utica, N. Y.
Grout, S. E., Birmingham, Ala.
Grove, Austin M., York, Pa.
Grube, John E., Punxsutawney, Pa.
Guild, Frank E., Windham, Conn.
Guthrie, William E., Bloomington, Ill.
Guiteras, Ramon, New York, N. Y.
Gumaer, A. G., Buffalo, N. Y.
Guthrie, Adam, Prescott, Ark.
Guthrie, George W., Wilkes-Barre, Pa.
Guthrie, James R., Dubuque, Ia.
Gwathmey, James Tayloe, New York, N. Y.
Gwathmey, Lomax, Norfolk, Va.
Haecker, Lewis E., Hampton, Ia.
Hagerty, Hugh A., Detroit, Mich.
Hagner, Francis R., Washington, D.C.
Haines, W. D., Cincinnati, O.
Haire, R. D., Clinton, Mo.
Halberstadt, A. H., Pottsville, Pa.
Hall, R. W., Moundsville, W. Va.
Halpenny, J., Winnipeg, Canada.
Halstead, A. E., Chicago, Ill.
Halsted, W. S., Baltimore, Md.
Hamilton, Edwin A., Columbus, O.
Hamilton, W. T., Philadelphia, Pa.
Hammond, L. Jay, Philadelphia, Pa.
Hammond, Roland, Providence, R. I.
Hardenbergh, Daniel B., Middletown, N. Y.
Harris, M. L., Chicago, Ill.
Harrison, Archibald C., Baltimore, Md.
Harte, Richard H., Philadelphia, Pa.
Harvie, John B., Troy, N. Y.
Hawley, Donley C., Burlington, Vt.
Hayden, H. H., Baltimore, Md.
Hazelton, George W., Haverhill, N.H.
Heazlit, Ledra, Auburn, N. Y.
Heffner, O. C., Pottstown, Pa.
Hendee, Lawrence, Buffalo, N. Y.
Hendon, George A., Louisville, Ky.
Henning, D. M., Memphis, Tenn.
Henry, Edwin C., Omaha, Neb.
Henry, James E. H., Providence, R.I.
Herrick, Frederick C., Cleveland, O.
Herrington, Willis J., Bad Axe, Mich.
Herron, R. G., Pittsburg, Pa.
Hicks, Horace M., Amsterdam, N. Y.
Highsmith, J. F., Fayetteville, N. C.
Hill, C. D., Jersey City, N. J.
Hill, Corwin T., Akron, O.
Hill, Roland, St. Louis, Mo.
Hill, T. C., Boston, Mass.
Hobson, J. F., Cleveland, O.
Holland, R. A., Calais, Me.
Hollister, John C., Chicago, Ill.
Holmes, Frank H., Clinton, N. C.
Horner, M. W., Mt. Pleasant, Pa.
Horsley, J. Shelton, Richmond, Va.
Horwitz, Orville, Philadelphia, Pa.
Hough, Garry de N., New Bedford, Mass.
House, Augustus F., Cleveland, O.
Houston, D. W., Troy, N. Y.
Howell, John T., Wilkes-Barre, Pa.
Hunt, W. J., Glens Falls, N. Y.
Huntley, J. H., Lima, O.
Hupp, Frank LeMoyne, Wheeling, W. Va.
Hutchings, Willard Hunter, Detroit, Mich.
Jacobs, H. H., Akron, O.
Jackson, Ralph W., Fall River, Mass.
Jackson, Reginald H., Madison, Wis.
Jacobson, J. H., Toledo, O.
James, E. H., Harrisburg, Pa.
Janes, G. H., Westfield, Mass.
Jayne, Walter A., Denver, Colo.
Jaynes, E. T., New Hartford, Ia.
Jepson, William, Sioux City, Ia.
Jennings, Charles G. R., Elmira, N. Y.
Jessop, C. J., Kittanning, Pa.
John, J. S., Bloomsburg, Pa.
Johnson, Carl, Montrose, Colo.
Johnson, M. M., Hartford, Conn.
Johnson, W. D., Batavia, N. Y.
Johnston, George C., Pittsburg, Pa.
Jonas, A. F., Omaha, Neb.
Jopson, John H., Philadelphia, Pa.
Kane, J. M., Oakland, Cal.
Keefe, John W., Providence, R. I.
Keiller, William, Galveston, Tex.
Kelly, Howard A., Baltimore, Md.
Kelly, James A., Philadelphia, Pa.
Kerr, A. A., Salt Lake, Utah.
Kerr, J. P., Pittsburg, Pa.
Keyes, James J., Brooklyn, N. Y.
Kimball, Rush W., Norwich, Conn.
Kimball, Z. V., Hillsboro, Ill.
Kinney, John J., Wooster, O.
King, Marion N., Texarkana, Ark.
Kirby, F. J., Baltimore, Md.
Kirby, Holder C., New Bedford, Mass.
Kirk, L. H., Oxford, Pa.
Kline, Chas. D., Nyack, N. Y.
Klump, John A., Williamsport, Pa.
Kneer, Ferdinand G., New York, N.Y.
Knowlton, A. B., Columbia, S. C.
Koch, Geo. J., Paterson, N. J.
Korssell, C. F. P., Chicago, Ill.
Koutsky, John W., So. Omaha, Neb.
Krouse, Louis J., Cincinnati, O.
Kuhn, B. F., Elkhart, Ind.
Kuhn, Chas. F., Detroit, Mich.
Kunkel, George B., Harrisburg, Pa.
Kuster, E., Marburg, Germany.
Kysor, L. M., Hornell, N. Y.
Lamade, A. C., Williamsport, Pa.
Lang, J. F., Baltimore, Md.
Laplace, Ernest, Philadelphia, Pa.
Larimore, Frank Carter, Mt. Vernon, O.
Lathrop, Walter, Hazleton, Pa.
Lawbaugh, A. I., Calumet, Mich.
Lawrence, Florus F., Columbus, O.
Lawrence, W. H., Summit, N. J.
Lawson, S. B., Logan, W. Va.
Leary, William C., Springfield, Mass.
Le Boutillier, William G., New York, N. Y.
Le Conte, Robert G., Philadelphia, Pa.
Lee, Bernard R., Atlantic City, N. J.
Lee, Stephen G., East Orange, N. J.
Leidy, E. D., Flemington, N. J.
Leipziger, H. A., Burlington, Ia.
Lemon, Charles H., Milwaukee, Wis.
Lemon, Herbert K., Goshen, Ind.
Lloyd, R. J., Olyphant, Pa.
Lewis, Bransford, St. Louis, Mo.
Linville, Montgomery, New Castle, Pa.
Littig, L. W., Iowa City, Ia.
Livengood, T. F., Elizabeth, N. J.
Lloyd, Samuel, New York, N. Y.
Lockwood, Charles D., Pasadena, Cal.
Lockwood, F. W., East Orange, N. J.
Loder, Percival E., Philadelphia, Pa.
Loeb, Victor A., Philadelphia, Pa.
Loop, Ross G., Elmira, N. Y.
Lord, John Prentiss, Omaha, Neb.
Loughlin, T. B., Olean, N. Y.
Loux, H. R., Philadelphia, Pa.
Lower, William E., Cleveland, O.
Lucas, Frank B., Peoria, Ill.
Lucid, M. M., Cortland, N. Y.
Lynch, Charles F., Springfield, Mass.
Lynch, J. M., New York, N. Y.
Lund, F. B., Boston, Mass.
McAllister, Fredk. D., Lawrence, Mass.
McArthur, Louis L., Chicago, Ill.
McBride, Andrew F., Paterson, N. J.
McBride, G. A., Fort Gibson, I. T.
McCandless, W. A., St. Louis, Mo.
McCaskey, F. H., Freedom, Pa.
McCauley, W. H., Sutton, W. Va.
McChord, Robert C., Lebanon, Ky.
McClellan, B. R., Xenia, O.
McClellan, George W., Canandaigua, N. Y.
McClure, R. D., Baltimore, Md.
McComas, J. M., Elk City, Okla.
McCormack, Arthur T., Bowling Green, Ky.
McCosh, A. J., New York, N. Y.
McCoy, Ambrose, Jackson, Tenn.
McCoy, P. Y., Evansville, Ind.
McCready, S. R., Leetonia, O.
McCreery, William B., Tacoma, Wash.
McCullough, A. H., Mansfield, O.
McDill, John R., Manila, P. I.
McDonald, J. W., Fairmont, W. Va.
MacDonald, Neil S., Hancock, Mich.
McElroy, Chas. I., Mt. Sterling, Ala.
McGarrahan, J. F., Cohoes, N. Y.
McGraw, Theodore A., Detroit, Mich.
McGuire, Stuart, Richmond, Va.
McKee, Thos. H., Buffalo, N. Y.
McKenna, John A., Lansdowne, Pa.
McKenna, John B., East Providence, R. I.
McKenzie, W. W., Salisbury, N. C.
McKnight, E. J., Hartford, Conn.
McMillan, B. F., Red Springs, N. C.
MacMillan, J. A., Detroit, Mich.
McMarrow, Frank, Syracuse, N. Y.
McMullen, Charles G., Schenectady, N. Y.
MacNicholl, T. Alexander, New York, N. Y.
McNutt, W. F., San Francisco, Cal.
McOscar, Edward J., Ft. Wayne, Ind.
Macpherson, W. A., Le Roy, N. Y.
McRae, Floyd W., Atlanta, Ga.
McVeigh, J. A., Detroit, Mich.
McWhorter, H. P., Collinsville, Ala.
Maddin, J. W., Jr., Nashville, Tenn.
Mahon, John B., Pittston, Pa.
Mahoney, Stephen A., Holyoke, Mass.
Manchester, W. C., Alliance, O.
Mandell, A. H., New Bedford, Mass.
Mann, C. H., Brdgeport, Pa.
Mann, J. P., Philadelphia, Pa.
Marble, R. R., Hastings, Neb.
Marcy, Henry O., Jr., Boston, Mass.
Marsh, F. L., Mt. Pleasant, Pa.
Marsh, J. H., Fayetteville, N. C.
Marshall, J. C., Atlantic City, N. J.
Martin, Collier F., Philadelphia, Pa.
Martin, Frank, Baltimore, Md.
Martin, Harry C., Springfield, Mass.
Matas, Rudolph, New Orleans, La.
Matheny, A. R., Pittsburg, Pa.
Matthews, W. J., Johnson City, Tenn.
Maury, J. W. Draper, New York, N.Y.
Maxwell, Henry Byrne, Whiteville, N. C.
Maynard, S. E., Burlington, Vt.
Mayo, W. J., Rochester, Minn.
Means, W. J., Columbus, O.
Mecray, Paul M., Camden, N. J.
Meisenhelder, Edmund W., Jr., York, Pa.
Meyer, Willy, New York, N. Y.
Michler, Henry D., Easton, Pa.
Miles, F. T., Salem, O.
Miller, A. E., Metropolis, Ill.
Miller, A. L., Dixon, Ill.
Miller, S. R., Knoxville, Tenn.
Miller, S. W., Lancaster, Pa.
Miller, Morris Booth, Philadelphia, Pa.
Mills, W. P., Missoula, Mont.
Mitchell, Alfred, Jr., Portland, Me.
Mitchell, Charles F., Philadelphia, Pa.
Mitchell, J. W., Providence, R. I.
Mitchell, James F., Washington, D.C.
Mittelstaedt, C. B. J., New York, N. Y.
Morse, W. B., Salem, Ore.
Moriarta, D. C., Saratoga, N. Y.
Morris, J. E. K., Olean, N. Y.
Morris, Robert T., New York, N. Y.
Morrison, John Bennett, Newark, N.J.
Morse, Frank L., Somerville, Mass.
Morton, A. W., San Francisco, Cal.
Morton, Geo. D., Philadelphia, Pa.
Mosby, Wm. Lindsay, Bardwell, Ky.
Moss, W. F., Maineville, O.
Mueller, George, Chicago, Ill.
Mumford, James G., Boston, Mass.
Munro, John C., Boston, Mass.
Murphy, E. S., Dixon, Ill.
Murphy, Fred T., Boston, Mass.
Murphy, John B., Chicago, Ill.
Murray, Dwight H., Syracuse, N. Y.
Murray, T. J., Butte, Mont.
Muschletz, C. H., Philadelphia, Pa.
Nash, Geo. A., Maryville, Mo.
Nason, Wm. Albert, Roaring Spring, Pa.
Neal, William E., Cincinnati, O.
Neale, R. A., Chicago, Ill.
Neilson, Thomas R., Philadelphia, Pa.
Nicholson, Elmer, Minneapolis, Minn.
Nicholson, Joseph L., Camden, N. J.
Nicolson, Wm. Perrin, Atlanta, Ga.
Nihiser, W. M., Keedysville, Md.
Noecker, Chas. B., Scranton, Pa.
Norwood, E. E., Kingston, N. Y.
Nutt, G. D., Williamsport, Pa.
Nydegger, James A., Stapleton, N. Y.
Oakman, Carl S., Detroit, Mich.
Oliphant, N. B., Trenton, N. J.
O'Meara, Mark, Kingston, N. Y.
O'Reilly, Charles A., Strafford, Pa.
Osborn, Geo. Wakeman, Bridgeport, Conn.
Ottis, D. M., Springfield, Ill.
Page, Kingman B., New York, N. Y.
Palmer, John, Jr., Wilmington, Del.
Palmer, Lewis M., So. Framingham, Mass.
Palmer, W. R., Johnsonbury, Pa.
Parkhill, C. S., Hornell, N. Y.
Parrish, Robert C., Philadelphia, Pa.
Parsons, J. C., Jersey City, N. J.
Patterson, Ed. W., U. S. Army.
Patton, George F., New Orleans, La.
Pearse, Herman E., Kansas City, Mo.

Pease, C. A., Burlington, Vt.
Peck, G. S., Youngstown, O.
Peck, George A., New Rochelle, N.Y.
Peddle, Geo. H., Perry, N. Y.
Pember, John Frank, Janesville, Wis.
Penning, Oliver P., Baltimore, Md.
Pennington, J. R., Chicago, Ill.
Percy, J. F., Galesburg, Ill.
Perry, S. W., New Castle, Pa.
Peterson, H. D., Kelley's Island, O.
Phillips, W. F. R., Washington, D.C.
Pickard, J. E., Virginia City, Nev.
Pomerene, H. P., Canton, O.
Porter, Miles F., Ft. Wayne, Ind.
Potter, Geo. E., Detroit, Mich.
Powers, Charles A., Denver, Colo.
Prather, Hugh E., Hickman, Ky.
Preston, James L., Kingston, N. Y.
Prevost, C. W., Pittston, Pa.
Prouty, Ira J., Keene, N. H.
Quigley, F. Leo, Wallace, Idaho.
Quinby, William C., Boston, Mass.
Quinn, Stephen T., Elizabeth, N. J.
Ragan, A. H. Williams, Hagerstown, Md.
Rankin, Geo. T., Jr., Akron, O.
Reddan, M. W., Trenton, N. J.
Reed, Charles A. L., Cincinnati, O.
Reid, Robert J., Wheeling, W. Va.
Reid, Wm. B., Rome, N. Y.
Reilly, J. P., Elizabeth, N. J.
Requardt, W. W., Baltimore, Md.
Resseguie, F. J., Saratoga Springs, N. Y.
Rice, Daniel S., Hastings, Pa.
Richards, J. W., Slatington, Pa.
Richards, Ralph T., Salt Lake, Utah.
Richardson, Maurice H., Boston, Mass.
Rietz, P. C., Evansville, Ind.
Ringnell, C. J., Minneapolis, Minn.
Robbins, G. E., Chillicothe, O.
Roberts, John B., Philadelphia, Pa.
Roberts, Wm. Owen, Louisville, Ky.
Robertson, S. E., Newark, N. J.
Robertson, W. M., St. Louis, Mo.
Robertson, W. M., Warren, Pa.
Robrecht, John J., Philadelphia, Pa.
Rock, H. J., Aberdeen, S. D.
Rodman, Wm. L., Philadelphia, Pa.
Rogers, Carey P., Jacksonville, Fla.
Roos, Elias G., Scranton, Pa.
Rooth, H. C., Buffalo, N. Y.
Rose, Alanson D., Providence, R. I.
Ross, George G., Philadelphia, Pa.
Royster, H. A., Raleigh, N. C.
Rudolph, Henry Latimer, Gainesville, Ga.
Ruhl, Henry, New York, N. Y.
Ryall, George W., Wooster, O.
Ryan, Walter, Springfield, Ill.
Sala, E. M., Rock Island, Ill.
Salmon, James M., Ashland, Ky.
Samuel, Meredith L., Wilmington, Del.
Sanes, Kay I., Pittsburg, Pa.
Sarles, W. T., Sparta, Wis.
Satterwhite, T. P., Louisville, Ky.
Schachner, August, Louisville, Ky.
Schlueter, Robert E., St. Louis, Mo.
Schneck, S. W., Mt. Carmel, Ill.
Schaeffer, C. D., Allentown, Pa.
Schwinn, Jacob, Wheeling, W. Va.
Scofield, Walter K., U. S. Navy.
Senseman, Theodore, Atlantic City, N. J.
Shaw, C. E., Williamsport, Pa.
Shea, Augustus W., Nashua, N. H.
Shepherd, Irwin J., Wilmington, Del.
Sherk, Henry Howard, Pasadena, Cal.
Sherwood, Walter A., Brooklyn, N.Y.
Shultz, C., Danville, Pa.
Sill, E. R., Oakland, Cal.
Silver, C. D., Plattsburg, N. Y.
Silver, Henry M., New York, N. Y.
Sisler, G. W., Water Valley, Miss.
Skinner, W. W., Geneva, N. Y.
Sloan, C. R., Marietta, O.
Sloan, H. E., Clarksburg, W. Va.
Small, Alex. H., Riverside, N. J.
Smith, A. Howard, Marietta, O.
Smith, Addison W., Scranton, Pa.
Smith, Andrew C., Portland, Ore.
Smith, Franklin Buchanan, Frederick City, Md.
Smith, John F., Salem, N. J.
Smith, Lorin W., Wabash, Ind.
Smith, Mary Almira, Boston, Mass.
Smith, Oliver C., Hartford, Conn.
Smith, Robert A., Chicago, Ill.
Smouse, David W., Des Moines, Ia.
Smythe, John, New Orleans, La.
Sommer, Geo. N. J., Trenton, N. J.
Sornberger, S. J., Cortland, N. Y.
Souther, Charles T., Cincinnati, O.
Spofford, Henry M., Batavia, N. Y.
Spear, Walter M., Rockland, Me.
Spear, Raymond, U. S. Navy.
Speese, John, Philadelphia, Pa.
Spencer, G. W., Philadelphia, Pa.
Spence, Thomas B., Brooklyn, N. Y.
Spottswood, E. W., Missoula, Mont.
Squier, A. O., Springfield, Mass.
Stackhouse, C. P., Wilkes-Barre, Pa.
Staller, Max, Philadelphia, Pa.
Stauffer, William H., St. Louis, Mo.
Steel, W. A., Philadelphia, Pa.
Steinbach, L. W., Philadelphia, Pa.
Stelle, H. L., Pittsburg, Kan.
Stellwagen, Frederick, Weehawken, N. J.
Stellwagen, Thos. P., Philadelphia, Pa.
Stern, Alex. A., Kingston, N. Y.
Stetson, Halbert G., Greenfield, Mass.
Stewart, J. Clark, Minneapolis, Minn.
Stewart, Thomas S., Philadelphia, Pa.
Stewart, Wm. D., Toledo, O.
St. John, David B., Hackensack, N.J.
Stokes, A. C., Omaha, Neb.
Straight, A. M., Bradford, Pa.
Straub, Paul F., Washington, D. C.
Street, D. P., Vicksburg, Miss.
Stremmel, S. C., Macomb, Ill.
Strickland, D. H., Erie, Pa.
Stuart, E. C., Pittsburg, Pa.
Sturge, Edgar, Scranton, Pa.
Styer, D. W., Churchtown, Pa.
Sullivan, John D., Brooklyn, N. Y.
Summers, John E., Jr., Omaha, Neb.
Taggart, David, Frackville, Pa.
Tainter, L. K., Fredericksburg, Tex.
Tarbell, H. A., Watertown, S. D.
Taylor, C. E., Irwin, Pa.
Taylor, Frederick C., Cleveland, O.
Taylor, Henry Ling, New York, N.Y.
Taylor, Hugh M., Richmond, Va.
Taylor, J. L., Libertyville, Ill.
Taylor, W. S., Alliance, O.
Taylor, William J., Philadelphia, Pa.
Teller, William H., Philadelphia, Pa.
Terry, Charles C., South Bend, Ind.
Terry, Herbert, Providence, R. I.
Thomas, B. A., Philadelphia, Pa.
Thomas, J. M., Griffin, Ga.
Thompson, Fredk. H., Fitchburg, Mass.
Tibbals, Frank Burr, Detroit, Mich.
Tipton, W. R., East Las Vegas, N.M.
Tinker, Martin B., Ithaca, N. Y.
Titus, W. S., Mora, Minn.
Towne, G. Scott, Saratoga Springs, N. Y.
Townsend, Chas. E., Newburg, N. Y.
Townsend, Wisner Robinson, New York, N. Y.
Trent, Isaac N., Muncie, Ind.
Truesdale, Philemon E., Fall River, Mass.
Tuers, G. E., Paterson, N. J.
Tupper, V. L., Bay City, Mich.
Tupper, Paul Y., St. Louis, Mo.
Tweedy, G. J., Winona, Minn.
Twinch, Sidney A., Newark, N. J.
Umstad, J. R., Norristown, Pa.
Vale, F. P., Washington, D. C.
Vance, James, El Paso, Tex.
Vance, W. K., Bristol, Tenn.
Vanmeter, B. F., Lexington, Ky.
Van Wagner, Lee C., New Berlin, N. Y.
Van Zwaluwenburg, C., Riverside, Cal.
Verdi, William F., New Haven, Conn.
Ver Nooy, Charles D., Cortland, N.Y.
Vrooman, Alfred S., Kingston, N.Y.
Wakefield, S. R., West Salem, Wis.
Walker, A. B., Canton, O.
Walker, Frank B., Detroit, Mich.
Walker, Henry J., Detroit, Mich.
Walker, J. A., Shawnee, Okla.
Walker, J. E., Hornell, N. Y.
Walker, John B., New York, N. Y.
Wallace, J. B., Tampa, Fla.
Warbasse, James P., New York, N.Y.
Ward, Wm. J., Newark, N. J.
Wareham, E. A., Hagerstown, Md.
Ware, Martin W., New York, N. Y.
Warmuth, M. P., Philadelphia, Pa.
Warren, Nathan A., Yonkers, N. Y.
Waterworth, S. J., Clearfield, Pa.
Wathen, Wm. H., Louisville, Ky.
Watson, Frank G., Boston, Mass.
Watson, Wm. N., Philadelphia, Pa.
Weaver, W. G., Wilkes-Barre, Pa.
Weaver, Joseph K., Norristown, Pa.
Weber, John H., Akron, O.
Wegefarth, Harry M., Baltimore, Md.
Weir, Robert F., New York, N. Y.
Weiser, Walter R., Springfield, Mass.
Weist, Harry H., Richmond, Ind.
Wells, Ernest A., Hartford, Conn.
Welty, Emil M., Philadelphia, Pa.
Werden, W. Van, Des Moines, Ia.
Werner, R. F., Eau Claire, Wis.
Westmoreland, W. F., Atlanta, Ga.
Wheeler, B. B., McKendree, W. Va.
Wherritt, D. H., Chicago, Ill.
White, Frank, Philadelphia, Pa.
Wiatt, Wm. S., East St. Louis, Ill.
Widmyer, J. Lawrence, Philadelphia, Pa.
Wieder, Henry S., Philadelphia, Pa.
Wiggins, J. L., E. St. Louis, Ill.
Wiggins, S. L., McKeesport, Pa.
Wilbur, Hubert G., Fall River, Mass.
Wilcox, F. W., St. Petersburg, Fla.
Willard, De Forest, Philadelphia, Pa.
Williams, E. C., Collinsville, Tex.
Williams, Morgan J., Scranton, Pa.
Wilson, H. Augustus, Philadelphia, Pa.
Wilson, J. H., Dover, Del.
Wilson, J. T., Sherman, Tex.
Wilson, W. E., Pawtucket, R. I.
Winslow, Randolph, Baltimore, Md.
Winterbotham, J. H., Salina, Kas.
Wishard, W. N., Indianapolis, Ind.
Witherspoon, James, Allegheny, Pa.
Wolfe, Samuel M., Wilkes-Barre, Pa.
Wood, Alfred C., Philadelphia, Pa.
Wood, W. A., Hubbard, Tex.
Woods, George B., Curllsville, Pa.
Woolford, J. L. B., Chattanooga, Tenn.
Wray, William S., Philadelphia, Pa.
Wright, A. L., Carroll, Ia.
Wright, John W., Bridgeport, Conn.
Wyman, Hal C., Detroit, Mich.
Wynekoop, Gilbert H., Chicago, Ill.
Wyeth, John A., New York, N. Y.
Yocom, James R., Tacoma, Wash.
Young, Hugh Hampton, Baltimore, Md.
Young, S. J., Valparaiso, Ind.
Zapffe, Fred C., Chicago, Ill.
Zerner, H. E., New Castle, Pa.
Zobel, Alfred J., San Francisco, Cal.

Ophthalmology.

Adams, C. F., Trenton, N. J.
Allport, Frank, Chicago.
Amos, A. R., Des Moines, Iowa.
Alleman, L. A. W., Brooklyn, N. Y.
Appleman, Leighton F., Philadelphia.
Arnold, Francis J., Burlington, Vt.
Avery, F. T., Chicago.
Baker, A. R., Cleveland, Ohio.
Baker, Charles H., Bay City, Mich.
Balentine, Percy L., Philadelphia.
Banner, C. W., Greensboro, N. C.
Banning, Geo. W., Davenport, Iowa.
Barck, Carl, St. Louis, Mo.
Barney, B. A., Hornell, N. Y.
Bastian, C. B., Williamsport, Pa.
Beetham, A. C., Bellaire, Ohio.
Bennett, A. G., Buffalo, N. Y.
Bermann, I., Washington, D. C.
Bernstein, Edw. J., Kalamazoo, Mich.
Bird, U. S., Tampa, Fla.
Bordley, James, Jr., Baltimore, Md.
Borsch, J. L., Jr., Philadelphia, Pa.
Bradley, C. Cole, New York.
Brawley, R. V., Salisbury, N. C.
Broughton, William R., New York.
Brown, Felix Manning, Hopkinsville, Ky.
Brown, Frederick K., Philadelphia.
Brown, Samuel Horton, Philadelphia.
Bruns, H. Dickson, New Orleans, La.
Bruner, Wm. Evans, Cleveland, O.
Buchanan, Mary, Philadelphia.
Bull, Charles Stedman, New York.
Bull, Edward L., Jersey City, N. J.
Bullard, T. E., Schuylerville, N. Y.
Bulson, Albert E., Jr., Fort Wayne, Ind.
Butler, W. K., Washington, D. C.
Butt, Miriam M., Philadelphia.
Callan, Peter A., New York.
Carpenter, John T., Philadelphia.
Carrier, Frederick H., Philadelphia.
Carr, George W., Wilkesbarre, Pa.
Carroll, James J., Baltimore, Md.
Chambers, T. R., Jersey City, N. J.
Chance, Burton, Philadelphia.
Chase, William E., New York.
Clark, Frederick T., Westfield, Mass.
Cocks, Geo. H., New York.
Coleman, J. S., Frankfort, Ky.
Collins, Homer, Duluth, Minn.
Connor, Leartus, Detroit, Mich.
Coover, D. H., Denver, Colo.
Corser, J. B., Scranton, Pa.
Corson, G. R. S., Pottsville, Pa.
Craig, W. G., Springfield, Mass.
Cramer, Alfred, Camden, N. J.
Craton, S. B., Syracuse, N. Y.
Crockett, R. L., Oneida, N. Y.
Croskey, John Welsh, Philadelphia.
Crowe, Willis H., New Haven, Conn.
Cullom, M. M., Nashville, Tenn.
Curry, Glendon E., Pittsburg, Pa.
Darling, C. G., Chicago.
Davidson, John P., Richmond, Va.
Davis, F. T., Jr., Lansdowne, Pa.
Davis, Thos. W., Winston-Salem, N. C.
Dean, Lee Wallace, Iowa City, Iowa.
Dickey, John L., Wheeling, W. Va.
Donovan, John A., Butte, Mont.
Driver, W. E., Norfolk, Va.
Duane, Alexander, New York.
Dunn, Ira J., Erie, Pa.
Edwards, James A., Columbia, Tenn.
Ellegood, J. A., Wilmington, Del.
Ellett, E. C., Memphis, Tenn.
Embery, Frank, Philadelphia.
Engle, O. C., Philadelphia.
Eves, Curtis C., George School, Pa.
Fenton, Thomas H., Philadelphia.
Finerty, J. J., Buffalo, N. Y.
Fisher, Wm. A., Chicago.
Foster, Dean, New York.
Fowler, J. E., Altus, Okla.
Fox, L. Webster, Philadelphia.
Frank, Mortimer, Chicago.
Frankhauser, Fremont W., Reading, Pa.
Franklin, Clarence P., Philadelphia.
LeFever, C. W., Philadelphia.
Frey, Clarence L., Scranton, Pa.
Fridenberg, Percy, New York.
Friebis, George, Philadelphia.
Fringer, W. R., Rockford, Ill.
Gardner, C. R., Northampton, Mass.
Goldberg, Harold G., Philadelphia.
Gradle, Henry, Chicago.
Graef, Charles, New York.
Green, John, Jr., St. Louis, Mo.
Greenwood, Allen, Boston.
Grove, Benjamin H., Buffalo ,N. Y.
Hallock, Silas F., New York.
Hammond, C. B., Nashua, N. H.
Hancock, James Cole, Brooklyn, N. Y.
Harris, C. M., Johnstown, Pa.
Harrod, Charles Lorain, Columbus, Ohio.
Haskin, H. P., Williamsport, Pa.
Hastings, T. W., New York.
Heckel, Edward B., Pittsburg, Pa.
Herbert, J. Frederick, Philadelphia.
Herron, J. T., Jackson, Tenn.
Hicks, W. D., Huntington, W. Va.
Higgins, R. P., Courtland, N. Y.
Hodskins, Morgan B., Palmer, Mass.
Holloway, T. B., Philadelphia.
Holmes, Christian R., Cincinnati, O.
Holt, Erastus E., Portland, Maine.
Howard, William E., Dallas, Texas.
Howe, Lucien, Buffalo, N. Y.
Hubbell, Alvin A., Buffalo, N. Y.
Hulen, Vard H., San Francisco.
Ingalls, James W., Brooklyn, N. Y.
Irwin, V. J., Springfield, Mass.
Jack, Edwin E., Boston.
Jackson, Edward, Denver, Colo.
Jacobson, F. C., Newark, N. J.
Jarvis, Cecil C., Pittsburg, Pa.
Johnson, J. H., Coffeyville, Kan.
Jones, Emmett L., Cumberland, Md.
Jones, E. R., Toms River, N. J.
Kalish, Richard, New York.
Keiper, George F., Lafayette, Ind.
Kelleher, P. F., Cambridge, Mass.
Kelley, Daniel J., Worcester, Mass.
Kimberlin, Joseph W., Kansas City, Mo.
King, George L., Alliance, Ohio.
Kirkendall, John S., Ithaca, N. Y.
Kistler, O. F., Wilkesbarre, Pa.
Knapp, Herman, New York.
Knipe, J. C., Philadelphia.
Koller, Carl, New York.
Krauss, Frederick, Philadelphia.
Kress, Palmer, Allentown, Pa.
Kunkle, W. F., Williamsport, Pa.
Lacy, John W., Lisbon, Md.
Lambert, Walter Eyre, New York.
Lamon, G. T., New Kensington, Pa.
Lamb, Robert Scott, Washington, D. C.
Leach, W. J., New Albany, Ind.
Leary, Montgomery E., Rochester, N. Y.
Ledbetter, S. L., Birmingham, Ala.
Leopold, Isaac, Philadelphia.
Lester, John C., Brooklyn, N. Y.
Lewis, Eugene R., Dubuque, Iowa.
Lewis, F. Park, Buffalo, N. Y.
Louchery, D. C., Clarksburg, W. Va.
Love, J. K., Easton, Pa.
Love, Louis F., Philadelphia.
McAllister, J. C., Ridgway, Pa.
McCabe, Edward M., New Haven, Conn.
McConachie, Alex. D., Baltimore, Md.
McDavitt, Thomas, St. Paul, Minn.
MacGregor, Charles, Dayton, Ohio.
McIntire, Charles, Easton, Pa.
McKee, Edwin D., Sugar Grove, Pa.
McReynolds, John O., Dallas, Texas.
Macleish, Archibald Lyle, Los Angeles, Cal.
Maisch, Aug. C., Hagerstown, Md.
Marlow, F. W., Syracuse, N. Y.
Marsh, W. A., Mt. Pleasant, Pa.
Marshall, George M., Portsmouth, Ohio.
Martin, Henry Hager, Savannah, Ga.
May, George A., Ann Arbor, Mich.
Meanor, W. C., Beaver, Pa.
Meierhof, Edward L., New York.
MeVay, James C. F., Atlantic City, N. J.
Meyer, J. H. Wm., La Porte, Ind.
Miles, Henry S., Bridgeport, Conn.
Miller, Charles E., Muncie, Ind.
Miller, Elmer O., Aberdeen, S. D.

Mitchell, Samuel, Hornell, N. Y.
Mongel, Ernest B., Philadelphia.
Monosmith, O. B., Lorain, Ohio.
Moore, C. C., Philadelphia.
Moore, G. H., Schuylkill Haven, Pa.
Moore, J. H., Bridgeton, N. D.
Moore, Thomas W., Huntington, W. Va.
Mortimer, W. Golden, New York.
Mossgrove, James Ross, Steubenville, Ohio.
Muncaster, S. B., Washington, D. C.
Murray, G. D., Scranton, Pa.
Nance, Willis O., Chicago.
Oatman, Edward L., Brooklyn, N. Y.
Ohly, John H., Brooklyn, N. Y.
Oliver, Charles A., Philadelphia.
Osterling, H. E., Wheeling, W. Va.
Ozmun, I. Davis, Rochester, N. Y.
Parker, Edward F., Charleston, S. C.
Parker, Frank Judson, New York.
Parker, Walter R., Detroit, Mich.
Parks, Edward L., Boston.
Payne, Charles S., Liberty, N. Y.
Peterman, H. E., Baltimore, Md.
Pfingst, Adolph O., Louisville, Ky.
Pollard, W. M., Atlantic City, N. J.
Posey, Wm. Campbell, Philadelphia.
Powell, William R., Camden, N. J.
Price, Geo. H., Nashville, Tenn.
Price, Norman W., Niagara Falls, N. Y.
Prince, A. E., Springfield, Ill.
Pyle, Walter L., Philadelphia.
Radcliffe, McCluney, Philadelphia.
Ray, J. M., Louisville, Ky.
Reber, Wendell, Philadelphia.
Reik, J. M., Baltimore, Md.
Renaud, George L., Detroit, Mich.
Rideout, Wm. J., Freeport, Ill.
Rindlaub, J. H., Fargo, N. D.
Ring, G. Oram, Philadelphia.
Ring, Henry W., New Haven, Conn.
Risley, J. Norman, Philadelphia.
Risley, Lawrence D., Philadelphia.
Roderick, Edward R., Wilkesbarre, Pa.
Rodman, C. S., Waterbury, Conn.
Rogers, Frederick T., Providence, R. I.
Rothrock, Henry A., West Chester, Pa.
Russell, E. R., Charlotte, N. C.
Sartain, Paul J., Philadelphia.
Satterlee, Richard H., Buffalo, N. Y.
Sautter, Albert C., Philadelphia.
Savage, G. C., Nashville, Tenn.
Saylor, E. S., Philadelphia.
Scales, J. W., Pine Bluff, Ark.
Schaefer, Otto, Baltimore, Md.
Schild, Edward, Canton, Ohio.
Schneideman, T. B., Philadelphia.
Schoch, L. E., Shamokin, Pa.
Schwenk, Peter N. K., Philadelphia.
Seabrook, H. H., New York.
Sears, Wm. H., Huntingdon, Pa.
Sharpe, Albert H., Philadelphia.
Shastid, Wm. E., Pittsfield, Ill.
Shelton, H. P., Georgetown, Ohio.
Sherman, E. S., Newark, N. J.
Sherman, H. G., Cleveland, Ohio.
Shoemaker, J. F., St. Louis, Mo.
Shoemaker, Wm. T., Philadelphia.
Shope, Samuel Z., Harrisburg, Pa.
Shumway, Edward A., Philadelphia.
Simpson, J. D., Minneapolis, Minn.
Sites, J. McKee, Martinsburg, W. Va.
Smith, D. B., Cleveland, Ohio.
Smith, Eugene, Detroit, Mich.
Smith, Joseph I., Philadelphia.
Snyder, Walter H., Toledo, Ohio.
Standish, Myles, Boston.
Starr, Elmer G., Buffalo, N. Y.
Stevens, Henry B., Boston.
Stevenson, Mark D., Akron, Ohio.
Stick, Wesley Calvin, Hanover, Pa.
Stuart, Charles C., Cleveland, Ohio.
Sturm, S. A., Pittsburg, Pa.
Sweet, William M., Philadelphia.
Taylor, Lewis H., Wilkesbarre, Pa.
Tenney, John A., Boston.
Theobald, Samuel, Baltimore, Md.
Thomas, Chas. Hermon, Philadelphia.
Thompson, Peter Hunter, Boston.
Thomson, Edgar S., New York.
Thomson, Archibald G., Philadelphia.
Thorington, James, Philadelphia.
Tiffany, Flavel B., Kansas City, Mo.
Timberman, Andrew, Columbus, O.
Tingley, Louisa Paine, Boston.
Tivnen, Richard J., Chicago.
Todd, Frank C., Minneapolis, Minn.
Turnbull, Charles Smith, Philadelphia..
Turner, John B., Philadelphia.
Tybout, R. Raymond, Wilmington, Del.
Tyson, Henry H., New York.
Valk, Francis, New York.
Van Benschoten, George W., Providence, R. I.
Veasey, C. A., Philadelphia, Pa.
Vollmer, Karl, Davenport, Iowa.
Waite, Frank L., Hartford, Conn.
Walter, Will, Chicago.
Watt, Robert, Philadelphia.
Weeks, John Elmer, New York.
Wheeler, John T., Chatham, N. Y.
White, Amy E., Chester, Pa.
Wiener, M., St. Louis, Mo.
Wilder, Wm. H., Chicago.
Willetts, Joseph E., Pittsburg, Pa.
Williams, Charles H., Boston.
Williamson, Llewellyn, St. Louis, Mo.
Willis, F. D., Newport News, Va.
Wise, Ralph C., Millersburg, Ohio.
Wood, Casey A., Chicago.
Woodruff, Thomas A., Chicago.
Woods, Hiram, Baltimore, Md.
Wright, Edward W., Brooklyn, N. Y.
Wurdemann, H. V., Milwaukee, Wis.
Wylie, Ella R., Boston.
Zentmayer, Wm., Philadelphia.
Ziegler, S. Lewis, Philadelphia.

Laryngology and Otology.

Abraham, Joseph H., New York.
Allen, John Howard, Portland, Me.
Anderson, Willis S., Detroit, Mich.
Baldwin, Kate W., Philadelphia.
Ballenger, William Lincoln, Chicago.
Bardes, Albert, New York.
Barnhill, John F., Indianapolis, Ind.
Bayley, N. B., Haverstraw, N. Y.
Beck, Joseph C., Chicago.
Bemis, R. W., Philadelphia.
Benedict, A. J., Newburg, N. Y.
Booth, Burton S., Troy, N. Y.
Britten, G. S., Syracuse, N. Y.
Broquet, Edward, New York.
Brown, George, Atlanta, Ga.
Brown, John C., Smethport, Pa.
Brown, John Edwin, Columbus, Ohio.
Bryant, Wm. Sohier, New York.
Burns, Louis J., Philadelphia.
Butler, Harry, Bangor, Me.
Butler, M. F., Philadelphia.
Butler, Ralph, Philadelphia.
Byington, John F., Battle Creek, Mich.
Carpenter, E. R., El Paso, Texas.
Carr, M. L., New York.
Casselberry, W. E., Chicago.
Clementson, W. A., Braddock, Pa.
Coakley, Cornelius G., New York.
Cobb, Carolus M., Boston.
Colles, Christopher J., New York.
Colwell, N. P., Chicago.
Corwin, T. W., Newark, N. J.
Cott, George F., Buffalo, N. Y.
Cryer, M. H., Philadelphia.
Culp, John F., Harrisburg, Pa.
Cunningham, Frank M., Macon, Ga.
Curtis, H. H., New York.
Davis, George E., Lawrenceburg, Ky.
Demarest, Fred F. C., Passaic, N. J.
Dench, Edward B., New York.
Devilbiss, Allen, Toledo, Ohio.
Dickinson, B. M., Pittsburg, Pa.
Dillinger, G. Arthur, Pittsburg, Pa.
Doriss, H. Stokes, Atlantic City, N. J.
Dow, James A., Cambridge, Mass.
Duel, Arthur B., New York.
Ellis, H. Bert, Los Angeles, Cal.
Engle, Harry P., Newton, Iowa.
Farrington, P. McG., Memphis, Tenn.
Fielding, Fred G., Glens Falls, N. Y.
Felt, Carle Lee, Philadelphia.
Fleming, E. W., Los Angeles, Cal.
Fletcher, W. W., Williamsport, Pa.
Foster, E. E., New Bedford, Mass.
Foster, Hal, Kansas City, Mo.
Freer, Otto T., Chicago.
Fretz, Oliver H., Quakertown, Pa.
Getchell, Albert C., Worcester, Mass.
Gibb, Joseph S., Philadelphia.
Gilbert, Frank Y., Portland, Me.
Gildea, P. F., Colorado Springs, Colo.
Gile, Ben C., Philadelphia.
Gleason, E. B., Philadelphia.
Goldstein, Max A., St. Louis, Mo.
Goodale, J. L., Boston.
Güntzer, J. Henry, New York .
Hammond, Philip, Boston.
Harland, W. G. B., Philadelphia.
Hartman, J. H., Baltimore, Md.
Hartz, Henry J., Detroit, Mich.
Hickey, Preston M., Detroit, Mich.
Hinkel, Frank Whitehill, Buffalo, N. Y.
Hirst, L. B., Camden, N. J.
Hitschler, William A., Philadelphia.
Horlbeck, Henry, Columbia, S. C.
Ingals, E. Fletcher, Chicago.
Jack, Frederick L., Boston.
Jackson, Chevalier, Pittsburg, Pa.
Keeler, J. Clarence, Philadelphia.
Kelchner, Wm. T., Camden, N. J.
Kerrison, Philip D., New York.
Knapp, C. C., Zanesville, Ohio.
Kofron, Joseph V., Cleveland, Ohio.
Kuyk, D. A., Richmond, Va.
Layman, Daniel W., Indianapolis, Ind.
Lenker, John N., Cleveland, Ohio.
Levy, Robert, Denver, Colo.
Loeb, Hanau W., St. Louis, Mo.
Ludlow, David Hunt, Easton, Pa.
McCaw, James F., Watertown, N. Y.
McClelland, Lefferts A., Brooklyn, N. Y.
McClure, W. B., Lexington, Ky.
MacCracken, Geo. Y., Philadelphia.
McDonald, D. J., New York.
McKernon, James F., New York.
Makuen, G. Hudson-, Philadelphia.
Marshall, George Morley, Philadelphia.
Masland, H. C., Philadelphia.
Mayer, Emil, New York.
Mears, D. W., Scranton, Pa.
Miffer, Milton K., Wyncote, Pa.
Miller, Elizabeth K., Ridley Park, Pa.
Milligan, Robert, Pittsburg, Pa.
Miner, Stanley G., Detroit, Mich.
Mitchell, George W., Baltimore, Md.
Mithoefer, Wm., Cincinnati, Ohio.
Morgenthau, George, Chicago.
Moseley, Henry Perkins, New York.
Mosher, Harris P., Boston.
Mulcahy, Thomas A., New York.
Murphy, John W., Cincinnati, Ohio.
Myles, Robert C., New York.
Off, Henry J., Philadelphia.
Orr, Charles J., St. Louis, Mo.
O'Shea, David, Chicago.
Ostrom, Louis, Rock Island, Ill.
Pennell, William W., Mt. Vernon, Ohio.
Phillips, Wendell C., New York.
Pierce, Elbridge W., Meriden, Conn.
Potts, Barton H., Philadelphia.
Pound, John C., Baltimore, Md.
Procter, Percy C., Boston.
Quinlan, Francis J., New York.
Randall, B. Alex., Philadelphia.
Raynor, Frank C., Brooklyn, N. Y.
Reddie, Jacobina S., Philadelphia.
Reik, Henry O., Baltimore, Md.
Renner, W. S., Buffalo, N. Y.
Richards, George L., Fall River, Mass.
Roe, John O., Rochester, N. Y.
Rogers, Albert E., Boston.
Romine, Geo. L., Lambertville, N. J.
Ross, Geo. T., Montreal, Canada.
Rulison, L. B., Watervliet, N. Y.
Sanger, Frank Dyer, Baltimore, Md.
Sauer, W. E., St. Louis, Mo.
Sawtell, J. E., Kansas City, Kan.
Schoonmaker, Perry, New York.
Seiss, Ralph W., Philadelphia.
Shambaugh, Geo. E., Chicago.
Shore, Francis E. V., Des Moines, Ia.
Shorter, James H., Macon, Ga.
Shurly, Burt R., Detroit, Mich.
Smock, Ledru P., Philadelphia.
Smith, F. Conger, New York.
Smith, Harmon, New York.
Smith, Owen, Portland, Maine.
Smith, S. MacCuen, Philadelphia.
Smyth, Herbert E., Bridgeport, Conn.
Solenberger, A. R., Colorado Springs, Colo.
Solis-Cohen, J., Philadelphia.
Somers, Lewis S., Philadelphia.
Steers, William H., Brooklyn, N. Y.
Stein, Otto J., Chicago.
Stimson, George Wm., Philadelphia.
Stolte, Herman, Milwaukee, Wis.
Stout, Geo. C., Philadelphia.
Strouse, Frederic M., Philadelphia.
Stubbs, F. Gurney, Chicago.
Stucky, J. A., Lexington, Ky.
Sturges, P. H., Brooklyn, N. Y.
Taylor, T. M., New York.
Teague, Rufus J., Durham, N. C.
Tefft, Benj. F., Jr., Anthony, R. I.
Tenney, Elmer S., Boston.
Thrasher, A. B., Cincinnati, Ohio.
Toms, S. W. S., Nyack, N. Y.
Vansant, E. L., Philadelphia.
Vaughan, G. E., Clarksville, Tenn.
Vaughan, Harold S., New York.
Wales, Ernest de Wolfe, Indianapolis, Ind.
Warder, C. B., Philadelphia.
Weintraub, S. Louise, Philadelphia.
Wells, Walter A., Washington, D. C.
Welty, Cullen F., San Francisco.
White, Leon E., Boston.
Wilson, Samuel M., Philadelphia.
Winner, W. G., Wilmington, Del.
Winslow, John R., Baltimore, Md.
Wishart, J. Gibb, Toronto, Canada.
Worthington, Thos. Chew, Baltimore, Md.
Yankauer, Sidney, New York.

Hygiene and Sanitary Science.

Abbott, A. C., Philadelphia, Pa.
Abel, William C., West Union, W.Va.
Allen, M. K., Louisville, Ky.
Armstrong, S. T., New York, N. Y.
Barchfeld, A. J., Pittsburg, Pa.
Black, John J., New Castle, Del.
Briggs, A. B., Ashaway, R. I.
Brock, L. S., Morgantown, W. Va.
Brown, E. M., Chicago.
Brownback, O. W., Pendleton, Ind.
Browning, Chas. C., Monrovia, Cal.
Bushey, S. G., Camden, N. J.
Chapman, W. C., Toledo, O.
Cook, Charles H., Natick, Mass.
Craig, Joseph D., Albany, N. Y.
Crowder, Thos. R., Chicago, Ill.
Curtin, Roland G., Philadelphia, Pa.
Davis, Henry H., Camden, N. J.
Dithridge, Louise M., New York, N.Y.
Donaldson, W. H., Fairfield, Conn.
Egan, James A., Springfield, Ill.
Egbert, Seneca, Philadelphia, Pa.
Elgin, W. F., Glenolden, Pa.
Exton, James A., Arlington, N. J.
Farquhar, Charles, Olney, Md.
Foster, N. K., Sacramento, Cal.
Fox, Herbert, Philadelphia, Pa.
Friedrich, Martin, Cleveland, O.
Fulton, John S., Baltimore, Md.
Furbush, C. L., Philadelphia, Pa.
Gaylord, Charles W., Branford, Conn.
Gilliland, S. H., Marietta, Pa.
Goler, G. W., Rochester, N. Y.
Gottlieb, J. Adelphi, New York, N.Y.
Grice, Joseph, Portsmouth, Va.
Grosvenor, J. W., Buffalo, N. Y.
Guion, Edward, Atlantic City, N. J.
Hallenbeck, O. J., Canandaigua, N.Y.
Harbaugh, C. H., Philadelphia, Pa.
Harrington, Charles, Boston, Mass.
Holden, G. W., Denver, Colo.
Holton, Henry D., Brattleboro, Vt.
Howard, D. C., Washington, D. C.
Hunsberger, J. Newton, Skippack, Pa.
Irion, Clifford H., New Orleans, La.
Jacobi, A., New York, N. Y.
Jones, C. Hampson, Baltimore, Md.
Kennedy, T. C., Shelbyville, Ind.
Kerr, J. W., Washington, D. C.
Keyes, Edw. L., Jr., New York, N. Y.
Knopf, S. A., New York, N. Y.
Kober, George M., Washington, D. C.
Lewis, Denslow, Chicago, Ill.
Lowenstein, Fred P., Westfield, Mass.
McCaughlin, George E., Jersey City, N. J.
McCormack, J. N., Bowling Green, Ky.
McDowell, Norris Stanley, Philadelphia, Pa.
McLennan, R. C., Syracuse, N. Y.
McPherson, Dorsey M., Washington, D. C.
Magruder, G. Lloyd, Washington, D. C.
Maison, Robert S., Chester, Pa.
Mitchell, Henry, Trenton, N. J.
Montgomery, Liston Homer, Chicago, Ill.
Motter, Murray Galt, Washington, D. C.
Nagle, John T., New York, N. Y.
Newton, Richard Cole, Montclair, N. J.
Otis, Edward Osgood, Boston, Mass.
Paquin, Paul, Asheville, N. C.
Park, Wm. H., New York, N. Y.
Pedigo, S. E. G., Marshfield, O.
Pilcher, James E., Carlisle, Pa.
Porter, Joseph Y., Key West, Fla.
Read, Albert J., Battle Creek, Mich.
Reinhardt, G. F., Berkeley, Cal.
Rembert, G. W. F., Wallingford, Conn.
Richard, Charles, New York.
Risley, E. N., Battle Creek, Mich.
Robin, Albert, Wilmington, Del.
Sanders, Wm. H., Montgomery, Ala.
Seaman, Wm., U. S. Navy.
Sell, Frederick W., Rahway, N. J.
Shumway, F. W., Lansing, Mich.
Shurtleff, Henry C., Philadelphia.
Slack, F. H., Boston.
Smith, M. R., McGraw, N. Y.
Snow, William F., Stanford University, Cal.
Stern, Charles S., Hartford, Conn.
Steward, Alonzo H., Philadelphia.
Stolper, J. H., Krebs, Okla.
Sturgis, Frederic R., New York.
Suiter, A. Walter, New York.
Sullivan, T. J., Butte, Mont.
Vinton, Maria M., East Orange, N. J.
Webster, George W., Chicago.
Welch, William M., Philadelphia.
Wheaton, Clarence L., Chicago.
White, C. Y., Philadelphia.
Wilbur, Cressy L., Washington, D. C.
Wiley, Harvey W., Washington, D. C.
Wyman, Walter, Washington, D. C.

Diseases of Children.

Abt, Isaac Arthur, Chicago.
Acker, George N., Washington, D. C.
Acker, T. J., Croton-on-Hudson, N. Y.
Ager, Louis C., Brooklyn, N. Y.
Anthony, F. R., Maryville, Mo.
Bartley, Elias H., Brooklyn, N. Y.
Bauer, Marie L., Philadelphia.
Bennett, C. L., Gobleville, Mich.
Bennett, William H., Philadelphia.
Berry, R. D., Springfield, Ill.
Bingham, Arthur W., East Orange, N. J.
Blanton, M. A., Baileyton, Tenn.
Boorse, Lorenzo, Milwaukee, Wis.
Bowyer, F. F., Jersey City, N. J.
Bowyer, M. A., Philadelphia.
Bradley, William N., Philadelphia.
Brown, Alice Barlow, Chicago.
Brown, C. Wm., Elmira, N. Y.
Burritt, H. M., Kendall, N. Y.
Butterworth, W. W., New Orleans, La.
Carter, Chas. Edgerton, New York.
Cassidy, Paul B., Philadelphia.
Cattermole, G. H., Boulder, Colo.
Chaffee, Francis, Towanda, Pa.
Chesebro, Edmund D., Providence, R. I.
Churchill, Frank S., Chicago.
Clark, W. R., East Liverpool, Ohio.
Coit, Henry L., Newark. N. J.
Cook, John C., Chicago.
Costello, M. J., Philadelphia.
Cotton, Alfred C., Chicago.
Day, Fessenden L., Bridgeport, Conn.
Dice, Laura J., York, Pa.
Douglas, Charles, Detroit, Mich.
Earle, Clarence A., Des Plaines, Ill.
Ellis, A. Lee, Baltimore, Md.
Elterich, Theodore J., Pittsburg, Pa.
English, D. E., Mill Burn, N. J.
Farr, William W., Philadelphia.
Fay, William E., Boston.
Fairbanks, Arthur Willard, Boston.
Ferguson, Albert D., Philadelphia.
Fink, Harry M., Pittsburg, Pa.
Fischer, Louis, New York.
Flanders, C. F., Manchester, N. H.
Fleming, Walter S., Mt. Vernon, N. Y.
Fraley, Frederick, Philadelphia.
Freeman, Albert H., Starke, Fla.
Freeman, Roland G., New York.
Freund, H. H., Philadelphia.
Friedlander, Alfred, Cincinnati, O.
Garber, J. B., Dunkirk, Ind.
Garside, C. Z., Newark, N. J.
Gengenbach, Frank P., Denver, Colo.
George, Arial Wellington, Boston.
Gilbert, R. B., Louisville, Ky.
Gochnauer, F., Upperville, Va.
Good, Wm. Harmar, Philadelphia.
Goodenough, Edward W., Waterbury, Conn.
Graham, E. E., Philadelphia.
Green, Henry, Dothan, Ala.
Griffith, J. P. Crozer, Philadelphia.
Gutman, Jacob, New York.
Hamill, S. McC., Philadelphia.
Hamrick, R. H., Pratt City, Ala.
Hand, Alfred, Jr., Philadelphia.
Harvey, Edwin B., Boston.
Hermann, G. A., Hamilton, Ohio.
Hill, Howard Kennedy, Philadelphia.
Hollopeter, W. C., Philadelphia.
Holmes, Arthur D., Detroit, Mich.
Hughes, Frederic J., Plainfield, N. J.
Hulett, Horace L., Allentown, N. Y.
Hume, John E., Philadelphia.
Inghram, Roy McFee, New York.
Jackson, A. J., Matawan, N. J.
Johnson, Loren B. T., Washington, D. C.
Johnson, C. K., Burlington, Vt.
Johnstone, Mary M. S., Chicago.
Jones, Eleanor C., Philadelphia.
Kahrs, W. H., New York.
Kelly, Michael, Fall River, Mass.
Kelley, Samuel W., Cleveland, Ohio.
Kennedy, Lucius C., Scranton, Pa.
Kenney, F. W., Denver, Colo.
Kerley, Charles Gilmore, New York.
Kilmer, Theron Wendell, New York.
Knipe, Reinoehl, Norristown, Pa.
Knox, J. H. Mason, Jr., Baltimore, Md.
Koehler, Gottfried, Chicago.
LeBoutillier, Theodore, Philadelphia.
Leech, Frank, Washington, D. C.
Levi, I. Valentine, Philadelphia.
Livingston, E. P., New York.
Long, Wm. W., Birmingham, Ala.
Lopez, Joseph H., Philadelphia.
Loughran, Frederic W., New York.
Lowenburg, H., Philadelphia.
Ludlum, Walter D., Brooklyn, N. Y.
Lytle, Frank P., Birdsboro, Pa.
McAlister, Alexander, Camden, N. J.
McAniff, Hugh P., Philadelphia.
McClanahan, H. M., Omaha, Neb.
McIlwain, Wm., Lone Wolf, Okla.
McVea, Charles, Baton Rouge, La.
Madden, T. W., Collingswood, N. J.
Mallon, Edward A., Philadelphia.
Manley, James A., Scranton, Pa.
Meadows, W. J., Greensboro, N. C.
Mercer, A. Clifford, Syracuse, N. Y.
Merrick, Robert M., Boston.
Miller, John B., Sligo, Pa.
Milligan, Josephine, Jacksonville, Ill.
Mills, H. Brooker, Philadelphia.
Mitchell, E. W., Cincinnati, Ohio.
Montgomery, R. H., Youngstown, O.
Moorman, Lewis J., Leitchfield, Ky.
Morse, John Lovett, Boston.
Mowry, Jesse E., Providence, R. I.
Murphy, Walter G., East Hartford, Conn.
Nielsen, Louis B., Honesdale, Pa.
Orr, H. Winnett, Lincoln, Neb.
Ostheimer, Maurice, Philadelphia.
Palmer, Henry E., Tallahassee, Fla.
Parke, Thomas D., Birmingham. Ala.
Pearse, Richard A., Brigham, Utah.
Pflueger, Henry F., Philadelphia, Pa.
Pinneo, Frank W., Newark, N. J.
Pisek, Godfrey R., New York.
Piskorski, Abdon V., Jersey City, N. J.
Plymire, I. Swartz, Doylestown, Pa.
Powell, Oscar L., Onancock, Va.
Read, Henry N., Brooklyn, N. Y.
Rosenthal, Edwin, Philadelphia.
Rotch, Thomas Morgan, Boston.
Rowland, Russell Sturges, Detroit, Mich.
Royster, L. T., Norfolk, Va.
Ruhräh, John, Baltimore, Md.
Ryan, Granville N., Des Moines, Ia.
Schell, J. Thompson, Philadelphia.
Schisler, Belle A., Philadelphia.
Sharpe, F. L., Statesville, N. C.
Shaw, Henry L. K., Albany, N. Y.
Sherk, H. H., Camden, N. J.
Silver, Lewis M., New York.
Slaight, Mary J., Rochester, N. Y.
Small, Edward H., Pittsburg, Pa.
Smith, H. F. M., Orange, Mass.
Snyder, J. Ross, Birmingham, Ala.
Southworth, Thomas S., New York.
Stall, A. H., Barberton, Ohio.
Sylvester, Charles P., Boston.
Tate, Robert W., Bolivar, Tenn.
Thomas, F. O., Hopkinsville, Ky.
Todd, Francis H., Paterson, N. J.
Townsend, H. S., Buffalo, N. Y.
Tuley, Henry Enos, Louisville, Ky.
Van Derslice, J. W., Oak Park, Ill.
Van Gaasbeek, Geo. H., Kingston, N. Y.
Warlow, Margaret A., Philadelphia, Pa.
Watson, W. T., Lexington, Tenn.
Welburn, W. C., Ballston, Va.
Wentworth, Arthur H., Boston.
Weston, William, Columbia, S. C.
Williams, C. B., Philippi, W. Va.
Woodburn, Skiles M., Towanda, Pa.
Wolff, H. S., Memphis, Tenn.
Woodcock, G. A., Armstrong, Iowa.
Woodman, Daniel N., Yarmouthville, Maine.
Woolery, Perry, Heltonville, Ind.
Wynkoop, Edward J., Syracuse, N. Y.

Nervous and Mental Diseases.

Adamson, H. K., Maysville, Ky.
Allen, Alfred Reginald, Philadelphia.
Arlitz, William J., Hoboken, N. J.
Barstow, J. M., Council Bluffs, Ia.
Beebe, Brooks F., Cincinnati, Ohio.
Beling, Christopher C., Newark, N. J.
Belt, Henry, New York.
Benton, G. H., Chester, W. Va.
Bond, George F. M., Yonkers, N. Y.
Bowman, D. S., Akron, Ohio.
Boyer, Henry P., Philadelphia.
Brown, Frederick W., Franklin, Pa.
Burr, Charles W., Philadelphia.
Camp, Carl D., Philadelphia, Pa.
Campbell, C. R., Chester, W. Va.
Campbell, James, Elgin, Ill.
Campbell, J. A., Wheeling, W. Va.
Caples, Byron M., Waukesha, Wis.
Chase, Robert H., Philadelphia.
Cleaves, Margaret A., New York.
Coe, Henry W., Portland, Oregon.
Connor, Guy L., Detroit, Mich.
Cook, R. Harvey, Oxford, Ohio.
Cort, Paul L., Trenton, N. J.
Crafts, Leo M., Minneapolis, Minn.
Crothers, T. D., Hartford, Conn.
Dercum, F. X., Philadelphia.
Deuschle, William D., Columbus, O.
Diefendorf, A. R., Middletown, Conn.
Drayton, H. S., New York.
Drewry, William F., Petersburg, Va.
Dunlap, Mary J., Vineland, N. J.
Eshner, Augustus A., Philadelphia.
Evans, William, Philadelphia.
Fisher, John C., Elmira, N. Y.
Fisher, William E., Middletown, Conn.
Foster, George V., New York.
Gordon, Alfred, Philadelphia.
Gorton, E., Summit, N. J.
Gregory, Menas S., New York.
Gregory, Walter E., Dansville, N. Y.
Grinker, Julius, Chicago.
Gundry, Lewis H., Relay, Md.
Haines, J. Clifford, Vincentown, N. J.
Hancker, William H., Farnhurst, Del.
Harvey, Olin F., Wilkesbarre, Pa.
Hawke, W. W., Philadelphia, Pa.
Hazlett, Edgar M., Washington, Pa.
Healy, William, Chicago.
Hepler, Albert J., New Bethlehem, Pa.
Hersman, C. C., Pittsburg, Pa.
Hill, S. S., Wernersville, Pa.
Hinkle, Beatrice M., New York.
Hodges, J. Allison, Richmond, Va.
Hughes, Chas. H., St. Louis, Mo.
Huntington, Geo., Hopewell Junction, N. Y.
Hurd, M. E., Lajose, Pa.
Ingham, S. D., Philadelphia, Pa.
Ives, Augustus W., Detroit, Mich.
Jelliffe, Smith Ely, New York.
Jones, Wm. Alexander, Minneapolis, Minn.
Klingmann, Theophil, Ann Arbor, Mich.
Kradwell, William Theodore, Wauwatosa, Wis.
Learned, John Barr, Northampton, Mass.
Leszynsky, Wm. M., New York.
Lloyd, James Hendrie, Philadelphia.
Loveland, Bradford C., Syracuse, N. Y.
Lucas, Henry H., Paterson, N. J.
Lynch, John A., Bridgeport. Conn.
McAdams, Wm. J., Pittsburg, Pa.
McBride, James H., Pasadena, Cal.
MacCoy, William E., Brookline, Mass.
McCarthy, D. J., Philadelphia.
McCaw, William J., Providence, R. I.
McClellan, James S., Bellaire, Ohio.
McGregor, Robert, Saginaw, Mich.
McNeil, G. W., Pittsburg, Pa.
Mallon, P. S., Morris Plains, N. J.
Mason, Lewis D., Brooklyn, N. Y.
Mailhouse, Max, New Haven, Conn.
Mettler, L. Harrison, Chicago.
Miller, Vesta D., Needham, Mass.
Mills, Charles K., Philadelphia.
Millspaugh, Daniel T., Paterson, N. J.
Morrow, Charles H., Gloucester, Mass.
Mosher, Eliza M., Brooklyn, N. Y.
Nevin, Ethan A., Ogdensburg, N. Y.
Newbold, Henry A., Philadelphia.
Nicholson, Wm. A., Franklin, Pa.
Ordway, Mabel D., Boston.
Ostrander, Herman, Kalamazoo, Mich.
Parker, Moses Greeley, Lowell, Mass.
Parker, Spotswood H., Sonyea, N. Y.
Patrick, Hugh T., Chicago.
Post, Frank S., Pittsburg, Pa.
Potts, Charles S., Philadelphia.
Prince, Morton, Boston.
Punton, John, Kansas City, Mo.
Rhein, John H. W., Philadelphia.
Richardson, Wm. W., Norristown, Pa.
Riggs, George H., Ijamsville, Md.
Riley, W. H., Battle Creek, Mich.
Robie, W. F., Baldwinville, Mass.
Robinson, W. D., Philadelphia.
Rodebaugh, H. A., Columbus, Ohio.
Rosenthal, H. A., Bridgeport, Ohio.
Rucker, S. T., Memphis, Tenn.
Schoonmaker, Irving R., Hallstead, Pa.
Sedgwick, H. M., Peoria, Ill.
Seem, A. A., Bangor, Pa.
Shanahan, William T., Sonyea, N. Y.
Shaw, Joseph B., Trenton, N. J. Pa.
Shellenberger, Edward B., Warren, Pa.
Sherman, Jeanette H., Norristown, Pa.
Shipps, William H., Bordentown, N. J.
Simpson, F. T., Hartford, Conn.
Smith, J. Anson, Blackwood, N. J.
Snow, William Benham, New York.
Spiller, Wm. G., Philadelphia.
Spink, Mary A., Indianapolis, Ind.
Stanley, Charles E., Middletown, Conn.
Stephenson, F. H., Syracuse, N. Y.
Sterne, Albert E., Indianapolis, Ind.
Stoddard, T. A., Pueblo, Colo.
Sullivan, Wm. J., Lawrence, Mass.
Sutton, H. T., Zanesville, Ohio.
Taylor, Isaac M., Morganton, N. C.
Taylor, Madison, Philadelphia.
Thomas, H. M., Baltimore, Md.
Tomlinson, H. A., St. Peter, Minn.
Walling, Wm. H., Atlantic City, N. J.
Walton, George L., Boston.
Webster, J. Bart, Atlantic City, N. J.
Wehlan, Alma Louise, Scranton, Pa.
Wehlan, L., Scranton, Pa.
Weisenburg, T. H., Philadelphia.
West, K. S., Cleveland, Ohio.
Woods, Matthew, Philadelphia.
Work, Hubert, Pueblo, Colo.
Zabriskie, Edwin Garvin, New York.
Zenner, Philip, Cincinnati, Ohio.

Stomatology.

Batten, John Mullen, Downingtown, Pa.
Blum, Richard, New York.
Bogue, Edward A., New York.
Branigan, E. W., Boston.
Brophy, Truman W., Chicago.
Brown, Geo. V. I., Milwaukee. Wis.
Bush, Charles B., Orbisonia, Pa.
Byrd, W. G., Isola, Miss.
Clough, Gilman H., Dexter, Maine.
Corbin, M. L., Ellenboro, W. Va.
Dailey, Wilber M., New York.
Daland, Judson, Philadelphia.
Emmerling, C., Pittsburg. Pa.
Enfield, Walter F., Bedford, Pa.
Evans, A. L., Bonneterre, Mo.
Evans, John King, Malvern, Pa.
Faught, Francis Ashley, Philadelphia, Pa.
Fish, Charles N., Los Angeles, Cal.
Fossume, F. L., New York.
Gifford, U. Grant, Avondale, Pa.
Gorman, J. A., Philadelphia.
Grady, Richard, Annapolis, Md.
Hollingshead, I. W., Philadelphia.
Irwin, Alphonso, Camden, N. J.
Jackson, Sarah G., Vineland, N. J.
Latham, V. A., Chicago.
Lilley, W. M., Brownsville, Pa.
Luckie, S. B., Chester, Pa.
McManus, James, Hartford, Conn.
McNaul, C. G., Glen Richey, Pa.
Miller, Valerion A., Lake Arthur, La.
Newbern, J. M., Jarvisburg, N. C.
Oliver, Robert T., West Point, N. Y.
Potter, William H., Boston.
Power, J. E., Providence, R. I.
Ray, George S., Erie, Pa.
Register, Henry C., Philadelphia.
Schamberg, Morris I., New York
Simonton, Thomas Grier, Pittsburg, Pa.
Stellwagen, Thos. C., Philadelphia.
Talbot, Eugene S., Chicago.
Tuten, J. G., Jesup, Ga.
Walton, R. D., Frankfort, Maine.
Waugh, Wm. F., Chicago.
Williams, Roger, Pittsburg, Pa.

Cutaneous Medicine and Surgery.

Anderson, A., New Britain, Conn.
Baum, Henry Clay, Syracuse, N. Y.
Baum, William L., Chicago.
Bierhoff, Frederic, New York.
Boehm, Joseph L., St. Louis, Mo.
Boggs, Russell H., Pittsburg, Pa.
Bookwalter, Harry, Columbiana, O.
Bready, C. R., Philadelphia.
Brotherlin, Henry Hale, Hollidaysburg, Pa.
Bull, Thomas M., Naugatuck, Conn.
Bulkley, L. Duncan, New York.
Butler, George E., Fall River, Mass.
Camphell, R. R., Chicago.
Collings, S. P., Hot Springs, Ark.
Corlett, William Thomas, Cleveland, Ohio.
Corwin, R. W., Pueblo, Colo.
Dean, Geo. R., Spartanburg, S. C.
Farrell, John T., Providence, R. I.
Field, Geo. J., Salt Lake, Utah.
Finck, Edward B., Philadelphia.
Fordyce, John A., New York.
Foster, B. B., Portland, Maine.
Fox, George Howard, New York.
Friedrich, Leon L., Washington, D.C.
Gnichtel, A. L., New York.
Gold, James Douglas, Bridgeport, Conn.
Gottheil, Wm. G., New York.
Hartzell, M. B., Philadelphia.
Heidingsfeld, M. L., Cincinnati, O.
Hetherington, William, Jersey City, N. J.
Hirsch, Charles L., Philadelphia.
Hixon, Edwin C., Boston.

Holder, Oscar H., New York.
Howe, Wm., Shingle House, Pa.
Jackson, George T., New York.
Johnson, Frank M., Boston.
Jones, Seth W., Franklin, N. H.
Kassabian, Mihran K., Philadelphia.
Kellow, W. J., Watertown, N. Y.
Kessler, J. B., Iowa City, Iowa.
Kinch, Charles A., New York.
Klotz, H. G., New York.
LeRoy, Bernard R., Athens, Ohio.
Lytle, Isaac Walter, Philadelphia.
McDonnell, R. A., New Haven, Conn.
MacGowan, Granville, Los Angeles, Cal.
Mook, William H., St. Louis, Mo.
Moran, McCandlish M., Pinners, Va.
Ober, Geo. Eugene, Bridgeport, Conn.
Ochs, Benjamin F., New York.
Palmer, W. L., Albert Lea, Minn.
Piffard, H. G., New York.
Price, S. W., Scarbro, W. Va.
Pusey, Wm. Allen, Chicago.
Ravogli, Augustus, Cincinnati, Ohio.
Reeser, Richard, Columbia, Pa.
Rich, R. G., David City, Neb.
Rodenbaugh, N. F., Barberton, Ohio.
Rosenheim, P. J., New York.
Rosenthal, M., Cape Girardeau, Mo.
Rosenthal, Melvin S., Baltimore, Md.
Rostenberg, Adolph, New York.
Schamberg, Jay Frank, Philadelphia.
Scott, W. S., Chillicothe, Ohio.
Sharpe, Edward S., Atlantic, N. J.
Shoemaker, Harlan, Philadelphia.
Shoninger, Lee S., New York.
Slaughter, Charles H. P., Philadelphia, Pa.
Stearns, B. W., Binghamton, N. Y.
Stelwagon, Henry W., Philadelphia.
Swarts, Gardner T., Providence, R. I.
Taggart, Thos. D., Atlantic City,N.J.
Tompkins, J. Edward, Fredericksburg, Va.
Townsend, Terry M., New York.
Townsend, W. W., Rutland, Vt.
Valentine, J. J., New York.
Varney, H. R., Detroit, Mich.
Wakelee, E. H., Big Flats, N. Y.
Wallhauser, H. J. F., Newark, N. J.
Wallis, J. Frank, Norristown, Pa.
Weiss, Ludwig, New York.
Whitehouse, Henry H., New York.
Wilson, Chas. W., Vineland, N. J.
Winfield, J. M., Brooklyn, N. Y.
Wolbarst, Abraham Leo, New York.

Pharmacology and Therapeutics.

Abbott, W. C., Chicago.
Am Ende, C. G., New York.
Ball, Otho F., St. Louis, Mo.
Barnes, Noble P., Washington, D. C.
Barothy, A. M., Chicago.
Benedict, A. L., Buffalo, N. Y.
Butler, George F., Wilmette, Ill.
Cecil, G. E., Flat Lick, Ky.
Chamberlin, C. S., Cincinnati, Ohio.
England, Joseph W., Philadelphia.
Fussell, M. H., Philadelphia.
Gichner, Joseph E., Baltimore, Md.
Hallberg, C. S. N., Chicago.
Hannum, Wm., Hatboro, Pa.
Hatcher, Robt. A., New York.
Hill, W. B., Milwaukee, Wis.
Houghton, E. M., Detroit, Mich.
Jenne, J. N., Chittenden, Vt.
Kline, W. J. K., Greensburg, Pa.
Lewi, Wm. G., Albany, N. Y.
Lewis, H. Edwin, New York City.
Lowe, Clement B., Philadelphia.
Mackinney, William H., Philadelphia.
Mayer, Louis H., Johnstown, Pa.
McDowell, Alexander B., New York.
Osborne, Oliver T., New Haven, Conn.
Puckner, W. A., Chicago.
Reade, Frank M., Richmond, Va.
Reilly, Thomas H., New York.
Remington, Joseph P., Philadelphia.
Riley, Cassius M., St. Louis, Mo.
Robinson, William J., New York.
Sadtler, S. P., Philadelphia.
Simmons, George H., Chicago.
Skinner, Lewis C., Davidson, N. C.
Slack, Henry R., LaGrange, Ga.
Snively, I. Newton, Philadelphia.
Solis-Cohen, Solomon, Philadelphia.
Sprowls, J. N., Claysville, Pa.
Stern, Heinrich, New York.
Stewart, W. Blair, Atlantic City, N. J.
Taylor, C. F., Philadelphia.
Taylor, John J., Philadelphia.
Thrush, M. Clayton, Philadelphia.
Tompkins, W. W., Charleston, W. Va.
Tyrode, Maurice V., Boston.
Uhle, Alexander A., Philadelphia.
Webb, C. W., Wellsboro, Pa.
Wescott, W. C., Atlantic City, N. J.
Wilbert, M. I., Philadelphia.
Wood, Horatio C., Jr., Philadelphia.
Woodbury, Frank, Philadelphia.

Pathology and Physiology.

Adami, J. George, Montreal.
Adler, Isaac, New York, N. Y.
Beates, Henry, Jr., Philadelphia, Pa.
Beebe, S. P., New York, N. Y.
Bergey, D. H., Philadelphia, Pa.
Bierring, Walter L., Iowa City, Ia.
Bolin, J. Albert, Philadelphia, Pa.
Boyle, J. C., Butler, Pa.
Cadbury, Wm. W., Philadelphia, Pa.
Caldwell, E. W., New York, N. Y.
Cannon, Walter B., Boston, Mass.
Cattell, Henry W., Philadelphia, Pa.
Christian, Henry A., Boston, Mass.
Cocklin, C. C., Harrisburg, Pa.
Colver, Benton, Battle Creek, Mich.
Coplin, W. M. L., Philadelphia, Pa.
Day, Mary Gage-, Kingston, N. Y.
Dederick, A. S., Troy, N. Y.
Ellis, A. G., Philadelphia, Pa.
Finder, Wm., Jr., Troy, N. Y.
Flick, Lawrence F., Philadelphia, Pa.
Graham, Henry G., Bellwood, Neb.
Hall, Winfield S., Chicago, Ill.
Herb, Isabella C., Chicago, Ill.
Hitchens, A. Parker, Glen Olden, Pa.
Holland, James W., Philadelphia, Pa.
Hunt, Ernest L., Worcester, Mass.
Jack, Geo. N., Buffalo, N. Y.
Jackson, J. Henry, Barre, Vt.
Johnson, J. C., Atlanta, Ga.
Kotz, A. L., Easton, Pa.
Langdon, Robert M., Englewood Cliffs, N. J.
Litterer, Wm., Nashville, Tenn.
Longcope, Warfield T., Philadelphia.
Lodholz, Edward, Philadelphia.
Lusk, Graham, New York, N. Y.
MacCallum, W. G., Baltimore, Md.
Manning, Isaac H., Chapel Hill, N.C.
Marple, W. B., New York, N. Y.
McClintock, John T., Iowa City, Ia.
McConnell, Guthrie, St. Louis, Mo.
McFarland, Joseph, Philadelphia, Pa.
Meader, Isabel M., Watertown, N.Y.
Milnor, M. T., Warrensville, Pa.
Moak, Harris, Brooklyn, N. Y.
Nusbaumer, Pauline S., Oakland, Cal.
Phillips, J. Mel., Columbus, O.
Pratt, Joseph H., Boston, Mass.
Pritchard, William Percival, Fall River, Mass.
Ravenel, Mazyck, Philadelphia, Pa.
Rosenau, M. J., Washington, D. C.
Rosenberger, R. C., Philadelphia, Pa.
Ruediger, Gustav F., Chicago, Ill.
Russell, Frederick F., U. S. Army.
Schoney, L., New York.
de Schweinitz, G. E., Philadelphia, Pa.
Shields, Wm. G., Jr., Philadelphia, Pa.
Smith, Claude A., Atlanta, Ga.
Stokes, Wm. Royal, Baltimore, Md.
Turck, Fenton B., Chicago, Ill.
Walker, Thaddeus, Detroit, Mich.
Wayne, J. Robert, North Little Rock, Ark.
Welch, William H., Baltimore, Md.
Wetherill, Henry Emerson, Philadelphia, Pa.
Wilson, John D., Philadelphia, Pa.
Wood, Harold B., Philadelphia, Pa.
Wynn, Charles A., Greensburg, Pa.
Wynn, Frank B., Indianapolis, Ind.

Miscellaneous.

A. THOSE WHO EXPRESSED NO PREFERENCE FOR ANY SECTION.

Ackerman, John, Erie, Pa.
Alexander, A. F., Paterson, N. J.
Aling, Charles P., Minneapolis, Minn.
Amerman, C. E., Linton, Ind.
Anderson, Paul V., Morganton, N. C.
Anderson, U. Grant, Carbondale, Pa.
Anderson, W. B., Brownwood, Tex.
Atherton, Andrew L., Atlantic City, N. J.
Atkisson, F., Fort Benton, Mont.
Austin, W. S., Knoxville, Tenn.
Axline, J. H., Lancaster, O.
Barber, C. L., Lansing, Mich.
Barcus, A. L., Philadelphia, Pa.
Barger, W. T., Cleveland, O.
Barton, Geo. C., Minneapolis, Minn.
Bauer, Louis G., Philadelphia, Pa.
Bauer, Rud. F., Philadelphia, Pa.
Bell, Wm. H., Washington, D. C.
Berlet, James F., Philadelphia, Pa.
Bland, P. B., Philadelphia, Pa.
Boehroch, M. H., Philadelphia, Pa.
Boon, W. Thomas, Manayunk, Pa.
Bowen, C. R., Almond, N. Y.
Bowman, John H., Berwick, Pa.
Brown, Joel D., Oaks, Pa.
Brown, Percy, Boston, Mass.
Burt, N. Howard, Ocean City, N. J.
Burton, Hiram R., Lewes, Del.
Callahan, Andrew, Philadelphia, Pa.
Cameron, John Lawson, Philadelphia, Pa.
Cantwell, Frank V., Trenton, N. J.
Carney, Thomas J., New York, N. Y.
Carrell, J. B., Hatboro, Pa.
Carson, F. W., Waymont, Pa.
Claxton, Charles, Philadelphia, Pa.
Cole, Lewis Gregory, New York, N.Y.
Coleman, C. C., Buena Vista, Va.
Collier, William, Trenton, N. J.
Cooper, W. Grant, Ogdensburg, N.Y.
Cook, Hugh F., Newark, N. J.
Coon, J. W., Wauwatosa, Wis.
Corson, E. S., Bridgeton, N. J.
Cragwall, Albert O., Stephenville, Tex.
Croft, J. W., Waynesboro, Pa.
Curtice, L. E., Buffalo, N. Y.
Cuskaden, Albert D., Atlantic City, N. J.
Dadman, Eliza Josephine, Boston, Mass.
Dalton, H. C., St. Louis, Mo.
Davis, A. E., New York, N. Y.
Davis, John S., Lovelaceville, Ky.
Devitt, B. F., Philadelphia, Pa.
Dew, R. H., Salem, W. Va.
Dixon, Samuel G., Bryn Mawr, Pa.
Donnelly, Florence E., Conshohocken, Pa.
Donohue, F. O., Syracuse, N. Y.
Drake, G. W., Hollins, Va.
Dufour, C. R., Washington, D. C.
Dugan, John, Albion, N. Y.
Dye, Hobart S., Washington, D. C.
Ellenberger, J. W., Harrisburg, Pa.
English, David C., New Brunswick, N. J.
Evans, F. J., Chester, Pa.
Ewen, W. L., Alloway, N. J.
Fay, John, Altoona, Pa.
Fetterolf, D. W., Philadelphia, Pa.
Fife, Charles A., Philadelphia, Pa.
Finegan, Daniel J., Gloucester, Mass.
Fisler, C. F., Clayton, N. J.
Fiske, E. L., Fitchburg, Mass.
Fleming, Thomas J., Philadelphia, Pa.
Foster, J. P. C., New Haven, Conn.
Friedenberg, Samuel, Philadelphia, Pa.
Fry, Samuel, Washington, D. C.
Gamber, W. P., Stanton, Mich.
Gibson, Edwin Lacy, Staunton, Va.
Gibson, P., Homer, La.
Gleaves, O. G., St. Joseph, Mo.
Griswold, V. M., Fredonia, N. Y.
Hammer, A. Wiese, Philadelphia, Pa.
Hanna, Hugh, Philadelphia, Pa.
Harman, George G., Huntingdon, Pa.
Harris, Philander A., Paterson, N. C.
Hausman, W. A., Jr., Allentown, Pa.
Hawley, G. H., Barnstead, N. H.
Herrman, Max F., Philadelphia, Pa.
Hess, Carl, Würzburg, Germany.
Hogsett, C. Y., Ft. Worth, Tex.
Houghton, Charles W., Philadelphia, Pa.
Hoyt, Daniel M., Philadelphia, Pa.
Hughes, Morgan D., Branchville, N.J.
Janeway, Henry H., New Brunswick, N. J.
Johnson, Frederick C., Wilkes-Barre, Pa.
Jones, Mary Lois, Pittsburg, Pa.
Jordan, James O., Boston, Mass.
Kipps, D. M., Front Royal, Va.
Klein, W. F., Lebanon, Pa.
Knipe, William H., Limerick, Pa.
Kollock, Katherine, Philadelphia, Pa.
Kurtz, J. E., Reading, Pa.
Leale, Chas., Kingsland, Ark.
Leavitt, John F., Camden, N. J.
Lehnhoff, H. J., Lincoln, Neb.
Le Roy, Simeon, Grand Rapids, Mich.
Lewis, A. C., Fall River, Mass.
Lindsay, W. A., Amsterdam, O.
Long, Isaac S., Freehold, N. J.
Loughridge, W. E., Mansfield, O.
Lumbard, Joseph E., New York, N.Y.
Madden, Walter, Trenton, N. J.
Main, R. H., Barry, Ill.
Mander, A. J., Millville. N. J.
Mantz, F. A., Philadelphia, Pa.
Marshall, Randolph, Tuckahoe, N. J.
Martin, Joseph M., Lewes, Del.
Mattison, James A., Marion, Ind.
McConnell, Geo. G., Chicago, Ill.
McGowan, H., Harrisburg, Pa.
McGuigan, John I., Philadelphia, Pa.
McGinty, E. F., Pittston, Pa.
McKeage, Wm., Philadelphia, Pa.
McLoughlin, T. J., Jersey City, N.J.
McNulty, John J., New York, N. Y.
Melcher, W. P., Mt. Holly, N. J.
Michener, Evan W., Philadelphia, Pa.
Moir, A., Dunnville, Ont., Can.
Moore, Joseph A., Philadelphia, Pa.
Morris, Roger S., Baltimore, Md.
Murphy, F. A., Philadelphia, Pa.
Neely, Frank, Allegheny, Pa.
Newcomet, Wm. S., Philadelphia, Pa.
Norris, Frank O., Eagle Lake, Tex.
Northrup, W. P., New York, N. Y.
Oates, T. K., Martinsburg, W. Va.
Odom, James I. Van, Littleton, Okla.
Oesterling, H. E., Wheeling, W. Va.
O'Neill, Owen, Willimantic, Conn.
Pancoast, Henry K., Philadelphia,Pa.
Parker, Frank C., Norristown, Pa.
Parry, Wm. C., Hainesport, N. J.
Patterson, C. W., Uhrichsville, O.
Payne, Albert E., Riverhead, N. Y.
Pearce, W. M., Baltimore, Md.
Pechin, Edward C., Camden, N. J.
Phelan, Edward, Newark, N. J.
Phillips, C. B., Pitman Grove, N. J.
Plimpton, Lewis H., Norwood, Mass.
Plimpton, W. O., New York, N. Y.
Porteus, J. S., Taylor, Pa.
Potter, Will H., Niagara Falls, N.Y.
Price, Dr. Joseph, Philadelphia, Pa.
Randolph, Robert L., Baltimore, Md.
Reading, George Evans, Woodbury, N. J.
Redeker, F. W., Bloomsburg, Pa.
Reed, E. L., Atlantic City, N. J.
Remaly, Chas. E., Melrose, Wis.
Rexroad, C. W., Harrisville, W. Va.
Reynolds, Willard G., Brooklyn, N.Y.
Rhoads, Samuel, Philadelphia, Pa.
Robinson, W. J., Portia, Ark.
Rogers, N. N., Kingston, Pa.
Rose, W. A., Rochester, Pa.
Ruoff, William, Philadelphia, Pa.
Sanders, Wm. Shelby, Troy, Ala.
Sarratt, S. G., Union, S. C.
Saulsberry, Charles E., May's Landing, N. J.
Sawyer, Annie L., Atlanta, Ga.
Saxman, Nathaniel H., Philadelphia, Pa.
Scholl, B. Frank, Philadelphia, Pa.
Schutz, W. H., Kansas City, Mo.
Scott, Ernest, Columbus, O.
Sheldon, C. W., Keeneyville, Pa.
Shoemaker, John V., Philadelphia,Pa.
Short, Martha J., Rolla, Mo.
Shute, H. A., Philadelphia, Pa.
Simmons, Horace M., Baltimore, Md.
Smith, G. F., Falconer, N. Y.
Smith, Horace R., Altoona, Pa.
Southwick, F. A., Stevens Point, Wis.
Spigler, Otto R., Terre Haute, Ind.
Stanger, Samuel F., Trenton, N. J.
Steiner, Edwin, Newark, N. J.
Stevens, William, New York, N. Y.
Stewart, S. C., Clearfield, Pa.
Stickney, V. H., Dickinson, N. D.
Sturgis, W. E., Stephensville, Tex.
Taylor, Robert W., New York, N. Y.
Thayer, W. S., Baltimore, Md.
Thomas, Vernon D., Pittsburg, Pa.
Thornton, J. E., Columbia, Mo.
Tomlinson, Peter W., Wilmington, Del.
Townsend, Mary E., Atlantic City, N. J.
Trevaskis, A. L., Turtle Creek, Pa.
Tyler, B. D., Hadensville, Ky.
Van Derlyn, J. DuBois, New York, N. Y.
Van Gaasbeek, H. D., Sussex, N. J.
Van Ness, E. McE., Baltimore, Md.
Vinsant, Wm. J., Pecos, Tex.
Voorhees, Sherman, Elmira, N. Y.
Waite, H. E., New York, N. Y.
Walker, James B., Philadelphia, Pa.
Wallin, Mathilda K., New York, N.Y.
Walters, E. A., Ft. Worth, Tex.
Watson, Henry D., Cincinnatus, N. Y.
Welch, W. C., New Haven, Conn.
Weller, M., St. Johns, Mich.
West, W. M., Monett, Mo.
Wharton, H. R., Philadelphia, Pa.
Wheeler, Harry S., Whippany, N. J.
Whitney, Chas. A., New York, N. Y.
Wilbur, William L., Trenton, N. J.
Wiley, S. N., Norristown, Pa.
Will, Frederick J., Des Moines, Ia.
Williams, Geo. S., Muskegon, Mich.
Wilson, Norton L., Elizabeth, N. J.
Wilson, John H., Bethlehem, Pa.
Wilson, W. Reynolds, Philadelphia, Pa.
Wishard, E. E., Noblesville, Ind.
Woodward, R. M., Boston, Mass.
Woofter, A. J., Weston, W. Va.

Miscellaneous.

B. THOSE WHO MARKED MORE THAN ONE SECTION.

Abaly, W. C., Madison, Wis.
Adams, Chancey, Concord, N. H.
Alkire, H. L., Topeka, Kan.
Ard, F. C., Plainfield, N. J.
Ayres, S. C., Cincinnati, Ohio.
Bacon, H. Augustus, Philadelphia.
Bahn, G. W., Spring Forge, Pa.
Barlow, W. Jarvis, Los Angeles, Cal.
Beatty, H. M., Trenton, N. J.
Beauclerk, W. P., Concord, N. H.
Beaudoux, H. A., Fargo, N. D.
Bird, Arthur Judson, Overton, Pa.
Bloodgood, Joseph C., Baltimore, Md.
Bracken, H. M., Minneapolis, Minn.
Brailesford, A. M., Mullins, S. C.
Braucht, H. L., Spring Mills, Pa.
Bridge, Norman, Los Angeles, Cal.
Briggs, Albert H., Buffalo, N. Y.
Briggs, H. H., Asheville, N. C.
Brittingham, James D., Philadelphia.
Brobst, Charles H., Peoria, Ill.
Brown, H. R., Chillicothe, Ohio.
Browning, William, Brooklyn, N. Y.
Bruner, John W., Bloomsburg, Pa.
Buehman, L. A., Pierce, Ohio.
Bullard, William E., Larchmont, N. Y.
Caldwell, C. P., Chicago.
Carson, James O., Bowling Green, Ky.
Chase, John, Denver. Colo.
Chisholm, F. M., Baltimore, Md.
Cleemann, Richard A., Philadelphia.
Cleland, James, Jr., Detroit, Mich.
Coe, Richard, Newark, N. J.
Cohen, Lee, Baltimore, Md.
Congdon, C. E., Buffalo, N. Y.
Conn, J. Emmett, Ida Grove, Iowa.
Corl. H. E., Middle Branch, Ohio.
Crane, A. Melville, Marion, Ohio.
Crane, S. Ellis, Syracuse, N. Y.
Currie, Thos. R., Philadelphia.
Curtis, F. C., Albany, N. Y.
Cushing, Harvey, Baltimore, Md.
Dailey, Lawrence J., Gloversville, N. Y.
Daly, J. Nellis, Orangeville, Ill.
Davis, William H., Denver, Colo.
Dayton, W. L., Lincoln, Neb.
Deal, John Colton, Philadelphia.
Dennis, Daniel N., Erie, Pa.
Derdiger, Aria Louis, Chicago.
De Witt, J. P., Canton, Ohio.
Donaldson, H. J., Williamsport, Pa.
Duncan, Harry A., Philadelphia.
Duncan, J. A., Bedford, Ind.
Durham, James R., Warren, Pa.
Eagleton, Wells P., Newark, N. J.
Edgar, James Clifton, New York.
Emerson, Linn, Orange, N. J.
Erdman, B., Indianapolis, Ind.
Fair, John F., Cambridge, Mass.
Fleming, George A., Baltimore, Md.
Forline, Henry H., Fredericksburg, Va.
Formad, Marie K., Philadelphia.
Fox, F. E., Fulton, N. Y.
French, Charles L., Clinton, Mass.
Friedenwald, Harry, Baltimore, Md.
Garrabrant, C., Atlanta, N. J.
Garrison, Daniel, Penn Grove, N. J.
Gates, Aden Clarence, Kingston, N. Y.
Geier, Otto P., Cincinnati, Ohio.
Gile, John M., Hanover, N. H.
Glenn, Eugene B., Asheville, N. C.
Goldwater, A. L., New York.
Greene, D. W., Dayton, Ohio.
Griffith, D. M., Owensboro, Ky.
Gundry, Richard F., Catonsville, Md.
Harris, A. E., Little Rock, Ark.
Harlan, Herhert, Baltimore, Md.
Harrower, David, Jr., Worcester, Mass.
Hartmann, Jacob A., St. Louis, Mo.
Hawkes, E. M. Z., Newark, N. J.
Hayes, Leo Z., Force, Pa.
Hays, S. B., Newcomerstown, Ohio.
Hegner, Casper F., Cincinnati, Ohio.
Hemmeter, John C., Baltimore, Md.
Hoffman, G. E., Logansport, Ind.
Horrell. C. B., Galesburg, Ill.
Houlihan. T. J., Ida Grove, Iowa.
Hulett, Joseph B., Middletown, N. Y.
Hunt, George E., Holyoke, Mass.
Jennett, H. N., Kansas City, Mo.
Jervey, J. W., Greenville. S. C.
Johnson, Joseph Tabor, Washington, D. C.
Johnson, Walter B., Paterson, N. J.
Jonah, W. E., Atlantic City, N. J.
Kerr, T. J., Cleveland, Ohio.
King, James K., Watkins, N. Y.
Kinyoun, J. J., Philadelphia, Pa.
Kipp, Charles J., Newark. N. J.
Knight, Robert, Seneca Falls, N. Y.
Kosmak, George W., New York.
Krum, Astley G., Erie, Pa.
Kyle, D. Braden, Philadelphia.
Latta, Samuel W., Philadelphia.
Lecompte, William C., Bristol, Pa.
Lindley, D. C., New Castle, Pa.
Link, Joseph A., Springfield, Ohio.
Linthicum, G. Milton, Baltimore, Md.
Linvill, David Swan, Columbia City, Ind.
Locke, Eva M., Nashua, N. H.
Longeway, A. F., Great Falls, Mont.
Loughlin, T. B., Olean, N. Y.
McPherson, J. D., Akron, Ohio.
Martin, Albert R., Chicago.
Marvel, Emery, Atlantic City, N. J.
Massey, J. E., Jr., Rock Hill, S. C.
McClary, Charles E., Syracuse, N. Y.
McComb, Samuel Forbes, Tarentum, Pa.
McKeeby, W. Coe, Syracuse, N. Y.
Miller, Aaron B., Syracuse, N. Y.
Miller, J. R., Rock Hill, S. C.
Miller, Walter J., Johnson City, Tenn.
Miller, Walter M., Philadelphia.
Miller, William Preston, Hagerstown, Md.
Miner, Charles H., Wilkesbarre, Pa.
Mitchell, John D., Hornell, N. Y.
Modell, Daniel A., Philadelphia, Pa.
Moraweck, Ernest, Louisville, Ky.
Morrison, A. A., Savannah, Ga.
Morrow, Prince A., New York, N. Y.
Moulton, Willis B., Portland, Me.
Munson, S. E., Springfield, Ill.
Musser, Francis R., Oakland, Cal.
Nead, Daniel W., Philadelphia, Pa.
Ochsner, A. J., Chicago, Ill.
Ogden, Chester R., Clarksburg, W.Va.
Olendorf, Carolyn L., Cobleskill, N.Y.
Oliver, J. A., Steubenville, O.
O'Malley, Joseph O., Philadelphia,Pa.
Otis, Elmer F., Lake George, N. Y.
Otis, Frank J., Chicago, Ill.
Ott, Charles H., Sayre, Pa.
Ott, Lambert, Philadelphia, Pa.
Pack, John E., Georgetown, Ky.
Peck, C. W., Brandon, Vt.
Pedersen, Victor C., New York, N.Y.
Peter, Luther C., Philadelphia, Pa.
Phillips, C. J., Chicago, Ill.
Potter, Ellen C., Philadelphia, Pa.
Price, J. J., Olyphant, Pa.
Pumphrey, R. J., Massillon, O.
Purnell, Caroline M., Philadelphia, Pa.
Quigley, D. T., North Platte, Neb.
Ramsay, Wm. E., Perth Amboy, N.J.
Ransom, T. H., Bloomingdale, Mich.
Rhu, Auguste, Marion, O.
Richardson, Charles Harper, Pittsfield, Mass.
Roberts, W. H., Pasadena, Cal.
Robertson, Wm. Egbert, Philadelphia, Pa.
Roe, W. J., Philadelphia, Pa.
Rowe, George H. M., Boston, Mass.
Roy, Dunbar, Atlanta, Ga.
Samson, W. Stanley, Lancaster, O.
Sanders, S. F., Holdrege, Neb.
Saxe, G. A. De Santos, New York, N. Y.
Schmidt, L. E., Chicago, Ill.
Schuman, O. V., Columbia City, Ind.
Seabrook, Alice M., Philadelphia, Pa.
Seaman, Louis L., New York, N. Y.
Sears, F. W., Syracuse, N. Y.
Seegar, J. King B., Baltimore, Md.
Shepard, Charles H., Brooklyn, N.Y.
Shepherd, I. M. O., Trenton, N. J.
Siggins, J. B., Oil City, Pa.
Simpson, John Crayke, Washington, D. C.
Singer, John J., Greensburg, Pa.
Skinner, J. O., Washington, D. C.
Smith, Homer E., Norwich, N. Y.
Stauffer, Fred, Salt Lake City, Utah.
Stauffer, Nathan P., Philadelphia,Pa.
Stealy, J. H., Freeport, Ill.
Steeves, Alice M., Boston, Mass.
Stevenson, F. C., Montgomery, Ala.
Stewart, James M., Paterson, N. J.
Stowell, Wm. Leland, New York,N.Y.
Strain, Earle, Great Falls, Mont.
Strittmatter, I. P., Philadelphia, Pa.
Stueber, F. G., Lima, O.
Sutliff, Van D. A., Philadelphia, Pa.
Swan, Tyrus E., Easton, Pa.
Swaney, H. N., Eagle, Mich.
Swing, E. V., Coatesville, Pa.
Tait, Thomas W., Philadelphia, Pa.
Talley, James E., Philadelphia, Pa.
Taylor, Julius Heyward, Columbia, S. C.
Thienhaus, C. O., Milwaukee, Wis.
Thomson, Chas. E., Scranton, Pa.
Thompson, Charles O., Boston, Mass.
Timmons, Jos. M., West Alexander, Pa.
Totman, David M., Syracuse, N. Y.
Town, E. C., Narberth, Pa.
Tracy, George T., Beverly, N. J.
Tracy, S. E., Philadelphia, Pa.
Trexler, Henrietta M. Dougherty-, Philadelphia, Pa.
Trow, Charles, Toronto, Canada.
Turnbull, Thomas, Jr., Allegheny, Pa.
Tweedle, James B., Weatherly, Pa.
Valentine, Ferd. C., New York, N. Y.
Vance, Ap. Morgan, Louisville, Ky.
Wagenseller, B. F., Selinsgrove, Pa.
Walton, L. S., Jenkintown, Pa.
Ward, Nathan G., Philadelphia, Pa.
Wasley, H. M., Shenandoah, Pa.
Weber, Geo. T., Olney, Ill.
Weber, Harry P., Philadelphia, Pa.
Weeber, Gustavus, Washington, D. C.
Weems, M. A., Columbia, Tex.
Wenner, E. Bruce, Philadelphia, Pa.
Wessinger, John A., Ann Arbor, Mich.
Whitacre, Horace J., Cincinnati. O.
White, Joseph A., Richmond, Va.
Wiley, E. M., Lexington, Ky.
Wilkinson, Oscar, Washington, D. C.
Williams, Chas. E., Houlton, Me.
Wintersteen, J. Boone, Moorestown, N. J.
Wood, P. R., Marshalltown, Ia.
Woodruff, Richard A., Pittsfield,Mass.
Woodruff, W. G., Portland, Ore.
Young, S. A., Lennox, S. D.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and methods of treatment for the diseases seen especially in every-day practice. Contributions will be welcomed from our readers.]

Hay Fever.

Hay fever, hay asthma or hyperesthetic rhinitis is dependent on three classes of factors which may be active to varying degrees in individual cases. The first is an underlying general nervous susceptibility which may depend on inherited neurasthenic tendencies or on acquired conditions of a toxic nature. Of the latter, the most prominent are a gouty or rheumatic tendency referred by some to the action of an excess of uric acid. In many cases the underlying susceptibility appears to be due to intestinal putrefaction with absorption of the toxins so produced.

The second class of factors includes abnormal conditions of the nasal organs which favor congestion and undue sensitiveness of the mucous membrane.

The third class consists of dust, pollen and other irritants which act as exciting causes. About two-thirds of the cases are supposed to be due to pollen.

The treatment must consist in the removal of constitutional causes, the proper local treatment of the nose, avoidance of the exciting causes, by change of climate, if necessary, with the aid of antitoxin in cases in which it is appropriate.

As general treatment, antacids, especially potassium or sodium citrate, and salicylates are to be used to lessen acidosis and to remove any gouty tendency. S. Solis-Cohen, in The Journal, recommends the following:

℞. Sodii salicylatis..........................ʒiii 12|
Sodii benzoatis ....ʒvi 24|
Essentiæ pepsini ....f℥ii 60|
Tincturæ nucis vomicæ..................fʒi 4|
Aquæ menthæ piperitæ...................f℥iv 120|

M. Sig.: Two teaspoonfuls in (or with) one-half tumblerful of water, every fourth hour, for four or five doses daily.

As alkaline diuretics liquor potassii or sodium citrate may be given, or mild alkaline carbonated waters which Cohen recommends as always helpful. If preferred, tablets of lithium carbonate or lithium citrate may be used to make an artificial mineral water. The National Formulary provides for powders of effervescing artificial Vichy salts, which may be used instead of the natural water.

℞. Pulv. salis Vichyani fact. efferv. (N. F.) .℥iv 120|

Sig.: Take a teaspoonful in a glass of water four times a day. Or, if the action of lithium is desired, the Pulvis salis Vichyani factitii effervescens cum lithio (N. F.) may be prescribed.

For a tendency to intestinal putrefaction the remedies suggested in The Journal, June 22, page 2158, may be employed.

The local treatment of the nose is largely operative and is best carried out by a specialist. Internal treatment designed to diminish the sensitiveness of the nose may be resorted to. Cohen recommends:

℞. Hyoscinæ hydrobromatis ....gr. 1/100 |0006
Camphoræ monobromatæ..............gr. ii |12
Sacchari lactis, q. s.

Misce et tritura bene. Divide in tabulas vel capsulas No. xx. Sig.: Give one tablet or capsule at intervals of from ten to ninety minutes until the sneezing and running of the nose are controlled, after which one tablet may be taken every second, third or fourth hour, as may be necessary to maintain the effect.

The following may be given in the same way:

℞.	Atropinæ sulphatis	gr. 1/50		001
	Camphoræ monobromatæ	gr. v		30
	Balsami peruviani, q. s.			

M. fac. capsules No. xx.

H. H. Curtis, in a paper read before the Section on Laryngology and Otology of the American Medical Association at the recent session at Atlantic City, recommends the following tablet:

℞.	Strychninæ arsenatis	gr. 5/6		054
	Atropinæ sulphatis	gr. 1/3		02
	Camphoræ	gr. xxv	1	62
	Ipecacuanhæ	gr. v		32

Misce et fiat massa in pilulas No. 100 dividenda. Sig.: One pill from three to six times a day.

This author has found this especially useful in cases in which the hyperesthetic rhinitis depends on an adynamic state of the nervous system.

Practitioners who believe in the uric acid origin of the disease have recommended mineral acids and have reported remarkable results. It is possible that these agents do good by preventing intestinal putrefaction rather than by banishing uric acid from the blood. At any rate so simple a remedy deserves a trial in such an obstinate disease. Gleason, "Diseases of Nose," recommends:

℞.	Acidi nitromuriatici	f℥i	30	

Sig.: From 5 to 10 drops in a tumblerful of water after meals.

The nitromuriatic acid should be freshly prepared. Dilute hydrobromic acid may also be given combining the sedative effect of the bromid with the action of the acid ions.

Probably the most efficient local application to the nose is some preparation of suprarenal gland or the suprarenal alkaloid. This may be given internally, or applied locally to the congested mucous membrane. Theoretically the internal use of suprarenal alkaloid is contraindicated, as it is not desirable to raise the general blood pressure, and it is probable that in the cases in which its internal administration has been successful it has been through a local effect occurring perhaps in a reflex way. Cohen insists that in order to get good effects from the internal administration of the drug it is necessary that it be absorbed from the mucous membrane of the mouth, and that it is of no efficacy if swallowed. He gives it in a triturate containing a small quantity (from 1/50 to 1/10 grain, gm. 0.001 to gm. 0.006) of the alkaloid, or from 1 to 2 grains (gm. 0.06 to gm. 0.12) of the dried gland. The alkaloid or the dried gland may be applied locally in solution, powder or ointment. Richards advises the following:

Solution of suprarenal alkaloid (1-1,000)	ʒi	4	
Normal salt solution	℥ii	60	

Sig.: Use as a spray whenever the nose is filling up.

Cohen recommends:

	Parts.
Suprarenal alkaloid	1
Bismuth subcarbonate	300
Zinc oxid	300
Zinc stearate	200

M. Triturate well. This may be snuffed up into the nasal passages, or may be insufflated by means of a powder blower.

As an ointment Gleason uses the following:

Suprarenal alkaloid		001
Adipis lanæ hydrosi	5	
Petrolati	5	

M. Sig.: A piece of the size of a pea should be inserted into each side of the nose every two hours by a brush or with the tip of the little finger.

The head is thrown back until the ointment melts and distributes itself over the nasal mucous membrane.

It is convenient to dispense these ointments in a collapsible tube so that the patient can carry it in his pocket.

The antitoxic serum devised by Dunbar is still on trial. It is made by injecting horses with pollen toxin until a serum is obtained which will prevent the reaction produced in a susceptible individual by the instillation of pollen toxin into the eye. The antitoxin is specific against a certain pollen and hence a special serum must be made for the pollen most prevalent in a certain region. The antitoxin made for American patients is intended to counteract the effects of the pollen of the ragweed and golden rod, which are the most common excitants of hay fever in this country. The result of large experience with this treatment seems to be that it gives remarkable relief in some cases, but fails in others, and sometimes unaccountably. H. H. Curtis concludes: "The consensus of opinion to-day is against the claims made for pollantin, though observers who have been instructed personally by Professor Dunbar endorse unqualifiedly the great benefit to be derived from the treatment."

The obstinate character of some cases justify a resort to this treatment if proper constitutional and local treatment has failed, but the physician and patient must be prepared to experience failure in a certain proportion of cases.

E. Fletcher Ingals, Chicago, advises the use of the following spray in this condition:

℞.	Resorcinol	gr. v		32
	Adrenalin chlor	gr. ss		03
	Acidi borici	gr. xv	1	
	Aquæ camphoræ (ferr.)	f℥ss	15	
	Glycerini	fʒss	2	
	Aquæ dest. q. s. ad	f℥ii	60	

M. Sig.: Use as a spray in nose four or five times daily.

Medicolegal

National Formulary Appendix.

Food Inspection Decision No. 59 by James Wilson, Secretary of Agriculture, states that the National Formulary is one of the standards recognized under the law. The question has been asked a number of times whether the appendix of this authority would be construed as part and parcel of the book itself. On page iv of the preface it is distinctly stated that the formulæ collected in the appendix of the National Formulary are "no longer designated as 'N. F.' preparations." This shows that these formulæ are not integral parts of the book under the law, which covers only those products of the National Formulary recognized as such by this authority. By this it is understood that if a drug product is sold under a name contained in the appendix of the National Formulary, it will not be necessary for such product either to conform to the standard indicated by the formula or to declare on the label its own standard strength, quality and purity if a different formula is employed in its manufacture. Such articles are, however, subject to the law in every other respect, as is the case of other medicinal products not recognized by the United States Pharmacopeia or National Formulary.

No Time Bar Against Revocation of License After Conviction of Offense Involving Moral Turpitude.

The Supreme Court of Washington says, in the case of State Medical Examining Board vs. Stewart, that a complaint was filed with the state medical board on June 16, 1906, seeking to revoke the license of the defendant to practice medicine within the state. The complaint alleged that he was guilty of unprofessional and dishonorable conduct, and particularly stated facts showing his conviction on Sept. 30, 1903, for an offense involving moral turpitude. The state statute provides that a license to practice medicine may be revoked by the state examining board on complaint charging unprofessional or dishonorable conduct, and it is provided by section 6285, Pierce's Code, that a conviction of any offense involving moral turpitude shall constitute unprofessional or dishonorable conduct. Section 6287 provides for an appeal from the board of examiners to the Superior Court of the county in which was held the last general meeting of such board; and also provides that such appeal shall stand for trial anew in all respects as ordinary civil actions, and like proceedings shall be had thereon. No time is limited within which such proceedings shall be commenced. It was argued here that, because no time is fixed, such actions must be commenced within two years, under the provision of the statute of limitations. But the court does not think that provision applicable to this case.

The court says that the character of the person at the time the charge of unprofessional conduct is made controls his right to the license. A conviction of any offense involving moral turpitude is made conclusive evidence of unprofessional conduct. It is not contemplated by the statute that the examining board shall try the accused and find him guilty of an offense involving moral turpitude when there has already been a trial and conviction. The statute, therefore, constitutes a rule of evidence in such cases, to which the statute of limitations does not apply.

Reference is made to the case of Hawker vs. New York, 170 U. S. 189, and cases there cited. It is suggested to see also In re Lowenthal, 78 Cal. 427, and ex-parte Tyler, 107 Cal. 78, to the effect that the statute of limitations does not apply in cases of this character.

Upholds Removal of Board of Health for Appointing Member Quarantine Physician.

The Supreme Judicial Court of Massachusetts says that in the case of Gaw and others vs. Ashley and others a writ of mandamus was petitioned for to compel the defendant Ashley, as mayor of the city of New Bedford, to restore the petitioners to office as members of the board of health of that city, and to restrain the other two defendants from interfering with the petitioners in the performance of their duties as members of such board. The petitioners, after due hearing, were removed from office by the mayor, for a cause which he stated as misuse of authority in the matter of an appointment of a subordinate, and conduct in regard thereto prejudicial to the welfare of the public service, and inconsistent with and contrary to public policy, in that, as members of said board, they voted for and caused to be appointed as quarantine physician a member of said board, in which position, when so appointed, the said physician, under the city ordinances, was subject to the order and direction of said board of health, and eligible to receive compensation for his services, and in addition might be permitted to charge to the sick under his care, for medicine and medical attendance, such sums as the board of health might approve, said board of health at the time of said appointment and thereafterwards being composed of said physician and two other persons.

The court does not think that, under the ordinance, the board of health lawfully and properly could elect one of themselves to this office. It says that the ordinance contemplates the existence of a relation between the physician and the board which requires that he shall not be a member of it. He is to make frequent reports to the board, and from time to time is to make recommendations. His charges to the sick are to be only such as the board approve. His personal interest in these charges is inconsistent with the proper performance of his duty, as a member of the board of health, to fix their amount, in the interest of the public and for the protection of his patients.

The provision of section 10 of chapter 75 of the Revised Laws of Massachusetts, that the clerk of the board shall not be a member of it, the court says, does not imply that the physician and all other agents and assistants may be chosen from the members. In such a board there is no such apparent inconsistency between the duties of a recording officer and an ordinary member as necessarily to preclude the choice of a clerk from the members of the board. Were it not for this provision, such a choice might be made as it may be made from the board of overseers of the poor. But the duties and relations of the quarantine physician in the present case are inconsistent with membership in the board.

It follows that the court can not set aside the action of the mayor. It can not be said as matter of law that his action was without sufficient cause. It is only when there is an arbitrary exercise of power, and the cause alleged for the removal is frivolous or unreasonable and in law insufficient, that the court can revise such official action.

The fact that a similar choice of a quarantine physician had sometimes been made in former years does not enable the court to say that the mayor's action was unauthorized. He well might have considered it in judging whether this recent act of the petitioners called for their removal. The cause which he gave being legally sufficient, the court can not say that there was error of law in his finding.

Proof Rendering X-Ray Photographs Admissible—Improper Cross-Examination Extending to Other Cases.

The Supreme Court of Illinois says that in Chicago City Railway Company vs. Smith, an action brought by the latter party to recover for personal injuries, it was contended that error had been committed in admitting in evidence certain *x*-ray photographs taken by a physician for the purpose of showing the character of the plaintiff's injuries. Preliminary to the introduction of these photographs the physician testified that he was a postgraduate physician and surgeon, and had had twelve years' experience in the practice of his profession in Chicago, and was experienced in the matter of making *x*-ray photographs, and that he was competent to make correct *x*-ray views, and that he made the original negatives and the prints therefrom, and that the same were correct representation of what they purported to be. This preliminary proof was sufficient to authorize the reception of the photographs in evidence. What they proved or tended to prove, or whether they were impeached by the expert testimony introduced by the defendants, were questions for the jury. The evidence of the physician made a prima facie showing sufficient to justify the court in admitting them in evidence.

On cross-examination of another physician, a medical expert witness for the plaintiff, counsel for the defendants, the court says, asked the following question: "Isn't it the principal part of your professional industry to be in consultation with attorneys, to hunt up these claims, or, whether you hunt them up or not, secure them, and in consultation with them have an arrangement with them for contingent fees?" To this question the trial court sustained an objection, and this ruling was assigned as error. The Supreme Court considers that the objection to this question was properly sustained. It says that, conceding the defendants' right of cross-examination to discover the motives, feelings and prejudices of a witness, still this court is not inclined to hold that there was any error committed in refusing to allow the cross-examination to be extended to other cases having no connection with the case then being tried.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below:

Medical Record, New York.

June 22.

1 *Sterilized Horse Serum in Surgery. R. Petit, Paris.
2 *Pyrexia in Tuberculosis. H. P. Loomis, New York.
3 *Problem of Infant Feeding. O. Huebner, Berlin.
4 Some Aspects of Sterility and Its Treatment. A. J. Ronginsky, New York.
5 *What are Acid Fasts? S. J. Maher, New Haven, Conn.
6 *Treatment of Disease and So-called Authorities. G. F. Butler, Chicago.
7 Abnormal Response to Irritation of Motor Area of Brain. A. Gordon, Philadelphia.
8 *Case of Multilocular Glandular Cystoma Complicating Pregnancy. B. S. Talmey, New York.

1. **Sterilized Horse Serum in Surgery.**—Petit, in experiments made by injection of isotonic solutions into the peritoneal cavity in animals, found that there was an afflux of polynuclear white blood cells to the spot of injection, and that the resistance of the animal to infection was increased. He applied this fact by using sterilized horse serum as an injection, since this is the substance that produces polynucleosis most easily and usefully. After its use it was found possible to inject lethal doses of cultures of *Bacterium coli communis* and *Staphylococcus pyogenes* into the serous cavities with impunity. This afflux takes place not only into the peritoneum, but also into the serous cavities, mucous membranes, and in wounds of all regions. More than a hundred cases in human beings have now been treated by injection of sterilized horse serum. In abdominal surgery of a non-septic character it has been used as a prophylactic by pouring the serum into the

cavity that has been opened, and by drainage by gauze saturated with the serum. In septic cases it has been used by packing the cavity with gauze saturated with the serum and by pouring the serum into the cavity through the drain. The character of the pus is changed at once; instead of a serous fluid, it becomes thick and creamy and contains many polynuclears. Suppuration diminished rapidly and granulation began. In gynecology it was used in puerperal infections, after curetting, by packing the uterus with gauze saturated with serum, and placing dried serum on a small tampon introduced into the uterus. In phlegmonous infections, and in burns it has been used, and the results have been excellent, healing being rapid. Healing and cicatrization have been obtained, at once rapid and excellent; and cure has been obtained in desperate diseases.

2. **Pyrexia in Tuberculosis.**—Loomis considers the thermometer an important aid in diagnosis in obscure tuberculous cases, and advocates teaching the patient to take his own temperature every four hours and to record it for the benefit of the physician. The treatment of pyrexia consists of rest in bed, both mental and physical, in the open air; liquid food and alcohol in an agreeable form; tepid sponging with equal parts of alcohol and water, and when these fail, antipyretic drugs.

3. **Infant Feeding.**—Huebner considers the nursing of the child by the mother of prime importance, especially during the first month of life. Even if the breasts do not yield enough milk at first, the supply may be increased by suckling and by improved nutrition for the mother. Additional food may be given the child once a day. In premature births, he advises hiring a wet nurse and letting her strong child nurse the other mother while her milk is drawn for the premature child. Or the milk may be drawn with a breast pump and the child fed with it.

5. **Acid-Fast Bacilli.**—Maher describes the organisms that in many respects resemble the tubercle bacillus, in form as well as in resistance to acids, but that develop much more rapidly. They are harmless and are differentiated from the tubercle bacillus by not affecting guinea-pigs, when injected. The pathogenic acid fasts found in man are the diphtheria bacillus and leprosy bacillus. The differentiation of these organisms from the tubercle bacillus must be made by considering all the circumstances connected with their life, form, appearance of cultures, temperature at which they grow, agglutination tests and lesions produced on guinea-pigs, since no one of these things will help us draw a hard and fast line separating them from the tubercle bacillus.

6. **Treatment of Diseases.**—Butler believes that we have come to attach too great importance to diagnosis and too little to the prevention and cure of disease.

8. **Multilocular Glandular Cystoma Complicating Pregnancy.**—Talmey describes such a case complicating pregnancy, the cyst being the size of the child's head. The tumor had been raised out of the pelvis with the growth of the uterus and had in no way interfered with the delivery of the child in the normal way. This case, he says, serves to show that it is not always necessary to operate on a patient having pelvic tumor during pregnancy.

New York Medical Journal.

June 22.

9 Sanitation in Panama. J. E. Stubbert, New York.
10 President's Address, American Climatological Association. T. Darlington, New York.
11 Hygiene in Relation to Heredity of Disease. P. A. Morrow, New York.
12 *Surgical Aspects of Digestive Disorders. J. R. Arneill, Denver, Colo.
13 Experimental Immunity to Colon and Typhoid Bacilli. V. C. Vaughan and M. Wheeler, Ann Arbor, Mich.
14 *Case of Intermittent Claudication. J. E. Talley, Philadelphia.
15 *Menstruation. J. Oliver, London, England.
16 Anemic Infarction of Adrenal with Thrombosis of Veins. U. J. Wile, New York.
17 Pharmacopeial Preparations to be Kept on Hand by General Practitioners. G. A. Graham and others, Kansas City, Mo.

12. **Surgical Digestive Disorders.**—Arneill urges on all physicians that it is their duty insistently and persistently to recommend and to advise exploratory operations, when a conscientious, intelligent and scientific examination of a serious case leaves doubt as to the diagnosis and treatment. This recommendation applies most often to dyspeptic cases in which there is a suspicion of cancer; also, to obscure conditions in the right hypochondrium, in which gastric ulcer and gall-bladder disease are suspected but not proved.

14. **Intermittent Claudication.**—Some features of the case reported by Talley are suggestive of erythromelalgia, and, possibly, of Raynaud's disease. The patient had always been a free user of tobacco and alcohol; had worked in a silver mine two years, when he contracted lead poisoning; later he suffered from arsenical poisoning, and while working in a mercury mine he became salivated. His feet had also been badly frozen. Then he began brick making, working during a part of the time in water up to his waist. There was no history of venereal disease. His arteries were hard, and he suffered from angina pectoris.

15. **Concerning Menstruation.**—Observations made on cases of inversion of the uterus lead Oliver to conclude that his theory of menstruation being a secretory rather than an excretory process, is correct.

Boston Medical and Surgical Journal.

June 20.

18 Mountain Climbing for Professional Men. C. K. Austin, Paris, France.
19 *Flushing the Intestinal Canal Through Multiple Enterotomy Openings. G. H. Monks, Boston.
20 Multiple Papillomata of Bladder. L. Davis, Boston.
21 Myasthenia Gravis. W. E. Paul, Boston.
22 Cancer of Larynx. D. C. Greene, Jr., Boston.
23 Foreign Body in Bronchus. A. Coolidge, Jr., Boston.
24 Results of Primary Operations for Breast Cancer. R. B. Greenough, C. C. Simmons and J. D. Barney, Boston.

19. **Flushing Intestinal Canal.**—As a result of experiments Monks came to the conclusion that flushing the intestinal canal of a patient suffering with acute intestinal toxemia, whether or not peritonitis is also present, is a perfectly practicable procedure, and that, in certain cases, after the simpler methods of treatment have been used without result, it is thoroughly justifiable. The patient would also derive much benefit from this flushing for the following reasons: 1. It would remove an active course of septic infection. 2. It would place within the intestinal canal a large quantity of salt solution where it could be absorbed readily into the circulatory system. 3. The warm solution would reinforce the bodily heat, the whole intestinal canal being thus converted into a long, tortuous hot-water heater within the abdomen. Monks reports one case in which this procedure was carried out successfully. A little girl, 8 years old, was evidently dying of sepsis, originating within the intestinal tract. An incision was made into the intestine near the duodenum. Another was made two or three feet lower down. A glass tube was inserted in the upper opening, and the intestinal canal was thoroughly flushed with hot salt solution. The upper wound was then sewed up, and from the lower wound the rest of the intestinal canal was flushed. All openings were then closed, except that room was left in the lower angle of the abdominal wound for a small cigarette drain. The greatest care was taken during the flushing to avoid contamination of the peritoneum by the intestinal contents. The patient made an excellent recovery and was discharged on the thirty-sixth day.

Lancet-Clinic, Cincinnati.

June 15.

25 Specific Treatment of Pulmonary Tuberculosis. E. G. Epier Fort Smith, Ark.
26 Fused Horse-shoe Kidney. B. Robinson, Chicago.
27 Calcium Chlorid in Typhoid with Intestinal Hemorrhage. M. A. Brown, Cincinnati.

June 22.

28 Chronic Endometritis, Specific and Non-specific. E. Harlan, Cincinnati.
29 Opportunities for Clinical Study in Royal London Ophthalmic Hospital (Moorfields) and "Fuchs" Clinic, Vienna. F. B. Cross, Cincinnati.
30 Should We Dispense Our Own Medicines. E. R. Beard, Liberty, Ind.
31 The Man Who Can. P. S. Conner, Cincinnati.
32 The Country Doctor. E. E. Collins, Williamsport, Tenn.

St. Louis Medical Review.

June 15.

33 Hematuria. E. P. Porterfield, St. Louis.
34 Autopsy in Which Both Cancer and Tuberculosis Were Found. O. H. Brown, St. Louis.

Journal of Infectious Diseases, Chicago.

June 15.

35 *Human Pneumococcal Opsonin and Anti-opsonic Substance in Virulent Pneumococci. E. C. Rosenow, Chicago.
36 *Isoagglutination of Human Corpuscles. L. Hektoen, Chicago.
37 *Streptococco-opsonic Index in Scarlatina. R. Tunnicliff, Chicago.
38 *Opsonic Index and Vaccine Therapy of Pseudodiphtheritic Otitis. A. Hamilton, Chicago.
39 *Pseudodiphtheria Bacilli as Cause of Suppurative Otitis, Especially Postscarlatinal. A. Hamilton, Chicago.
40 *Phagocytosis and Opsonins in Lower Animals. G. F. Ruediger and D. J. Davis, Chicago.
41 *Presence of Diphtheria Bacilli in Apparently Normal Throats. A. I. v. Sholly, New York City.
42 *Tuberculosis of Placenta. A. S. Warthin, Ann Arbor, Mich.
43 *Leukemia of the Common Fowl. A. S. Warthin, Ann Arbor, Mich.
44 Method for Simultaneous Passage of Many Paraffin Sections Through the More Difficult Stains. F. P. Rous, Ann Arbor, Mich.
45 Unsuccessful Attempt to Produce Atypical Epithelial Growth by Injection of Scharlach R. in Olive Oil. C. Snow, Ann Arbor.
46 Determination of Bacillus Coli in Water. F. B. Longley and W. U. C. Baton, Washington, D. C.
47 Physiologic Nature of "Glandular Hyperplasias" of Dog's Thyroid. D. Marine, Cleveland.
48 Staining of Encapsulated Bacteria for Pneumococci and Streptococci. L. Buerger, New York.
49 Presence of Hemolytic Substances in Edible Fungi. W. W. Ford, Baltimore.
50 *Etiology of Dengue Fever. P. M. Ashburn and C. F. Craig, Manila, P. I.
51 *Effects of Egg-white and Its Split Products on Animals. V. C. Vaughan and S. M. Wheeler, Ann Arbor, Mich.
52 Natural Immunity and Susceptibility to Diphtheria Toxin. H. M. Goodman, Chicago.

35. **Pneumococcal Opsonins and Antiopsonins.**—Rosenow shows that human serum retains its opsonic power with regard to various bacteria after filtration through porcelain, and the results of his absorption experiments indicate that normal human serum contains several opsonins with specific affinities for pneumococci, streptococci, staphylococci and tubercle bacilli. While avirulent pneumococci absorb opsonin and thereby are rendered susceptible to phagocytosis, pneumococci that are virulent for rabbits do not absorb opsonin and are insusceptible to phagocytosis, and these properties may be diminished or increased at will by passage through rabbits or cultivation on artificial media as the case may be. Extraction or autolysis of virulent pneumococci in salt solution brings into solution a substance or substances which inhibit the action of pneumococco-opsonin, and virulent pneumococci take up this substance and become resistant to phagocytosis at the same time as they show some degree of animal virulence, while after extraction virulent pneumococci acquire the power to absorb pneumococco-opsonin. It thus seems possible to extract from virulent pneumococci a substance on which virulence appears to depend and for this substance the name "virulin" is suggested.

36.—See abstract in The Journal, May 25, 1907, p. 1739.

37. **Streptococco-Opsonic Index in Scarlatina.**—Tunnicliff concludes that in the majority of cases of scarlet fever the streptococco-opsonic index in the beginning of the disease is below normal. As the acute symptoms subside the index rises above normal, to which it soon returns, sometimes quite abruptly, and in infected cases it commonly remains at or near normal during convalescence. Definite local streptococcal complications are inaugurated by a depression in the streptococco-opsonic index, which rises again as improvement takes place. The conditions in the severe so-called septic cases require further study. The result of this investigation indicates that practically from the first the scarlet fever patient is the subject of streptococcus infection.

38. **Pseudodiphtheritic Otitis.**—Hamilton finds that in cases of otitis media in which pseudodiphtheria bacilli predominate in the pus from the ear, there is usually a low opsonic index for these bacilli. When repeated examinations are made the index may be found to cover a wide range; and the changes in the index often correspond to changes in the clinical symptoms, the amount of discharge increasing as the index falls, and diminishing as it rises. Injections of dead cultures of the strain isolated from the patient results in an increase of the opsonin for that strain. No ill-effects appear to follow injections of moderate quantities,and in several cases apparent improvement and shortening of the course resulted, but further experience, especially in chronic cases, is necessary before a definite impression can be formed as to the value of the treatment. Inasmuch as opsonin in the blood of the patient is specific for the variety of pseudodiphtheria bacilli to which the patient's strain belongs, and because of the fluctuations in the opsonic index in the course of the otitis and in response to injections of specific vaccine, strong proof is presented that pseudodiphtheria bacilli play an etiologic rôle in certain forms of otitis.

39. **Id.**—In suppurative processes, and especially in the pus of the postscarlatinal otitis media, two varieties of pseudodiphtheria bacilli are frequently found. The first group ferments saccharose but not maltose, is seldom virulent for guinea-pigs and is agglutinated and killed by serum of rabbits immunized against one member of the group. Group 2 ferments maltose but not saccharose, is more often virulent for guinea-pigs and is not affected by the serum of rabbits immunized against Group 1. In postscarlatinal otitis these bacilli were found in no less than 72 per cent. of 43 cases, and 20 per cent. gave pure culture.. In 19 cases of acute nonscarlatinal otitis only 21 per cent. showed the presence of these bacilli. The evidence afforded by the study of the opsonic index is referred to in the preceding abstract.

40. **Phagocytosis and Opsonins.**—Ruediger and Davis have studied the question of the mechanism of phagocytosis in the lower animals, and they find that here also opsonins are essential. Furthermore, they find that the sera of cold-blooded animals may opsonize bacteria for phagocytosis by the serum-free leucocytes of warm-blooded animals, including man, and vice versa. The generalization may now be made that phagocytosis in representative forms of all the great group down to and including echnioderms seems to be largely dependent on the presence of opsonins in the serum.

41. **Diphtheria Bacilli in Normal Throats.**—Von Sholly found that diphtheria-like organisms are present in a certain number of normal throats even when exposure to infection by diphtheria is not traceable. About one-third of the organisms isolated from such persons are virulent and their carriers, consequently, a potential source of danger. Virulent bacilli are found about four times as often in healthy persons exposed as in those apparently not exposed. Mild sore throats and colds with bloody nasal discharge, which are common in children, should not be treated lightly, but examined carefully, with a view to a definite bacteriologic diagnosis.

42. **Tuberculosis of Placenta.**—No matter where located in the placenta, Warthin regards necrosis of the cells as the primary lesion of tuberculosis. Lesions in the syncytium or endothelium lead to thrombi which may become changed into tubercles through proliferation of mixed cells in the neighborhood. In the decidua there is necrosis of the tissue and thrombosis of the sinuses, but tubercles are not formed from the decidual cells. The current view that the tubercle bacillus primarily causes a cell proliferation is not substantiated by the results of Warthin's study of tuberculosis of the placenta.

43. **Leukemia.**—The common fowl appears to suffer not infrequently from various forms of leukemia. Warthin describes the findings in a typical case of lymphatic leukemia in a hen. He could obtain no evidence of the existence of an infective causal agent. There occurs also in the fowl a disseminated lymphocytoma without leukemia, and Warthin is inclined to regard leukemia and a leukemic lymphocytoma as genetically related or different stages of the same process which in its essential nature is interpreted as a malignant tumor.

50. **Etiology of Dengue.**—Ashburn and Craig announce that they have been able to produce typical attacks of dengue in healthy men by the intravenous inoculation of filtered and unfiltered dengue blood; consequently they conclude that the cause of the disease is probably ultramicroscopic in size. The disease is transmissible by the mosquito (*Culex fatigans*) and this is probably the most common mode of transmission.

51. **Egg White and Its Products.**—Vaughan and Wheeler show that the phenomenon of the so-called serum disease or anaphylaxis—the remarkable hypersusceptibility to serum or

certain poisons produced by previous injections of a small quantity of serum or poison—are obtainable by means of egg-white. They find that when egg-white is split up the non-toxic portion will sensitize the animal to the unbroken proteid which is not poisonous to untreated animals. The interesting theory is advanced that the hypersusceptibility is due to the increased development in the treated animal of specific zymogens which on activation split up the whole proteid subsequently injected so rapidly that the animal is overwhelmed by the action of the toxic portion. It must be recalled that according to Vaughan many proteids may be split into poisonous and non-poisonous groups. Sensitization, that is to say, the specific zymogens, is highly specific: Guinea-pigs sensitized with woman's milk respond to a second treatment with the same milk, but not to cow's milk, and *vice versa*. Immunity is considered as a different manifestation of the same process as proteid susceptibility. In the case of immunity the specific ferment splits up living foreign proteid—the microbes—before it has time to multiply; in this case the animal is immune. When the cleavage is less prompt but sufficiently so to split up the microbe before it elaborates within itself a fatal amount of the poison, the animal sickens, but recovers; and when the ferment is still less prompt so that the microbes construct a fatal dose of poison, then its liberation causes death.

Wisconsin Medical Journal, Milwaukee.

May.

53 *Appendicitis. W. E. Ground, Superior.
54 *Non-operative Treatment of Appendicitis. W. H. Banks, Roberts.
55 *Medical Advertising. G. Martin, Baldwin.
56 Surgery of Nasopharyngeal Structures. M. Iverson, Stoughton.

53. **Appendicitis.**—Ground presents some personal impressions obtained from an operative experience in over 1,000 cases.

54. **Id.**—Banks believes in the non-operative treatment of appendicitis. The Ochsner method, together with careful and thorough washing out of the lower bowel, has given him the best results. Enemas of normal salt solution have always relieved hunger and thirst when given in conjunction with other rectal food.

55. **Medical Advertising.**—Martin speaks of the physician who uses the press in an attempt to keep himself before the public by publishing, causing or permitting to be published, his professional doings, hoping and expecting to gain by these methods of surreptitious advertising exactly what the business man contracts and pays for, in a fair and square deal with the newspaper man.

Journal of the South Carolina Medical Association, Greenville.

May.

57 *March of Sanitation. W. Wyman, Washington, D. C.
58 Gallstone Disease. J. B. Deaver, Philadelphia.
59 *The County Society. J. W. Jervey, Greenville.
60 Case of Hematocele of Testicle. S. C. Baker, Sumter.
61 *Sexual Knowledge versus Sexual Ignorance. W. Cheyne, Sumter.

57.—This article appeared in The Journal, June 1, 1907, page 1830.

59.—See abstract in The Journal, May 11, 1907, page 1626.

61.—See abstract in The Journal, May 11, 1907, page 1625.

California State Journal of Medicine, San Francisco.

May.

62 President's Address, Medical Society of State of California. R. F. Rooney, Auburn.
63 Alcohol: The Effect of Its Use and Abuse. A. W. Hoisholt, Stockton.
64 Genu Valgum Adolescentium. J. T. Watkins, San Francisco.
65 *First Two Hundred Confinements at the San Francisco Maternity. A. B. Spalding, San Francisco.
66 *Poisoning by Small Doses of Atropin. H. W. Gibbons, San Francisco.
67 Cyclodialysis for Chronic Glaucoma. E. C. Sewall, San Francisco.

65. **San Francisco Maternity.**—Spalding reports the result obtained with 200 poor women, who were confined in their own homes, attended by students and nurses of the dispensary, under the supervision of a physician. There was not a single maternal death, and the fetal mortality was less than 5 per cent., considering only the 191 babies alive at birth. In this series the fetal mortality consisted of 9 stillbirths, and 9 babies died during the first eleven days, making a total fetal mortality of 9 per cent. The Maternity offers three interne services each year to regular graduates; the term of service is four months. In return for this service the interne receives room, laundry and $35 a month.

66. **Poisoning by Atropin.**—Gibbons reports the case of a woman who exhibited all the symptoms of atropin poisoning, following the ingestion by mouth of 1/100 grain on three successive nights. Recovery from the effects of the drug was unusually slow.

Cleveland Medical Journal.

May.

68 *Peptic Ulcer Following Gastrojejunostomy. C. A. Hamann, Cleveland.
69 Early Aspiration in Pleurisy with Effusion. N. C. Yarian, Cleveland.
70 *Unilateral Hypertrophy of Leg with Congenital Misplacement of Muscle Tissue of Foot. A. S. Maschke, Cleveland.
71 Case of Chylous Cyst of Thoracic Duct. H. F. Biggar, Jr., Cleveland.
72 Epithelioma in Carbon Workers. A. W. Lueke, Cleveland.

68. **Peptic Ulcer Following Gastrojejunostomy.**—In a case of peptic ulcer Hamann did an anterior gastrojejunostomy and an enteroenterostomy. The patient recovered nicely from the operation and was well until the twenty-first day after the operation, when he began to complain of epigastric pain. There was no vomiting and no fever; the bowels moved normally and there was no distension. The pain was severe enough to demand the use of morphin. On the twenty-fourth day the patient went home. He died suddenly on the twenty-sixth day. The autopsy revealed a perforated ulcer about one inch in diameter on the anterior wall of the jejunum, just beyond the junction with the stomach. The ulcer was exactly where the highly acid gastric juice would come in contact with the intestinal mucosa. General peritonitis existed and remains of food were found in the peritoneal cavity.

70. **Unilateral Hypertrophy of Leg.**—The hypertrophy in Maschke's case involved all the structures, bony as well as soft parts. On the bottom of the foot was a mass which occupied and filled out the entire hollow of the instep. The skin was freely movable. The tumor had a soft, spongy consistency, and faded off imperceptibly into the surrounding tissues. The mass was excised and proved to be ordinary, fully developed, striated muscle, with regularly disposed sarcous elements.

Bulletin of the Lying-in Hospital of the City of New York.

March.

73 *Consideration of 1,446 Persistent Occiput Posterior Cases. J. A. Harrar, New York.
74 *Treatment of Acute Bronchitis in Infants. E. L. Coolidge, New York.
75 Subcutaneous Emphysema in Labor. G. W. Kosmak, New York.
76 Complete Rupture of Pregnant Uterus. R. W. Lobenstine, New York.
77 Number of Ova in Graafian Follicle. J. E. Welch, New York.

73. **Occiput Posterior Cases.**—Harrar reports 1,446 cases of persistent occiput posterior as occurring among 41,800 cases, or 3.46 per cent. Out of this number 1,013 children were born spontaneously with occiput posterior and the face to the pubes. In the remaining 433 cases forceps were used 286 times; podalic version was done 100 times; manual correction alone sufficed in 25 cases, while craniotomy was done 22 times. In the 1,013 spontaneous labors there were 4 maternal deaths, one from eclampsia, and one from pulmonary tuberculosis. In the 433 operative confinements there were 11 maternal deaths, forceps being used in 3 cases, version in 7 and craniotomy in one. In the 1,013 spontaneously delivered cases there were 25 stillbirths; in the 286 forceps operations there were 29 stillbirths; in the 100 versions, 29 stillbirths, which, with the 22 craniotomies, brings the fetal mortality up to 105 or 7.3 per cent. Including 51 babies who died within the first few days, the infant mortality of all the posterior deliveries was 9 per cent.

74. **Treatment of Acute Bronchitis in Infants.**—In the mild cases Coolidge puts the baby to bed and gives it a teaspoonful of castor oil. A warm sponge bath is ordered, and every night

a mustard plaster is placed on the child's chest for five or ten minutes, until the skin is red. If the child is bottle-fed, the usual milk formula is diluted to about one-half the usual strength; if it is breast-fed, from half an ounce to one ounce of water is advised before each meal. No medicine is given except the castor oil. In the severe form of bronchitis the mustard plaster is applied to the chest three or four times in the twenty-four hours. Steam inhalations control the irritating cough. Sometimes compound tincture of benzoin is added to the boiling water. The inhalations are given every two or three hours, for fifteen minutes at a time. Castor oil is given as often as is necessary, and the temperature is controlled by sponge baths of tepid water and alcohol. When the cough is very irritating from 20 to 30 drops of compound licorice mixture are given every three hours for babies less than one year old.

Washington Medical Annals, Washington, D. C.

May.

78 Evolution of the Naval Medical Service and the Naval Medical School. J. C. Wise, U. S. N.
79 Circulatory System in Gastrointestinal Autointoxication. P. S. Roy, Washington.
80 *Posterior Bursa of Knee. G. T. Vaughan, Washington.
81 *Suppurative Appendicitis in Scrotal Hernia. G. T. Vaughan.
82 Hydatidiform Mole. J. D. Bradfield, Washington.
83 *Aneurism of Arch of Aorta and Tuberculosis of the Heart. J. D. Thomas, Washington.
84 Gangrene of Appendix with Diphtheritic Ileocolitis. D. S. Lamb, Washington.
85 Sarcoma of the Knee. J. F. Mitchell, Washington.
86 Carcinoma of the Rectum. J. F. Mitchell, Washington.
87 Partial Review of Laryngology. A. B. Bennett, Washington.
88 *Recurrent Sarcoma Treated with Toxins. G. T. Vaughan, Washington.
89 Left Posterior Tibial Thrombosis Following Right Side Abdominal Operation. A. A. Snyder, Washington.
90 Fibroids of Uterus. J. T. Johnson, Washington.
91 *Radical Treatment of Inguinal Adenitis. W. A. Jack, Jr., Washington.
92 *Case of Strangulated Ventral Hernia. I. S. Stone, Washington.

80. **Posterior Bursa of Knee.**—In Vaughan's case the bursa was attached to the inner side of the internal attachment of the gastrocnemius muscle. The tumor had existed for several years.

81. **Suppurative Appendicitis in Hernia.**—Vaughan found the contents of the hernial sac to consist of a perforated appendix surrounded by an abscess, which was separated from the abdominal cavity by adhesions in the inguinal canal. The appendix was obliterated, hypertrophied, perforated and gangrenous.

83. **Aneurism of Aorta and Cardiac Tuberculosis.**—Thomas' patient gave a history of syphilis, the initial infection dating back ten years. The aneurism was situated on the floor of the transverse portion of the arch, and death resulted from rupture into the left bronchus. The pericardium was thick and adherent. In the right auricle was a tubercular anode.

88. **Toxins in Recurrent Sarcoma.**—The case reported by Vaughan was one of sarcoma of the right ulna, following a green stick fracture, in a young man 17 years of age. Nearly eight years after the operation a large tumor appeared in the abdomen. The patient was treated by Coley's mixed toxins and improved very much. He is still under treatment.

91. **Radical Treatment of Inguinal Adenitis.**—Jack makes an elliptical skin incision, with its long diameter parallel to Poupart's ligament. The incision is carried down through the aponeuroses of the external oblique muscle. If necessary, the incision may extend straight downward over the course of the femoral vessel. The glandular mass is loosened from its bed and is removed in its entirety, including the elliptical portion of the skin, which has not been detached from the underlying tissues. The wound is closed immediately and the results are said to be excellent. Few instruments are required and the time of operation should not exceed half an hour.

92. **Strangulated Ventral Hernia.**—Stone's patient had a double hernia, the intestines protruding through two openings in the median line. The patient died from bronchopneumonia two days after the operation.

Pennsylvania Medical Journal, Athens.

May.

93 *Address of Chairman of the Section on Surgery of the Medical Society of the State of Pennsylvania, September, 1906. W. L. Estes, South Bethlehem.
94 *Injuries of the Thoracic Cavity. G. W. Wagoner, Johnstown.
95 Case of Foreign Body in Larynx. F. Alleman, Lancaster.
96 *Abscess of the Lung. W. L. Rodman, Philadelphia.
97 *Empyema in Children. J. H. Jopson, Philadelphia.
98 *Treatment of Pleural Effusions. E. Martin, Philadelphia.
99 Surgery of the Thoracic Cavity. J. C. O'Day, Oil City.
100 History of Immunity in Tuberculosis. B. Lee Harrisburg.

93.—See abstract in The Journal, Sept. 29, 1906, page 1049.

94, 96, 97, 98.—See abstracts in The Journal, Oct. 13, 1906, page 1221.

American Quarterly of Roentgenology, Pittsburg.

January.

101 *Roentgenology of Stomach and Intestines. H. Hulst, Grand Rapids, Mich.
102 *Roentgen-Ray Diagnosis of Renal Calculi. F. H. Baetjer, Baltimore, Md.
103 Skiagraphy of Accessory Sinuses of Nose. E. W. Caldwell, New York.
104 The Induction Coil. H. C. Snook, Philadelphia.
105 *Personal Technic in Treatment of Epithelioma. K. Dunham, Cincinnati.
106 *Treatment of Malignant Diseases of the Bladder Through Suprapubic Incision. A. L. Gray, Richmond, Va.
107 The Tube in Roentgen Therapy. E. G. Williams, Richmond.

101, 102, 105.—See abstracts in The Journal, Sept. 15, 1906, page 888.

106.—See abstract in The Journal, Sept. 15, 1906, page 889.

American Medicine, Philadelphia.

May.

108 Pathology and Treatment of Angina Pectoris. T. Schott, Nauheim, Germany.
109 Prevention of Adhesions After Abdominal Operations. M. B. Tinker, Ithaca, N. Y.
110 Solution of the Proprietary Medicine Question. F. E. Stewart.
111 Criticisms of the United States Pharmacopeia. R. W. Wilcox, New York.
112 Croupous Pneumonia. H. Johnston, Birmingham, Ala.
113 Non-diabetic Glycosurias. A. L. Benedict, Buffalo.
114 The Eye From the General Medical Point of View. C. N. Howard, Washington.
115 Apparently Healthy Child Born to Syphilitic Parents. A. C. Wood, Philadelphia.
116 Bilateral Cervical Rib with Symptoms of Pressure on Brachial Plexus. C. B. Farr, Philadelphia.
117 Postoperative Intraocular Hemorrhage with Resulting Blindness. A. Brav, Philadelphia.
118 Case of Adiposis Dolorosa. G. E. Price, Philadelphia.
119 Physical Defects and their Cure in Kindergarten Children. M. M. Kelly, Philadelphia.

The Northwestern Lancet, Minneapolis.

May 1.

120 Influenza. T. W. Stumm, St. Paul.
121 Carcinoma of the Larynx. J. A. Watson, Minneapolis.
122 Ectopic Pregnancy. A. E. Benjamin, Minneapolis.
123 Use of Roentgen Rays in Fractures. J. M. Lewis, Minneapolis.

The Medical Fortnightly, St. Louis.

May 25.

124 Palliative Treatment of Carcinoma Uteri. E. E. Montgomery, Philadelphia.
125 New Technic for Circumcision. C. H. Shutt, St. Louis.
126 Case of Brow Presentation. F. Hinchey, St. Louis.

June 10.

127 Hemorrhoids. W. H. Stauffer, St. Louis.
128 Head Sections, with Method of Illustrating Anatomic and Surgical Subjects. E. E. Clark, Danville, Ill.

Medical Herald, St. Joseph, Mo.

May.

129 *Surgery of the Thyroid Gland, A. H. Ferguson, Chicago.
130 *Gastroptosis. R. T. Sloan, Kansas City, Mo.
131 The Eye and General Medicine. P. I. Leonard, St. Joseph, Mo.
132 Gastritis. W. T. Marrs, Peoria Heights, Ill.

129, 130.—See abstracts in The Journal, April 13, 1907, page 1290.

Virginia Medical Semi-Monthly, Richmond.

May 10.

133 Surgical Treatment of Ulceration of Stomach and Bowels. G. E. Gavin, Mobile, Ala.
134 Diphtheria and Some Recent Experiences. A. T. Finch, Chase City.
135 Diagnosis of Mediastinal Disease. H. A. Christian, Boston.
136 Veratrum in Eclampsia. J. E. White, Wakefield.
137 Principles of Surgery. (Continued.) S. McGuire, Richmond.

Yale Medical Journal, New Haven, Conn.

May.

138 Opsonins and Their Relation to the Diagnosis and Treatment of Bacterial Infection. E. L. Opie, Baltimore, Md.
139 Case of Cervical Rib. W. E. Hartshorn, New Haven, Conn.
140 Id. C. J. Foote, New Haven.
141 Immunity in Tuberculosis. D. R. Lyman, Wallingford, Conn.

Mississippi Medical Monthly, Vicksburg.

May.

142 President's Address before the Mississippi State Medical Association. W. W. Crawford, Hattiesburg.
143 Physiologic Effect of the Waters of Hot Springs, Arkansas. E. H. Martin, Hot Springs.

Annals of Gynecology and Pediatry, Boston.

May.

144 Plastic Surgery of the Ovaries and Tubes. J. V. D. Young, New York.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

June 8.

1 *Acute Pneumonia in Children. H. M. Murray.
2 *Complete Vocal Rest in Laryngeal Tuberculosis. N. Bardswell and B. Adams.
3 Value of Ophthalmic Symptoms in General Diagnosis and Prognosis. F. M. Gunn.
4 *Acute Colitis and Ulcerative Colitis. S. Phillips.
5 *Tuberculin in Tuberculous Meningitis. A. Don.
6 Aortic Pressure in Postpartum Hemorrhage. M. Henry.
7 Muscular Spasm Under Anesthesia. J. M. MacPhail.
8 Asthma Caused by Impacted Tooth. A. J. R. Oxley.
9 Desquamation After Scarlet Fever. F. G. Haworth.
10 Normal Eruption of First Milk Tooth. A. T. Spanton.
11 Ovariotomy at Age of Ten. J. V. Armigan.
12 Unsuccessful Attempt to Convey Kala-azar to Animals. F. P. Mackie.
13 Treatment of Birth Asphyxia. J. W. Malim.
14 Case of Colocynth Poisoning. C. N. Barton.
15 Sudden Death from Cerebral Hemorrhage. H. W. Burman.

1. **Pneumonia in Children.**—Murray urges the value of a continuous record of the respiration rate, claiming that it does not receive the amount of consideration it deserves. He objects to the present classification of pneumonia in children because the symptoms and signs are so variable, and are met in such different combinations that the cases do not lend themselves to classification. He says that bronchopneumonia means a pneumonia that in spreading seems to follow the distribution of the bronchial tubes, and lobar pneumonia is a pneumonia that spreads by a fairly even advancing line. He contends that we should endeavor to estimate the individual value of each sign and symptom on the prognosis and treatment rather than, by means of them, to place the case in some hypothetical group and deal with the prognosis and treatment of that group as a whole. The complications, diagnosis, prognosis and treatment of pneumonia are also discussed.

2. **Vocal Rest in Laryngeal Tuberculosis.**—Bardswell and Adams report six cases of well-marked tuberculosis of the larynx, four having definite ulcerations, in addition to the congestion, in which complete vocal rest was followed by great benefit. All the patients had pronounced hoarseness before treatment was begun. As a result of treatment, extending on an average over five months, the laryngeal disease in all these cases has improved immensely. In the four ulcerated cases the ulcers have cicatrized completely. In five cases the normal voice has been restored, and in the sixth case the hoarseness was much less. In every case the improvement in the larynx has been associated with great improvement in the lungs and general health. This form of treatment is designated the "silence cure."

4. **Acute Colitis.**—Phillips presents a full report of twelve cases of acute and ulcerative colitis. These case reports serve as the basis for a very full discussion of the clinical history and the treatment of this affection.

5. **Tuberculin in Tuberculous Meningitis.**—In the case reported by Don the observations made extended over a period of three months. About four weeks after the commencement of the tuberculin treatment, the patient appeared to be perfectly well. He remained so for a little more than two weeks, when symptoms of meningitis again manifested themselves. The patient died four weeks afterward.

The Lancet, London.

June 8.

16 *Vagal and Vaso-vagal Attacks. W. R. Gowers.
17 Nature of Infectivity in Relation to Tumor Growth. D. A. Welsh.
18 Physiologic Effects of High-Frequency Currents in Disease. S. Sloan.
19 Variations in Age Incidence of Mortality from Certain Diseases. S. F. Murphy.
20 *Ligature of Renal Vessels by Transperitoneal Method for Cure of Persistent Urinary Renal Fistula. M. P. Holt.
21 Infection by Paratyphoid Bacillus. E. A. Gates.
22 *Case of Recurrent Pneumothorax. J. C. Sale.
23 Differentiation of Meningococcus from Other Gram-negative Diplococci in Nasopharynx of Cerebrospinal Fever Contacts. R. M. Buchanan.

16. **Vagal Attacks.**—Gowers employs this term to designate prolonged seizures, the symptoms of which consist chiefly in the disturbance of some of the functions of the pneumogastric, for the most part sensory and subjective. With the vagal symptoms there is often combined a slight mental change and also disturbance of the vasomotor center, causing constriction of the vessels and coldness, especially of the extremities. There may be some sensory impairment and sometimes, also, a form of slight tetanoid spasm. The attacks seldom last less than ten minutes, and more often continue for half an hour or more. There is a sudden onset of slight symptoms, rapidly increasing, and the ending is gradual. The seizures occur at varying intervals, often for months or years. The symptoms are chiefly sensations referred to the stomach, the respiratory system and the heart. Women are more often affected than men. Treatment must be directed toward the improvement of the general health. When an epileptic element can be traced much good is usually obtained from bromids in moderate doses, combined with belladonna or digitalis. Nitrite of amyl at the onset and slight inhalation of chloroform have proved beneficent. Gowers says that in all cases in which there is vasomotor spasm the regular administration of nitroglycerin is best.

20. **Ligature of Renal Vessels.**—After having made four unsuccessful atempts to perform nephrectomy, in a case of persistent discharging renal fistula, Holt successfully ligated the renal vessels on the assumption that complete atrophy of the renal secreting tissue would follow. This occurred; the sinus healed, and two years after the operation the patient is in the best of health.

22. **Recurrent Pneumothorax.**—Sale reports the case of a young woman, who during a period of six years has had eleven attacks of pneumothorax. There is absolutely no evidence of pulmonary tuberculosis.

Clinical Journal, London.

April 24.

24 *Enuresis and Fecal Incontinence in Children. G. F. Still.
25 *After-results of Operations on the Stomach. H. J. Paterson.
26 Effects of High Arterial Tension on the Heart. L. Williams.

May 1.

27 *Jaundice of Obscure Origin. N. Moore.
28 *Traumatic Neurosis. A. J. Whiting.
29 Low Blood Pressure, Actual and Potential. L. Williams.

May 8.

30 *Unusual Forms of Pyrexia. F. Taylor.
31 *Types of Vomiting in Children. G. A. Sutherland.
32 *Cold Abscess of Mesentery of Small Intestine. G. Barling.

May 15.

33 Clinical Demonstration at London School of Tropical Medicine. W. Bennett.

May 22.

34 *Dysmenorrhea. G. E. Herman.
35 Treatment of Fractures in Neighborhood of Joints. Watson Cheyne, E. Owens, A. Lane and others.
36 Treatment of Inflammation by Producing Passive Congestion. E. M. Corner.

May 29.

37 Headaches and Neuralgia. W. Harris.
38 Treatment of Fractures in Neighborhood of Joints. Watson Cheyne and others.
39 *Ovarian Cyst Complicating Labor. A. H. N. Lewers.

June 5.

40 *Volvulus of Entire Small Intestine, Cecum and Ascending Colon. J. Hutchinson.
41 Headaches and Neuralgia. W. Harris.
42 *Gastric Ulcer. D. Sommerville.

24. **Enuresis and Fecal Incontinence.**—Still insists on the importance of making a careful examination of the urine in every case of enuresis, because a clue to the treatment to be instituted is thus often obtained. Threadworms, he says, are so often the cause of enuresis that it is wise, even when their presence is denied, to give one dose of santonin, gr. 1 to 2 (0.06-0.13), with calomel, gr. 1 to 2½ (0.06-0.16) to make this point certain. In the majority of cases, however, belladonna is the remedy indicated, but to obtain the best results from its use, belladonna must be given on a definite plan and for a period of several weeks. At any period beyond infancy 5 minims of the tincture (0.30) should only be considered as an initial dose. In the case of a child over five years

of age, it is usually safe to begin with 10 minims (0.60). The dose should be increased by 2½ minims (0.15) every fifth or sixth day, until either the enuresis is stopped or the limit of tolerance is reached. The dose should be maintained just beyond the minimum efficient dose for a fortnight, and be reduced by decreases of 2½ minims once a week, and so gradually discontinued. If, after the belladonna has been pushed up to 20 minims (1.25) with diminution of the enuresis, but with the disorder still not completely controlled, and further increase of the belladonna produces alarming symptoms, it is well to combine with it tincture of lycopodium, 12½ minims (0.75) at first, with increases of from 2½ minims (0.15) up to 20 minims (1.25). The tincture of nux vomica, in 5 minim doses (0.30), may also prove useful, and so, too, potassium bromid or phenacetin, and fluid extract of rhus aromatica. The dosage of the latter is much the same as that of the tincture of belladonna. In a few cases, Still obtained excellent results from ergot, given in 20 or 30 minim doses (1.25-1.90) three times daily. He protests against the topical application of silver nitrate; the injection of fluids into the spinal canal or elsewhere, and massage of the neck of the bladder as a means of cure of enuresis. He urges the importance of the general management of these cases. In the treatment of incontinence of feces, he has obtained excellent results from the administration of Dover's powder, grain 1½ to 3 (0.09-0.19) three times a day, according to the age of the child, and a mixture of belladonna, with potassium bromid, to which arsenic and nux vomica may be added. All food likely to irritate the bowel must be prohibited, and all drink should be given either cold or only just warm.

25. **After Results of Operations on Stomach.**—A more full discussion of this subject will be found in a paper read by Mr. Paterson, before the Atlantic City session of the American Medical Association, June 4-8, 1907, and which will appear in full in The Journal.

27. **Jaundice of Obscure Origin.**—Moore discusses the pros and cons of this case, and finally concludes that the symptoms are caused by a gallstone, which produces temporary obstruction.

28. **Traumatic Neuroses.**—Whiting concludes that a traumatic neurosis is a real and serious thing, occurring quite apart from the question of compensation for damages. It has a clear, consistent clinical picture, and is pre-eminently a disabling affection. Its prognosis is uncertain, but always, in some degree, grave, and its treatment is lengthy and costly.

30. **Unusual Form of Pyrexia.**—Taylor discusses the pyrexia in Hodgkin's disease, malignant growths, syphilis, and posterior basal meningitis.

31. **Vomiting in Children.**—Sutherland speaks of habit vomiting; vomiting from pyloric spasm and from congenital pyloric hypertrophy; vomiting from acid intoxication, such as periodic vomiting, from delayed chloroform poisoning, and from salicylic acid poisoning; vomiting in Henoch's purpura, and cerebral vomiting.

32. **Cold Abscess of Mesentery.**—Barling reports three cases of tuberculous glands of the mesentery of the small intestine, in which resolution, cold abscess formation and pyogenic infection occurred, respectively.

34. **Dysmenorrhea.**—Herman claims that if drugs will not relieve the menstrual pain, the proper treatment is to dilate the cervix at one sitting by bougies. Dilatation can be done without an anesthetic by the successive passage of different sized bougies on different days.

39. **Ovarian Tumor Complicating Labor.**—In one case reported by Lewers it was necessary to remove the tumor, a cyst, before labor could be terminated. In a second case, the tumor was a dermoid cyst of the ovary, but it did not complicate pregnancy.

40. **Volvulus.**—Hutchinson reports a case of volvulus of the entire small intestine, cecum and ascending colon, in which an operation was done successfully, and the patient recovered. The volvulus was the result of the development of a cyst in the lesser sac of the peritoneum. The progress of the case was exceedingly complicated, and not until three operations had been done did the patient make a complete recovery. The last two operations were done for the purpose of closing an artificial anus, which had been made at the primary laparotomy. This is the second case of the kind on record.

42. **Gastric Ulcer.**—Sommerville presents a brief review of the more important features of the etiology, diagnosis and treatment of gastric ulcer.

Journal of Tropical Medicine and Hygiene, London.

May 15.

43 Examination of Patients' Blood to Determine if Other than Mediterranean Fever Sera Would Agglutinate Micrococcus Melitensis. P. W. Bassett-Smith.
44 Treatment of Mediterranean Fever by Vaccines. P. W. Bassett-Smith.

June 1.

45 Noxious Insect Larvæ, Stinging Plants and Intestinal Myiasis in Angola. F. C. Wellman.
46 Transmission of Yaws by Ticks. E. E. Modder.
47 Blood Serum Reaction in Tubercle and Mediterranean Fever in Malta. A. Critien.
48 Disinfection of Meningococcus with Cyllin and Carbolic Acid. E. Klein.
49 Is the Distinction Between Entameba Coli and Entameba Dysenteriæ Valid? E. B. Vedder.

Annales d. Mal. d. Org. Gén.-Urin., Paris.

Last indexed XLVIII, page 1990.

50 (XXIV, No. 17, pp. 1281-1360.) Enlarged Kidney with Multiple Cysts. (Gros reins polykystiques.) E. Monod and E. Loumeau.
51 (No. 18, pp. 1361-1440.) *Subcutaneous Rupture of Kidney. (Rupture sous-cut. du rein.) L. Suarez.
52 *Suprapubic Cystotomy in Young Children. (Cystotomie sus-pubienne chez les jeunes enfants.) P. Mendes.
53 (No. 19, pp. 1441-1520.) Lesions in the Kidney During Experimental Infection with the Trypanosoma brucei. (Lésions du rein, etc.) M. Jungano.
54 Congenital Stricture of the Urethra; Diurnal Incontinence; Internal Urethrotomy; Recovery. (Rétrécissement cong. de l'urètre.) S. Galatzi.
55 Errors in Radiography for Urinary Calculi. (Erreurs rad.) Dervaux.
56 (No. 20, pp. 1521-1600.) *Technic of Transvesical Prostatectomy. (Prost. transvésicale.) P. Duval.
57 Uronephrosis in Acute Retention. (Uronéphrose.) R. Grégoire.

51. **Subcutaneous Rupture of Kidney.**—Suarez discusses the mechanism of lacerations of the kidney and reports the details of a case. The patient was kicked in the kidney region by a horse, but the rupture occurred at the farthest point of the organ. The kidney had probably been dashed against the spine.

52. **Suprapubic Cystotomy in Five-Months Infant.**—The operation was undertaken for removal of a bladder stone, and the child made a smooth recovery. In 27 out of 32 operations of the kind which Mendes has performed on male patients of all ages, he sutured the bladder, and the wound healed by primary intention in all but 6 cases. In children especially, the tissues possess so much vitality that the sutured wound heals exceptionally soon. The symptoms of the bladder stone in the infant were pain during urinating, evidenced by kicking, struggling and screaming, cloudiness of the urine which contained quantities of phosphates. The abdomen was relaxed and not tender. The bladder stone was discovered, under chloroform, and was extracted four days later, under chloroform, by a high incision.

56. **Technic of Transvesical Prostatectomy.**—The technic is illustrated; the operation was done in an infected case during an afebrile interval. The wound healed by primary intention and voluntary micturition was restored by the eleventh day.

Bulletin de l'Académie de Médecine, Paris.

58 (LXXI, No. 22, pp. 663-694.) *Congenital Cardiovascular Affections in Inherited Syphilis. (Affections cardio-vasculaires cong. d'hérédo-syphilitiques.) L. Landouzy and L. Laederich.

58. **Cardiovascular Affections in Inherited Syphilis.**—Landouzy relates a case of malformation of the heart and aorta in an infant with inherited syphilis, and dwells on the probability that these malformations are the result of the action of the specific poison of the syphilis. He thinks that preventive mercurial treatment might ward off such malformations or attenuate them if already established. The physician is better equipped now than ever to diagnose syphilis, to treat it, to warn against too early marriage and to insti-

tute preventive treatment before and after conception, and, above all, to combat the cardiovascular affections that may present themselves in the offspring. Landouzy believes that specific medication along these lines will reduce the sphere of teratology, while congenital cardiac defects may be relieved, improved or even banished altogether in cases which our fathers would have regarded as utterly beyond their skill. When this is accomplished, the mortality and morbidity from cardiovascular affections will soon show a notable reduction. Syphilis, inherited or acquired, he declares, will not so frequently be allowed to fasten on the cardiovascular apparatus with such irremediable localization.

Archiv f. Verdauungs-Krankheiten, Berlin.

Last indexed, XLVIII, pages 1145 and 1221.

59 (XIII, No. 2, pp. 101-222.) *Successful Treatment of Case of Idiopathic Dilatation of Colon. (Hirschsprungsche Krankheit.) J. Schreiber.
60 *Cancer in Digestive Tract Under the Age of 20. (Magen-Darmkrebs.) E. Bernoulli.
61 *Alimentary Hypersecretion. (Alim. Hypersekretion.) W. Zweig.
62 *Unreliability of Microscopic Findings in Stomach Contents for Diagnosis of Cancer. (Mageninhaltsstauung, etc., bei Magenkrebs.) J. Lewinski.
63 *Dry Powder Treatment of Sigmoiditis and Proctitis. (Neue Behandlungs-methode der chron. Sig. und Proct.) E. Rosenberg.

59. **Successful Opium Treatment of Idiopathic Dilatation of Colon.**—Schreiber's patient was a Russian woman, 20 years old, presenting the typical symptoms of Hirschsprung's disease, gradually developing during the last four years. An operation was considered, but was soon found unnecessary, as the whole trouble was found to be the result of an essential, uncomplicated, spasmodic contraction of the lower portion of the sigmoid flexure. Application of heat to the region seemed to do more harm than good, and enemata failed to relieve. Introduction of a large intestinal tube allowed constant passage of feces, but the odor was insupportable, and this measure had to be abandoned. As soon as the trouble was traced to spasmodic contraction, opium was given, and, as if by magic, all the symptoms subsided, defecation proceeded normally, the emaciated patient recovered complete health in three weeks. The sigmoid flexure was found to be abnormally long, evidently a congenital anomaly. Roentgen findings were misleading and rectoscopy at first was possible only for about 11 cm. above the anus. At this point the intestine was constricted. Repeated attempts to pass this constriction proved unsuccessful, even with compressed air, etc., but these attempts always relieved the patient somewhat as gases escaped afterward. The constricted portion was finally passed by cautiously pushing against the stricture a thick, oiled wad of cotton. This dilated the stricture and the rectoscope could be introduced for 18 cm. Keeping this up, very cautiously, under constant visual control of the conditions in the intestine, forging ahead a tenth of an inch at a time, the rectoscope was gradually introduced as far as 21 cm., when it was found that the constricted portion had been passed, and the rectoscope was in the dilated colon above the stricture. The colon was three or four times normal diameter, and the mucosa was normal in aspect. This cleared up the diagnosis at once and administration of opium daily soon conquered the spasm. Schreiber discusses the subject of idiopathic dilatation of the colon in general, and expatiates on the great value of "recto-romanoscopy," the Latin term for the sigmoid flexure being S. romanum.

60. **Cancer in Digestive Tract in Persons Under 20.**—Bernoulli reports from Switzerland 3 cases of cancer in stomach or rectum, in a lad of 15 and in 2 girls of 17 and 18. He gives brief summaries of similar cases from the literature, a total of 50 in all, including 13 in which the stomach was the seat of the lesion; the small intestine in 3; colon in 5; sigmoid flexure in 8, and the rectum in 21. Adenocarcinoma occurred in 11 cases, and 4 varieties of carcinoma were observed, including 16 colloid and 8 medullary. Cachexia seems less frequent in youthful victims, anemia with otherwise good conditions of nourishment being the rule. The course is unusually rapid; the average in 19 unoperated cases was 5.7 months, and 21.4 months in 9 cases in which the growth was removed. Survival of over a year was noted in only 2 cases, in one of which no operation had been done and merely a palliative artificial anus had been made in the other. The symptoms are practically the same as with adults. In 2 instances the carcinoma in stomach or colon was evidently congenital; the youngest victim of rectal cancer in the list was 11 years old. The sexes were about evenly divided.

61. **Alimentary Hypersecretion.**—When the stomach glands react to the normal stimulus of food in the stomach with an excessive secretion of gastric juice, numerous symptoms of nervous dyspepsia are observed, with possibly headache, sleeplessness, irritability, etc., oppression and pain in the stomach, variable appetite, and occasionally vomiting, nausea and acid eructations. Zweig has encountered the typical condition in 30 cases during the last three years. Men seem to be more frequently affected than women. Treatment is that of nervous dyspepsia in general, avoiding everything that stimulates production of gastric juice, such as soups, alcohol, black coffee and tea. Belladonna seems to be most efficient in reducing the excessive secretion. He gives it in a suppository or in powders—sodium citrate and magnesia, each 15 gm. (225 grains) and extract of belladonna 0.3 gm. (5 grains). Boas advises alkalies, as already mentioned in The Journal, March 16, 1907, page 982. Lavage of the stomach is not required unless the motor functions are much depressed, but massage may prove useful by facilitating expulsion of the abnormally large amount of gastric juice. Boas' dry test breakfast is an aid in differentiating the condition.

62. **Microscopic Study of Stomach Contents for Differentiation of Cancer.**—Lewinski gives the findings in twenty-two patients, the results showing that they are unreliable for the diagnosis of cancer. The signs generally accepted as pathognomonic of cancer were found occasionally in healthy stomachs, while they were not constantly encountered in the cases of known malignant disease.

63. **Dry Powder Treatment of Inflammation of the Lower Intestine.**—Rosenberg first rinses out the bowel carefully and then insufflates a dry powder under visual control, commencing at the farthest accessible point and continuing down to the anus, leaving no spot bare. This insures that the antiseptic in the powder remains a long time in contact with the inflamed mucosa, much longer than when introduced in fluid form. He has found patches of the powder still in place after six hours. The patient assumes the knee-elbow, or, better still, the knee-chest position, on a low, comfortably upholstered table, and the rectoscope is cautiously introduced, trying to keep the tip from touching the walls. If the lumen is closed by contraction and does not open when gently touched with a wad of cotton or when compressed air is blown against it, further measures would better be postponed, he states, as nothing will be accomplished by using force. Sometimes the contraction opens spontaneously. In case of ulcerations or necrosis he cleans the spot with a wad of cotton dipped in a hydrogen dioxid solution, wiping it dry afterward with another wad, and then applying the powder. The insufflation is repeated every second day. He usually insufflates a powder composed of tannic acid, 15 parts, with 100 parts magnesium oxid, but has had good results also with bismuth and other disinfectants in powdered form, deriving benefit sometimes from a change. Weeks and months may be required for a complete cure, and recurrences can not be prevented, as restitution is seldom possible. But relief is soon apparent, and the disturbances subside, even in cases in which the constant pains had required sedative suppositories for years. Warm sitz and half baths and compresses are useful as adjuvants. The stools must be kept soft, with as little waste as possible.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

64 (XXXIII, No. 18, pp. 705-744.) Immunity Reactions of Tuberculous Tissue and Their Connection with the Theory of the Action of Tuberculin. (Immunitätsreaktionen tub. Gewebes.) J. Morgenroth and L. Rabinowitsch.
65 *Diagnosis of Subphrenic Abscess. (Subphren. Absc.) Determann.
66 *Headache and Neurasthenia of Nasal Origin. (Nasales Kopfschmerz und nasale Neurasthenie.) A. Hartmann.
67 Etiology and Diagnosis of Loose Body in Joint. (Gelenkmaus.) P. Ewald.

68 Spirochetes in Pointed Condyloma. (Spirochätenbefunde in spitzen Condylomen.) A. Dreyer.
69 Appreciation of Therapeutic Value of Water in Early French Folklore. (Heilkraft des Wassers, etc.) W. Ebstein.

65. **Subphrenic Abscess.**—Determann gives the details of a case of subphrenic abscess erroneously diagnosed as empyema of the right pleural cavity. The lessons learned from this experience are that the possibility of a subphrenic abscess should be borne in mind when one is confronted with a case of apparent pleuritic exudate if percussion shows a very gradual transition from complete to lessened resonance. Also when fluid can be obtained by exploratory puncture only in the lowest part of the thorax, and comparatively deep, and especially when there is a doughy swelling in the dependent parts. Roentgenoscopy will confirm the diagnosis, showing the position of the diaphragm and its excursions. A subphrenic abscess pushes up the diaphragm, making a conical recess, which shows plainly with the Roentgen rays. Autopsy in the above case showed that the lesion extended so far into the liver that a fatal termination was inevitable. Nothing during life, however, indicated that the trouble was in the abdomen. The lung was adherent to the pleura owing to an old pleuritic process, which aided in obscuring the diagnosis.

66. **Headache and Neurasthenia of Nasal Origin.**—Hartman has frequently found that patients suffering from recurring headache or from neurasthenia are relieved of the trouble by removal of some obstruction in the nose or sinuses or by the treatment of a sinusitis. In one of his cases trigeminal neuralgia had persisted for weeks, the pain being so intense that sleep had been impossible. The most diverse treatment had given no relief. All pain vanished immediately after the maxillary sinus was evacuated, removing cheesy matter with which it had been filled. In other cases supraorbital neuralgia, which recurred every day at a certain hour, was the result of inflammation in the frontal sinus and was cured by appropriate treatment. He has witnessed the prompt vanishing of the severest frontal neuralgia after application of the Politzer method. The pain may be due to the inflammation itself or to compression from secretions or merely to rarefaction of the air in the sinus. Even the severe frontal headache of influenza can be immeasurably improved by a single application of the Politzer method of inflation. The pains subside entirely or temporarily. Repeating the application the next day soon completes the cure. The effect is similar to that derived from the air douche in middle ear affections. In another case described, chronic neuralgia had persisted for over a year with intense pains in the right side of the head. The use of the air douche soon banished the pain entirely. The trouble was not due to an inflammatory process in this and similar cases, but merely to occlusion of the sinus, shutting off communication with the air. His experience has demonstrated that this is a comparatively frequent occurrence and is liable to cause distressing pain. Opening a communication into the nose banishes the pain at once. Some of his patients return to him often for relief, as every "cold" causes the communication into the sinus to become stopped up. The passage of a thick sound through the nose into the sinus frees the patient at once from all pain. He has found in other cases that headache may be caused by morbid conditions in the muscles at the back of the neck, which can be corrected by Faradization. Removal of adenoid vegetations, deviations and thickening of the nasal septum, swellings of the nasal mucosa, or correction of other anomalies in the nose, should always be tried in cases of persisting headache and neurasthenic symptoms. The obstruction in the nose may be the sole or the principal factor in the trouble.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed, XLVIII, page 1642.

70 (LXXXIV, Nos. 1-3, pp. 1-276.) Marmorek's Serum in Treatment of Tuberculosis. (Antitub.-Serum Marmorek.) A. v. Huellen.
71 Tuberculosis of the Testicles. (Hodentub.) P. Beck.
72 Spinal Anesthesia. (Lumbalanästhesie.) F. Hohmeier.
73 Contusion of Pancreas Cured by Tamponing. (Isolierter Zertrümmerung der abnorm gelagerten Bauchspeicheldrüse.) Thöle.
74 Appendicitis in the Army. (Zur App.-Frage, mit bes. Berücksichtigung der Armeestatistik.) Karrenstein.
75 *Statistics of Carcinoma of Mucosa of Mouth and Throat. (Schleimhaut-carcinome des Mundes und Rachens.) A. Meller.
76 *Pathology of Male Breast (Path. der männlichen Brustdrüse.) J. Finsterer.
77 Typical Bending Injuries of the Extensor Communis Digitornm of the Ungual Phalanx. (Typische Beugungsverletzungen der Fingerstrecker am Nagelglied.) L. Kirchmayr.
78 Diphtheria in Surgical Ward at St. Gallen, 1881-1905. (Die Diphtherie.) O. Wenner.
79 Congenital, Incomplete, External, Median Fistula in the Neck. (Mediane Halsfistel.) G. Delkeskamp.
80 Mechanism of Cause of Luxation in Inferior Radioulnar Articulation. (Entstehungsmechanismus der Luxation, etc.) Thon.

75. **Mouth and Throat Cancer.**—Meller reviews and classifies 207 cases of carcinoma of the mucosa of mouth and throat in which an operation was performed in the second surgical clinic at Vienna, 1894 to 1904 (Gussenbauer and Hochenegg). This material shows that any part of the mouth can be the seat of the cancer, and that men are affected fifteen times oftener than women. Those who frequent saloons, he asserts, seem to show a special predisposition to the disease, but syphilis and smoking a pipe do not seem to enhance this tendency. The affection generally runs a fatal course in two years. The submaxillary glands are almost always involved and, exceptionally, other glands. The involvement of the glands can generally be determined at an early stage of the disease. A positive histologic finding in the glands is not absolutely unfavorable for the prognosis. The development of metastases at a distance at the time of the operation is a rare occurrence. The results of operation depend on the size of the tumor. Recurrence was observed in 79 per cent. of the surviving patients, but permanent recovery sometimes followed a second operation. The lower in the throat, the more unfavorable the prognosis of the carcinoma. The general mortality of the operation was 13 per cent., but 14.6 per cent. of the 207 patients were cured.

76. **Tumors of Male Breast.**—Eleven cases of carcinoma, 3 of sarcoma and 3 innocent growths of the male breast have been surgically removed at Hochenegg's clinic. These cases and others from the literature are summarized. None of the 11 patients with carcinoma succumbed to the operation, and one is in good health after 21 years; one died of an intercurrent affection after 11 years, and another is in good health 2 years after the operation. There was no tardy recurrence in any instance. Nothwithstanding the extensive resection, the function of the arm has not suffered.

Münchener medizinische Wochenschrift.

81 (LIV, No. 16, pp. 761-816.) *Acute and Chronic Pyelitis. (Nierenbeckenentzündung.) H. Lenhartz.
82 *Treatment of Severe Anemia with Transfusion of Blood. (Behandlung schwerer An. mit Bluttransfusion.) P. Morawitz.
83 Living Pale Spirochete. (Lebende Sp. Pall.) E. Eitner.
84 *Addison's Disease. (Add. Krankheit.) H. Stursberg.
85 *Persistence and Enlargement of Thymus with Exophthalmic Goiter. (Thymusdrüse bei Basedowscher Krankheit.) E. Gierke.
86 *Course of Typhoid after Preventive Serum Treatment.) (Typhusverlauf bei geimpften und nichtgeimpften Mannschaften, etc.) Eichholz.
87 *Treatment of Typhoid Bacillus Bearers. (Typhusbazillenträger.) Dehler.
88 *Experiences with Kuhn's "Suction Mask." (Kuhnsche Lungensaugmaske.) Stolzenburg. Id. E. Kuhn.
89 Testing Heart for Its Movability. (Prüfung des Herzens auf seine Beweglichkeit.) M. Herz.
90 Discovery of Cause of Cancer by H. Spude. (Krebsursache.) B. Fischer.
91 *Hyperemia Treatment of Tuberculous Bone and Joint Affections. (Hyperämie-Behandlung der Knochen- und Gelenktuberkulose.) C. Deutschländer.

81. **Differential Temperature Curve in Pyelitis.**—Lenhartz reviews his experiences with 80 patients with pyelitis, mostly after pregnancy or childbed. Six patients were men. A clinical cure was obtained in 54 cases. The patients feel entirely well, but bacteriologic examination shows that germs are still present in all but 16. Improvement alone was recorded in 14 cases, and 7 of the patients still have more or less disturbance. From the bacteriologic standpoint alone, only 20 were improved and 39 show no signs of improvement. He does not lay much stress on medicinal treatment, as he does not believe that it is possible to dislodge the bacteria from the renal pelvis by means of the drugs advocated for that purpose. Even under their long continued adminis-

tration the bacteriuria persists unmodified. In one case a child came into his charge who had taken urotropin (hexamethylenamin) daily for 6 months under a physician's directions, who published a report of the case as an example of the cures obtained with this drug. This child was pale and sickly looking, and luxuriant colonies of the colon bacillus could be cultivated from the urine. Lenhartz has most confidence in the copious drinking of hot linden flower tea, a pint being taken three or four times a day. This rinses out the kidney pelvis and the bladder so thoroughly that the tissues are given a chance to recuperate. It also always proves the best means to relieve the pain, possibly supplemented by an ice bag or hot pad applied to the affected side. Drugs may be useful as adjuvants, but he advises against giving them for months. Local treatment of the bladder is not necessary when the process is located in the renal pelvis. Puncture may be indicated, but in 10 out of 12 cases the large tumefaction spontaneously subsided. Instead of the decoction of linden flowers, an alkaline mineral water might be used to advantage. In 66 out of 80 cases the colon bacillus was found alone, and in 3, paratyphoid bacilli; in 2, the lactic bacillus and *B. proteus*, and once, Friedländer's pneumobacillus. The pediatrists, Escherich, Pfaundler and Heubner, have called attention to the importance of the colon bacillus in the development of pyelitis. They have observed a number of cases accompanied by fever lasting for a few days or weeks, these attacks sometimes recurring from six to eight times in the course of a year, and generally erroneously attributed to digestive disturbances. The temperature curve of pyelitis closely resembles that of croupous pneumonia, but the pulse and the respiration are very different. The sudden onset, intensity and extent of the pains may suggest appendicitis or peritonitis. Lenhartz is convinced that many cases of pyelitis have sailed under a false flag as influenza, rheumatic, gastric or typhoid fever, pneumonia, pleurisy or lumbago. High fever was observed in more than 73 per cent. of his 80 patients, and was generally ushered in with a chill, sometimes repeated. The febrile period lasted from 3 to 18 days, with 6 or 7 days as the average. In some cases the fever was more continuous, with a crisis between the sixth and tenth day, in other cases high, slightly remittent with a gradual descent. Sometimes the temperature keeps at a subfebrile point for weeks, or there may be a recrudescence. In another group of cases the temperature rises to a high level for two or three days at a time after intervals of normal findings. The most interesting and characteristic curves are those which show an actual cyclic course of the fever. Each recurrence presents the characteristics of the original attack, the intervals of normal or subfebrile temperature ranging from 3 to 10 days as a rule. The amount of urine is not diminished during these recurring acute attacks, but contains transiently exceptional numbers of bacteria. Frequently the relapse accompanies involvement of the hitherto sound kidney. After an afebrile interval of from 5 to 15 days a new attack commences with pains in the hitherto intact side, without any symptoms in the bladder during the interim indicating the transmission of the disease process. In 14 cases the relapse coincided with the menses; in others, the menses accompanied the crisis. He gives tracings showing the characteristic temperature curve.

82. **Efficacy of Transfusion of Blood in Severe Anemia.**—Morawitz reports from Krehl's clinic at Strasburg three cases of severe anemia in which the condition was growing progressively worse under arsenic and other measures. The hemoglobin declined under treatment from 35 and 25 to 30 or 20 per cent. A single intravenous injection of from 150 to 200 c.c. of defibrinated blood from another person was then made. No change was observed for three days, but then marked improvement became evident; the hemoglobin percentage rapidly increased and recovery soon followed. In the case of a lad of 15 the hemoglobin jumped from 30 to 100 per cent. in less than two months. The severe anemia in this case had been accompanied by indications of leukemia. In the second case the anemia followed parturition, although there had been no excessive hemorrhage. The hemoglobin increased from 20 to 50 per cent. in about six weeks. In the third case the patient was a woman of 47 who had suffered for a year with depression, pains in the limbs, palpitations and dyspnea. The liver and spleen were enlarged and a loud systolic murmur was heard over the heart. Hemoglobin was 25 per cent.; reds, 1,230,000; whites, 3,300. In less than a month after the transfusion the hemoglobin was 50 per cent., reds 2,600,000 and whites 6,000, and the patient continued to improve until the blood findings were practically normal by the end of the third month. Details of some other cases are related, but the interval has been too short since the transfusion to determine the outcome except in one case in which the patient was moribund and soon succumbed. It seems to be established, he thinks that there are certain cases of anemia in which the bone marrow is still capable of reacting and functioning, but in which the blood has become too anemic to supply the stimulus for functioning, and that this stimulus can be supplied from without by transfusion of blood or possibly by some form of organ therapy. Recent research by Carnot suggests an explanation for the phenomena observed as due to the loss of balance between the hemolysins and what he calls "hemapoetins."

84. **Addison's Disease.**—Stursberg describes three cases of tuberculosis of the suprarenals in which there was no pigmentation. The diagnosis was made in two from the remarkable weakness of the patients in strong contrast to their well-nourished aspect. Another sign is the low blood pressure not to be explained by any disturbances on the part of the heart. Gastrointestinal disturbances without traceable cause are further corroborative testimony. These findings differentiate Addison's disease even without pigmentation of skin or mucosæ. In one of the cases the patient's mother had been tuberculous at the time of her pregnancy.

85. **Persistence and Enlargement of Thymus in Exophthalmic Goiter.**—Gierke noticed that the thymus was enlarged in the cadaver of a person who had succumbed to exophthalmic goiter. Sifting the literature revealed that enlargement of the thymus had been noted in forty other cases of exophthalmic goiter on record, and he later had occasion to observe a second case. In one of his cases the patient succumbed at once after removal of two-fifths of the left lobe, and the thymus was found from two to four times the largest normal size. In both cases the exophthalmic goiter seemed to be exceptionally malignant, neither patient surviving more than two or three years after the first symptoms. The majority of deaths after operations for exophthalmic goiter seem to occur in persons with persisting thymus. This was noted in eighteen out of the thirty-five cases in which the record is complete. Gierke theorizes to explain the facts observed, saying that they certainly suggest some connection betwen the goiter and the thymus, possibly some compensating function. This is rendered the more probable by Owen's experience with a patient whose exophthalmic goiter was much improved by supposed thyroid treatment. It was learned afterward that the patient had been taking thymus extract by mistake, instead of thyroid extract. Mikulicz has also reported striking benefit from thymus treatment in exophthalmic goiter, especially with parenchymatous goiters in young patients. Thymus treatment has never been known to induce by-effects. Gierke adds that it may be possible to determine the enlargement of the thymus in patients with exophthalmic goiter, and study such cases to learn any possible peculiarities which they may present, differing from the symptoms of ordinary exophthalmic goiter.

86. **Results of Antityphoid Immunization of German Troops.**—Eichholz reviews the course of typhoid fever in sixty-eight men, half of whom had been previously treated with antityphoid serum. There was no mortality among the immunized, but three of the non-immunized patients died. Severe complications were observed in three of the former and in seven of the latter group. The height and duration of the fever were much less marked in the immunized.

87. **Operation on Gall Bladder Solely to Dislodge Typhoid Bacilli in a Bacilli Bearer.**—Dehler describes what is probably the first case in which the gall bladder was opened and drained solely for the purpose of putting an end to the con-

stant voiding of typhoid bacilli in the stools. The patient was an insane woman and, before the discovery that she was a typhoid bacilli bearer, she had infected a number of other persons. Extensive rectal prolapse and a constant tendency to diarrhea with much mucus and blood-streaked scraps increased the dangers of infection of others and of complications for herself. There were no symptoms from the gall bladder, but typhoid bacilli were discovered in the stools in 37 out of 39 examinations. The gall bladder was loosened from adhesions and opened. Two gallstones, the size of cherries, were removed. One of the stones had been obstructing the cystic duct. The bile flowed so freely after taking out this stone that removal of the gall bladder or drainage of the hepatic duct seemed unnecessary. A tube was inserted in the cystic duct and recovery was uneventful. With one exception—when a few bacilli were found in the stools soon after the operation—the stools have since been permanently free from typhoid bacilli. None was ever found in the blood or urine at any time. The patient has also been free from diarrhea since the operation, the stools being apparently normal. The agglutination test has persisted positive at 1:100. The typhoid bacilli were evidently dislodged from the gall bladder when the flow of bile became regular, without stagnation. To promote the biliary functions, cholagogues were given systematically after the operation. The gratifying results in this case justify, he thinks, intervention of the kind, or even removal of the gall bladder unless it may prove possible to enhance the patient's immunization by serotherapy or other means.

88. **Kuhn's Lung Suction Mask for Hyperemia Treatment of the Lungs.**—Kuhn's mask consists of a celluloid cap to cover mouth and nose, which renders inspiration difficult while expiration proceeds unhindered. This induces hyperemia in the air passages and lungs. Kuhn's experience at von Leyden's clinic has been decidedly favorable and Stolzenburg also reports great benefit from use of the mask in 24 cases of pulmonary tuberculosis. It not only relieves the patients subjectively, but exerts a favorable influence on the morbid process. He adds that it is perfectly harmless. Kuhn found in 16 patients that the number of reds increased by a million after one hour's use of the mask, while the whites increased by 1,000. He has used the mask further in five cases of fibrinous pneumonia, and the disease assumed a very mild course. In a case of severe asthma the patient, a woman, has been free from attacks for the first time in years since she has been systematically using the mask. It was described more fully in The Journal, page 1423 of vol. xlvii, 1906.

91. **Hyperemia Treatment of Tuberculous Bone and Joint Affections.**—Deutschländer has had extensive experience and reports forty-four cases in which constriction or suction hyperemia or both were applied. He states that the constriction should never be applied for more than an hour or so each day; the limb should be a bright red. The constriction should never induce pain or edema. After several weeks, treatment should be suspended for a few days. Fistulous and suppurating tuberculous processes can be treated advantageously by combining constriction and suction therapy. In order to ward off recurrences this form of treatment should be begun early and continued for a long time, even after all signs of inflammation have subsided. Abscesses require early incision, but tuberculous abscesses and edema need only puncture, with the suction hyperemia, no iodoform being required. Immobilization is not necessary; gentle movements are a direct advantage. Tuberculous joints must be relieved of all weight bearing for a long time, as an important factor in treatment.

Virchow's Archiv, Berlin.

Last indexed, XLVIII, page 1823.

92 (CLXXXVIII, No. 1, pp. 1-179.) Tuberculosis of the Liver with Tumor-like Large Nodule, Probably Associated with Syphilis. (Grossknotige tumorähnliche Tub. der Leber.) W. Fischer.
93 Study of New Formation of Bone in Osteoplastic Carcinosis. (Knochenneubildung bei der osteopl. Karzinosc.) H. Assmann.
94 Development of Adenoma in Pituitary Body. (Hypophysis-adenoma.) C. Lowenstein.
95 Case of Multiple Accessory Spleens. (Nebenmilzen.) K. Schilling.
96 Bacterial Casts Containing Iron in Blood Vessels of Kidney in Puerperal Sepsis. (Eisenhaltige Bakterienzylinder.) M. Westenhoeffer.
97 Lime in Vessels of Cortex of Child's Kidney. (Kalk in den Rindengefässen der kindl. Niere.) B. Gläserfeld.
98 Irregularity of Structure of Passively Congested Liver. (Stauungsleber). C. Schantz.
99 Case of Multilocular Omental Cysts. (Zyste des Netzes.) H. Karas.
100 *Determination of Syphilitic Antibodies in Cerebrospinal Fluid of Paralytics by Means of Complement-Deviation Test. (Nachweis der syph. Antikorper, etc., nach dem Wassermann-Plautschen Verfahren der Komplementablenkung.) J. Morgenroth and G. Stertz.
101 Localized Tuberculosis of Liver. (Tub. der Leber.) J. Orth.

100. **The Hemolytic Test for Differentiation of Syphilis.**—This article presents the history of the complement-deviation test and describes its technic and various experiences with it. In eight cases of general paralysis the test invariably revealed the presence of syphilitic antibodies in the cerebrospinal fluid, while the findings were negative in all other affections with the exception of one case of secondary syphilis in which the findings were likewise positive. There was no evidence of syphilis in the history of seven of the paralytic patients, but the positive findings gave the clue. The test is liable to prove the key to a better comprehension of the pathogenesis of tabes and paralysis, although negative findings are not conclusive evidence against the presence of syphilis.

Gazzetta degli Ospedali, Milan.

Last indexed, XLVIII, page 2169.

102 (XXVIII, Nos. 12-18, pp. 113-192.) *Bacteriemia in Typhoid for Prognosis. (Ricerca del bac. d'Eberth nel sangue.) C. Marchese.
103 Desquamation in 7 Patients Convalescing from Typhoid. (Desquamazione, etc.) G. Appiani.
104 *Epidemic Pneumonia. (Polmonite epidemica.) G. Recchi.
105 *Formaldehyd Sterilization of Urethral Catheters. (Sonde uretrali, etc.) R. Cecca.
106* *Postoperative Vomiting. (Profilassi del vomito consecutivo alla cloronarcosi.) M. Ferrari.
107 Two Cases of Foreign Bodies in Air Passages. (Corpi estranei delle vie resp.) A. Terribile.
108 *Technic for Staining Degenerated Forms of Leucocytes in Blood. (Colorazione dei preparati fatti per strisciamento e fissati.) G. Guyot.
109 *Alimentary Levulosuria and Elimination of Methylene Blue in Liver Affections. (Malattie di fegato.) M. Chiadini.
110 *Orchitis with Parotitis as Cause of Sterility. (Orchite da orecchioni.) S. Rebaudi.
111 Children Who Eat Dirt. (Geofagia infantile.) C. Tosatti.
112 Fixation of Liver to Supplement Operations on Biliary Passages. (Epatopessia.) C. Mariani.
113 Experimental Study of Genesis of Anthracosis of Lungs. (Antracosi.) F. Ravenna.
114 *Remote Results of Craniectomy for Trauma. (Craniectomie.) M. Fasano.
115 *Preventive Serum Treatment of Diphtheria. (Difterite.) A. Terribile.

102. **Bacteriemia in Typhoid and Prognosis.**—Marchese found bacteria transiently in the blood in sixteen out of twenty cases of typhoid fever. The cases in which the bacilli appeared very early in the blood and persisted unusually long, all proved to be exceptionally severe.

104. **Epidemic Pneumonia.**—Recchi describes an epidemic of 67 cases with 15 deaths in 1904, and another epidemic of 13 cases with 3 deaths in 1906. The disease was exceptionally severe in alcoholics and in pregnant women. General symptoms predominated in all, and streptococci were found associated with the pneumococci. By the third day the patient was generally in a condition resembling typhoid, the local symptoms were less prominent, but the spleen and liver were enlarged and painful, with slight icterus, very little expectoration but increasing dyspnea, arrhythmia and great depression. He obtained the best therapeutic results with large doses of digitalis, 4 gm. of digitalis a day in an infusion of 150 gm. A tablespoonful was given every hour, and it apparently hastened the crisis; the pulse became more regular and the general symptoms milder. When the pulse did not show any effect in the first twenty-four hours from the digitalis given in this way, the disease almost invariably proved fatal, confirming Maragliano's experience.

105. **Formaldehyd Sterilization of Urethral Catheters.**—Cecca states that he has been keeping his urethral sounds in the fumes of formaldehyd during the last ten months and the sterilization seems to be perfect while the sounds do not seem to suffer in the least, being still as smooth, polished and flexible as at first. Tests with infected catheters showed that from six to eight tablets of formalin in the bottom of the jar

containing the catheters were able to sterilize them completely in the course of nine days for staphylococci and in from sixteen to eighteen days for tubercle bacilli. These were the extreme limits for sterilization of the interior of the catheters.

106. **Postoperative Vomiting.**—Ferrari has tried various preventive measures and his experience indicates, he thinks, that the cause of postoperative vomiting is some idiosyncrasy due to a preceding, possibly unsuspected, pathologic condition of the stomach. Persons who suffer much from postoperative vomiting are liable to have the same experience after later operations, no matter what preventive measures may be used.

108. **Stain for Leucocytes.**—Guyot claims that the technic described allows the preparation to be stained at once or long after the specimen of blood has been drawn, thus making it very convenient. He says also that it is free from the causes of error inherent in other technics. The specimen is smeared on a cover-glass, and this is followed by fixation with formalin fumes (40 per cent.) for from 20 to 30 minutes; rinsing in distilled water and staining with Foa's hematoxylin; rinsing off excess of stain and applying a drop of a mixture of (a) 1 part of a saturated solution of Soudan III in 70 per cent. alcohol, and (b) 5 parts of glycerin. The specimen is ready for the microscope in from 10 to 12 hours.

109. **Alimentary Levulosuria and Other Tests in Liver Affections.**—Chiadini relates the details of seven cases of various liver affections in which he tested the functioning of the liver. His conclusions are that a reliable test is afforded by the administration of 50 gm. of levulose, fasting. If the liver is intact no glycosuria will follow, but levulosuria will be observed in case of pathologic conditions in the liver. If methylene blue is given in the dose of 5 cg., it will be eliminated as such if the liver and other organs are sound, but if the liver substance is much altered and if no other tissue is competent to perform its functions vicariously, then the methylene blue will be eliminated in the form of chromogen. The elimination both of the blue and of the chromogen is continuous. The findings of the alimentary levulosuria test and the blue test do not parallel each other, as they represent different functions of the liver. By combining the two tests and comparing the findings it is possible to obtain considerable insight into the functioning of this organ.

110. **Sterility from Orchitis During Parotitis.**—Rebaudi gives the particulars of fourteen cases of orchitis complicating parotitis in an epidemic several years ago. Thirteen of the men now present atrophy of the testicle involved in the orchitis. In six cases the sound testicle is hypertrophied and the men have children, but none of the others has a family. Although the process was unilateral in these cases no spermatozoa are found now in the semen. Cases with gonorrheal antecedents are not included in this list. He refers also to the possibility of cases of parotitis in which the orchitis might be the only manifest symptom. Orchitis may also accompany a tonsillitis and atrophy of the testicle is liable to result from this also.

114. **Remote Results of Craniectomy for Trauma.**—Fasano describes a few cases of traumatic injury of the skull in which he operated five or eight years ago. The gap left by the trauma and trephining healed over with approximately normal bone substance, without pulsation or abnormal sensations on pressure, and the patients are all in good health.

115. **Preventive Antitoxin Treatment of Diphtheria.**—Terribile states that he made 2,500 preventive injections of diphtheria antitoxin, each about 300 units, during a recent epidemic of diphtheria. The immunity conferred lasted from 19 to 20 days as a rule. In case circumstances required it he then repeated the injection and again after 40 days. Out of 2,000 individuals thus treated 17 contracted diphtheria, but none died. The age ranged from a few days to 20 or 23 years. His experience with the antitoxin in treatment of 528 cases of declared diphtheria was also extremely satisfactory, as he relates in detail. The mortality was 2.08 per cent., but averaged much less when the serum was given early. He advises large doses to start with. No inconveniences were observed in any case, although albuminuria was noted in 75 per cent. of the patients.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

THE STANDARD FAMILY PHYSICIAN. A Practical International Encyclopedia of Medicine and Hygiene, Especially Prepared for the Household. By Prof. Carl Reissig, M.D., of Hamburg, Germany, and Smith Ely Jelliffe, A.M., M.D., Ph.D., Professor of Pharmacognosy, Columbia University, with the Assistance of American and German Specialists in the Treatment of Diseases and Experts in Medicine and Surgery. Vols. I and II. Buckram. Pp. 1050. Price, $15.00. New York and London: Funk & Wagnalls Co., 1907.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Materia and Therapeutics in Jefferson Medical College, assisted by H. R. M. Landis, M.D., Visiting Physician to the Tuberculosis Department of the Philadelphia Hospital. Vol. II. June, 1907. Paper. Pp. 381. Price, $6.00 per annum. Philadelphia and New York: Lea Bros. & Co., 1907.

ALCOHOL AND THE HUMAN BODY. An Introduction to the Study of the Subject. By Sir Victor Horsley, F.R.S., etc., Surgeon to National Hospital for the Paralyzed and Epileptic, and Mary D. Sturge, M.D., Lond., Physician for the Birmingham and Midland Hospital for Women. With a Chapter by A. Newsholme, M.D., etc. Cloth. Pp. 370. Price, $1.50 net. New York and London: Macmillan & Co., 1907.

POSTOPERATIVE TREATMENT. An Epitome of the General Management of Postoperative Care and Treatment of Surgical Cases, as Practiced by Prominent American and European Surgeons. By Nathan Clark Morse, A.B., M.D., Surgeon Emergency Hospital, Eldora, Iowa. Second Edition, Revised and Enlarged. Illustrated. Cloth. Pp. 499. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

AMERICAN PRACTICE OF SURGERY. A Complete System of the Science and Art of Surgery. By Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D., New York City. Complete in Eight Volumes. Illustrated. Volume III. Cloth. Pp. 775. Price, $7.00. New York: William Wood & Co., 1907.

LABORATORY MANUAL OF INVERTEBRATE ZOÖLOGY. By Gilman A. Drew, Ph.D., Professor of Biology at University of Maine. With the Aid of Members of the Zoölogical Staff of Instructors of the Marine Biological Laboratory, Woods Hole, Mass. Cloth. Pp. 201. Price, $1.25 net. Philadelphia and London: W. B. Saunders Co., 1907.

MORRIS' HUMAN ANATOMY. A Complete Systematic Treatise by English and American Authors. Edited by H. Morris, M.A., etc., and J. P. McMurrich, A.M., Ph.D. Illustrated. Fourth Edition. In Five Parts. Part III: The Nervous System, etc. Cloth. Pp. 1113. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1907.

CLINICAL PSYCHIATRY. A Text-book for Students and Physicians, Abstracted and Adapted from the Seventh German Edition of Kraepelin's "Lehrbuch der Psychiatrie." By A. Ross Diefendorf, M.D., Lecturer in Psychiatry in Yale University. Cloth. Pp. 562. Price, $3.75. New York: The Macmillan Co., 1907.

PRACTICAL GYNECOLOGY. A Comprehensive Text-book for Students and Physicians. B. E. E. Montgomery, M.D., LL.D., Professor of Gynecology, Jefferson Medical College. Third Edition, Revised. Illustrated. Cloth. Pp. 970. Price, $5.00. Philadelphia: P. Blakiston's Son & Co., 1907.

POISONS: Their Effects and Detection. By Alexander W. Blyth, M.R.C.S., etc., and Meredith W. Blyth, B. A. (Cantab.), etc. Fourth Edition. Thoroughly Revised. Illustrated. Cloth. Pp. 772. Price, $7.50 net. London: Charles Griffin & Co. New York: D. Van Nostrand Co., 1906.

VEST POCKET ABSTRACT SERIES. Including Abstracts on Anatomy, Physiology, Chemistry, etc. By Drs. McCurdy, Charles A. Orr and Others. Flexible Leather. Pp. about 140 each. Price, $1.00 each: Pittsburg: Medical Abstract Co., 1907.

LATERAL CURVATURE OF THE SPINE AND ROUND SHOULDERS. By Robert W. Lovett, M.D., Boston. Associate Surgeon to the Children's Hospital, Boston. Illustrated. Cloth. Pp. 185. Price, $1.75 net. Philadelphia: P. Blakiston's Son & Co., 1907.

MEDIZINAL-BERICHTE über die Deutschen Schutzgebiete für das Jahr 1904-1905. Herausgegeben von der Kolonial-Abteilung des Auswärtigen Amts. Cloth. Pp. 266. Berlin: Ernst Siegfried Mittler und Sohn, 1907.

NEPHRITIS. A Manual of the Disease Commonly Called Nephritis or Bright's Disease and of Allied Disorders of the Kidneys. By Seelye W. Little, M.D. Cloth. Pp. 134. Price, $1.25. New York: The Grafton Press, 1907.

HISTORY AND DEVELOPMENT of the Housing Movement in the City of Washington, D. C. By George M. Kober, M.D. Paper. Pp. 64. Washington: Washington Sanitary Improvement Co., 1907.

UEBER DIE VERWENDBARKEIT europäischer Truppen in tropischen Kolonien vom gesundheitlichen Standpunkte. Von Dr. Steuber. Paper. Pp. 37. Berlin: Ernst Siegfried Mittler und Sohn, 1907.

OPERATION, CARE AND REPAIR OF AUTOMOBILES. Edited from the Files of the Horseless Age. By Albert L. Clough. Cloth. Pp. 342. New York: The Horseless Age, 1907.

DIE IMPOTENZ DES MANNES, von Dr. Orlowski Spezialarzt in Berlin. Paper. Pp. 78. Price, 1.8 mk. Würzburg: A. Stuber's Verlag (Curt Kabitzch), 1907.

SOME MEMORANDA IN REGARD TO WILLIAM HARVEY, M.D. By S. Weir Mitchell. Cloth. Pp. 45. New York, 1907.

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Original Articles

DEFORMITIES OF THE VULVA FROM EARLY AND LATE INDURATING EDEMA.*

[OEDEMA INDURATIVUM (SIGMUND); OEDEMA SCLÉROTICUM (PICK).]

ROBERT W. TAYLOR, M.D.
Consulting Genito-Urinary Surgeon to the Bellevue and Charity (City) Hospitals.
NEW YORK CITY.

I have many times been struck with the want of familiarity of physicians with the lesions of the vulva produced by the indurating edema of syphilis. As an example of this unfamiliarity and even ignorance, I may say that I have seen instances of this affection diagnosticated as cold abscess, traumatism, elephantiasis, lymphatic infiltration, anomalous varicocele, fibroma diffusum, lipoma, sarcoma and a local anasarca, tuberculosis and cancer. While in many instances doubt and uncertainty have been present in the minds of the observers of early cases of this affection, in the study of more advanced ones a number of surgeons and gynecologists whom I have seen had not the slightest conception of the nature of the lesions before them. It seems to me, therefore, that the time is ripe for an illuminating paper on this subject.

Then, again, little has been written and little is known of the outcome of these cases and many interesting and important facts have never been published.

In this essay I shall try to describe this affection clearly in all its conditions, and then to present the details of various sequelæ in a number of my cases. My observations were made over a long period of years, during which I had the good fortune to observe a goodly number of cases and in many instances to trace them in their career toward ultimate cure or permanent deformity. Most of the cases occurred in hospital and clinical practice, in women whom it was impossible to treat thoroughly or systematically for long uninterrupted periods; consequently in many of them full resolution of the syphilitic infiltration was not induced, and the affection ran a very chronic course.

CLINICAL HISTORY.

Indurating edema is in many cases a complication of the initial hard chancre, and then is an early lesion; but it may develop, owing to various causes, at later periods. It is always an expression, however, of the continued activity of the syphilitic diathesis. In some exceptional cases the initial sclerosis occupies a whole labium and much enlarges it, while in most instances the lesion is limited in extent and only occupies a segment of the part.

In a limited number of cases we find that accompanying the initial lesion, either around it or in its vicinity, a hard edema of one labium or both labia occurs. This edema, which has been called sclerotic or indurating, is very peculiar and is the sole appanage of syphilis. It usually begins insidiously in an indolent aphlegmasic manner, without pain, and perhaps with no heat nor pruritus. It may become fully developed in from one, three, to many weeks. Then again, in some cases, its onset is quite brusque and rapid, and in a few days a labium may be greatly enlarged. When such a labium is examined it may be found to be of double, even quadruple, its normal size. Its tegumentary covering may be normal in color or a little redder than usual, even violaceous, while its mucous membrane is of a dull red. In some cases the corresponding labium minus may be affected, and its pinkish-red color is then somewhat increased. There is no evidence of pitting on pressure, inflammatory engorgement nor of acute edematous swelling. The parts, as a rule, are neither hot nor tender on pressure, nor spontaneously, but in some cases of gonorrheal or leucorrheal discharges, and owing to uncleanliness, ephemeral attacks of deep redness may be observed, which are probably due to staphylococcic or streptococcic inflammatory complications. In these cases there may be tenderness. The lesion at its acme is of an extreme hardness, sometimes presenting a dense elasticity, like the lobe of one's ear, and again a stony feel, like bone or cartilage. It may be that the whole labium or the labia (if both are involved) are thus uniformly sclerotic, or, as it often happens, there may seem to be a central kernel of great density surrounded by an atmosphere of elastic firmness. In uncleanly women, during pregnancy, and as a result of traumatism, this indurating edema may extend beyond the labial limits. Well-marked secondary symptoms are constant concomitants. This form of indurating edema, following a hard chancre, is very well shown in Figure 1. Its history is as follows:

CASE 1.—A woman, aged 26, had a hard chancre on the left of the fourchette which lasted two months. Before it finally disappeared she noticed that the left labium majus slowly and painlessly swelled. As this enlargement was going on, an erythematous and papular eruption appeared over the body. These lesions were abundant about the genitalia, and they are indicated in the dark spots scattered over the parts in the figure. By means of active treatment, general and local, the swelling of the labium was dissipated in about three months. After that the woman continued antisyphilitic treatment for nearly a year, and then thought herself well. About two years after her infection she observed that the labia minora became larger and were pushed out between the external parts. She at that time had seen no evidence of syphilis for more than a year. The hypertrophy of the nymphæ went on slowly, and in eight months they presented the appearances seen in Figure 2. They are of many times their normal size, of very firm elastic consistence, of a deep pinkish hue. The patient then showed no perceptible evidence of syphilis, and the ganglia, which in the early stages had been markedly enlarged, were scarcely to be felt. Under treatment resolution occurred.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

The next form of indurating edema is well shown in the following case (Fig. 3):

Case 2.—A woman, aged 24, had a small and ephemeral initial lesion at the base of the left labium minus. After it had healed she noticed that her genitals became redder than normal, particularly on the left side. At the regular evolution of secondary manifestations a linear series of condylomata lata showed themselves on the inner surface of the left labium majus. As these grew in size and age, she noticed that the corresponding large lip gradually and painlessly grew larger until it became several times the size of its fellow. No heat nor sensitiveness were observed, but a condensed, unyielding labium was present, which protruded markedly downward and outward, presenting great deformity. The outlines of the superimposed condylomata are well shown in the figure.

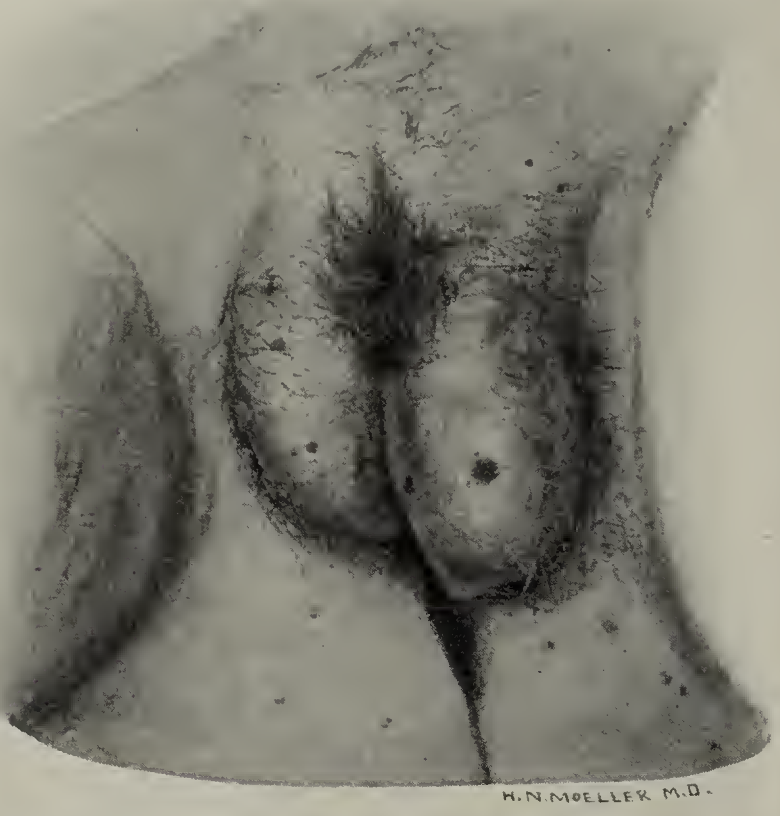


Fig. 1.—Indurating edema of left labium majus.

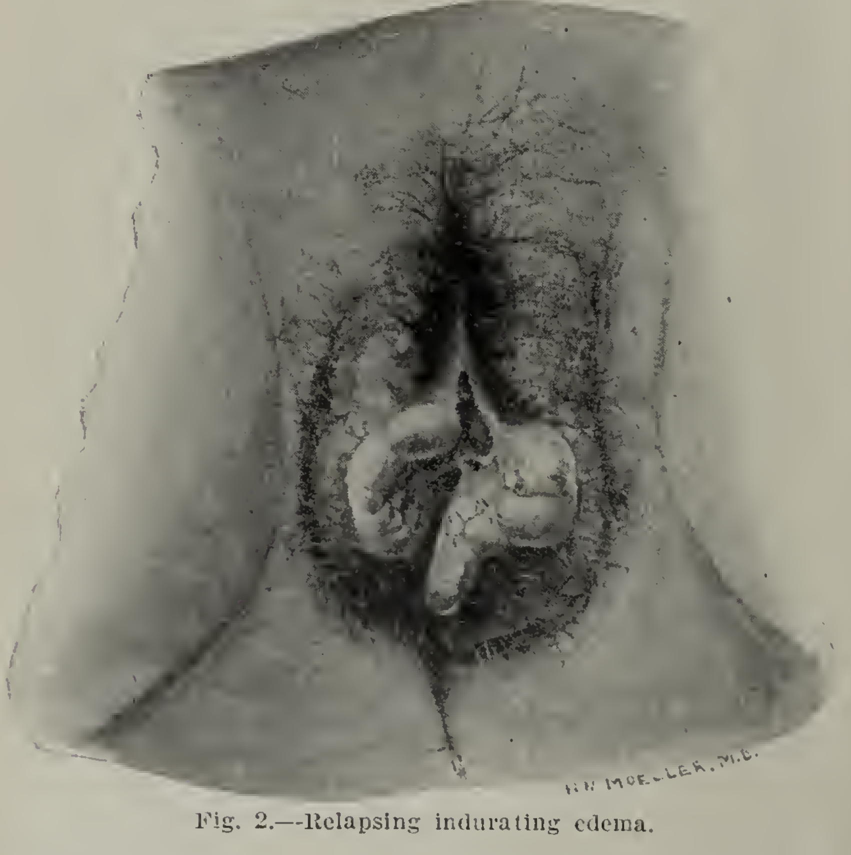


Fig. 2.—Relapsing indurating edema.

This case, therefore, shows in an admirable manner indurating edema accompanying secondary lesions—a form which is rather uncommon.

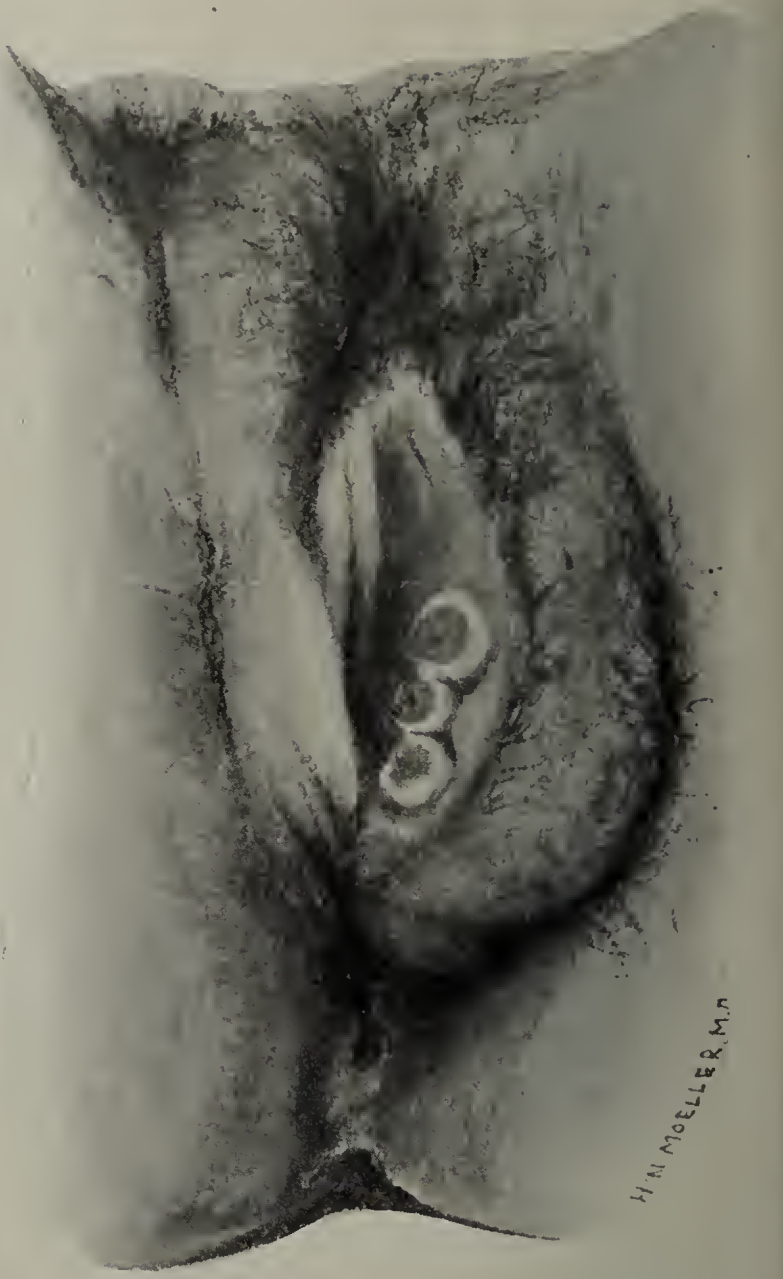


Fig. 3.—Indurating edema complicating condylomata lata.

Though indurating edema is more commonly seen in the primary and early secondary stages of syphilis, it may occur, as before stated, later in the disease—namely, in the first, second and third years, and even beyond these periods. While the indurating edema of the primary and secondary stages of the disease usually accompanies or follows the active lesions, that of the later periods

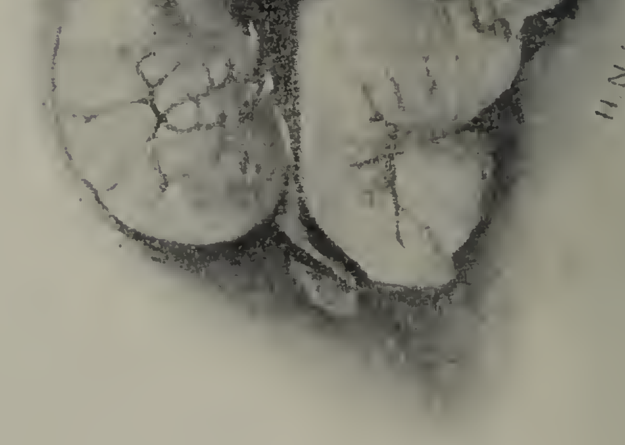


Fig. 4.—Late Indurating edema.

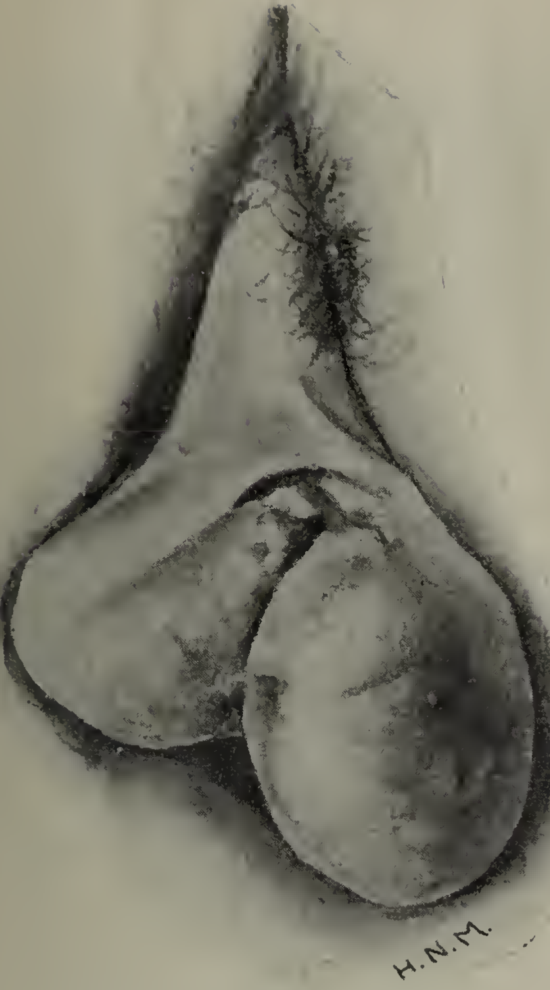


Fig. 5.—Late indurating edema.

may be unaccompanied by any previous or present syphilomata. Though, however, late edema may not be a complication of various late syphilitic processes, it very often seems to be developed by vaginal or vulvar irritation, and also by traumatism. I have seen cases in which irritated herpes and chronic chancroids have been the starting point of indurating edema.

The later form of indurating edema is portrayed in an admirable manner by Case 3, from which Figures 4 and 5 were taken.

Case 3.—A woman, aged 25, syphilitic three years, had received little if any proper treatment, and in the third year of her disease she still presented a fading papular eruption and generalized adenopathies. Six months before admission to hospital she was kicked in the genitals by her husband. After the injury had subsided she noticed that her nymphæ gradually and painlessly grew large, until they presented the appearances shown in Figures 4 and 5. The left labium minus was markedly swollen, and looked as if it contained a testis in its substance, while the right one was irregularly and less enlarged. The color of these morbid nymphæ was a deep and slightly purplish red. In consistence the left one was as hard as cartilage, while the right one was firm and elastic. The inner surface of these indurated labia is shown in Figure 4 to be nodulated and papillated, the hardening process ended abruptly at the bases of the nymphæ. The internal and local use of mercury caused slight softening in the induration.

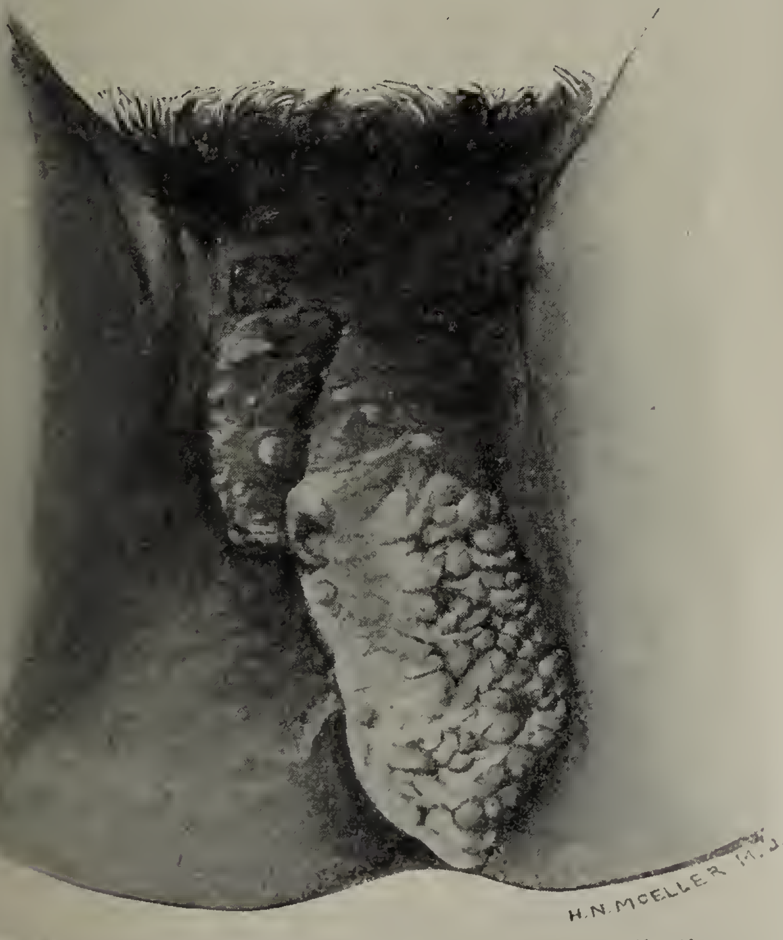


Fig. 6.—Indurating edema with papillomatous complication.

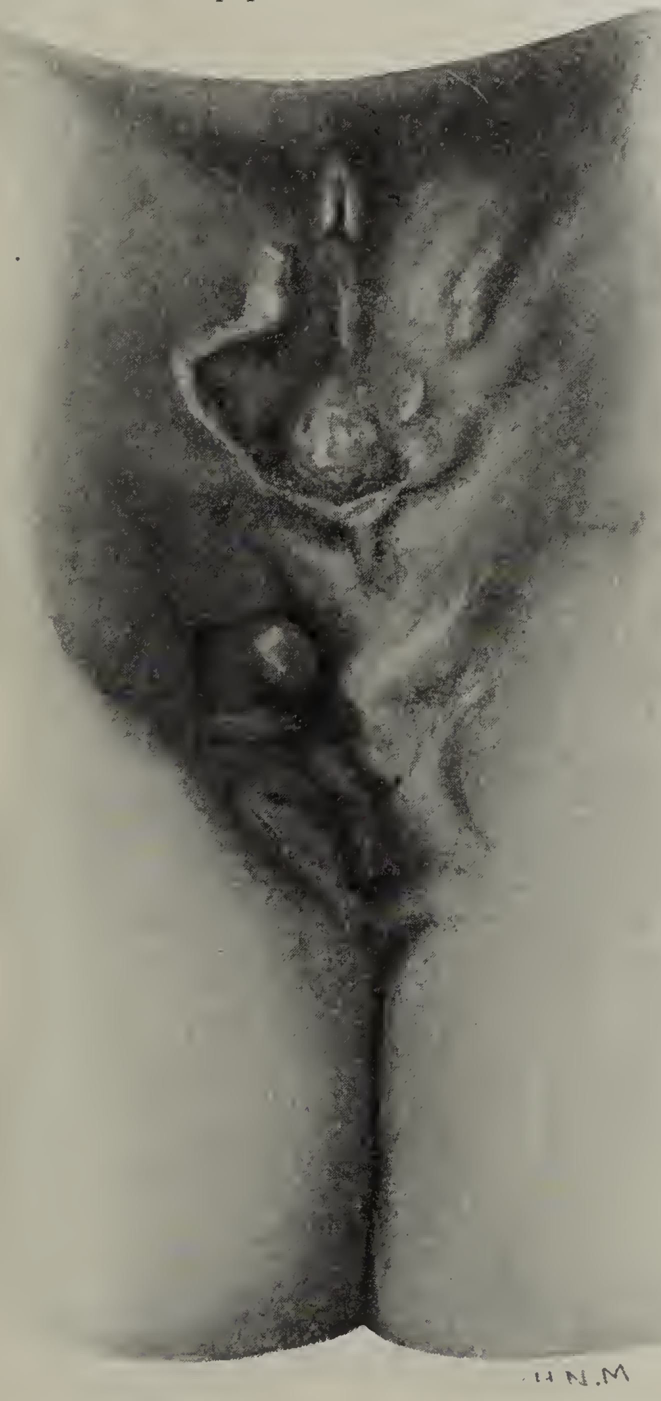


Fig. 7.—Atrophic sequelæ of indurating edema.

In this case the indurating edema had its origin in the bruise of the nymphæ, the woman being in the active power of the syphilitic diathesis. It is probable that a vaginal discharge may have been a moderately accessory factor. The bruise itself became swollen and painful, and from its site the sclerosing process spread downward.

This form of indurating edema is much less common that the earlier forms, and it may also be seen on the lips of both sexes and on the prepuce of men. Typical syphilitic inguinal adenopathy is observed as a rule in these cases.

A striking case of late indurating edema is portrayed in Figure 6.

CASE 4.—A negress, aged 30, became infected, and the edema began in the fourth year of the disease. The right labium majus was moderately enlarged, while the left assumed elephantine proportions. The affection developed slowly and painlessly, reaching its acme in about six months. In consistence the new growth was typical; it was exceptional, however, in the fact that the integument was covered with large and small warty and papillomatous excrescences. I removed the greater part of the left labial tumor; the parts promptly healed and, strange to say, very little deformity resulted. Examination clearly showed that the tissue of the new growth was composed of indurating edema. A number of surgeons looked on this growth as cancerous, notwithstanding the youth of the woman, while one thought it was an example of elephantiasis.

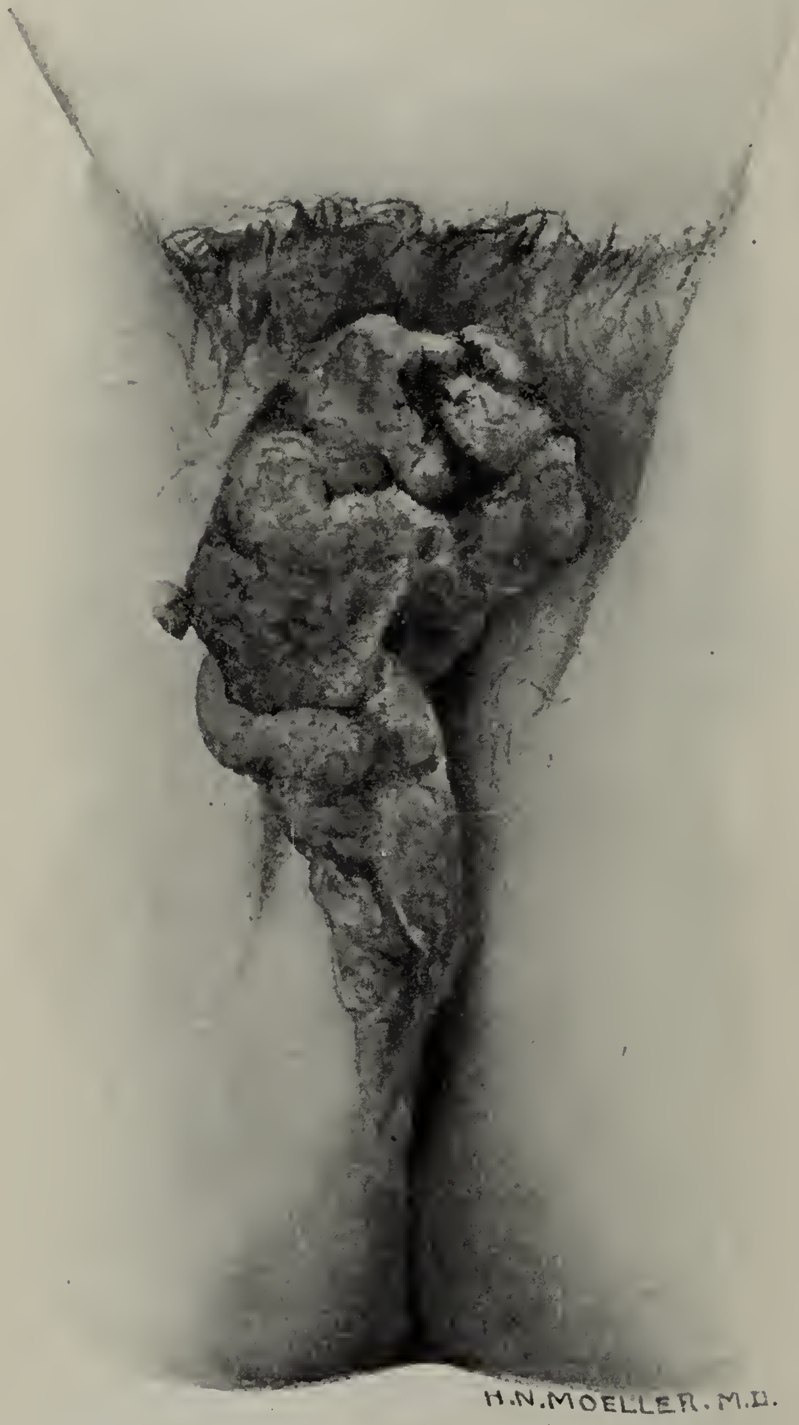


Fig. 8.—Epithelioma of vulva following old syphilis.

Many cases occur in which the edema is of limited extent. I have seen several of these cases in which the tumors were as large as a man's fist. Between the small masses and the very large ones there are many intermediate sizes. Uninfluenced by treatment, the lesion runs a long and usually uneventful course. In general it may be said that if the diagnosis is made early and energetic internal and local treatment is adopted and pushed, resolution of the infiltration may be induced. Some cases, however, prove refractory. It is well to remember that if the growth is very large, and if it fails to be influenced by active therapy, it is futile to delay too long. Then the best course is surgical removal, care being taken to preserve as far as possible the symmetry of the parts.

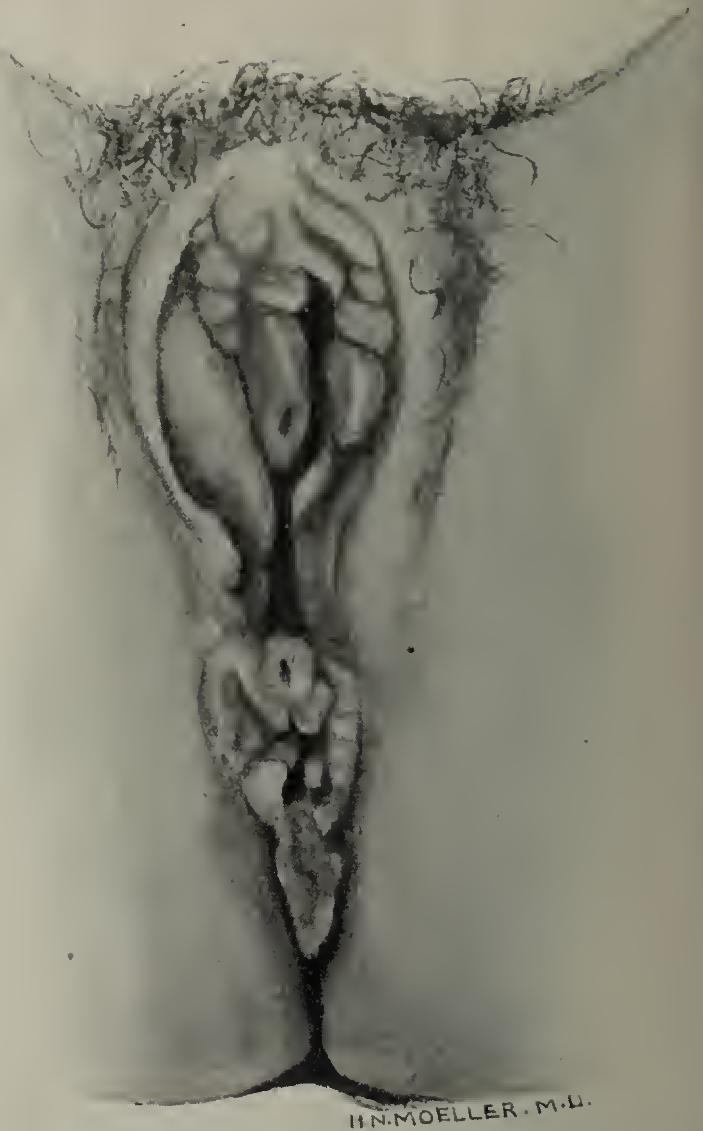


Fig. 9.—Chronic hyperplasia of vulva and perineal region from late syphilis. Further development of such cases are termed by some authors elephantiasis.

It is very uncommon to observe spontaneous involution in indurating edema in women's genitals when the swellings have reached a very large size. Small lesions may in time undergo resorption. In the early months much can be done. I have several times been much surprised to observe partial resorption in moderate sized tumors some months after the cessation of vigorous treatment. In some cases, after the resolution of the swelling as a result of treatment, atrophic and degenerative changes took place in the labia and nymphæ.

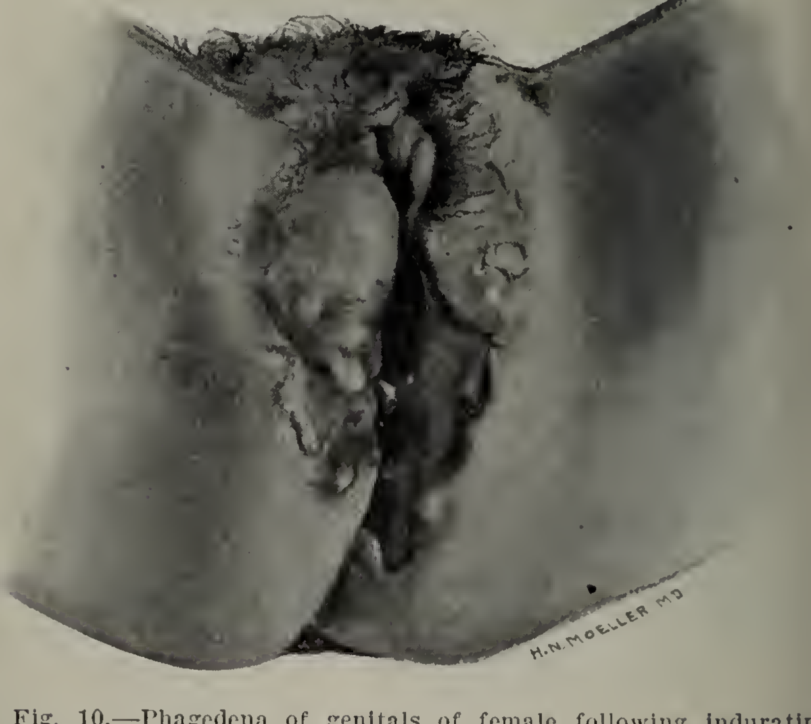


Fig. 10.—Phagedena of genitals of female following indurating edema and ulceration.

SEQUELÆ.

The sequelæ which I have observed after the lesions are a general atrophy, with deformity; a condition similar to those of kraurosis vulvæ, epithelioma, chronic cellular hyperplasia, elephantiasis, gangrene and phagedena.

It is well to emphasize the fact that in most cases when diagnosticated early, and when promptly treated, a cure can be promised. It is the chronic untreated and badly treated cases which result in endless discomfort, misery and deformity.

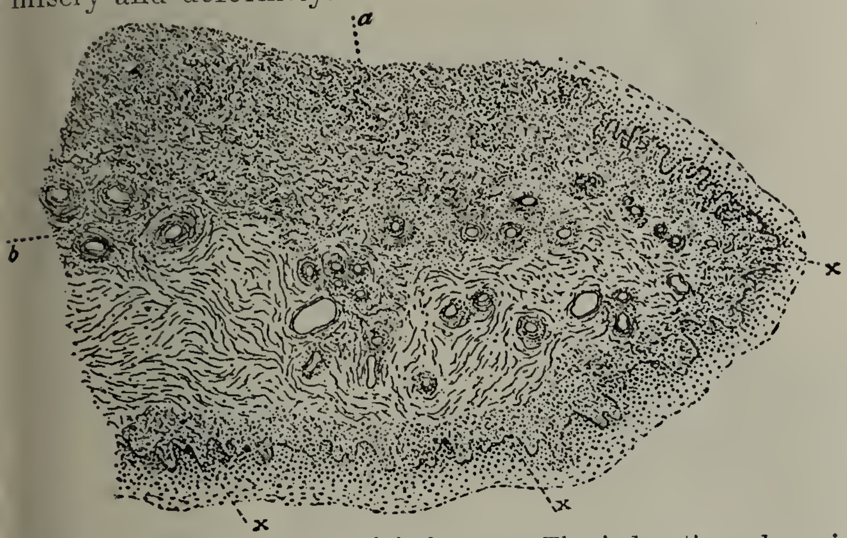


Fig. 11.—Section of preputial chancre. The indurating edema is shown by a distension and infiltration of the upper layers of the derma, shown in the zone *x, x, x,* about the center of the chancre at *a.* The infiltration of the wall of the vessels is clearly shown, especially at *b.*

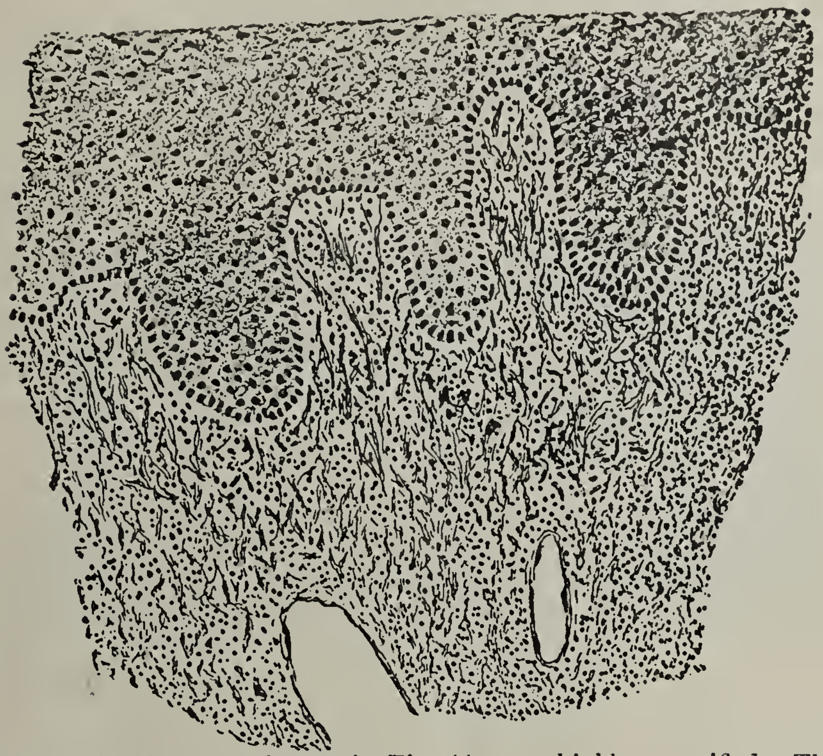


Fig. 12.—Same section as in Fig. 11 more highly magnified. The inter-fibrillary spaces of the upper layer of the derma are distended with fluid and small round cells.

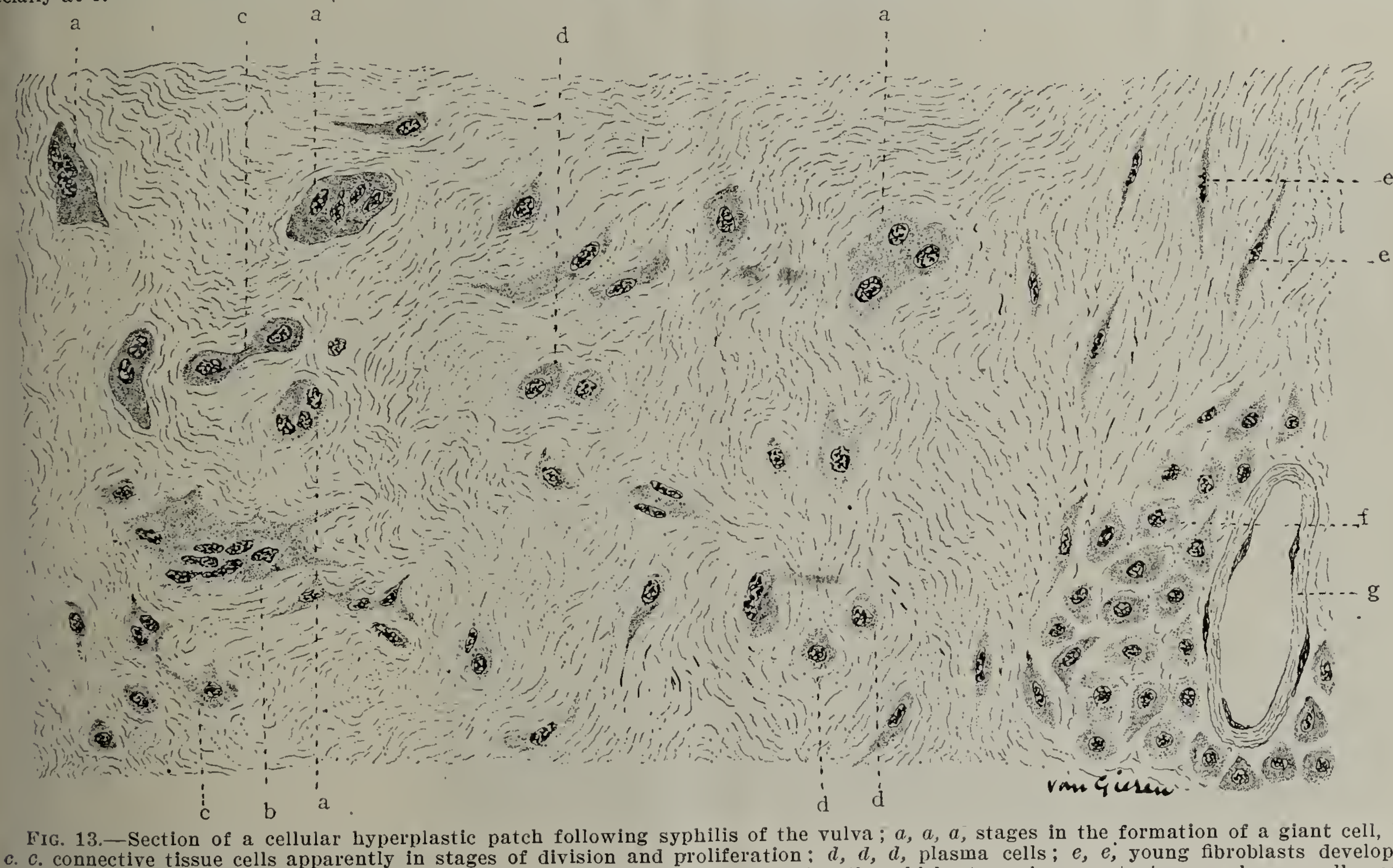


Fig. 13.—Section of a cellular hyperplastic patch following syphilis of the vulva; *a, a, a,* stages in the formation of a giant cell, *b*; *c. c.* connective tissue cells apparently in stages of division and proliferation; *d, d, d,* plasma cells; *e, e,* young fibroblasts developed from the proliferating connective tissue cells; *f.* a group of small polyhedral cells which, to a large extent, are plasma cells, and possibly to some extent are swollen small lymphocytes distending the lymph space; *g.* a small vein (Zeiss 1/12, oil immersion, ocular, 4).

In Figure 7 are depicted the external genitals of a woman, 50 years old, who had chronic indurating edema. During five years the process of obliterating atrophy went on until the appearances here shown were observed. It will be seen that the topography of the parts is no longer recognizable; the larger labia have been destroyed and the remnant of the right lesser one alone remains. The vestibule and fourchette are absent. In this case the indurating edema also involved the perianal region, which underwent great atrophy. The result was chaotic distortion of the parts. The morbid process was not accompanied by ulceration until the atrophic changes had become very chronic. This new factor added much to the ultimate disfigurement.

In many cases, chiefly in uncleanly, dissipated women with vaginal discharges, ulceration is observed in various degrees as a result. It may be superficial, or it may lead to sinuses which perforate the urethra, bladder, vagina and rectum, and even burrow and open by fistulous tracts about the buttocks and thighs. In these bad cases phagedena and gangrene may later on supervene.

(*Concluded on page 105.*)

THE RELATIONS OF THE DENTAL ARCHES TO PATHOLOGIC AFFECTIONS OF THE NASOPHARYNX AND ADJACENT PARTS.*

E. A. BOGUE, D.D.S., M.D.
NEW YORK CITY.

It is singular that a science or an art may progress for centuries on the borderland of important discoveries and fail of making them.

Adenoids were discovered only a little more than fifty years ago. The proper, normal arrangement of human dental arches was discovered less than twenty-five years ago. The intimate relation between these two discoveries has just begun to be understood. Until normal dental arches were discovered we did not know what proper mastication was nor the conditions necessary to its performance. These conditions comprise the full set of adult teeth standing in proper relations to each other.

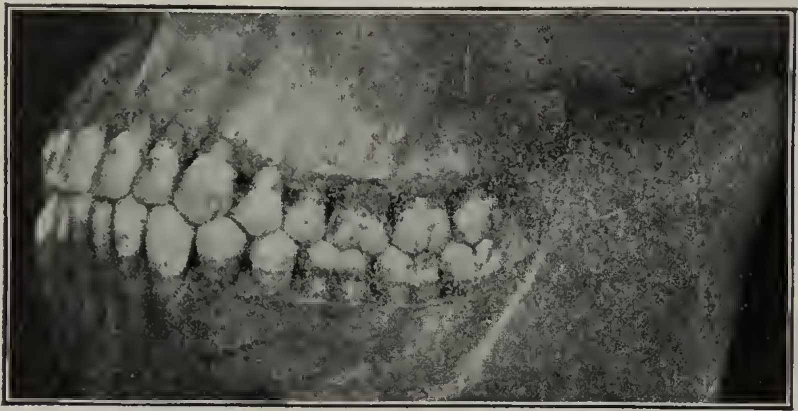
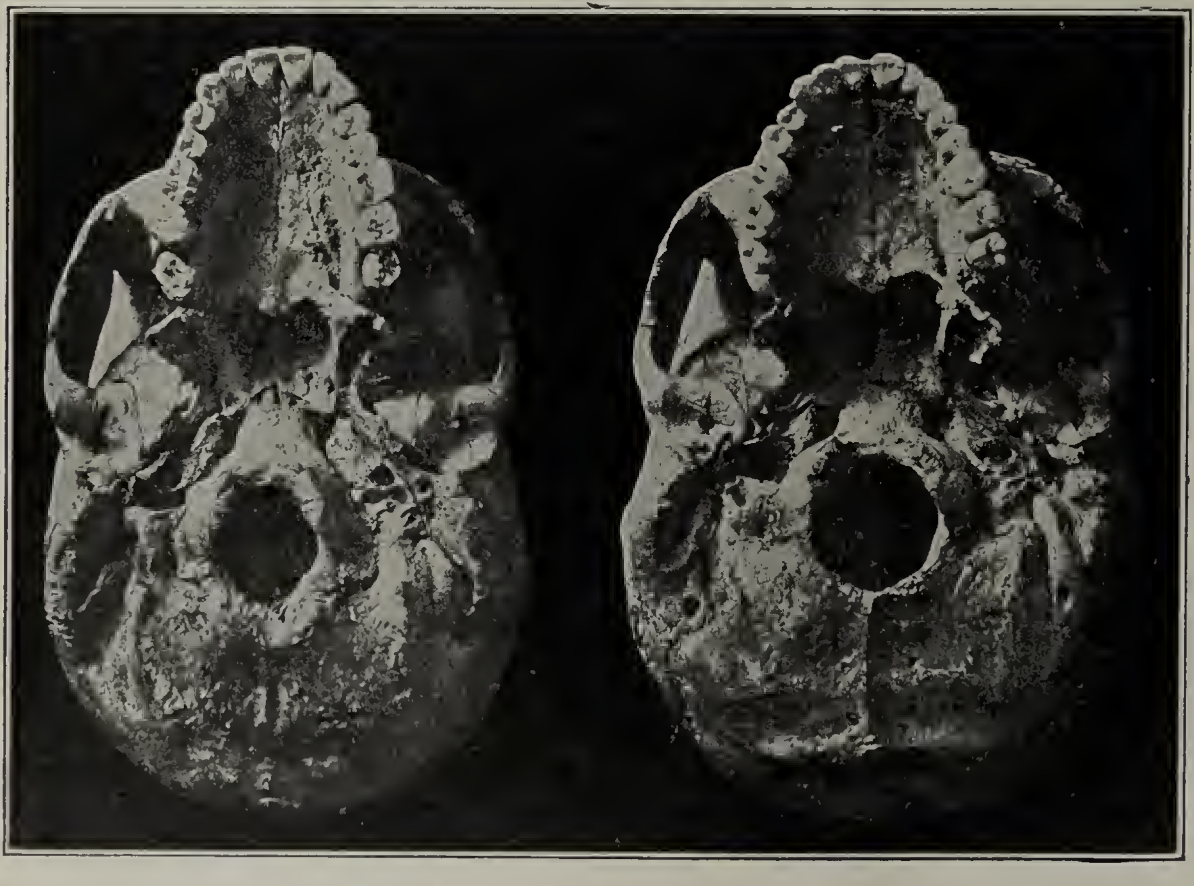


Fig. 1.—Normal dental arches showing the articulation of the teeth when in correct occlusion.



Figs. 6 and 7.—Two skulls with apparently perfect dental arches: 6 is according to measurements; 7 is too narrow. The nasal fossæ in 6 are ample; in 7 they seem insufficient; 6 must have been the skull of a vigorous person with a resonant voice, who lived to middle age, at least; 7 belonged to an individual who was frail and delicate and who died before reaching twenty years of age.

Now that we know something about the proper size and relations of the dental arches, we know how mastication should be performed to get the greatest degree of vigor from the food we consume, and we know what steps should be taken to permit the child afflicted with adenoids to close its mouth.

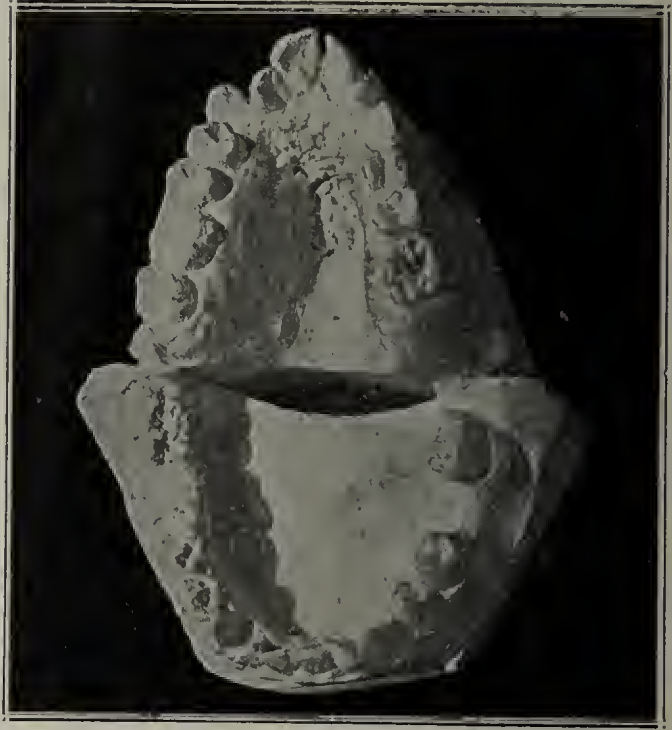


Fig. 8.—Showing result of the withdrawal of the tongue of a mouth breather from its place in the roof of the mouth, confining its action to the mandible.

Dr. I. B. Davenport of Paris discovered in 1886 what normal dental arches were; also that in civilized communities normal dental arches were rare. A few years afterward the late Dr. Bonwill of Philadelphia discovered that a mathematical relation existed between the width of the permanent upper central and lateral incisors and cuspid and the entire arch, and from the measurements of these three teeth he was able to construct the entire arch as it should be when normal (Fig. 1).

When thus normally arranged, it is found that all the teeth growing in one jaw articulate with the teeth of the other jaw so as to furnish the largest area of grinding surface. The cusps and the sides of the cusps, and the sulci into which they fit, all combine to furnish not only the best masticating surfaces, but to form dental arches that for strength and durability can not in the human species be excelled. The cusps of all the grinding teeth in such arches, interlocking with their antagonists, prevent any variation in position of any of the teeth either laterally or anteroposteriorly.

Dr. Hawley of Columbus, Ohio, recognizing these facts, adapted Dr. Bonwill's discovery to the use of the orthodontist. The result is that to-day by measuring the width of one upper central incisor we may determine approximately the shape and size of the arch in which that tooth belongs, and may draw it on paper so accurately that we may work to that arch with confidence.

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* Read in the Section on Diseases of Children at the Fifty-eighth Annual Session of the American Medical Association, June, 1907. Some of the illustrations and part of the text have been omitted, but the article will appear in full in the reprints and in the Transactions of the Section.

If there is any slight variation in the sizes of the various teeth in the same mouth, and we work up to the model, Nature will make all proper correction in the way of diminution and adjustment to type without assistance, and at the same time without any injury to size or strength or the adaptation of the arches to each other (Figs. 6 and 7).

When, therefore, irregular teeth and narrow dental arches are found, with the characteristic physiognomy that we all recognize as associated with adenoids, we expect in nearly all cases to find not only nasal stenosis, but that the irregularity of the teeth is in proportion to the degree of deflection in the nasal septum and diminution in the nasal passages.

Having had this idea impressed by clinical experiences, I went in March, 1905, to the Smithsonian Institution at Washington and spent a week examining skulls, mostly aborigines, together with a number of children's skulls of mixed origin. I carefully examined all of the children's skulls, and as many of the adult ones containing fairly good sets of teeth, as I could master in that length of time. In all the skulls that I examined a pronounced deflection in the nasal septum was invariably accompanied by an irregularity of the dental arches, greater or less according to the deflection of the septum.

I had not time to examine carefully with the necessary measurements as to whether the height of the palatal arch bore in all cases a direct relation to the irregularity of the teeth, and, therefore, consequently to the straightness of the nasal septum. In a number of cases, however, I felt sure that this was the case. I think that a high V-shaped arch of the palate becomes lower by spreading slowly the arch of the upper teeth laterally to their correct normal positions. In a growing child, however, the ordinary arch may become higher from spreading, but from the limited length of time in which these cases have been under observation no more positive statement can yet be made.

As I have learned to look on the etiology of lymphoid growths as being generally identical with that of more or less narrow dental arches, I shall associate the two affections in our consideration.

I want to show that if taken early, say at about the sixth or possibly the seventh year, the correction of irregularities in the positions of the temporary teeth corrects impending irregularities in the permanent teeth. That process results not only in an enlargement of the dental arch, but, so far as is now known, in a straightening of the nasal septum by spreading the upper maxillary arch, gaining a consequent enlargement of the nasal passages and incidentally of all the adjacent bones of the face, nose and head.

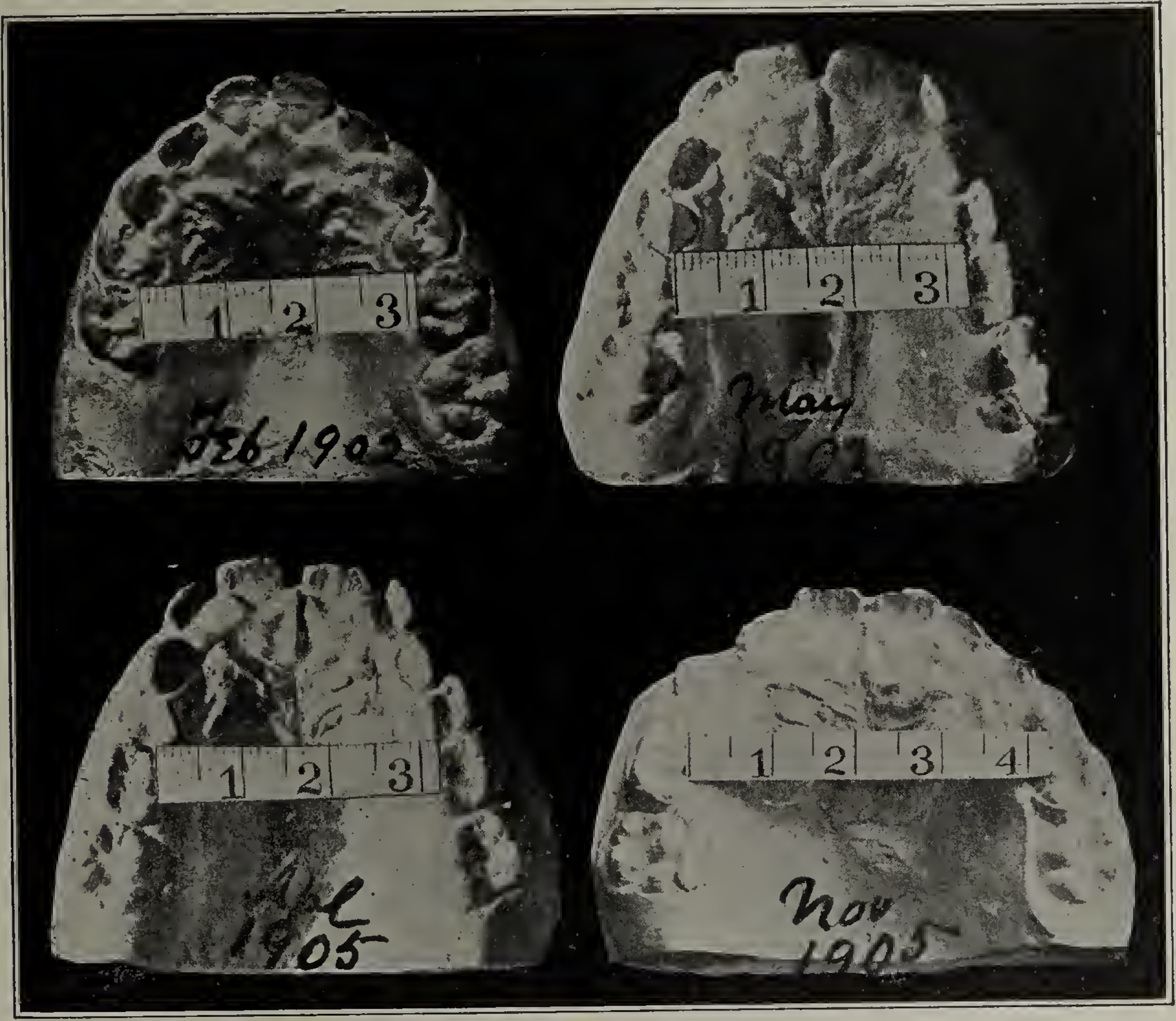


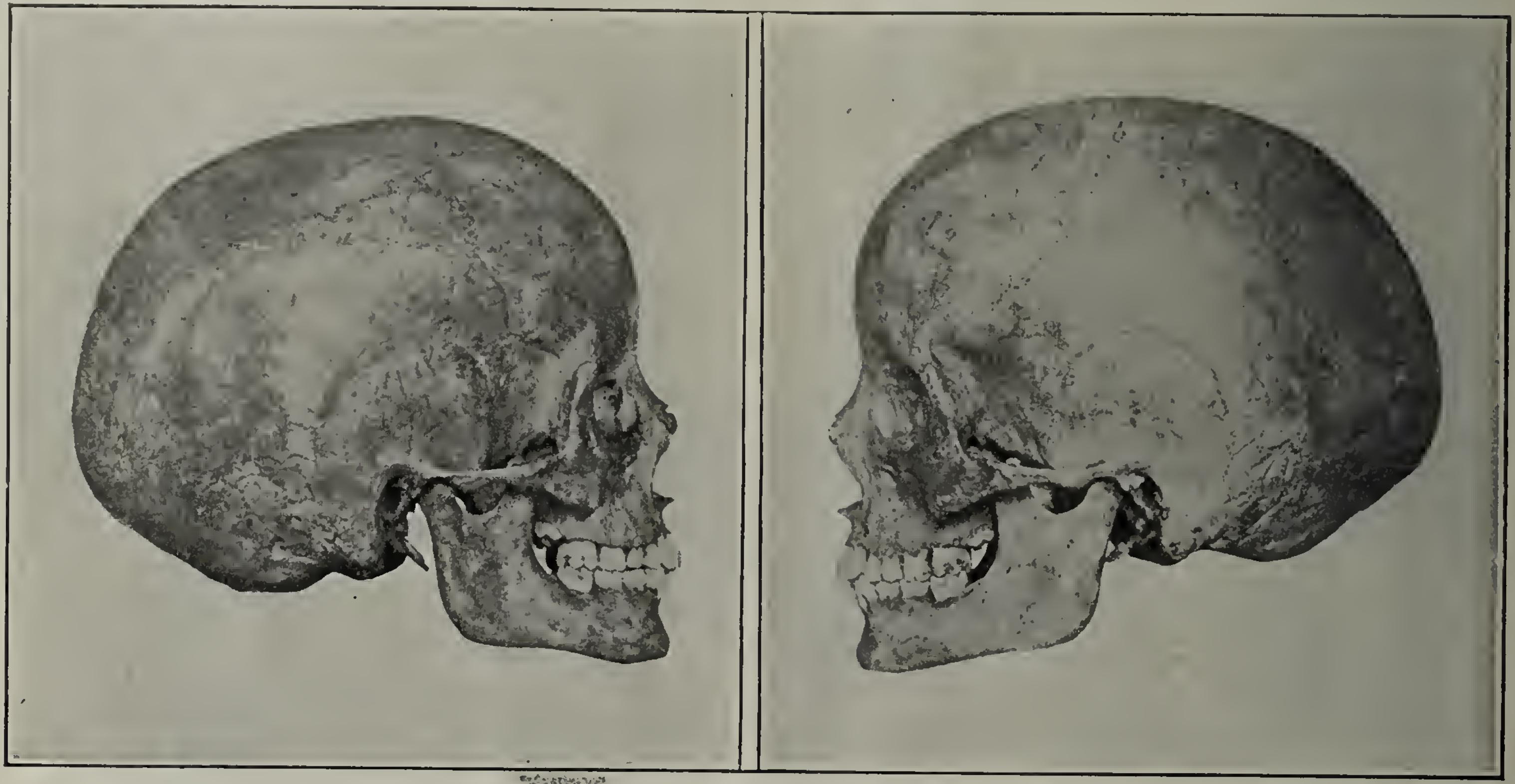
Fig. 9.—Four models of the same mouth showing scarcely any lateral growth for three years and a lateral enlargement of 1 cm. in seven months after an expansion arch had been adjusted.

I want to show, too, that the diagnosis of impending irregularities in and among the permanent teeth is almost as clear at six years of age or earlier, while the temporary teeth are still in the mouth, as at twelve when the permanent teeth are visible.

I wish to show that operations for rectifying the conditions above mentioned are more safely performed, with less pain, with apparently less general disturbance to the nervous system and more quickly than at any later period in life.

These operations, performed thus early, are more likely to remain permanently successful than if done at a later period, and that they have an influence which we can but little appreciate on the permanent well-being of the individual in after life. Vocalization, enunciation, mastication and breathing are brought nearer to perfection than they could otherwise be, and the personal appearance is much improved.

It seems to me that in many, if not most, of the cases of contracted arches and adenoids, influences that came into operation after birth, and which we can understand much better than we understand heredity, are largely responsible for these conditions.



Figs. 12 and 13.—Two sides of the same skull. Articulation incorrect on one side (Fig. 12) and correct on the other (Fig. 13).

The statement that the tongue within, and the cheeks and lips without, are the main instrumentalities in the formation of the dental arches from the early stages of embryonic life, right on until maturity, is not by any means new; yet few practitioners realize the muscular and mechanical power of the tongue.

A few days since I undertook to prevent a lad of ten years from placing his tongue over a tooth that I wished to examine. Three fingers and my thumb holding a mouth mirror were unable to control its movements. This muscular organ, when the mouth is closed, lies against the roof of the mouth, and as it grows its lateral enlargement presses the dental arches outward, and so enlarges the upper jaw to its proper size, as well as the lower jaw or mandible against, which it is always pressing (Fig. 8). Inflammatory conditions, coupled with this withdrawal of the tongue, inevitably arrest the development of these parts. The cysts of the permanent teeth remain bunched in their insufficient spaces, and year after year goes by with scarcely any perceptible variation in the width of the upper jaw (Fig. 9). The attending physician may advise an operation. But usually, long before the mother consents to surgical interference, the arrest in development of the jaw, nose and adjacent parts has been established.

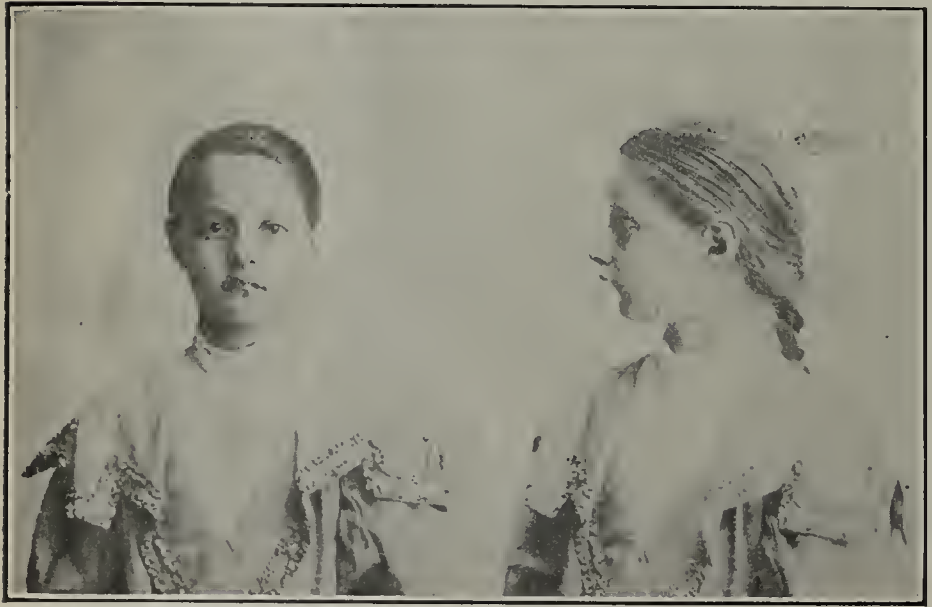


Fig. 14.—Showing progress made in about four months by a patient. Appearance of patient at time of applying apparatus, Oct. 27, 1906.

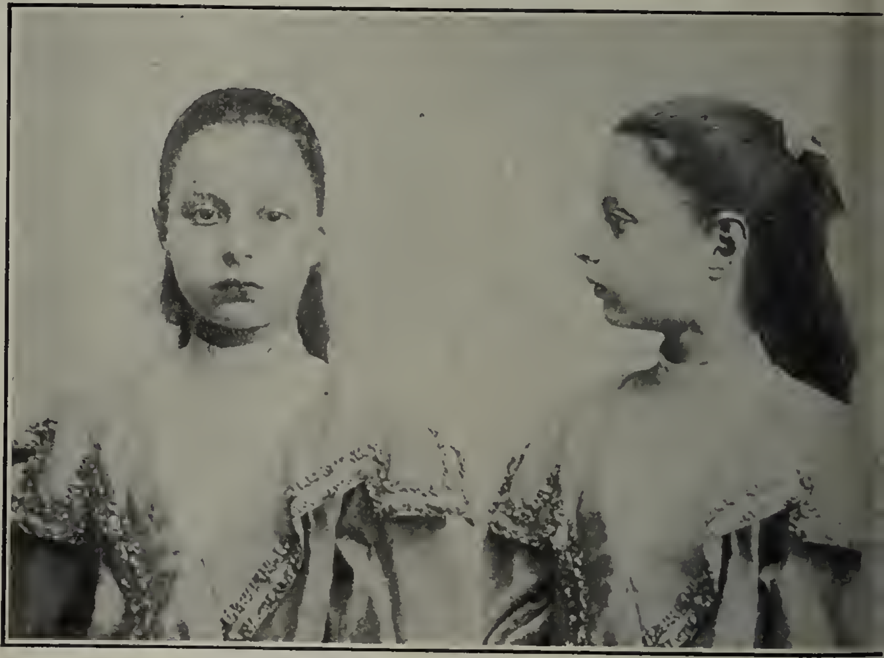


Fig. 15.—Same patient as shown in Fig. 14 after wearing apparatus. Taken Feb. 22, 1907.

The constant breathing through the mouth, the dragging influence of the muscles of the jaws and cheeks, all combine to keep the arch of the jaw narrow and to prevent the healthy normal flow of lymph. But worst of all, this mouth-breathing causes the withdrawal of the muscular and pushing tongue from its place in the roof of the mouth, where by the growth and constant pressure of that tongue the lateral growth of the upper jaw is promoted.

This withdrawal of the tongue not only allows the arch of the jaw to remain narrow, but it causes the eruptive force of the teeth to be expended in an anteroposterior direction. From the time mouth-breathing is established, lateral growth is almost excluded till relief is afforded by surgical means. Surgical interference will, of course, generally be considered necessary, and might mean either an operation on the adenoids, or the faucial tonsils, or both, or the relief afforded by orthodontia, or all three.

If orthodontia is resorted to, either before or after operation for adenoids, and the operation can be begun about the sixth year, the crypts of the upper bicuspid teeth will at that age be lying embraced by the three roots of the deciduous molars, and will themselves have no roots.

When, therefore, the deciduous molars are moved into the positions they ought to occupy they carry with them these crypts of the permanent teeth, which, after the deciduous teeth have fallen out, develop their own roots in the positions to which they have been transported and become rooted there. No injury has been inflicted on the permanent teeth by the appliances used in orthodontia and the retaining appliances, being attached to the deciduous teeth, fall off when these teeth are lost, having fulfilled their function of retaining in position the teeth that have been moved until they have become firmly established.

The operation on tonsils or adenoids alone is not always successful in restoring nasal breathing. Just recently a lad of about eight years of age, who had been operated on twice for adenoids, still continued to breathe through the mouth until an expansion arch was placed on his teeth, when in a few weeks, without his attention having been called to it, he voluntarily closed his mouth and began breathing through his nose even in sleep.

While the adenoid operation in cases of narrow arches is not always successful in restoring nasal breathing, it is never successful in restoring the harmony of the features, the power of correct articulation, or the power of thorough and normal mastication. This requires a special operation, an expansion laterally of one or both dental arches, and a bringing into articulation and—so far as possible—into regularity all malarticulated teeth.

This process, as already stated, when undertaken at a very early age, tends toward a normal enlargement and development, not only of the upper jaw and the nasal passages, but of the other bones lying above the upper maxillary, thus ensuring greater regularity in size and position of the antra and all the other sinuses of the face (Fig. 11).

The early diagnosis of cases of irregularity is readily made if one carefully notices the articulation of the deciduous molars (Figs. 12 and 13). In normal cases the articulation is always correct; that is, the anterior cusp of the lower second deciduous molar articulates forward of the corresponding deciduous molar above, and the upper molar is astride the buccal row of cusps of the lower molars.

Whenever these upper and lower deciduous molars articulate in any other way than this, there is sure to be irregularity in the permanent teeth if they are allowed to develop without interference. The reason for this is, as has already been shown, that the crown of the permanent tooth is embraced by the roots of the deciduous molar.

If the first permanent molars, which erupt immediately posterior to and in contact with the second deciduous molars, are not properly articulated, it will be impossible that the other grinding teeth should be. If the upper arch is abnormally small, we may be certain that there will not be room for the anterior permanent teeth unless an enlargement of the arch is resorted to.

If such enlargement takes place sufficiently early for the roots of the permanent teeth to be formed after their crowns shall have been drawn into correct positions, there will never be irregularities in the positions of these teeth, and it follows, of course, that they will stay where they belong.

The articulation of regularly arranged permanent teeth, when all the members of the arches are present, is such that nothing short of a fracturing force can dislocate them. The regularity of the teeth in normal arches is also one of the chief factors in their resistance to decay, for the teeth are then in position, if they are properly formed, to be practically self-cleansing, if the food taken in is of the right sort and is thoroughly masticated.

Dental decay always comes from agencies external to the teeth; so if they can be kept clean automatically or otherwise, there will be no decay. Defects in formation, of course, preclude the possibility of automatic cleansing.

DEFORMITIES OF THE VULVA FROM EARLY AND LATE INDURATING EDEMA.

ROBERT W. TAYLOR, M.D.
NEW YORK CITY.

(Concluded from page 101.)

KRAUROSIS-LIKE CONDITION.

In the early days of the previous case there were appearances which suggested that form of atrophy called kraurosis vulvæ. Now it is generally admitted that this affection begins in a quasi-inflammatory manner, with pain and pruritus and hyperemia of the mucous membrane, localized at first at the clitoris and urethral orifice, and from there extending in a serpiginous manner over the whole vulva. Very soon hyperplastic and atrophic changes set in. In one of my cases coincident with the subsidence of the infiltration, atrophy gradually developed and persistently progressed. In two years the large and small labia had nearly disappeared, and looked like atrophic tissue covered with membrane which resembled cracked or crumpled parchment of a dirty brown color. The structure of the mucosa was entirely obliterated. The vulva no longer protruded; the clitoris was obliterated; and the parts around the urethra and vagina were stenosed by a leucoplakia-like tissue, which was shriveled and shrunken.

These conditions certainly were kraurotic; indeed, from my studies I am led to believe that kraurosis vulvæ is not an affection *sui generis,* but that it develops from a number of conditions—vaginitis, vulvitis, vaginal discharges and uterine disorders. In my cases the kraurotic conditions were only remotely connected with syphilis.

LEUCOPLAKIA AND EPITHELIOMA.

Another case of mine was that of a woman, 54 years old, in whom indurating edema of the vulva went on to atrophy, with the peculiar parchment-like wrinkle of the tissues. In the vulvar sulcus a leucoplakic condition developed and lasted for several years, when epithelioma developed and in two years the growth reached the size depicted in Figure 8. In this case the early symptomatology was largely that of kraurosis vulvæ. Following the atrophy, hyperplasia of the epithelium of the vulva developed, and later on epitheliomatous degeneration set in and ultimately killed the patient. This is the only instance in which I have seen this complication follow indurating edema.

CLINICAL HYPERPLASIA OF VULVA AND ELEPHANTIASIS. CASES.

A very constant sequela of indurating edema of the vulva is simple chronic hyperplasia of the tissues (which also may result from specific ulcers). This condition is yet ill understood. It was first described by me in 1890. As a result of the involution of the specific edema the parts may become hypertrophic and more or less deformed. In these cases the chronicity of the low grade of inflammatory process seems to engraft on the tissues involved a hyperplastic tendency which thickens and more or less distorts them. The appearance in some cases is that of simple enlargements of the natural parts, but in the majority of cases there is more or less deformity and even distortion. No clear description can be given of the various cases, since the configuration of the vulva is subject to such great variation in women. In some the labia majora are large, in others small and exceptionally absent. The labia minora are seen in an infinite number of sizes and shapes. With the thickening of the parts there is redness, mild or severe. The chronicity, even inveterate course, of these vulvar lesions is due to the structural peculiarities of the parts, to their excessive vascular and nervous supply, and to the conditions to which they are so constantly subjected, and to their dependent position compressed between the thighs. Except in the mouth and lips (and that very rarely), we do not see such persistent and deforming low grade inflammation and hyperplasia. This process is a form of inflammation with the production of new connective tissue, in which congestion and exudative products are almost, if not entirely, absent. It is really a chronic productive or chronic cellular inflammation. This lesion in mucous membranes and transitional cutaneous mucous membranes produces a new growth of connective tissue in the stroma, occurring diffusely or in the form of nodular and polypoid outgrowths. The changes are of slow growth and of great chronicity. This chronic hyperplasia of the vulva may lead to much deformity. In Figure 9 the genitals of an old syphilitic woman are well shown. It will be seen that the vulva and perineum are covered with nodular masses which have greatly disfigured the genitalia. The morbid tissues are firm and unyielding to pressure and of a deep red color. In these cases ulceration is common in the interstices between the neoplasms. This case was in reality one of hyperplastic elephantiastic hypertrophy. Its pathology, however, is very different (see below) from that of elephantiasis nostras, in which there is a mixture of lymphangitis, vascular hyperplasia and connective tissue hypertrophy, together with more or less chronic edema. The hyperplasia in old syphilitics is microscopically the same as that of non-syphilitics, and can not in any sense be considered an essential evidence of the disease.

PHAGEDENA AND GANGRENE.

Phagedena and gangrene may exceptionally occur in old women whose vulvæ have been the seat of late hypertrophic, ulcerating and infiltrating lesions. Following the metamorphosis of indurating edema these destructive changes sometimes develop, and as a result great loss of tissue is produced. In Figure 10 the ravages of phagedena are well shown. In some cases death ultimately follows these morbid conditions, but in some women healing may occur, usually with much deformity.

It may be well to remark that gummatous infiltration into the mucosa of the female genitals, as well as nodular masses in the connective tissues of the parts, may undergo ulceration and lead to much deformity and even distortion. I have seen one case of indurating edema of the vulva that was followed three years later by elephantiasis of the prepuce of the clitoris and of the labia minora. I was unable to settle the question in my mind as to whether the new growth resulted from early syphilis, or whether it was the result of chronic masturbation.

It is well to remember that indurating edema is sometimes seen in men, beginning in a chancre and involving the integument of the penis and perhaps the scrotum, and even contiguous parts, *i. e.,* thighs and abdomen. In men also degenerative changes may occur and produce more or less deformity.

PATHOLOGY OF CHANCRE AND INDURATING EDEMA.

In the primary lesion, or chancre, there is a small round-celled infiltration of the connective tissue, proliferation of the connective-tissue cells, and an abundance of leucocytes, with more or less necrosis or degeneration of its constituent cells. An uncomplicated chancre in its early stages is identical in its general structure with a small superficial ulcer or patch of granulation, except that in the chancre there is distinctly more necrosis and degeneration of its constituent small spheroidal cells.

The blood vessels surrounding the chancre, as well as those a considerable distance from the chancre, even in its earliest stages of development, are uniformly changed: the endothelial cells are swollen or proliferating; the walls of the vessels are infiltrated, and the perivascular spaces are crowded with proliferating polyhedral cells.

This early and extensive lesion of the lymph-spaces about the blood vessels, especially the smaller veins, enables us to understand more definitely how the virus of syphilis spreads, how it travels along these lymph-spaces, accompanying the vessels to the root of the penis, to the first set of lymph-nodes which such a set of perivascular lymphatics communicate with—namely, the inguinal ganglia. From these inguinal nodes the cell proliferation, in response to the syphilitic virus, is propagated, it would seem to the lymph-nodes in general throughout the body in greater or less extent, and in this way the general adenopathy is established.

This extension of syphilis through the perivascular spaces from the primary sore to the inguinal glands occurs very early and proceeds with great rapidity. As soon as the chancre appears the network of peripheral perivascular lymph-spaces is already involved, and, as indicated by the line of proliferating cells along the venous lymph-spaces, the virus is already on the path to the inguinal lymph-nodes.

The stage of *induration* or *indurating edema* can now be considered. If a chancre at the well-pronounced stage of induration be examined microscopically (Fig. 11), it will be seen that the semi-necrotic mass of small spheroidal cells composing the bed and main bulk of the ulcer is circumvallated by a zone of edema and cellular infiltration of the papillary portion of the derma (Fig. 11, *x, x, x*). Indurating edema, then, as the name implies, is really a wall about the chancre wherein the interfibrillary spaces of the pars papillaris are distended with fluid and small round cells (Figs. 11 and 12).

To recapitulate briefly the series of changes in a chancre: When the causal agent of syphilis enters through the skin or mucous membrane, it excites local leucocytosis and exudative inflammation, with more or less necrosis; there are also proliferation of the connective tissue cells, a propagation of proliferating cells along the perivascular lymph-spaces, and later a wall of infiltration and edema of the upper corium layers formed about the periphery of the ulcer corresponding to the stage of indurating edema.

In the light of these studies it is easy to understand cases of early indurating edema symptomatic of active primary or early secondary infection. The cases which puzzle us are those in which traumatism and various phlegmasia of the genitals seem again to set up this sclerosing process. The pathogenesis of these later cases is yet to be worked out.

PATHOLOGY OF CHRONIC HYPERPLASIA OF THE VULVA.

In chronic hyperplasia of the vulva, as the name implies, there is also a productive inflammation, a development of new connective tissue through the agency of the connective-tissue cells of the derma. The connective tissue cells proliferate and, lengthening out, become fibroblasts; the fibroblasts in turn are slowly converted into new fibrils of the derma, so with each division and focus of connective tissue proliferation the ground is laid for a future addition to the fibrillar substance of the derma. The process is exceedingly slow, and takes place by small increments; that is, groups of connective tissue cells in certain portions of the vulvar regions proliferate and become the forerunners of new connective-tissue fibers. This may go on simultaneously over quite an extent of the vulvar region, and in the course of time produce more or less evenly a hyperplasia about the pudendum, or it may be limited and accentuated in some one particular spot and give rise to localized fleshy tabs, excrescences and nodules. Between the two sets and forms of this activity of the dermal cells and their combinations are such a variety of intermediate gradations as to well merit the characterization of protean. But this should give rise to no confusion or temptation to classify them into different diseased processes, since however great the external configuration and apparent differences in their aspect, the underlying process is one and the same.

As a particular illustration of this process of chronic cellular inflammation of the derma Figure 13 may be consulted. This shows nearly all of the phases of connective tissue cell proliferation. And it also shows the participation of plasma cells, and possibly small lymphocytes, especially in a lymph crevice about a small vein. The obscure origin and differences of these latter cells do not concern us, as their destiny is much the same for all —the increase of connection in the derma, namely, hyperplasia.

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DISCUSSION.

DR. JOSEPH ZEISLER, Chicago, stated that what little he has seen of kraurosis vulvæ did not suggest at all a hyperplastic condition such as Dr. Taylor described. Kraurosis seems to him to be more closely allied to atrophy, and apparently has no clinical relationship to the condition described in the paper.

DR. WILLIAM A. PUSEY, Chicago, said that in the last year he has been able to study two cases of kraurosis vulvæ in elderly women, each with a history of long-standing, superficial atrophy of the labia, with patches of leucoplakia of the mucous membrane, such as are seen in the mouth. In both of these epitheliomata had developed on the leucomatous patches. Dr. Pusey has never seen any atrophic conditions of the vulva that were the result of previous hyperplasia, but he can readily see how some of the cases might have that etiology.

DR. WILLIAM S. GOTTHEIL, New York City, declared that in the City Hospital in New York more of these cases are seen than in most institutions in this country. He has seen some cases that were hypertrophic and others that were atrophic followed by sclerotic lesions, such as Dr. Taylor described. He thinks that the processes are identical. Connective tissue hyperplasia in the later stages shrinks and becomes atrophic. The photomicrograph which Dr. Taylor exhibited showed a very late stage of an intense inflammatory process, such as might follow sclerotic or ulcerative processes of various kinds.

DR. R. W. TAYLOR, New York City, in answer to a question by Dr. Baum, stated that the disease, as he saw it, was a sequel of syphilis, and of syphilis alone. In his cases the extension of the edema was coincident with the hard chancre. In some cases of progressive syphilis, in which the diathesis is still active, the edema sometimes occurs from simple lesions, sometimes from condylomata lata or from the hyperplasia set up by staphylococcic irritation following vaginal discharges. Dr. Taylor recalled the fact that his paper was divided into two parts: The first dealing with hyperplasia and the second with its sequelæ. He does not claim that the cases reported were cases of kraurosis, but that they resemble that condition. Case No. 7, he declared, was one of the most typical he has ever seen, the patient's vulva resembling a rubber tobacco pouch. All these cases occurred in his service at the Charity Hospital, many years ago, and were carefully observed for a long time. In every case sections were removed and submitted to Dr. Ira Van Giesen for microscopic examination, and his findings were verified by Drs. Prudden and Delafield.

LIGATION OF THE COMMON CAROTID ARTERY FOR MALIGNANT RECURRENT HEMORRHAGE OF THE VITREOUS.*

GEORGE S. DERBY, M.D.
Ophthalmic Surgeon, Carney Hospital.
BOSTON.

The object of this communication is to bring before this Section the subject of ligation of the carotid for the relief of a disease other than the vascular tumors of the orbit and lid in which this procedure is commonly employed. I refer to the rather infrequent cases of malignant, recurring vitreous hemorrhage.

The following example came under my observation a little over a year ago:

Patient.—B. K., 51, a healthy married woman of German birth.

History.—On the morning of Jan. 18, 1906, the patient noticed that the vision of her left eye was somewhat blurred. On the following day she applied for treatment at the Carney Hospital. Her family and previous history were negative. There was no evidence of hemophilia or of syphilis. There had never, to her knowledge, been any disease in her family and, as far as she knew, her eyes had always been normal. She had given birth to seven healthy children and her menses, always normal in character, had ceased four years previously.

Examination.—For the sake of brevity I will say here that several physical examinations made by members of the medical staff, at this time and during the succeeding year, were all absolutely negative. The heart and kidneys appeared entirely normal and there was no evidence of vascular disease. The blood pressure (Riva-Rocci) equalled 145 mm. The blood contained 5,568,000 red cells, 9,600 white, and 85 per cent. of hemoglobin. The patient was a stolid, well nourished woman with a good appetite and digestion.

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Ocular Examination.—The left eye was white, cornea, iris and lens normal, the pupil slightly dilated. The vitreous contained numerous small and large floating opacities. Situated about in the optic axis and best seen with a plus 12 glass was a peculiar membranous looking structure roughly square in outline, and suggesting an inverted pyramid in shape (base forward) rather than a flat septum. In color it was white, with irregular areas of black pigment along its borders, and on its surface were large splashes of fresh blood. Along the lower temporal border was a small hemorrhage extending into the vitreous. The retina and nerve head could not be seen. Vision: Counts fingers at one foot. Examination of the right eye showed a similar but somewhat smaller structure, situated in the same relative position and connected with the disc by a fine strand of grayish tissue. No vascularization could be made out. The vitreous was clear, and except for this structure nothing abnormal could be seen in any part of the eye. V. O. D. = 6/12 —, not improved by glasses. Increasing doses of mercury and iodid were prescribed, but seemed to have no lasting effect on the process. There was an occasional slight improvement and then would come a sudden diminution in vision caused by fresh hemorrhage on the membrane and increased clouding in the vitreous. By June the vision was reduced to the perception and localization of light, and the red reflex had entirely disappeared. On October 12 the patient again came to the clinic saying that two days previously the sight of the right eye had suddenly failed. Examination showed vitreous hemorrhage and large splashes of blood on the membrane. Vision = 3/60. The retina could barely be distinguished. Barring a greenish tinge to the iris the state of the right eye had not changed. She was taken into the hospital for observation and treatment. The course of the disease did not differ from that in the other eye. Under large doses of iodid and mercury the vision occasionally showed slight improvement only to fall off again from a fresh hemorrhage, which in each instance appeared to come from the membranous structure. Mercury and iodid gave place to lactate of calcium and large doses of gelatin,[1] and later to other drugs, over a period of three months. There was a steady loss of vision down to counting fingers at one foot, and it became increasingly evident that complete blindness would ensue were not energetic measures taken. Meanwhile, there was no sign of returning vision in the left eye.

Operation.—Remembering that in two somewhat similar cases, one reported by Mayweg[2] and one by Axenfeld,[3] ligation of the common carotid had apparently checked the disease, I explained to the patient the dangers of such an operation and the uncertainty of the result, and on the other hand the probability of blindness under medical treatment alone. Her good health and absence of all signs of vascular changes were in her favor. She chose to take the risk, and on December 10, the right common carotid was ligated by Dr. H. H. Germain under ether anesthesia. At this time the vision equalled counting fingers at one foot. The patient made an uncomplicated recovery from the operation save for a slight rise in temperature. She was kept in bed for two weeks.

Postoperative History.—December 11: V. O. D., counts fingers at five feet.

December 12: V. O. D., counts fingers at fifteen feet. With the ophthalmoscope the red reflex was perceptibly brighter.

December 14: V. O. D., counts fingers at twenty feet.

December 17: V. O. D. = 6/30. It was possible to distinguish the retina with both the indirect and the direct methods. The vitreous had cleared up markedly and the membrane was clearly visible. No fresh hemorrhage could be seen.

December 27: Patient discharged from hospital. Vision = 6/30+. There were no fresh hemorrhages and the vitreous was clearing slowly.

To our great disappointment, two days later there was a sudden diminution of sight and examination showed the membranous structure to be almost covered with fresh blood and the vitreous very cloudy. V. O. D., counts fingers at one foot. The attack came on spontaneously and did not follow exertion or excitement. Since that time the course of the disease has been about the same as before the operation and the vision on March 8 was limited to hand movements directly in front of the eye. The red reflex has almost entirely disappeared, but it is still possible to see the membrane faintly and to note that it is covered with blood.

PREVIOUS CASES.

Mayweg,[2] at the twentieth meeting of the Heidelberg Society, reported the following case:

CASE 1.—A 17-year-old peasant had lost the sight of his left eye from repeated vitreous hemorrhages, although under capable treatment. Three years after the left eye first became involved, a similar process affected the right, and recurred four times. At the fifth attack he came to Mayweg, who found extensive hemorrhage into the vitreous and vision reduced to 20/200. There was no evidence of organic disease. In spite of energetic treatment there were six further recurrences and finally, ligature of the carotid was resorted to. This checked the process and eighteen months later the vitreous was clear and the vision = 20/40.

CASE 2.—Axenfeld[3] saw a healthy girl, 24 years old, who had lost the sight of her right eye from persistent vitreous hemorrhages followed by secondary glaucoma. Several years later the left eye became affected and the vision reduced to hand movements. Ligation of the common carotid controlled the disease and three months later there had been no further hemorrhage. The vitreous cleared up very slowly. I have been unable to obtain the later history of this case.

Before proceeding to consider the operative treatment involved there are one or two interesting features of the case reported above which deserve a few words. As to the nature of the membranous structures there is an element of uncertainty. On the one hand they may have been the organized remains of vitreous hemorrhage which took place at an earlier period in the patient's life, and very likely this would have been the assumption had the patient been seen only after the involvement of the second eye. It does not appear, however, that such was the true nature of the case for the following reasons: The structures resembled each other closely and were symmetrically placed. They were situated in the line of Cloquet's canal and, in the right, a fine strand of grayish tissue could be seen (before blood obscured the vitreous), running back from the structure to the disc. There was no vascularization and absolutely no sign of disease in the chorioid or retina (O.D.). It seems probable that we have in this case the remains of embryonic structures. Vitreous hemorrhages are occasionally observed in connection with a persistent hyaloid artery, as, for instance, in the case reported by Hickman.[4] Furthermore, it is well recognized that undeveloped organs form a locus minoris resistentiæ. The assertion of the patient at her first visit that the sight of the right eye had never been more acute favors this view.

It is worthy to note that in this case each hemorrhage appeared to take place from the substance of the membrane.

The rapid improvement in vision from 1/300 to 6/30+ in one week is striking evidence of the temporary efficiency of tying the carotid in these cases. On the other hand, the recurrence, ten days later, shows how quickly the circulation can be re-established from the collateral supply. That it was the operation which caused the improvement is hardly open to question.

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[1] We were unable at this time to estimate the coagulation power of the blood and treated her empirically on the assumption that it was retarded.

[2] Bericht d. Ophth. Gesellschaft zu Heidelberg, 1889, 92.

[3] Oberrhein, Aerzt., July 6, 1905; Münch. Med. Wochschr., 1905, lii.

[4] Ophthal. Rev., 1902, 85.

For a time the patient was treated with lactate of calcium and gelatin on the theory that the coagulating power of the blood was diminished. As we were unable to determine then whether or not this was the case, and as there was no apparent improvement, this treatment was discontinued. Recently through the kindness of Dr. F. T. Lord, whom I here wish to thank, an estimation was made by Wright's method, and it was found that coagulation took place in 2 minutes and 50 seconds, the normal by this method being 1 minute 45 seconds to 2 minutes 10 seconds. Thinking that possibly the former preparation of calcium may not have been efficient, the patient has again been given this drug.

This method of determining the time of clotting is as yet in its infancy, but its great simplicity and availability give great promise. Although Wright and his assistants have indicated that retarded coagulation may be responsible for many and various lesions, there has as yet been little confirmatory evidence, still as in this case we have no other clue to the etiology, and as many other similar cases occur in which the causation is likewise obscure, the possibility of retarded coagulation as a cause is worthy of consideration in the future. Therefore, it would seem to be advisable to ascertain the clotting time in all such cases, and if it be slow the administration of calcium salts is indicated and may prove of marked benefit to the patient.

Whether we are justified, after medical treatment has failed, in proposing ligation of the carotid to these patients is the question which more nearly concerns us here. Our first consideration may well be the danger of the operation. We have a large mass of statistics on the subject of carotid ligation and they are somewhat complicated, owing to the fact that in pre-antiseptic days the danger of sepsis and of secondary hemorrhage had to be seriously considered, and added very materially to the mortality of the operation. Moreover, the disease for which the operation is performed has a marked influence on the mortality. It would seem fair to assume about the same rate of mortality after ligation for the cure of vitreous hemorrhage as that after the same operation for the relief of pulsating exophthalmos. Keller,[5] from the Zurich clinic, gives 4 per cent. in 31 cases. Slomann,[6] from 95 cases, some of the patients of which were operated on in the pre-antiseptic era, gives a mortality of 10 per cent. Werner[7] 10 per cent., Le Fort[8] 12 per cent., Murray[9] 10 per cent., de Schweinitz[10] 10 per cent.

For other diseases the mortality is much greater, as would be expected when we take into account the serious character of the lesions which call for this operation. Keller[5] gives 34-43 per cent., Le Fort[8] 43 per cent., Murray[9] 25 per cent. The total results of carotid ligation as quoted by Barnard and Rugby[11] are as follows: Tillman 31 per cent., Zimmermann 31 per cent., Pilz 18 per cent., and Friedlander 13 per cent.

As regards the dangers and complications of the operation, Erichsen, quoted by Barnard and Rugby,[11] says that cerebral symptoms occur early or late in 25 per cent. of the cases. The dangers of sepsis and hemorrhage may now be disregarded.

Blindness, from obstruction of the arteria centralis retinæ, has been noted by Elschnig,[12] Siegrist,[13] Gifford[14] and Uhthoff,[15] and has apparently in the majority of instances been caused by lodgment in this vessel of a fragment detached from the thrombus in the carotid. In any event this is an uncommon accident, for in the ordinary case closure of the carotid causes but a temporary disturbance of the retinal circulation. Uhthoff[15] and Hansell[16] have observed the temporary obliteration of the retinal vessels at the moment of ligation.

Sattler,[17] Wagenmann[18] and Silex[19] have seen lesions of the cornea, which have been referred both to trauma and to trophic disturbance. Axenfeld[20] has reported homonymous hemianopsia following ligation, and Michel[21] has seen cataract following thrombosis of the carotid.

In the case of a patient operated on in Boston hemiplegia and death followed carotid ligation and the autopsy showed the absence of the circle of Willis. All these complications are, however, of rare occurrence and need not be considered here.

Having spoken of the dangers and mortality of the operation, we must now consider what chances the patient has of benefiting by it, and here we have but little information to guide us. In pulsating exophthalmos we may assume from the statistics 50 to 80 per cent. of cures from the operation, but in recurrent vitreous hemorrhage we have only the three cases above on which to base an estimate. Mayweg's was successful, Axenfeld's successful up to the end of three months (later progress unknown), and the case reported here was a failure. The two favorable ones occurred in youth, mine in middle age.[22] In all three it was done as a last resort. On the one hand stands an operation of considerable risk and of uncertain value; on the other is almost certain blindness. In making a decision, the age of the patient and the condition of the vascular system are of great importance. In my own case no lesions could be found, but her age made it possible that they were present. We estimated her risk at from 15 to 20 per cent. In all cases with healthy vessels and no complications, and where the patient has chosen to run the risk after an impartial statement of the facts has been given, I believe that the operation is justifiable. Naturally this refers only to those cases in which the vision of one eye has already been lost and in which medical treatment offers small hope of saving the second eye.

Additional Note (June 1, 1907).—Since April 1 the condition of the patient has remained practically unchanged. V. O. D., hand movements at one foot. The second course of treatment with calcium lactate was no more successful than the first. Numerous estimations of the coagulation time showed a minimum of 2 min. 30 sec., which did not decrease even when large doses were given.[23]

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[5] Inaug. Diss. Zurich., see Michel's Jahrs., 1898, 606.

[6] Doctordiss. Copenhagen, see Michel's Jahresbericht, 1898, 612.

[7] Inaug. Diss. Tübingen, see Michel's Jahresbericht, 1898, 617.

[8] Rev. de Chir., 1890, May and June.

[9] Ann. of Surg., 1904, 421.

[10] Quoted in Modern Ophthalmology; Ball, 640.

[11] Ann. of Surg., 1904, 649.

[12] Arch. f. Ophth., 1893, xxxix, 151.

[13] Ber. d. Ophth. Gesell. z. Heidelberg, 1898, 10.

[14] Ophth. Rec., 1899, 595.

[15] Ber. d. Ophth. Gesell, 1898, 21, 22.

[16] The Journal A. M. A., 1905, 536.

[17] Quoted by Siegrist (13).

[18] Quoted by Siegrist (13).

[19] Ber. d. Ophth. Gesell., 1898, 23.

[20] Ber. d. Ophth. Gesell., 1898, 22.

[21] Quited by Siegrist (13).

[22] Pollack (Michel's Jahresbericht, 1900, 368), has reported a case in which the artery was tied in a patient 66 years of age, and the second one ligated five years later without accident.

[23] The technic used was that described in the Lancet, 1905, 1906.

In this connection I find that in four cases of vitreous hemorrhage Paton[24] and Paramore[24] found diminished clotting time, and Wright suggested that in these instances the hemorrhage might be due to thrombosis taking place in a small vein. Clearly the part played in this disease by abnormal coagulation of the blood is purely a matter of speculation at the present time and remains for future investigation to solve.

Professor Axenfeld has kindly written me that the progress of his case is still satisfactory. There have been no fresh hemorrhages and the vision two months ago was 6/12. I understand that he has had the carotid tied in a second case, but that it is too early yet to judge of the result. A detailed history of his first case may be found in the dissertation of Fraülein Bieber,[25] and from her paper I take this occasion to quote Siegrist's figures of 6 per cent. mortality in 997 cases of carotid ligation gathered from the literature. This writer (Siegrist) is of the opinion that if the patient's condition be good and if compression of the artery be carried out methodically before the operation, then ligation may be performed without serious danger to the patient.

[For the discussion, see the department of Section Discussions in this issue.]

METASTATIC CONJUNCTIVITIS IN GONORRHEA.*

JAMES J. CARROLL, M.D.
BALTIMORE.

Although gonorrhea was known to the ancients and ophthalmia neonatorum to the early Greeks and Arabians,[1] the true relation of the parent disease to its affiliated inflammations of the eye was still very imperfectly understood even at the beginning of the eighteenth century. While many of the primitive physicians appear to have fully recognized the ophthalmia of infants, it was not until 1750[2] that it was believed to depend on the vaginal discharge of the mother. Before this the theories as to its origin were rather vague, the old physicians of India, for example, ascribing it to the bad character of the mother's milk. In later years the ophthalmia of adults was thought by some to be due to gonorrheal virus seeking another outlet in consequence of suppression of the urethral discharge. Acting on this view Jüngken[3] recommended, in his text-book, the reestablishment of the flow from the urethra as the proper treatment for the ocular disease.

Without citing all the views and opinions in regard to gonorrheal affections of the eye which were in vogue before 1700, it will suffice to state that nearly all of them contained a belief in an internal or indirect route by which the venereal virus reached the eye in contradistinction to a direct or external route. This endogenous conception of the origin of gonorrheal affections of the eye prevailed until the time of Astruc,[4] who, in 1736, published the report of a case of purulent conjunctivitis which he attributed to direct infection, by the hands, from the urethra. This new theory made very slow progress. Although it was greatly strengthened in the beginning of the nineteenth century by the support of Jaeger, by the publication of Allan[5] and the lectures of Mr. Abernethy[6] at St. Bartholomew's Hospital, it did not supersede the old belief entirely until the experiments of Piringer[7] firmly established the direct causative relationship between the infecting material of the urethra and the inflammation of the conjunctiva.

After the convincing proofs of this investigator were known, the pendulum soon swung to the extreme, and it was not long before Ruete[8] and Arlt[9] maintained that all gonorrheal affections of the conjunctiva were the result of direct inoculation. While this was the prevailing belief, Fournier,[10] in 1866, described a type of conjunctivitis, occurring in a gonorrheic with inflamed joints, which he regarded as metastatic. In 1881, Haab[11] reported a case of bilateral conjunctivitis, which he saw in a patient with gonorrhea and which he thought was not due to direct infection on account of the absence of gonococci in the conjunctival secretion. In 1885, Haltenhoff[12] reported five cases of gonorrheal conjunctivitis without inoculation. In the following decade and a half appeared similar publications by Rückert,[13] Liebrecht,[14] Vanderstraeten,[15] Parinaud,[16] Morax,[17] Lipski,[18] Nobl,[19] Gielen,[20] Becker,[21] Lichtenstern,[22] Fage,[23] Morton[24] and others. In 1899, the subject was brought before the Ninth International Congress of Ophthalmology by Van Moll,[25] of Rotterdam, who reported six cases of his own observation. Kurka,[26] in 1902, published an account of twenty-two cases, two of which were seen by him in Professor Fuchs' clinic in Vienna and the others were taken from the literature. Later cases have been reported by Lesser,[27] Apetz,[28] Thorner,[29] Sym,[30] Paul,[31] Burnett[32] and others.

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[24] Lancet, 1905, 1249.

[25] Inaug. Diss. Freiburg, Berlin, 1906.

*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

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[2] Guellmaiz: Ref. in Graefe-Saemisch Handbuch, etc., 2d Ed., v, chap. iv, p. 238.

[3] Jüngken: Die Lehre von den Augenkrankheiten, Berlin, 1832, p. 252.

[4] Astruc: De morbis Veneris, 1736, 192. Lutetiæ Parisiorum.

[5] Allan: System of Pathological and Operative Surgery, Edinburgh, 1819, i, 153.

[6] Abernethy: Lancet, London, 1825, p. 5.

[7] Piringer: Die Blennorrhoe am Menschenauge. Gratz, 1841.

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[10] Fournier: Nouv. Dictionaire de Méd. et Chir. pract., réd. par Jaccoud, Paris, 1866.

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[31] Paul: Metastatische-gonorrhoische Augenaffektion. Berl. klin. Wochschr., 1905, No. 9.

[32] Burnett (S. M.): Inflammation of the Eye Due to the Toxin of the Gonococcus. The Journal A. M. A., 1905, xlv, 1926-1928.

In reviewing the text-books, I find that few give any space to metastatic gonorrheal conjunctivitis. The silence of many authors on this subject may be due to the fact that the field of ophthalmology has become so vast that it is almost impossible to cover it entirely without omitting one of the less frequent diseases. Of thirty-four books on the eye which have appeared in English, either as the original or as a translation, during the past twelve years, the disease is given in seven, being mentioned in two (Ramsey, Swanzy and Werner) and described in five (Fuchs, Schmidt-Rimpler, Lawson, Norris & Oliver's System, de Schweinitz). Many text-books, too, on genitourinary diseases fail to mention it, though Taylor, Fuller, Keys, White and Martin have a description.

One naturally hesitates to report as few as two cases, even though they furnish the main reason for this paper, which is to give the ophthalmologists of the Association an opportunity to express their views on a subject which, so far as I can learn, has never before been formally presented to the Section. A free discussion may do much to make this form of conjunctivitis better known, may help to determine the frequency of this disease in our country, may be the means of dispelling doubts which, I fear, still remain in the minds of some as to its existence, and may possibly suggest to some one a line of work for original investigation.

Case 1.—T. C., white, aged 35, was in the second week of a first attack of gonorrhea, when his right eye became inflamed.

Examination.—Patient, with no history of rheumatism, came under my observation for the first time Jan. 19, 1905, at St. Joseph's Hospital, Baltimore, his ocular trouble having existed about ten days or two weeks. There was at that time photophobia, lachrymation, some soreness about the eye, but no decided pain, no swelling of the lids, pronounced injection of the conjunctiva of the eyeball with slight swelling, the episcleral vessels being well filled. There was a moderate amount of mucopurulent secretion; cornea, iris and deeper parts were in good condition; vision was not affected; the left eye was normal.

Subsequent History.—The right ankle had begun to swell and to give pain twenty-four hours previously, and two days later the patient suffered severely from pain in the region of the sacrum, which was in turn followed by pain and swelling of the right knee, and pain but no swelling of the right wrist. The inflammation of the right conjunctiva subsided under local treatment in about eight days. A day or so after the patient was first seen a Buller's shield was placed over the left eye to prevent any possible infection from the urethra or from the right eye. Under this protection the eye began to show signs of conjunctival inflammation three weeks after the other became diseased. The character of the conjunctivitis on the left side was identical with that on the right, but its course was shorter, due, probably, to the influence of earlier treatment. Pain and swelling of the left ankle and pain in the left wrist followed quickly on the onset of conjunctivitis on the left side. When this seemed almost well the patient was taken with pain in the left eye, accompanied by marked increase of redness of the eyeball, ciliary injection, and hyperemia of the iris. The pain soon became severe and the aqueous muddy; the pupil dilated imperfectly under atropin, showing three small posterior synechiæ. The anterior chamber became one-quarter filled with blood; the pupil was obscured by dull grayish deposit and the fundus was invisible. The eyeball was very tender to slight pressure and vision was reduced to counting fingers at four feet. The iritis lasted five weeks. The exudates slowly became absorbed and vision returned to 20/20. At one time during the course of the iritis on the left side the right eye became painful, showing some ciliary injection and discoloration of the iris. Atropin was used freely and no further developments were noted.

Bacteriologic Examination.—Coverslips alone were used. Pus from the urethra showed gonococci. Secretion from the conjunctival sac of each eye was repeatedly examined but always with negative results.

The case at first presented a complex of symptoms with which, I confess, I was not altogether familiar. It seemed perfectly clear that the condition was not gonorrheal ophthalmia or acute blennorrhea, and its resemblance to acute catarrhal conjunctivitis was not borne out by other clinical phenomena present, as gonorrhea and arthritis. The diagnosis of metastatic conjunctivitis was based on the following points: (1) the existence of a urethritis with gonococci, (2) the character of the conjunctivitis, (3) the absence of gonococci in the conjunctival secretion, (4) the presence of polyarthritis.

Case 2.—J. H., white, aged 39, was referred to me by his family physician, Dr. W. T. Riley, March 5, 1907. The patient, with no history of rheumatism, was in the fourth week of a first attack of gonorrhea, involving both anterior and posterior portions of the urethra and producing prostatic enlargement and swelling of the seminal vesicles.

History.—The trouble started March 1, in both eyes simultaneously, with mild photophobia, lachrymation, redness, and slight secretion. Accompanying the onset of the ocular symptoms were frontal headache, vertigo, coated tongue, loss of appetite, chilly sensations, temperature 100 F., occasional sweating, pains in the lumbar region, in the right leg above the internal malleolus and in the larger phalangeal joint of the middle finger of the right hand. The eyes soon became worse, the lids being stuck together in the morning and the eyeballs more "bloodshot."

Examination.—The patient came under my observation on the fourth day, the condition then being about as follows: Marked injection of the conjunctiva, limited almost entirely to the fornix and globe, some swelling of the conjunctiva, particularly in the region of the limbus; several small conjunctival hemorrhages in each eye; episcleral vessels congested; moderate amount of mucopurulent secretion; no swelling of the lids; cornea and iris good; pupils small, though responding well to light; vision 20/30 in each eye, the slight impairment being due to myopic astigmatism.

Subsequent History.—Next day the eyes were worse, chemosis of the conjunctiva being rather prominent. The iris too showed for the first time unmistakable signs of inflammation. The pupils failed to react to light or fully to atropin, and vision sank rapidly to counting fingers at three feet. At the end of the first week the swelling of the conjunctiva was much less and there was hardly enough secretion in the conjunctival sac to get a smear for coverslip examination. The iritis, on the other hand, was rather more active; the aqueous was somewhat cloudy; there was a slight exudate in the pupillary area; the pupils were small and irregular, showing four or five posterior synechiæ in each eye, no precipitates were discernible on the posterior wall of either cornea; fundi were invisible. Pain in middle finger and leg on the right side was about the same. The patient about this time began to complain of pain in the left ankle, which was not severe and not accompanied by any swelling. At the end of the second week the iritis was still prominent. Fair dilatation of the pupils had been secured by the frequent use of atropin; the eyeballs were somewhat tender on palpation; there was no pain in the eyes, but dull frontal headache was occasionally felt. At the end of the third week there was improvement in the urethritis, in the inflammation of the eyes, and in the general condition of the patient, although pain was still present in the lumbar region, made worse by moving in bed. During the fourth week the eyes made little or no advance toward recovery. In the following week improvement was rapid and by the middle of the sixth week the eyes were practically free from inflammation and vision was normal with the assistance of minus cylinders to correct a little astigmatism.

Bacteriologic Examination.—This was made by Dr. E. H. Hayward, pathologist of St. Joseph's Hospital. Smears, taken when patient was received into the hospital on the fifth day of his conjunctivitis, showed no gonococci in the secretion from the eye, but numerous gonococci in the pus from the urethra. Coverslips were examined twice a day as long as there was any secretion in the conjunctival sac, and always with negative results. Cultures from the secretion of the eye were made on human blood serum, blood agar, hydrocele agar, and all were negative. Culture on Loeffler's blood serum showed a single white colony of staphylococci. Culture from patient's blood on human blood serum was negative.

Though arthritis was not conspicuous as in the first case, the diagnosis in the second instance was based on the coexistence of gonorrheal urethritis, the type of bilateral conjunctivitis, the absence of gonococci in the conjunctival secretion, the iritis which appeared on the fifth day, and the slight but appreciable systemic disturbance.

In reviewing the literature on the subject I find that this form of conjunctivitis has been described under various names, as metastatic gonorrheal conjunctivitis, metastatic gonorrheal ophthalmia, gonorrheal conjunctivitis without inoculation, serovascular conjunctivitis, rheumatic gonorrheal ophthalmia, arthritis catarrho-rheumatic ophthalmia, etc. In order to avoid confusion, it seems wise to adopt the title given in the second edition of the Graefe-Saemisch Handbuch, namely, metastatic conjunctivitis in gonorrhea.

Although described under so many different names, the disease has been represented with the same essential characteristics. The constancy with which these clinical phenomena appear together, and the number of such occurrences, preclude the possibility of mere coincidence. A study of the reported cases, as well as of the two which came under my observation, furnishes sufficient data for a rough description of the main clinical features of the disease. The primary infection being gonococcal, the disease starts out with an ordinary purulent urethritis. Usually rather early in the course of the gonorrhea, but at times during a second or subsequent attack, a conjunctivitis appears. The inflammation involves chiefly the conjunctiva of the fornix and eyeball, giving rise to marked redness and swelling and at times chemosis. Often the episcleral vessels are engorged, showing the characteristic pinkish or violet color. The secretion is mucoid, or mucopurulent. It is usually moderate in amount and contains no gonococci. The subjective symptoms are photophobia, lachrymation, slight soreness of the eye, and occasionally pain. Vision is not affected if the deeper ocular structures are not implicated. The conjunctivitis involves both eyes, either at the same time or in rapid succession, and ends in the restoration of the conjunctiva to the normal. It usually comes on before the joints are attacked, although this order may be reversed. The inflammation is occasionally limited to the conjunctiva, but it is more often accompanied or followed by iritis or iridocyclitis. When inflammation of the uveal tract occurs, it is usually of the serous or plastic variety. Keratitis is rare, varying in degree from a small area of infiltration to ulceration. Retina and optic nerve are very infrequently involved. In consequence of these complications vision may be very much reduced, but, barring corneal destruction, it returns as the intraocular exudates are absorbed. Though arthritis is not a necessary factor of the diseased process, it is almost always present. It generally occurs in more than one joint, the larger ones being more often attacked than the smaller.

An interesting feature of the disease is its tendency to recur. A new attack of conjunctivitis, followed by pain and swelling of the joints, may appear after a fresh outbreak of gonorrhea and be equally as severe as the first. In several instances the cornea and iris have become involved in the recurring attack after having entirely escaped in the initial one. Furthermore, an increase in the urethral discharge is often the forerunner of an exacerbation of both conjunctival and joint affection. In a case reported by Rückert there were three occurrences of urethritis, two of which were followed by conjunctivitis, one by iritis. In the case of Apetz there were two recurrences and two exacerbations, in all of which the conjunctiva was correspondingly involved. A single recurrence is more frequently met.

It may not always be possible to distinguish this disease, though in the majority of cases a diagnosis offers very little difficulty. The diseases which come into question are acute blennorrhea or gonorrheal ophthalmia of the adult and actue catarrhal conjunctivitis. The clinical picture of a typical case of the former is sufficiently characteristic to leave no doubt as to diagnosis, the tensely swollen lids, the greatly infiltrated conjunctiva, the profuse flow of pus containing gonococci being in marked contrast to the bilateral affection of metastatic origin with soft lids, relatively smooth conjunctiva of the lid and moderate mucopurulent secretion containing no gonococci. The diagnosis, however, must be made with care on account of the possibility of the case in question being one of mild gonorrheal ophthalmia, in which the virulence of the urethral infection was greatly weakened before the eye was inoculated. In such an early bacteriologic examination of the conjunctival secretion will usually reveal the gonococcus, thus establishing the exogenous character of the inflammation. If, however, no gonococci are found, the existence of a metastatic arthritis or iritis will point to an endogenous infection of the conjunctiva.

From an acute catarrhal conjunctivitis the differentiation is not so easy if we regard the ocular condition alone. However, the localization of the inflammatory process, more in the conjunctiva of the fornix and eyeball than on the lid, and the presence of a deep episcleral injection, will strongly suggest metastatic conjunctivitis. The coexistence of gonorrhea will be additional evidence, and should an arthritis be present the diagnosis will no longer be in doubt, because metastases never exist in genuine catarrhal conjunctivitis. Even without metastatic joint inflammation the diagnosis may still be made by finding gonococci in the circulating blood.

Can simple iritis or iridocyclitis be mistaken for metastatic conjunctivitis? The congestion of the eye, if taken by itself, may not always be sufficiently characteristic to enable one to distinguish between the two, but if the patient is seen early, swelling and chemosis of the conjunctiva and mucopurulent secretion will exclude simple iritis with certainty. If, however, the patient is seen late, when the conjunctival symptoms proper have become less marked or are obscured by the involvement of the uveal tract. it may be no longer possible to tell from ocular appearances alone whether the initial inflammation was in the conjunctiva or in the iris. It goes without saying that in those cases of metastatic conjunctivitis in which no part of the uveal tract becomes involved iritis does not enter into the question of differential diagnosis.

All reported cases of metastatic gonorrheal conjunctivitis have occurred in men. Whether any reason exists for this in the anatomy of the male urethra and its adjacent organs it is difficult to say. Many authorities claim that systemic infection occurs more often through the prostatic portion of the urethra, while, according to Fuller, the seminal vesicles constitute the route frequently taken by the gonococcus or its poison in entering the general circulation.

The old belief of gonorrhea being purely a local disease has been made untenable by modern investigators, who have found gonococci in the circulating blood (Wertheim), in the fluid of arthritic joints, and in the heart (Thayer). The prevailing and well-proven belief is that, in addition to the local urethritis, gonorrhea may produce systemic lesions by the transportation of infectious material through the lymphatic or blood channels from the original seat of disease to distant parts of the body. In full accord with this are the clinical reports of gonorrheal complications which appear in the literature. Besides arthritis, we have well-authenticated cases of gonorrheal pericarditis, endocarditis, myocarditis, pleuritis, nephritis, phlebitis, myositis, subcutaneous abscess, general septicemia, diseases of the peripheral and central nervous system, and lesions of the skin. With this advance in knowledge before us regarding gonorrhea in its relation to the general system, it may not be amiss to ask ourselves if we, as ophthalmologists, should not modify our views of gonorrhea in its relation to the eye. Such a suggestion seems all the more timely, as many authors of text-books on ophthalmology give iritis alone as a possible metastatic complication of gonorrhea. Since Mackenzie first recognized gonorrheal iritis, reliable publications have appeared from time to time of cases of metastatic dacryoadenitis,[33, 34] conjunctivitis, tenonitis,[35] keratitis,[36, 37] iridochorioiditis,[38, 39] retinitis,[40, 41, 42] neuroretinitis,[43] optic neuritis,[44] and panophthalmitis,[45] all depending primarily on gonorrheal infection. In point of frequency, iritis is the most common, occurring, according to De Lapersonne, once or twice in 7,000 eye cases and conjunctivitis next. Kurka saw 2 cases of this in 20,000 patients frequenting Professor Fuchs' clinic in one year.

The work of investigators in determining the infecting material which brings about this metastatic conjunctivitis, and in establishing its relationship to the underlying disease has not been rewarded with uniform results. As a consequence three theories have arisen:

1. Some authorities maintain that the inflammation is due to the presence of the gonococcus in the conjunctival sac, the organisms being carried thither by the blood vessels. This is supported by the bacteriologic examinations of Lipski, Morax, and Van Moll, who found the gonococcus in the conjunctival secretion. The experience of these three observers is almost unique, as the great majority have failed to find the specific organism. In a review of 26 bacteriologic examinations of 40 reported cases I find that 22 showed no gonococci in the conjunctival secretion, 3 gave the organism in small numbers, and 1 examination was doubtful. Adding my 2 cases makes a total of 28 examinations, 24 being negative, 3 positive and 1 doubtful. Kurka, thinking the gonococci might be under the epithelium, excised a piece of conjunctiva from one of his patients and examined it microscopically, but was unable to detect the organism. The advocates of this theory bring to its support the investigations of Kämmerer, Petrone, von Lindemann, Höck and many others who have found gonococci in the fluid of arthritic joints, arguing by analogy that the same infection occurs in the conjunctiva. While the bacteriologic examinations in metastatic conjunctivitis are not conclusive, it seems probable, in view of the inability of observers to find the gonococcus in the conjunctival secretion, that some other infective agent must be the chief one in this inflammation.

2. The second theory is that the conjunctivitis is the result of mixed or secondary infection; that the gonococcus does not play the important rôle, but rather prepares the soil for another organism as the staphylococcus, the streptococcus, or the pneumococcus. Van Moll found the first in the conjunctival secretion of five out of his six cases, and, inasmuch as the staphylococcus has been frequently found in the fluid of gonorrheal joints, he concluded that the conjunctivitis was probably a mixed infection in which the staphylococcus was the chief agent. To this it may be objected that staphylococci are often found in the normal human conjunctiva and that, as Axenfeld has said, they show themselves in the conjunctival sac at the slightest irritation, even when they are not the exciting cause. Many authorities who adhere to the theory of mixed infection base their belief largely on those experiments made on gonorrheal joints in which the gonococcus was not found, but in which the staphylococcus was the organism in evidence. Conclusions, however, from joint examinations must be drawn with care, because with the common method of aspirating joints the gonococcus, if imbedded in the synovial membrane or present in the periarticular tissues, may easily go undetected. From conversations with laboratory workers I learn that it is their experience that with modern technic and careful examination of gonorrheal metastases the gonococcus is found more frequently in pure culture than formerly, and cases of so-called mixed infection are becoming less frequent.

3. The third and perhaps the most tenable theory founded on present knowledge is that this type of metastatic conjunctivitis is not directly and essentially an infection by the gonococcus itself, but is the result of a poisonous product of this organism acting on the cellular elements of the conjunctiva. This possibility was suggested by Axenfeld in discussing Van Moll's paper at Utrecht in 1899. The majority of writers since then are more inclined to this view than any other. It seems, too, to be well supported by the experiments of Wassermann,[46] Nicolaysen,[47] Laitinen,[48] Grosz and Kraus,[49]

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[33] Cause (F.): Metastatische Tränendrüsenentzündung bei Gonorrhoe. Ztschr. f. Augenh., 1904, xi, 399.

[34] Panas: Dacryoadénite, iritis, et conjunctivite séro-vasculaire d'origine blennorrhagique. Jour. des Prat, Feb. 21, 1894.

[35] Pucch: Un cas de ténonite. Clin. ophth., January, 1895.

[36] Martin: Recherches anatomo-pathologiques sur les inflammations métastatiques à la suite de la gonorrhée. Génève Diss. Ref. in Arch. f. Augenheil., xiv, 117.

[37] Burchardt: Entzündung der Iris, der Hornhaut, der Sehnervenscheibe und der Netzhaut infolge von Gonorrhoe. Charité Annalen, 1897, 345.

[38] Bull (C. S.): Systemic and Constitutional Character of Gonorrhea, illustrated by five cases of iridochorioiditis. Med. Record, 1902, lxii, No. 25.

[39] Galezowski: Des irido-choroidites gonococciques. Progrès Méd., January, 1905.

[40] Burchardt: Entzündung der Iris, des Strahlenkörpers des linken Auges, Netzhautentzündung beider Augen, und mehrfache Gelenksentzündungen nach Gonorrhoe, Charité Annalen, 1894, 246.

[41] Galezowski: Sur les altérations vasculaires de la rétine dans l'infection blennorrhagique. Ann. d'Oculist, 1900, i, 301.

[42] Hilbert: Retinitis infolge von gonorrhoischer Infektion. Ztschr. f. prakt. Aerzte., vii.

[43] Highet: Case of Neuro-retinitis. Abst. in Med. Bull., Phila., April, 1896.

[44] Panas: Névrite optique d'origine blennorrhagique. Presse Méd., 1895, 64.

[45] Galezowski: Irido-choroidite avec névrite optique et panophtalmie dans une méningite cérébro-spinale gonococcique. Rec. d'Opht., Paris, 1903, xxv, 309.

[46] Wassermann: Ueber Gonococcuskulture und Gonococcengift. Berl. klin. Wochschr., 1897, No. 32.

[47] Nicolaysen: Zur Pathogenität und Giftigkeit des Gonococcus. Centrbl. f. Bact., 1897, xxii, p. 305.

[48] Laitinen: Beiträge zur Biologie des Gonococcus. Centrbl. f. Kenntnis der Bact., 1898, xxiii, 874.

[49] Grosz und Kraus: Bacteriologische Untersuchungen über den Gonococcus. Archiv. f. Derm. und Syph., 1898, xiv, 329.

Christmas,[50] Morax and Elmassian,[51] and Randolph,[52] These investigators have demonstrated that the gonococcus generates a specific active poison, the gonococcus-toxin, which is contained in the body of the organism. All of them agree that the bodies of gonococci possess this toxic material, but all do not hold that one is artificially separable from the other. Wassermann, Nicolaysen and Laitinen maintain that the poison is confined to the body of the organism, while Christmas, Morax and Elmassian and Randolph believe that it may be, at least in part, dissolved in the liquid of the culture medium. While the toxin has not been chemically defined as yet, it has been proved by biologic test to possess properties separate and distinct from those of the gonococcus. The latter is destroyed by a temperature of 40 C. (Wossidlo), while its toxin is destroyed by a much higher temperature, according to Christmas 80 C., according to Morax and Elmassian 115 C. It is very much more difficult to preserve artificially the activity of the gonococcus than that of its toxin. While it is impossible to obtain an inflammation with proliferation of the gonococcus on the animal conjunctiva, whatever the mode of inoculation, it is quite possible, according to Morax and Elmassian, to obtain an analogous condition by instilling the toxin into the conjunctival sac of the rabbit. It has also been shown that intraperitoneal as well as subcutaneous injections of the toxin have produced death in animals, chiefly guinea-pigs and white mice, and a solution of this poison has caused urethritis, differing from the genuine gonorrhea only by the absence of gonococci.

Without giving in detail the work of the various investigators of this subject, I wish to refer to the experiments of Morax and Elmassian, which were given to the Utrecht Congress of Ophthalmology and with which all members of this Section are doubtless familiar. It will be recalled that these Frenchmen experimented with the live as well as the dead cultures of the gonococcus; that they instilled into the conjunctival sac of rabbits and man an emulsion of dead gonococci and the filtered cultures of these organisms and produced an inflammatory conjunctivitis both in the rabbit and in man. That this reaction was not a mere mechanical effect was proved by control experiments. The possibility of the gonococcus having anything to do with it was excluded by boiling the medium. It seemed perfectly clear to the minds of the investigators that this artificially produced conjunctivitis was due directly to the action of the toxic substance which they dissolved from the bodies of gonococci.

The results of Morax and Elmassian might seem at first sight to be contradicted by the more recent work of Randolph in the Johns Hopkins laboratory. The latter experimented with filtrates of the gonococcus on rabbits and found that simple instillation into the conjunctival sac produced reaction in only one instance. In the animals which showed no conjunctival reaction, the instillations were continued from 15 minutes to 3 hours, while those of Morax and Elmassian were kept up from 2 to 7 hours, the majority being from 5 to 7 hours. It may be that the difference in duration of instillation may account in part for the difference in results. Randolph, however, produced a conjunctivitis in every case in which he injected the filtrate into the conjunctiva. By introducing the toxin under the epithelium he facilitated absorption and produced a local reaction more quickly than could be obtained by continuous instillation.

Although the investigators who have been working along the line of the present subject have brought to light most valuable information, they have not produced uniform results. Reasons for this are not hard to find: (1) The technic of the investigations is very difficult; (2) most animals are not affected by the gonococcus, though they seem to be susceptible to its toxin; (3) the nature of the gonococcus toxin is still very much in doubt; (4) gonorrheal metastases of the eyeball lend themselves badly to experimentation; (5) metastatic conjunctivitis being rare, opportunities for studying the disease seldom present themselves.

To me the study of this subject has suggested that perhaps better data might be furnished if the bacteriologic examination in each case of metastatic gonorrheal conjunctivitis were made early and included not only the conjunctival secretion, but also the blood, and the effusion of the joints if arthritis be present.

In conclusion, it may be suggested as a fair hypothesis in the light of our present knowledge that while it is possible, as maintained by Morax thirteen years ago, for a few cases of metastatic conjunctivitis to be caused by the gonococcus in the conjunctival sac, it is probable that the essential agent in the great majority of cases is not the gonococcus acting on the ocular mucosa, but a specific poisonous product of this organism called its toxin.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

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[50] Christmas: Contribution à l'étude du gonococcus et de sa toxine. Ann. de l'Inst. Pasteur, 1900.

[51] Morax and Elmassian: Du rôle des toxines dans la production des inflammations de la conjonctive. ix Congrès Internat. Ophthalmologie, Utrecht, 1899, August.

[52] Randolph: The Rôle of the Toxins in Inflammations of the Eye, Johns Hopkins Bull., Baltimore, 1903, xiv, 47-69.

THE TREATMENT OF LACHRYMAL OBSTRUCTION.*

MARK D. STEVENSON, M.D.
AKRON, OHIO.

Before this Section it is not necessary to discuss the treatment of all the various obstructive causes of epiphora. Those cases due to psychic or reflex causes, to refractive errors or in which hypersecretion is due to other non-obstructive causes will not be considered. The treatment of those portions of the tear drainage apparatus above the lachrymal sac, being well understood, will receive but little attention. However, further consideration of the treatment of pathologic conditions of the lachrymal sac and nasal duct, especially if it leads to free discussion, seems timely, since the diverse methods now employed indicate that it is not well understood. The necessity of treating abnormal conditions in the nose will be emphasized, since they are very important in the etiology of these affections.

For purposes of treatment, I divide the tear drainage apparatus into three parts. The upper portion includes the puncta and canaliculi. The treatment of this upper part has been much discussed and is fairly satisfactory. The lower portion, an examination of which should never be neglected, and the treatment of which is often ry important, is that part of the nose into which the asal duct drains. Pathologic conditions of this part re the most common causes of inflammation of the ther parts of the drainage apparatus. The middle poron comprises the nasal duct and lachrymal sac. This ortion is less accessible than the others and treatment orrespondingly less satisfactory.

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In beginning the treatment for epiphora, only conervative measures should be used for the middle porion—the lachrymal sac and nasal duct—until the condiions which could cause obstruction in the upper and ower portions are first corrected. The surgeon should reat these cases not only from the standpoint of the phthalmologist, but also from that of the rhinologist.

If there is pus or mucus in the lachrymal sac—dacrycystitis—extirpation of the sac is often required, but onservative treatment should first be given a trial. The us or mucus should be pressed out frequently. A small swab of cotton placed over the sac and inner canthus absorbs the expelled secretion so that it will not be sucked back into the sac when the pressure is removed. Antiseptic and astringent solutions dropped into the inner corner of the conjunctival sac just before removing the pressure of the finger, are easily introduced into the lachrymal sac. This, with removal of the lachrymal obstruction and treatment of the probable nasal cause, sometimes affords relief. One canaliculus should usually be slit. When there is much swelling, Risley[1] points out the special danger of making false passages until it has been reduced by cold compresses or other antiphlogistic treatment.

As the first step in the treatment of all other cases, except those in which the lids or puncta are everted or in some chronic cases of lachrymal obstruction, especially those that have been probed, I carefully dilate both puncta sufficiently to pass the smallest sized probe through the canaliculi. In order that no false passage be made, the canaliculus should be straightened as nearly as possible by stretching the lid outward with the fingers. At this stage, I do not pass the probe farther than merely to enter the lachrymal sac, but repeat the probing a few times, a day or so apart, to prevent the formation of a stricture. If in syringing, the fluid readily and without much force passes into the nose, it shows that the remainder of the drainage canal is patulous. In this case simple measures, as gentle dilatation, syringing, the use of mild astringents and massage of the sac, will likely be rewarded with a good result. Therefore, probing of the nasal duct, or other radical measures, should not be resorted to unless the epiphora persists after a careful and thorough course of treatment, and not until, as de Schweinitz[2] insists, the causative factors, obstructive and otherwise, as psychic, reflex, and those of nervous origin, are first considered.

Any short hypodermic or lachrymal syringe, armed with a dull needle or other small blunt-ended canula, may be used for syringing when the canaliculi are small. A larger canula can be used when the canaliculi are dilated or after slitting. The syringe should be short and not too large, in order that the hand holding it may be steadied by resting the fingers against the forehead of the patient and so that too much force will not be required to press the piston home, which would make it unsteady, jabbing the patient and thus causing pain. J. S. Kirkendall[3] described an excellent syringe which he had made by E. B. Meyrowitz. I have had a somewhat similar syringe made by V. Mueller & Co., Chicago. Regurgitation from the opposite canaliculus can be prevented by constricting it with a small clamp placed on the lid. I directed the making of a simple clamp manufactured by V. Mueller & Co., Chicago, with which different degrees of pressure may be made. It is very light, weighing only seventeen grains, and can be readily applied and removed. W. Gordon Byers[4] recommends a canaliculus clamp which he had made by E. B. Meyrowitz. In the same article he describes a syringe nozzle which swells some distance from the end, so that when pressed home it completely stops up the canaliculus being syringed, and thus prevents regurgitation from it.

The canula should not pass farther than the lachrymal sac, and at first the syringing should be repeated every day. Syringing is most useful in cases seen early, and must be thoroughly and perseveringly done, which requires the cooperation of the patient. Any mild astringent solution, e. g., adrenalin chlorid, zinc sulphate, gr. ½ or 1 to the ounce, or some simple cleansing solution, as plain distilled sterile water, or saturated solution of boric acid, etc., may be used. In some cases of dacryocystitis, I have found very weak solutions of silver nitrate very efficient, but, like its various much lauded substitutes, it is liable to produce argyrosis.

Repeated cleansing of the sac may be necessary for a week or more before the congestion is sufficiently reduced that fluid may pass into the nose, after which time the syringing is repeated at constantly increasing intervals. Indeed, patients can be taught to use a syringe themselves, preferably one with a rubber bulb. It is easier than to teach them to use a probe. If there are weak spots in the sac wall, especially after probing, syringing must be gently done or the walls may be ruptured.

If the fluid can not be made to pass into the nose, there is an obstruction either in the nasal duct or the lachrymal sac or at the outlet into the nose. It is well known how rarely the lachrymo-nasal canal becomes diseased secondary to conditions of the conjunctival sac, even when gonorrheal or diphtheritic conjunctivitis is present, but the nasal factor in the etiology of these troublesome conditions must not be overlooked (Brewerton,[4] Meyer[5]). J. Herbert Parsons[6] states that the infection generally spreads up the nasal duct from the nose, though, in rare cases, it may start in the conjunctival sac. He remarks that conjunctivitis rarely causes dacryocystitis, although the latter and rhinitis often give rise to conjunctivitis, which, in turn, excites an overproduction of tears. Byers writes:[7] "The initial changes in chronic catarrh of the lachrymal duct occur, as a rule, about the inferior meatus." At first epiphora is usually complained of when going out into the cold or wind or during a coryza, when the cavernous tissue of the nose is swollen, and later it is aggravated by the same conditions.

The slit-like outlet of the nasal duct into the nose is surrounded by cavernous tissue with its dense plexuses of vessels, often capable of such swelling as to occlude the space around the opening. It is, therefore, in a portion of the nose frequently inflamed by coryzas, where the cavernous tissue is constantly changing in bulk, in an effort to warm, clean and moisten the inhaled cold,

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1. The Journal A. M. A., Dec. 24, 1904, page 1963.
2. Trans. Sec. Ophth., Col. of Phys., Philadelphia, 1905.
3. Ophth. Rec., October, 1904.
4. Ophthalmoscope, April, 1906.
5. Berl. klin. Wochschr., 1906, xxiii, 751.
6. Brit. Med. Jour., Feb. 23, 1907.
7. Ophth. Record February, 1904.

dry and often irritating air. The tissues on the inferior turbinate bone may become so hypertrophied as to press on the floor of the nose and shut off proper drainage. This also may be brought about by spurs on the septum or deflections of it, polypi or other abnormal conditions of the nose, often limited to one side, just as the epiphora is.

The mucous membrane walls of the lachrymal sac and nasal duct, continuous with the mucous membrane of the nose, like those of most ducts in the body, normally lie in contact, and are surrounded by well-developed venous plexuses connected with the cavernous tissue of the nose. It can readily be seen that inflammation of the cavernous tissue around the outlet of the duct blocking it would sooner or later cause an engorgement of the vessel plexuses which underlie the mucous membrane of the nasal duct. Therefore, inflammation easily extends from the nose to these tissues, which, when swollen within a bony canal, especially if catarrhal inflammation has also extended along the mucous lining, partially or wholly obliterate the lumen of the duct, so that more than normal force is required to press the tears through into the nose. In this way a stagnant, irritating fluid containing micro-organisms accumulates, forcing the walls of the sac and duct apart and causing them to secrete more fluid and later even mucus and pus. Tooke[8] says that a more fertile field for the production and cultivation of bacteria than a stagnant lachrymal sac is difficult to find. The walls of the sac are weakened and gradually give way to the pressure of the fluid, losing their elasticity. Therefore, in all cases, the portion of the nose into which the nasal duct empties should be thoroughly examined before treatment is commenced, and especially before passing probes or otherwise radically treating the nasal duct.

It is often difficult, even in fresh specimens, to find the outlet of the canal under the inferior turbinate, and it is usually not possible to examine the exact outlet. Much can be done, however, to relieve congestion in its locality. In many cases the epiphora may be temporarily relieved by a local application of a solution of adrenalin or silver nitrate applied by means of cotton wrapped on the end of a bent probe. In order to reduce the redundant tissue, it may be necessary to cut or cauterize through the mucosa, or even to remove a portion of it. Sometimes the anterior end of the inferior turbinate, mucous polypi or other growths should be removed, and any inflammation, hypertrophy or malformation treated, which might cause obstruction, e. g., syphilitic or scrofulous rhinitis, ulcers or scars due to syphilis or lupus. The treatment of this portion of the nose must be gentle; large scars might so pull the mucous membrane as to interfere with the nasal duct opening. Nasal sprays or washes are often very useful. Probing from below, while perhaps rarely possible, is impractical and likely to irritate and inflame the often valve-like lips of the linear-shaped opening in the mucous membrane, an opening always difficult to find.

However, if no obstruction to the drainage of tears into the nose can be discovered, or if such is removed, and still fluid will not pass, the stricture must be in the lachrymal sac or nasal duct, and in such cases is generally situated near the lower portion of the sac where the lumen is narrowest. In examining a large number of skulls, I have noted that the bony canal is seldom round, but usually elliptical or oval in shape, with its long axis from before backward, or backward and slightly inward. The lumen of the nasal duct is slit-like, its long axis more or less nearly corresponding with the lumen of the bony duct. The bony canal is seldom straight. It can readily be appreciated, therefore, that when the nasal duct is not straight, but sometimes even tortuous, a practically straight probe pushed against the mucous membrane where the duct bends is liable, unless great care is exercised, to injure the mucous membrane at this point, possibly tearing it if the point of the probe is sharp, certainly bruising it against the bony wall, and no doubt denuding it of some of its softened and swollen epithelium. It may also lacerate the subepithelial tissues and even cause slight hemorrhages in the submucous vascular tissues. It is too often forgotten that the outer lining, the periosteum, is easily inflamed by any trauma, as indicated by aching for a long time after probing, especially in rheumatic, scrofulous or syphilitic subjects. The lower end of the membranous duct leading to its slit-like opening, which is situated somewhere in the mucous membrane of the nose beneath the inferior turbinate, is probably seldom in line with the rest of the duct. Therefore, it is easily seen that a probe held in a fixed position by the bony duct is likely to irritate, congest and inflame the delicate mucous membrane of the lower end of the duct and the nasal mucous membrane near its outlet, both of which must usually be pulled out of their normal position, pressed against contiguous bone, sometimes crushed and torn by the straight probe. This passing of the probe completely into the inferior meatus—except in the cases in which it has previously been passed—is uncalled for and dangerous, often giving rise to strictures in this part and even to proliferation of granulation tissue about the mouth of the duct, which obstructs it. This may sometimes be due to adhesion of the injured and subsequently inflamed lips of the opening through the nasal mucous membrane.

I used to believe that probes were not properly employed unless they were passed completely into the nose, but in some cases I discovered that, whereas, in the beginning, after probing, I was able to syringe freely into the nose, that later, after having probed for some time, it became impossible to do this. As I pointed out in a former paper,[9] this was simply due to the formation of strictures or granulation tissue about the outlet of the duct, resulting from the irritation produced by passing straight probes through its lower crooked end. In addition, this portion of the nasal mucous membrane is probably often irritated by an abnormal discharge from the duct. It is, therefore, well to remember that, while there may be more than one stricture in a case, only one may exist, and that indiscriminate probing may cause others, and that in any case it is unnecessary and unwise to pass a probe farther than the lowest stricture.

Since most strictures of the nasal duct are at its upper end, why should not the operator, when other treatment has failed and he feels compelled to use probes, at first pass them only a short distance into the duct and then try if he can not syringe through it? If he can not succeed in syringing he can pass the probe still farther and again try syringing until successful. In this way it will frequently be found unnecessary to pass the probes down into the nose, but only a short distance into the duct, with, therefore, less danger of producing new hemorrhages, strictures or granulations in the duct or about its outlet.

Cases that require complete passage of the probe be-re syringing can be accomplished, often do not give ood results unless due to an acute congestion of the bmucous vascular tissue, which later subsides, due to bettered condition in the nares, if luckily the mucous embrane has escaped severe injury from probes.

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[8] Brit. Med. Jour., Dec. 22, 1906.

[9] Lancet-Clinic, Jan. 7, 1905.

The very small probe, although it may properly be sed in the canaliculus, is quite likely to produce false assages in the nasal duct (Risley[1]). On the other and, since the membranous walls of the nasal duct ormally lie in contact, there is probably little necessity or making its lumen an open drain for the free passage f infectious nasal secretions and even air, by passing robes, often larger in diameter, especially in certain irections, than the bony canal itself. The nasal duct nd the urethra demand different treatment, since there s little physical analogy between the two, the undi- atable bony nasal canal being nearly filled with perios- eum, submucous vascular tissue and mucous membrane, tructures very easily injured. I prefer medium-sized ilver probes, elliptical in shape, which more nearly cor- espond to the usual shape of the duct and bony canal nd are, therefore, more easily passed than round probes f similar size. The ends are blunt so as to injure the ucous membrane as little as possible.

Holmes[10] has well said: "Any one, if enough strength is used, can make a false passage in the nasal duct with ny probe." False passages and rupture of the ethmoid ells with the formation of inflammatory tissue about the sac may result, making subsequent operation more difficult. Parsons[6] remarks that, "no matter how skilfully probing may be performed, it is almost inconceivable that grave damage will not be done." The new fibrous tissue resulting from abrasions or hemorrhages is at first elastic and resilient, but it contracts as it organizes, necessitating the further use of probes and those of larger caliber. Since the nasal duct is well supplied with sensory nerves, probing is most painful and, therefore, it is difficult or even impossible to persuade the patient to persevere in treatment. Soon the contraction of fibrous tissue, together with fresh inflammation again occludes the duct. Epiphora and regurgitation of pus have usually continued for some time before the patient again has the courage to undergo treatment. Large probes are necessary to stretch the now more resistant fibrous tissue, and Parsons[6] well says: "And so the weary cycle goes on, epiphora and pus alternating with probes and pain."

I think the tendency at present is toward the greater use of the syringe, giving the probe a less active part in the treatment of these cases (Snyder[11]). Byers[7] finds that after several injections of a solution of adrenalin a few minutes apart, each injection reducing a part of the engorgement in the nasal duct, it is usually possible to syringe fluid through into the nose. Astringent solutions are not only helpful because of their action on the mucous membrane of the duct, but also because they tend to reduce the congestion around the outlet of the duct in the nose, a part frequently inflamed because of irritating discharge from the duct or from the free passage of probes, and usually difficult to reach with topical applications made through the nose.

I addressed a few questions to a number of prominent ophthalmologists, but can find space for the replies to only two of them.

Have you objections, and if so, what, to removal of the lachrymal sac in chronic dacryocystitis or in chronic lachrymal obstruction, where conservative measures fail to give relief?

Hubbell has never felt it to be necessary.

Snyder has no objection to the operation when necessary, but thinks few cases need removal.

Donovan advises it only after thorough treatment with large probes has failed.

Würdemann rarely fails to cure by other means, and has found it necessary to remove only two sacs.

Knapp says that the extirpation of the sac does not give perfect relief from overflowing of tears, but, of course, it cures purulent conditions.

Gifford practically never finds it necessary to destroy the sac except when the canal has been obliterated by trauma. In such cases, he destroys the sac with the Paquelin cautery, but has never extirpated one.

Hansell, when probes will not relieve after slitting the canaliculus, removes the sac.

Vail has no objection to the operation, although he thinks that nearly every case can be cured without. He says it should be urged before opening the eyeball.

Taylor says that he has no special objection to it, but has nearly always found that other measures give relief.

Theobald has none, but thinks it called for in very few cases.

Dunbar Roy, Stricker and Baker have no objection to it in cases of chronic dacryocystitis, but think it unnecessary in chronic lachrymal obstruction.

Hiram Woods has no objections, but finds that many patients decline the operation.

de Schweinitz writes that he has not only no objections, but is sure it is the proper procedure. In an accompanying letter, he says: "I have practically given up the use of probes, certainly so far as the treatment of chronic dacryocystitis is concerned."

Casey Wood writes: "I have no objection, on the contrary, I greatly prefer the operation when other means of cure have failed."

Beard answers "No, on the contrary, I resort to the operation more and more frequently as time goes on."

Wilder says he approves of the operation.

Millikin, A. E. Bulson, Jr., Zentmayer, Lauder, Fox, Carrow, White, Howe, Bruns, Ellet, Melville Black, Reber, John Green, Jr., Williams, Todd, Veasey, Risley, Jackson, Wescott, Conner, Randolph, Parker, Nelson M. Black and Ayers have no objection to the operation under the conditons mentioned in the question.

Greenwood thinks it should be advised more frequently.

Prince says that he removes the lachrymal sac in all cases of chronic dacryocystitis when the patient's consent can be obtained.

Snydacker says that he considers it, if properly done, the only rational procedure in the conditions mentioned in the question.

Savage has had satisfactory results by removal of the sac.

Weeks has no objection to it, and frequently performs the operation under such circumstances.

Tooke emphatically recommends the extirpation of the sac in chronically inflamed conditions, or whenever regurgitation of pus or mucopus is maintained by obstruction in the nasal duct.

Byers writes: "In cases of chronic obstruction of the lachrymal canal in which conservative measures have failed to give relief, and especially when the condition is associated with the formation of pus which yields cultures of highly virulent bacteria, I have not only no objection to the removal of this structure, but consider the operation expedient for the comfort of the patient and safety of his eye."

My next question was:

(*a*) *Do you consider it advisable to remove the sac and gland in one operation?* (*b*) *How often do you find it necessary to operate on the lachrymal gland after removal of the lachrymal sac?* (*c*) *In such cases, do you remove all or only a certain portion of the lachrymal gland?*

Risley has had no experience with removal of either sac or gland, and believes it to be rarely necessary.

Theobald says that he has never done either operation.

Holmes replies: (*a*) Yes, on account of one anesthesia. (*b*) He always removes both because otherwise patient suffers from "tearing" all his life. (*c*) He removes all of the gland.

Carrow: (*a*) Yes. (*b*) He always removes the gland when he operates for ablation of the sac. (*e*) All.

Greenwood: (*a*) Yes, in young people. (*b*) In middle-aged and elderly people, removes the sac only. (*e*) He removes the whole gland.

Weeks: (*a*) No. (*b*) He removes the gland after removal of the sac in a minority of cases. (*c*) He removes the orbital portion, the principal portion of the gland, and leaves the palpebral.

A. E. Prince: (*a*) Removes sac and gland at one operation if there is an excess of lachrymation. (*b*) He considers it often necessary to remove the lachrymal gland after removal of the lachrymal sac before the epiphora is completely stopped. He adds that many patients have no special trouble with epiphora after removal of the sac.

A. E. Bulson, Jr., removes the sac only, and if necessary a portion of the gland later.

Ellett has never removed the gland, but thinks that it ought to be done when the amount of lachrymation after removal of the sac is considerable.

de Schweinitz: (*a*) He does not. (*b*) He has only once found it necessary to remove the whole gland. (*e*) He sometimes removes the palpebral part of the gland.

Gifford: (*a*) Not unless the patient is going to leave for uncivilized parts. (*c*) If lachrymation continues annoying, he would remove palpebral portion of the gland, and later, if necessary, the orbital portion. He has seen one case in which hemorrhage into the orbit, with atrophy of the optic nerve, and oculomotor paralysis followed removal of the gland.

Byers (*u*) No. (*c*) The accessory portion of the gland.

Tooke answers: (*a*) No, since satisfactory results are obtained by the complete removal of the sac. (*c*) In some cases he might remove the accessory portion of the gland.

Donovan: (*a*) No. (*c*) Would remove a portion first.

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[10] Arch. of Ophth., 1899, xxviii, No. 1.
[11] Ophthalmology, October, 1906.

Casey Wood: (*a*) He is opposed to the removal of the sac and gland at one sitting, particularly as the excision of the former very often brings about a cure without recourse to removal of the gland.

Fox: (*a*) No. (*b*) Never.

Lauder: (*b*) Never.

Jackson: (*a*) No. (*b*) He does not consider it necessary to remove any portion of the gland.

John Greene, Jr.: (*a*) No. (*b*) He has never removed the lachrymal gland.

Beard: (*a*) No. (*b*) Never. It is quite unnecessary.

Wilder: (*a*) Never. (*b*) Rarely. The lachrymation that might have been considerable before removal of the sac, because of the reflex irritation from the inflamed sac, usually grows less after extirpation.

Würdemann has never removed the lachrymal gland for such purpose.

Hansell never removes the gland except when it is the seat of a new growth.

Woods removes the gland only in malignant diseases of the orbit and would hesitate to do so for the relief of epiphora after an excision of the sac.

Dunbar Roy, Ayers, Stricker, Nelson M. Black, Connor, Williams, Reber, Wescott, Parker, Savage, Bruns, Zentmayer, Howe, White and D. W. Stevenson have never found it necessary to remove the lachrymal gland.

Veasey does not remove the gland and finds it unnecessary.

Vail is satisfied that the gland need not be removed. He says that if the conjunctivitis due to the dacryocystitis is cured, no epiphora will be present.

Baker has not found it necessary to remove the lachrymal gland, as patients are usually satisfied with the cure of the dacryocystitis and have not been troubled much with epiphora.

Posey writes that he has removed about thirty sacs in subjects of all ages, but has never found it necessary to remove the gland.

Todd finds that his patients receive the desired relief by the removal of the sac.

Melville Black has never found it necessary to remove the lachrymal gland, as he finds the epiphora better when the conjunctivitis disappears after removal of the sac.

Snydacker has removed the lachrymal sac fifty-two times, and while a majority of the patients complain of epiphora in cold weather, he has not thought it advisable to remove the gland.

Parsons[6] states that if syringing and other measures fail, extirpation of the lachrymal sac offers a really radical cure, and, in certain conditions, he strongly advises it.

Evans[12] says that the only effective way of treating chronic dacryocystitis, and so removing a prolific source of blindness, is by removal or obliteration of the lachrymal sac, but he believes excision infinitely preferable to obliteration.

I think that the sac should be extirpated under the following conditions:

1. When pus or mucopus can be pressed out of it, unless the disease yields to a reasonable amount of conservative treatment, which does not demand of the patient too much sacrifice of nervous energy, time and money. On account of the danger of hypopyon ulcers, the demand for removal is imperative in those whose eyes are frequently subjected to injuries, as farmers, mechanics, stone cutters and lumbermen.

2. In cases in which the dacryocystitis is bilateral and the patient has already lost one eye from hypopyon ulcer, the sac should be removed on the side of the healthy eye. Axenfeld[13] states that nearly 80 per cent. of cases requiring removal of the sac are in the working classes, and that in nearly 35 per cent. of cases of dacryocystitis permanent dense opacities of the cornea result.

3. If there is severe ulceration of the cornea with dacryocystitis, or even lachrymal obstruction, it is often advisable at least to incise the sac and drain it, but I do not hesitate to remove such sacs, even during the height of the inflammation, since ulcus serpens must be treated vigorously to prevent perforation and loss of the eye.

4. As a preliminary to operations requiring the opening of the eyeball where dacryocystitis is present. If the fellow-eye has been lost by postoperative infection, the necessity of such preliminary operation is imperative. If an immediate iridectomy is necessary for glaucoma, or if for any reason sufficient time is not allowed for healing of the wound before opening the eyeball, it is best, anyhow, to remove the sac completely. Sutures passed around the canaliculi or cauterization of them are poor substitutes for removal of the sac, which should at least be opened and drained if the patient will not permit removal.

5. In cases of chronic lachrymal obstruction without any apparent blennorrhea of the sac when normal drainage can not be restored, as in many cases of traumatic destruction of the lachrymal channels. In such cases it is safer for the eye to remove the sac, destroying completely the lumen of the remaining connecting channels especially since it is impossible to know how soon an acute or chronic blennorrhea may replace the apparently simple obstruction and innocent, but often dangerous epiphora. Tooke[8] pointed out that the presence of dacryocystitis is often disguised by a high crest on the lachrymal bone, preventing proper pressure on the sac, and sometimes by the increased pressure forcing the contents of the sac into the nose instead of into the conjunctival sac.

6. When lachrymal fistula is present.

7. In cases in which there is necrosis or disease of the bony walls of the canal.

8. A dilated or atonic sac should often be removed, the embracing fibers of the orbicularis being atrophied, and especially in long-standing cases with partial destruction of the walls of the sac and duct and in which probes have been employed.

9. In certain cases of polypus or when there is much thickening of the sac lining, sometimes indicated by a lumpy feeling after emptying the sac.

10. In debilitated or nervous persons or any who can not endure probing. de Schweinitz[14] considers it especially valuable in the insane.

11. In dangerous conditions, such as tubercle and malignant growths.

The various forms of operation have been fully described by Axenfeld,[13] Holmes,[9] de Schweinitz,[14] Tooke,[8] Evans,[12] Jocqs,[15] Arnold Knapp,[16] Parsons,[6] Lesshaft,[17] Kuhnt,[18] Syndacker,[19] and others. I prefer the subperiosteal method for removal of the sac as described by Axenfeld,[13] Snydacker[19] and de Schweinitz.[14] Since the fundus of the sac extends above the level of the internal palpebral ligament, great care must be used to see that every portion of it is completely removed. Parsons[6] asserts that absolutely no harm results from dividing this ligament. I find it easier to make a complete dissection when it is divided, the cosmetic result being just as good if it is properly sutured. My incision, to the bone, commences at the upper border of the internal palpebral ligament and extends downward and slightly outward for about 2 cm., just a little to the nasal side of the internal bony margin of the lachrymal fossa. The knife should point toward the ear of the opposite side. The specula stretch the tissue so that a 2 cm. cut is sufficient. There is no need of having a long cut below the internal palpebral ligament. It is easy to separate the periosteum from the inner side of the lachrymal fossa. After this is done, the sac should be seized with the forceps, pulled upward and cut off low at its junction with the nasal duct. It should then be dissected from below upward, severing the upper part last. For the first few days the wound should be disturbed as little as possible in order to avoid opening it.

One of the most troublesome parts of the operation is hemorrhage, especially if the incision has been made too far internally. If the angular vein is cut it should be ligated. I have attempted partially to overcome the hemorrhage by means of two simple specula, unlike

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12. Brit. Med. Jour., Feb. 23, 1907.
13. Klin. Monatsb. f. Augenheilk, xli, 134.
14. Philadelphia Hosp. Rep., 1904-05.
15. Clin. Optalmo., January, 1906.
16. Arch. of Ophth., 1903, xxxii, No. 4.
17. Klin. Monatsb., August, 1906, xliv, ii, 256.
18. Cor.-Bl. d. allg-artzl. Ver. v. Thuringer. Weimar, 1888, xvii, 635-644.
19. Chicago Med. Rec., Oct. 15, 1903.

those of Mueller and Axenfeld. The body of each is similar to Todd's tendon tucker, strong and light. They have no teeth, but a vertical plate with a lateral serrated edge to hold the tissues, and a smooth lower margin, which, pressed against the bone, greatly reduces hemorrhage. The larger one is first introduced and then the other so placed that they together expose a quadrilateral field for operation.

It is necessary to remove completely every portion of the mucous membrane, as otherwise a fistula may result, and it is equally necessary to slit the canaliculi and cauterize them in order that there shall be no blind pouch at the inner canthus in which irritating secretions may collect. Therefore, much depends on the technic and completeness of the operation. I prefer general anesthesia to local, for, while the operation may be done after deep injections of local anesthetics and adrenalin around the sac, it is not likely to be as thorough when it causes pain.

Removal of the lachrymal sac and, therefore, of the regurgitation of irritating, infectious secretions into the conjunctival sac, ultimately results in a healthier condition of the conjunctiva, and relieves the often attendant blepharitis, especially if helped by cleansing and slightly astringent solutions. In time this removes an irritation which probably causes a reflex oversupply of tears, so that soon, if there is no malposition of the lids, the supply of tears is no more than to compensate for their evaporation from the cornea, unless the eye is subjected to special irritation, such as cold winds or foreign bodies, or unless the epiphora is due to some of the non-obstructive causes enumerated by Carpenter.[20] Therefore, since the patient is generally relieved of the chief annoyance by removal of the sac, it would seem unnecessary always to remove the gland at the same operation, especially since at this time there is slightly greater danger of infection. Parsons[6] does not find it necessary to remove the gland after removing the sac, and says that its removal is uncalled for if sufficient time is given for the conjunctivitis to respond to treatment.

Unquestionably removal of the sac is often good practice, but the advisability of removal of the lachrymal gland, or orbital portion of it, in order to do away with a simple epiphora which annoys the patient only when exposed to special irritants, as cold winds, etc., and especially when there is no retention of pus or mucus with correspondingly less danger to the eye is a serious question, since in removing the gland the orbit has to be opened and exposed to the slight dangers of infection which can never be totally eliminated. While the other glands of the conjunctiva may ordinarily supply sufficient secretion for the eye, a flow of tears, aided by the movement of the lids, is unquestionably useful when needed in removing irritants from the conjunctival sac. If the removal of the sac has been thorough, and sufficient time is given for the conjunctiva to regain its normal condition, not being exposed to irritating regurgitations from the sac, there will not be much complaint of epiphora except, as before stated, when due to special irritations.

The removal of the accessory—palpebral—portion of the gland which supplies only a small part of the tears is not difficult, but is without much effect, since nearly all of the tears are secreted by the orbital portion. The removal of the latter portion is not so easily performed and is well described by Holmes.[10] I prefer a shorter incision extending along the orbital margin only 1.5 cm. above the outer canthus, but 0.5 cm. below it, since the gland is situated behind the outer margin of the orbit and not high up, as often thought. One or both lachrymal sac specula should be used to open the wound and reduce hemorrhage. An opening can then be made through the orbital fascia and the gland seized by a pair of forceps. It should first be separated on its outer side by blunt dissection. Then the dissection should continue downward and inward from the summit of the gland, cutting the ducts until the inner side is also separated, being careful not to perforate the conjunctiva, which would thereby increase the danger of infection.

[For the discussion, see the department of Section Discussions in this issue.]

THE TREATMENT OF STRABISMUS IN YOUNG CHILDREN.*

ALBERT RUFUS BAKER, M.D.

Professor of Ophthalmology in the Cleveland College of Physicians and Surgeons; Oculist and Aurist to the St. Alexis and Cleveland General Hospitals.

CLEVELAND, OHIO.

Ever since Donders taught us the intimate relation between convergence and accommodation we have known that the rational cure of squint is an early correction of the error of refraction; but, owing to the difficulty of accurately correcting errors of refraction in young children, we have usually waited until the child was old enough to assist us by reading the test type. Then it is too late to cure the majority of cases, and we are obliged to resort to an operation, which has yielded fairly satisfactory results from a cosmetic point of view, but unfortunately it does not restore binocular vision, and in many cases the permanent results of the operations have been far from ideal, many cases later in life developing a divergent strabismus—a deformity greater than the original one. Indeed, it has come to pass, as Browne has well said:[1]

> We are all the inheritors of two legacies which unequally profit us, and though in our reasoning we aspire to be followers of Donders, it must be admitted that in our practice, we, from old custom, from want of knowledge and patience, and from convenience, do revert to the primitive view of the school of Diffenbach. We resemble those barbarians, who, converted to Christianity, prefer the orthodox theology and ethics, but who, under slight temptation, cast off their new religion and go Fantee.

As almost every child is hyperopic, therefore almost every one is potentially capable of acquiring convergent squint. There must be some exciting cause which in a few cases is quite apparent, such as paralysis, opacities of the cornea or lens, central chorioiditis, optic-nerve atrophy, etc. I have now under observation a bright 9-year-old boy, brought to me three years ago with a convergent monocular squint. In the squinting eye there is a small posterior polar cataract. The mother can not understand why spectacles do not correct the deformity in her child's eyes as it does in the eyes of her neighbor's children; but it is questionable whether even a tenotomy would improve the condition, and the cataract is so small that it would scarcely seem advisable to extract it. While such cases are always interesting and often baffle our best endeavors to remedy, yet it is not the management of such cases that I had in mind in the preparation of this paper. I intend, rather, to limit myself to a consideration of the ordinary concomitant squint in which both eyes are, excepting for the error of refraction, apparently healthy so far as we can determine ophthalmoscopically or otherwise. In many of these cases we have accepted the statement of the mother that the strabismus followed some slight illness, such as measles or whooping cough, or the eye was inflamed or injured, and a bandage applied, and when it was removed the eyes were crossed. Or it may be the child simply imitated another. It does seem sometimes, as Worth teaches, that there must be some congenital deficiency of the fusion sense and that a temporary suspension of binocular vision is sufficient to destroy it altogether. And to a certain extent these observations are correct, but any one who has observed the development of squint in a considerable number of young children must have noticed that squint is not developed so suddenly as we are sometimes led to believe, but that it comes on slowly. Many times the parents bring their children to the consulting room in doubt whether the child squints or not, and sometimes I have to keep the child under observation for a considerable period before a diagnosis can be made. If you have the opportunity of following a case closely it will be noted that at first the child squints only occasionally. And I believe that a more careful observation of the clinical history of these cases will show that there is first a period of occasional squinting, often lasting for weeks or months, and in a few cases for years; then a period of alternating squint lasting a greater or less period, finally terminating in a permanent monocular squint with deterioration of vision in the squinting eye.

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[20] Carpenter: Trans. Sec. Ophth., Col. of Phys., Philadelphia, Jan. 17, 1905.

*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Squint Occurring in Children," Bailliere, Tindall and Cox, London, 1904.

Von Graefe,[2] as Donders says (p. 307), "puts it prominently forward as a well-known fact that persistent strabismus is very often, indeed, generally, preceded by an intercurrent or periodical squint."

Any one who has been long in ophthalmic practice can not doubt that there are many cases of spontaneous cure of squint, because patients later in life, when being tested for errors of refraction, pension, railroad or marine service, are so frequently found amblyopic in one eye, and volunteer the information that they squinted in early life. The persistence of the amblyopia in these spontaneous cases of recovery would suggest that the amblyopia was congenital and not ex anopsia. And yet the longer I watch these cases the more I am impressed that much of the failure in vision is the result of suppression of vision in the squinting eye and may be restored by use.

I have now under observation a man of 28 years of age with monocular squint who lost the seeing eye last September from an injury. He could only count fingers at three feet. He now sees 20/200, and the vision is still steadily improving. Another squinting patient, 34 years of age, in the same ward on the same day, lost the vision of the seeing eye from an injury. At first I could not decide whether he had light perception or not, but his vision has improved to counting fingers at six feet and he now gets around the hospital alone. I believe his vision in the squinting eye would improve faster if it were not that he still has some light perception in the injured eye.

The age at which squint first appears has a most important bearing on the treatment. Worth[3] presents some interesting statistics of 1,017 cases of monocular squint; it appeared, beginning in each each year of life, as follows:

Before one year	134 cases.
Between one and two years	186 cases.
Between two and three years	247 cases.
Between three and four years	189 cases.
Between four and five years	113 cases.
Between five and six years	73 cases.
After six years	75 cases.

It will be seen that nearly 75 per cent. developed before the fourth year. In 178 alternating cases more than 53 per cent. were noted before the end of the second year; thus it will be seen that if treatment is to begin, as I believe it should, with the first appearance of the squint, we must commence very early in life. Formerly I thought two years was as early as we could hope to profitably fit spectacles to children, but in recent years I have in a number of cases given spectacles to children between 1 and 1½ years of age, and in a few instances under 1 year, and the results in these very young children have been so satisfactory that I shall not hesitate to use them more frequently in the future. I have had occasion many times to assure parents and general practitioners, who have questioned the wisdom of prescribing spectacles to children so young, that any child old enough to squint was old enough to wear spectacles.

As observed above, the development of squint in young children is at first occasional only; then it becomes alternating and later monocular. The propitious time to treat these cases is during its first appearance, when it is only at times that the eye is noticed to converge, either when looking at close objects or when tired, sleepy or embarrassed. Often the use of atropin for a few days in both eyes will effect a cure. If it does not, the child's eye must be carefully tested for errors of refraction and spectacles prescribed at once, which will most assuredly correct the tendency to squint. If the child declines to wear the spectacles prescribed, it is evident the lenses are wrong or the frame is not carefully adjusted.

If the case has gone on to the second stage, and there is a more or less constant alternating squint, almost equally good results will be attained if the error of refraction is corrected. If the squint persists after the spectacles are ordered, it may be necessary to use atropin in both eyes for a few weeks. There are a few cases in which the squint under the use of atropin will be increased for a time; doubtless the child makes increased effort of accommodation in order to overcome the blurred vision, but a continued use of the atropin will overcome this increased convergence.

In older children who have a persistent alternating squint, we will be obliged to resort to efforts to train the fusion sense, and this may demand great patience on the part of the surgeon. The stereoscope and the amblyoscope will aid us much. The temporary use of prisms or decentered lenses will help a little. The long-continued use of atropin and avoidance of all close work for the eyes will be of great service. These children must be taken out of the kindergarten; driving and playing out of doors will be of much service. If after months and years of trial there is no improvement, an operation to partially correct the convergence may be necessary. In a few of these cases I have failed to secure binocular vision, but a fairly good cosmetic result has been obtained in almost all of them.

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[2] Arch. f. Ophth., i, 1, 17.

[3] Squint, London, 1903.

Unfortunately many of the cases that come to the ophthalmic surgeon for relief have already passed on into the third stage of persistent monocular squint, with more or less amblyopia of the squinting eye. These cases will demand our best endeavors, and not infrequently baffle our efforts to restore binocular vision. Occasionally, however, we will be rewarded, even in apparently hopeless cases, so an effort should be made in every case to restore binocular vision. My notes show many cases of persistent monocular squint of many years' duration in which I have succeeded in restoring binocular vision and thus securing a perfect result.

In every case the most careful and painstaking correction of the error of refraction must be made. I have, as the years go by, become more and more convinced of the necessity of fully correcting the error of refraction. If the patient rejects the full correction, use atropin in both eyes until he will accept; then use the atropin in the fixing eye until you are convinced that no improvement can be hoped for in the vision of the squinting eye; how long this should be must be left to the judgment of the ophthalmologist; it may be weeks, it may be months, it may be years. Of course, the use of the atropin should be discontinued from time to time to see what the effect will be. The occlusion bandage should be given a trial in all cases, but in my experience it often proves unsatisfactory. In hopeful cases the vision will improve and this eye become the fixing eye, and thus the case will change from a monocular to an alternating squint, and should then be treated accordingly.

It is not my purpose to enter into a discussion of the operative treatment of these cases, except to say that I do not often find it necessary to operate on children under 10 years of age. Generally speaking, I prefer an advancement to a tenotomy, or a combination of both, but when I find it necessary to operate on younger patients I prefer a tenotomy, only attempting to correct a part of the deformity. I never perform an operation on a patient in whom the squint disappears when the spectacles are worn and returns when they are left off.

I believe the only practicable way to correct the errors of refraction in young children is by retinoscopy, and that it is utterly impossible for any one to successfully treat these cases who is not an expert in the use of the shadow test. I endeavor to use the ophthalmometer in all cases, but must confess that it has proved of little service in these young children.

It was my intention in preparing this paper to report a number of illustrative cases, but, on more mature consideration, I thought I could attain my object just as well by stating as briefly and concisely as possible my own method of treating these cases in private practice. For twenty years I have followed the methods here outlined, and it has been in exceptional cases only that I have been obliged to resort to an operation. In almost all cases when seen early I have secured binocular vision and almost perfect orthophoria, or at least with no more heterophoria than in a like number of non-squinting children. In older children—that is, those over 5 or 6 years of age—I have not been as successful, but even in these children I have succeeded in correcting the deformity in the majority of cases, and in a fairly large percentage have succeeded in restoring binocular vision.

I wish to urge those of you who do not treat your patients in this way to give the method a thorough and conscientious trial, and I am sure you will come to look on the operative treatment of strabismus as an evil necessary to be practiced only as a last resort. In my practice I look on the operation as a confession of defeat, and when obliged to make a tenotomy I have much the same sensation as when I have to enucleate an eye after having successfully removed a foreign body.

636 Rose Building.

[For the discussion, see the department of Section Discussions in this issue.]

THE TECHNIC OF APPENDECTOMY.*

JOHN A. WYETH, M.D., LL.D.

NEW YORK CITY.

I deem it my duty to acknowledge before this scientific body the obligation under which all mankind, professional or non-professional, has been placed by that brilliant galaxy of men who were the pioneers in the establishment of this great operation. To Kroenlein, who in 1884 did the first appendectomy,[1] placing a double ligature (material not stated) on the base of the appendix, which was removed, with fatal result;[2] to Dr. Reginald H. Fitz, of Boston, who in 1886 published his classical article on this subject; to the late Dr. Richard Hall, of New York, who in May, 1886, in that city, did a successful appendectomy, ligating the stump with a catgut ligature; to the late Prof. T. G. Morton, of Philadelphia, who operated on the first case for which the diagnosis had been made and operation done with the intention of removing the appendix, in which the stump was tied with a silk ligature and the patient recovered; to Dr. Simon Baruch, of New York City, who in 1887, after an experience based on postmortem examinations, diagnosed a case of appendicitis in a boy 11 years of age and succeeded, after much insistence, in persuading the late Dr. Henry B. Sands to operate directly for this disease;[3] to Dr. Charles McBurney, whose name is associated with one of the surgical approaches to this organ, and to Dr. John B. Deaver, of Philadelphia, who has demonstrated the great advantage of the route through the rectus muscle, the "Deaver incision."

It would seem that in the twenty years which have elapsed since this operation was introduced, with the experience gained by thousands of operators in a list of cases running into the hundreds of thousands, there should have been evolved an accepted technic. Such is not the case. The methods are legion. Surgeons do not differ from the rest of mankind in their susceptibility to fads and fancies. They are well within the purview of that piquant criticism by the author of Don Juan, who says:

> Man's a strange animal, and makes strange use
> Of his own nature, and the various arts,
> And likes particularly to produce
> Some new experiment to show his parts;
> This is the age of oddities let loose.

In my opinion the following technic should be accepted: The incision is at least four inches long, parallel with the fibers of the right rectus muscle about one inch toward the linea alba from the right edge of this muscle. The center of this incision should be one-half inch below an imaginary line drawn from the umbilicus to the right anterior superior spine of the ilium. The anterior sheath of the rectus is opened on this plane, a pair of dull-pointed half-curved scissors carried between its fibers until they come in contact with the posterior sheath when they are turned crossways and the blades sufficiently opened to separate the muscular fibers. In this opening a finger is inserted, and with it the separation is completed in the length of the incision.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Dr. W. W. Grant, Denver, in January, 1885, in an operation for the relief of fecal fistula resulting from appendicitis, tied the appendix near the cecum and divided it beyond the ligature. He did not remove the appendix, which was buried in adhesion behind the peritoneum.

[2] Archiv. f. Klin. Chir., 1886, 516.

[3] In this case Dr. Sands contented himself with disinfection of the area immediately about the perforated appendix, and closing the perforation with three interrupted silk sutures without removal of the appendix.

Any nerve filaments crossing the line of separation may be held apart by gentle traction, but not divided unless absolutely necessary. Retraction with dull-pointed instruments will expose the posterior sheath and bring into view branches of the inferior epigastric artery and vein. When possible these should be avoided, but when they cross the line of the posterior incision they should be secured with two forceps, divided between and tied with small plain catgut. All bleeding should be arrested before the peritoneum is incised. The posterior sheath and the peritoneum are now opened in the general direction of the anterior incision, but for not more than one inch. The posterior sheath may be sufficiently developed to be opened separately, or it and the peritoneum may be divided together.

With a long, half-curved Hagedorn needle, two linen or silk (No. 2) sutures are passed (one on either side) from within out through the peritoneum and rectus muscle, one-half inch from the edge of the incision, and tied in long loops for retraction. The bowl of a spoon, convex surface toward the cecum, may be used to prevent the possibility of injury to the bowel or omentum.

The omentum which is usually encountered should be carefully displaced toward the median line, and any overlying loops of small intestines similarly displaced. In certain instances this may be facilitated by half turning the patient on the left side. If through this small peritoneal opening the operation can not be thoroughly accomplished without unnecessary manipulation, it should be enlarged upward or downward as indicated. In my opinion a free incision is much less harmful than the rough handling which is often necessary in separating adhesions and bringing the appendix through a small aperture. When, however, the appendix presents favorably, a small opening is preferable. When, as not infrequently occurs, it is not readily located by the touch it may be found by following downward the longitudinal band so easily recognized on the anterior wall of the colon and cecum. This band terminates in the appendix.[4]

The end of the cecum with the appendix and mesoappendix attached should be brought through the peritoneal opening, but no more of the cecum exposed than is necessary to complete the operation of tying off the mesoappendix with two or three separate loops of plain catgut ligature, and of tying with a No. 2 silk or linen thread the organ to be removed. The mesoappendix is now divided between the ligatures and appendix, the end of which is held directly upward until it may be clamped by an artery forceps one-half inch from its junction with the cecum. A No. 2 silk or linen ligature is now thrown around the appendix one-quarter of an inch from the cecum and so tightly tied that there can be no possible chance for it to slip. The operator should be sure that the first knot holds firmly while the second is being secured. As soon as this is done and before the ends are cut away a gauze swab split half way with the scissors is carried on either side of the stump, and with this the operator firmly holds the cecum. The appendix is divided with the curved scissors one-quarter of an inch beyond the ligature. The presence of the gauze prevents the possibility of infection.

The funnel-shaped end of the stump is now thoroughly disinfected with a drop of pure carbolic acid carried upon a wisp of cotton on a small probe; the point should be carried to the apex of the funnel and rotated until all the surfaces are cauterized. One or two drops of alcohol are applied in the same way to neutralize any excess of the acid. The stump should be thoroughly dried, the silk ligature divided one-quarter of an inch from the knot, the swab removed, and the cecum permitted to drop back to its normal position. When the removal of septic exudate or fluid is necessary the peritoneal incision should be larger.

If the operation be clean the omentum should be brought again to its normal position in front of the cecum and the peritoneal wound closed by a running suture of No. 2 catgut. This part of the technic is greatly facilitated by making upward traction on the silk loops so as to lift the peritoneum away from the protruding mesentery. When the peritoneum is closed the retractors are removed and the separated muscle permitted to resume its normal position, where it maintains itself without suture. The anterior sheath should be closed with a running suture of kangaroo tendon. If there be a superabundance of fat a subcutaneous running suture of No. 2 plain catgut is advisable for its approximation. A subcuticular suture of silkworm gut should close the anterior incision.

Preference is given the Deaver incision because it offers free access to the cecum and appendix, and when, as is not infrequent, it becomes necessary to have more room for safe and thorough work, it can be extended indefinitely upward or downward, giving complete command of the peritoneal cavity with the minimum of risk of being followed by ventral hernia. The closure of the posterior sheath and peritoneum, the strong muscular splint which guards this posterior incision, together with the firm union which can be obtained in the anterior sheath, makes a ventral hernia a rare exception. I prefer it to the Kammerer method, which, making the same anterior and posterior incision, displaces temporarily the right edge of the rectus toward the median line. My chief objection to this latter incision is that when drainage is found to be necessary the muscle, resuming its normal position, forms a trapdoor over the posterior opening. Both are preferable to McBurney's incision for the reason that it can not be sufficiently enlarged to meet an emergency without great danger of ventral hernia.

From the incipiency of the purse-string suture or any technic which required the insertion of sutures in the walls of the cecum, I have opposed the operation by these methods, because they seemed to be a violation of an important principle in surgery, viz.: *The minimum of traumatism the maximum of safety.* Any suture method requires more handling of the intestine than the simple ligature and more exposure of the cecum. Puncture of the walls of this organ at various points with the needle which carries the suture incurs the unnecessary danger of perforating a blood vessel, or it may be the lumen of the intestine itself.

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[4] A few instances are on record in which operators of large experience after prolonged search have failed to find the misplaced appendix.

Hearing of several accidents, I determined to inquire as to their frequency and the results. I regret that I have been unable to obtain the particulars of a number of cases in which I have been informed accidents occurred, but the following, for which I am profoundly grateful to the courageous and honest men who have consented to publicity, must be of interest in treating on this subject:

A distinguished professor of surgery of large experience and wholly reliable writes me that he has abandoned the purse-string suture and, while in his own practice he has never had a secondary hemorrhage after appendectomy, he has known of at least a dozen accidents, some of which were fatal, in the several hospitals with which he is connected, following one of the fancy methods of dealing with the appendix.

Dr. John B. Deaver, whose practical experience in appendectomy is second to that of no operator, living or dead, has reported to me personally two cases of hemorrhage into the bowel after the use of his bipolar suture.' In this operation the appendix is clipped off close to the level of the cecum and the stump is rolled in and held inverted by two rows of silk or linen sutures passed through the peritoneal and muscular layers of the bowel. Dr. Deaver says further:

> I approve highly of your method of disposing of the appendix stump and also the mesoappendix; I have never seen bleeding follow the purse-string suture, yet I do not say this does not occur. Furthermore, I agree with you that the safest procedure is ligature of the appendix.

Before the Chicago Medical Society, on Oct. 17, 1906, Dr. William Hessert reported three cases of hemorrhage from the stump following appendectomy; two of these were interval operations, in the third the appendix was only moderately inflamed.

> Case 1.—*History.*—Female, aged 13. Operation during the first twenty-four hours of a mild attack. Mesoappendix ligated with catgut and divided. Appendix clamped with artery forceps at its base and cut away. Purse-string suture around base; appendix inverted and purse-string tied. Over this another row of Lembert sutures. The patient's condition was excellent for twelve hours. At this time blood escaped per rectum, with signs of acute anemia and moderate shock. She lost some blood for two days, when hemorrhage ceased and patient finally made a good recovery.
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> Case 2.—*History.*—Female, aged 25. In the course of a pelvic operation of short duration the appendix was found to be five inches long and to contain two large enteroliths. Appendix removed by the method just described. The patient did well for about twelve hours, when she went into profound collapse, followed by the passage of a large amount of blood per rectum. She died in thirty-six hours in spite of the most heroic efforts to save her life.
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> Case 3.—*History.*—Male, aged 23 (interval operation). Appendix posterior to cecum, with no mesoappendix. Purse-string suture around base and extra loop passed around what corresponds with the cecoappendix angle, and an extra row of Lembert sutures. About the same time after operation as in the preceding cases, blood appeared per rectum and showed itself for about thirty-six hours. There was some shock and signs of acute anemia. Recovery.

In the discussion which followed Dr. D. W. Graham reported a case of hemorrhage from what he believed to be a stump of the appendix, since in clearing out the clots a catgut ligature still tied was found, which seemed to be the one that he had placed around the base of the appendix.

It is not surprising that accidents should follow the ligature of the stump of the appendix with catgut, either plain or chromicized. I consider the use of catgut, either chromicized or plain, for tying off the appendix as unsafe. Dr. F. B. Lund, Boston, reports:

> For two years in a large number of cases I had practiced inversion of the stump after crushing and carbolizing, using a purse-string suture of linen thread. Last summer I operated in that way one Saturday morning, and went into the country for Sunday. The next morning at 7 o'clock I received a telephone call that my patient had a pulse of 120 and had had a bloody stool. At 9 a. m. I found she had passed a large bedpan full of blood and clots, and was pale and anxious, with a pulse of 120. I etherized her, reopened the wound, removed the suture and untied the stump, which had stopped bleeding, but was full of clot. I tied it with catgut, turned it in, closed the wound and the patient recovered.

Dr. Lund concludes:

> No more purse-string sutures for me, without previous ligature of the stump, or at least of the artery. One experience of this sort is quite sufficient.

Dr. Morgan D. Hughes, Branchville, N. J., writes:

> M. D., aged 58, was operated on January 18, thirty-six hours after commencement of attack. Kammerer incision, splitting anterior sheath near right border, displacing rectus inwardly. On opening the peritoneum I found a gangrenous appendix, not walled in. Peritoneum deeply injected over cecum and adjacent parts. I removed the appendix, cauterizing the stump with carbolic acid and alcohol, and invaginated, using purse-string suture of chromicized catgut reinforced by additional sutures of plain catgut. Cigarette drain from stump out through incision. On removing drain at end of forty-eight hours I detected a fecal odor, and on the third day there was a discharge of liquid fecal matter, which continued for several weeks. The drainage was unsatisfactory on account of the overlapping of the posterior incision by the rectus muscle. It became necessary to open the wound and hold the muscle toward the median line by a carefully inserted pack, in order to secure drainage. The discharge of fecal matter gradually ceased and the patient recovered. The wall of the cecum was not in any way involved in the gangrene which affected the appendix. I can account for the fecal discharge only by the giving way and inefficiency of the purse-string suture.

Dr. E. A. Halstead, Chicago, reports two cases of severe hemorrhage following appendectomy:

> Case 1.—*History.*—E. K., male, aged 31 (interval operation). Employed the purse-string silk suture about the base of the appendix. The mesoappendix was tied off with fine catgut, followed by crushing of the base of the appendix and subsequent ligature of the crushed segment with No. 2 catgut. The stump was invaginated while the purse-string silk suture was tied. The gut was replaced and the abdominal wound closed. About ten hours later the patient passed one and one-half pints of blood from the rectum; two hours later there was another evacuation, consisting of liqid feces and blood; the amount of blood in this was estimated at about 15 ounces. There followed evidence of acute anemia. These passed off and the patient made a complete recovery.
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> Case 2.—*History.*—Female, aged 12. Operation March, 1902, during the first twenty-four hours of acute appendicitis. Appendix acutely inflamed but intact; it was easily found and removed. The technic was the same as in the preceding case, with the exception that the suture was No. 2 pyoktanin catgut, instead of silk. Colon was filled with fecal masses. For forty-eight hours the patient did well; at the end of this time a large dose of castor oil was administered; in about four hours this was followed by severe abdominal pain, vomiting and a rapid rise in the pulse and temperature. The patient's condition became rapidly alarming and death followed at the end of seventy-two hours. The autopsy showed general suppurative peritonitis; the catgut purse-string suture had untied and the ligature slipped from the base of the appendix.

Dr. W. G. Nicholson, Green Bay, Wis., reports a fatal case of hemorrhage which took place seven hours after the operation. Postmortem examination showed hemorrhage had come from the cut end of the appendix. The colon was full of clotted blood. The method was as follows:

> The appendix was clamped and cut off one-fourth inch beyond the clamp; the end of the stump was disinfected with pure carbolic acid, followed by alcohol. The open end of the stump was closed by stitches and then inverted by using a purse-string suture of linen.

Dr. Ernest LaPlace, Philadelphia, reports two cases of hemorrhage after using the inversion method of treating the stump after appendectomy. In these cases the stump was inverted with two rows of superficial sutures passed through the cecum around the inverted stump. In each of the two cases reported the hemorrhage showed itself about four hours after the patient had been returned to bed and continued several hours thereafter. On the first indication of hemorrhage the wounds were opened, sutures removed and a ligature was placed about the bleeding artery found below the mucous membrane of the stump. In neither case was there found blood in the peritoneal cavity.

Dr. George R. Fowler states:

> The possibility of the existence of a sufficiently large vessel in the wall of the appendix, from which hemorrhage might occur, suggested itself to me early in the use of Dawbarn's method, and this was verified by experience later.

The case in question had four hemorrhages of bright red blood, sixteen ounces in all, besides several large clots, which told markedly on the condition of the patient, but which fortunately responded to the administration of opium. Careful examination of the rectum failed to reveal any cause for the hemorrhage, and Fowler concluded that the bleeding came from the appendicular artery.

Dr. Seelig in his paper[5] continues:

> I assisted at an operation followed by similar disagreeable hemorrhages. The case was operated on by Dr. Charles Elsberg, Mt. Sinai Hospital. Dawbarn's method of complete inversion of the stump was done. Twenty-four hours after the operation the patient complained of intense abdominal cramps. An enema was given, followed by the expulsion of about eight ounces of bright red blood and numerous clots. There were no hemorrhoids or other rectal lesions. Pulse 118 to 128. Twenty-four hours later another discharge of blood from the rectum. Under opium, with absolute quiet, the hemorrhage ceased.

This author also states that Dr. Charles Mayo, of Minnesota, reported to him an operation in which the base of the appendix was crushed with an enterotribe before inversion, and that thirty-six hours after operation the patient began to pass copious, bright red bloody stools, as a result of which the pulse ran up to 150 beats per minute. The symptoms, although alarming for forty-eight hours, entirely responded to treatment. Dr. Mayo explained the hemorrhage on the basis that some branch of the appendicular artery had not been ligated.

Dr. Van Buren Knott, Sioux City, Ia., reports two cases of postoperative hemorrhage in the practice of other surgeons, following the use of the purse-string suture in the treatment of the stump. He writes: "I was asked to operate on both of these cases, and did so with one recovery and one death." Dr. Knott has performed the operation of appendectomy in nearly 1,500 cases, and invariably employs the silk ligature to the stump.

If any such record of accidents have followed the silk or linen thread ligature to the stump I have been unable to discover it. I have used it in every appendectomy I have performed and it has never failed. It is, in my opinion, the safest and surest method of occluding the stump with the least possible traumatism.'

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

GALL DUCT OBSTRUCTION CAUSED BY MOVABLE KIDNEY.*

MARTIN B. TINKER, S.B., M.D.
Lecturer on Surgery, Cornell University Medical College.
ITHACA, N. Y.

The association of biliary tract affections with movable kidney has received but little notice in American medical literature, in spite of great activity in abdominal surgery in this country in recent years. The condition is, I believe, not especially rare or unusual, but of relative frequency. In contrast to the infrequent mention of gall-tract affections in association with movable kidney, gastric and intestinal indigestion have been frequently mentioned in this connection. The relation between certain cases of appendicitis and movable kidney has also been emphasized by Edebohls and others and appropriate surgical treatment recommended.

That extreme renal mobility should cause appendicitis in some cases, gastric disturbance in others, and not affect the near neighbors of these organs, the gall bladder and biliary ducts is hardly conceivable. That such obstruction actually does occur, I have had opportunity to observe in two cases during the past four years, in which severe, repeated attacks of pain characteristic of biliary obstruction were entirely relieved by fixation of a movable kidney which was pressing on the gall ducts.

Clinicians all recognize the fact that abdominal symptoms may be traceable to pathologic conditions in any one of many organs within or without the abdominal cavity, and abdominal operations frequently fail to give expected relief by reason of the fact that though one pathologic condition is corrected, another equally important factor is overlooked. My purpose, rather than to detail histories of cases, is to emphasize this important principle in abdominal surgery; that when several factors contribute to the patient's ill health all should if possible be corrected.

This principle has frequently been insisted on, as it concerns the gall bladder and stomach, the stomach and movable kidney, the bile tracts and pancreas, but has received slight attention in connection with the question of gall-tract obstruction from movable kidney. Several factors contribute to make it easy to overlook the relation of these two conditions. First, the relatively numerous cases of movable kidney which cause no symptoms make us less inclined to look on it as a source of trouble, particularly when the symptoms are referred to other organs. Second, gallstones may be present, which might readily be looked on as the cause of symptoms of obstruction, though the gallstones themselves might easily have formed as the result of interference with the free flow of bile by pressure from the displaced kidney. But most important of all is the likelihood of overlooking abnormal mobility, because the kidney slips up into normal position when the patient is examined in the recumbent position.

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[5] Ann. Surg., November, 1904.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

In two patients who have come to me for operation the condition had been unrecognized and untreated for many years.

Case 1.—*History.*—Clergyman, aged 32, married. For six years previously patient had been in poor health and his condition gradually became worse. He had been troubled with indigestion at times, had had attacks of nausea and vomiting, which about the time I saw him had been very frequent, almost every day. An examination of the stomach contents did not show anything radically wrong with the gastric secretions. On several occasions he had had severe pain located exactly in the region of the gall bladder below the right costal margin; he had never passed gallstones; he thought his stools were somewhat whitish, but not clay color, pasty nor especially offensive. Urine was not usually high colored, and was normal in amount. Had been slightly jaundiced on one or two occasions. At times he had had severe pain in the right side well over toward the loin. Never any pain in the appendix region. He was constipated.

Physical Examination.—Large boned, tall man, well developed but poorly nourished. Skin sallow and pale; mucous membrane, good color. Tongue had a rather thick, whitish coat. Heart and lungs negative. Urine negative. Abdomen absolutely negative except that there was tenderness on deep pressure beneath the right costal border. The abdomen was very flat. Costal and iliac grooves deep. Abdominal muscles apparently well developed. On percussion an area of dulness extended downward three fingers' breadth below the right costal margin in the region of the gall bladder. There seemed to be normal fulness in the region of the right kidney; no tenderness on pressure there. When outlined by percussion the stomach seemed to occupy its normal position. Patient was told that his illness had been of such long duration and medical means had been so thoroughly tried that operation seemed to promise the best prospect for cure in his case.

Operation.—A cholecystostomy was performed Aug. 27, 1903. Ether anesthesia. Abdomen opened by rectus incision. The gall bladder came at once into view. It was considerably distended, coat somewhat thickened, no gallstones felt in it or in the ducts. While the region of the gall bladder was being explored a firm, rounded, movable mass was felt in that vicinity, which proved a very movable right kidney. The kidney could easily be drawn past the median line of the abdomen. It pressed in the region of the bile ducts and pyloric end of the stomach and seemed the probable cause of the symptoms referable to the gall bladder from which the patient had suffered. Kidney could readily be replaced into its normal position. Because of the undoubted symptoms referred to the gall bladder it was stitched into the wound with a continuous suture of fine chromicized catgut, but was not opened. The abdomen was closed with continuous heavy catgut sutures of peritoneum and posterior rectus sheath, interrupted heavy catgut suture of rectus muscle and continuous heavy catgut sutures of anterior rectus sheath. A small opening was left in the region where the gall bladder was sutured to the parietal peritoneum in the wound. Two fine black stay sutures were taken in the portion of the gall bladder stitched into the wound to locate the position for opening the organ later. The wound was dressed with silver foil, covered with sterile cotton, which was painted down with collodion. Some sterile gauze was put on over this, which was held in position with broad adhesive straps. Patient was then turned on his left side. An incision was made beginning just below the last rib in the region of the anterior border of the quadratus lumborum muscle, extending downward and forward obliquely. The peritoneum covering the kidney was exposed. There was a deep hollow in the region which should normally be filled with kidney fat. By making pressure on the abdomen in front the kidney could be pushed up into position. The fat was grasped with forceps and drawn up into the wound, dragging with it the kidney. The fatty capsule in this case was poorly developed. The fibrous capsule of the kidney was then seized. It stripped very readily from the kidney. An area about 3 cm. square was exposed, and by the fibrous capsule the kidney was drawn up still further into the wound. The fibrous capsule was stitched to the erector aponeurosis of the muscles by interrupted chromicized catgut sutures. The aponeurosis of the muscle was closed with a continuous catgut suture and the skin was sutured subcutaneously with silver. Foil dressing. Heavy cotton pads used to protect both wounds. Tight abdominal bandage applied. During the gall-bladder operation a small sandbag was used under the back to bring the spine up and render the exploration of the gall ducts less difficult, following suggestion of Mayo Robson. Heavy sandbag was used under the right side during fixation of the kidney in place of an Edebohls bag. During the abdominal operation the patient was not well under anesthesia a large part of the time, and considerable difficulty was experienced in making a satisfactory closure. Patient took his ether well.

Postoperative History.—Gall bladder opened the day following operation and bile, the consistency of partially dried mucilage, discharged. Drainage was free for a week, but then ceased and the wound rapidly closed. The sutured parts of both incisions closed by first intention. Convalescence was uneventful and patient rapidly improved in health, and has been entirely free from his former symptoms for over three years.

Case 2.—*History.*—Married woman, aged 48. For many years she had had attacks of pain of greater or less severity in the region of the gall bladder. There had also been a good deal of pain in the back, considerable digestive disturbances, never jaundice nor high colored urine; a number of years ago had an attack resembling gallstone colic. Two analyses of stomach contents showed absence of HCl and presence of lactic acid. Patient had not been troubled with nausea and vomiting, had not been losing weight; in fact, had gained in flesh considerably.

Operation.—April 7, 1906, operation was performed under ether anesthesia. An incision was made over the outer part of the rectus muscle from costal margin to umbilicus. On opening the abdomen the omentum was found adherent to the abdominal wall in the region of the gall bladder. It was not adherent to the gall bladder, however. The gall bladder seemed to be in perfectly normal condition, not enlarged, walls not thickened, surfaces showed no signs of inflammation. It was not considered justifiable to drain the gall bladder. On separating some deeper adhesions, which were found near the pyloric end of the stomach, the right kidney was found lying just to the right of the median line, and in a position to press on the duodenum, pyloric end of the stomach and gall ducts. The adhesions were separated and the kidney was pressed back into normal position. The stomach was explored and found apparently perfectly normal. On examination of the appendix, a good-sized concretion was found near the tip and the appendix was excised. The abdomen was then closed. The patient was turned over on left side and face and an incision was made over the kidney from the costal border to the crest of the ilium. The layers of muscle were separated, the kidney fat exposed, seized and the kidney drawn up into the wound. The fat was stripped from the surface over the kidney and pushed downward and toward the median line. The capsule was then divided over about two-thirds of the free border of the kidney and stripped off for a short distance. It was attached to the fibrous tissue just below the twelfth rib and also the muscle in the region of the wound with catgut sutures. The muscles were then closed in layers with interrupted catgut stitches. After placing an iodoform and split rubber tube drain down to the exposed surface of the kidney, the skin was then closed with subcutaneous silver stitch. The operation was necessarily considerably prolonged, but the patient left the operating table in very good condition.

Postoperative Note.—Patient was placed with head of the bed elevated. She suffered little from nausea and vomiting, but had considerable pain during the first two days. There was also considerable distension, which was promptly relieved by the use of turpentine enemata and stupes. Both wounds healed by first intention and further recovery was uneventful. Patient was able to take an extended trip through California, taking in the Grand Cañon and Yellowstone Park *en route*, the summer following operation. Pain relieved and digestion improved a year and six months after operation.

Very little has appeared in the literature on this subject. Cordier has reported six cases in which gallstones were associated with movable kidney due, he believes, to compression of the common duct. Von Tischendorf performed nephrorrhaphy in one case on the peritoneal side after an operation for biliary calculus with a successful result. Apolant believes that there are many cases at Carlsbad whose symptoms are due to movable kidney, but are wrongfully attributed to biliary tract lesions. I am not aware that any patients presenting the same conditions occurring in the cases I have reported have been treated surgically, though there may be several physicians who have had a similar experience.

Next in importance to the diagnosis I should place the method of fixation adopted, for it is well known that there are many recurrences of mobility after nephropexy. I prefer the muscle splitting incision for exposure of the kidney. The surrounding fat should be entirely separated away, otherwise firm adhesion will not be secured. Attachments to the colon should be freed or the kidney will be dragged on when the intestines are full. As the kidney capsule is the only part of the organ tough enough to hold stitches with certainty, I am accustomed to separate it from about two-thirds of the convex border and suture to the aponeurotic structures in the incision. A loop of gauze made of two pieces, sutured together with catgut to facilitate removal, passed around the lower pole of the kidney, aids in holding the kidney in place and in forming firm adhesions. The patient should be kept on the back or right side for the first ten days or two weeks after operation. With this technic, I believe there will be no trouble about recurrence of mobility.

In presenting this brief paper it has been my endeavor not to exaggerate the frequency or overestimate the importance of gall-tract obstruction from movable kidney. It is certain that the subject has seldom been mentioned in the literature and that such cases have been overlooked on the operating table, occasionally at least. If we are always to give our patients the degree of relief which they confidently expect when they consent to abdominal operation we must recognize and correct all causes of trouble within the abdomen, whether of frequent or infrequent occurrence.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

ABDOMINAL SYMPTOMS OF THORACIC DISEASE.*

ALLEN A. JONES, M.D.
Adjunct Professor of Medicine, University of Buffalo.
BUFFALO, N. Y.

Acute pleuritis is sometimes accompanied by pain referred to the hypochondriac region of the affected side, and a peculiarity of the pain is its constancy. It is not felt merely on deep breathing, nor more severely on inspiration, as is so commonly the case with pleuritic pain in the nipple region. Exertion and cough, however, are prone to accentuate it, and it may cause more or less grunting respiration. I recall one case of severe epigastric pain caused by diaphragmatic pleuritis in which cough was absent, and in such a case it is difficult to arrive at a diagnosis at the onset of the disease, time and developments being necessary to determine the real nature of the affection. The abdominal pain that is present in some cases of lobar penumonia, however, is particularly striking in its deceptive characteristics. Last autumn I observed two cases in which the onset of the disease was attended by extreme pain in the region of the gall bladder, indeed, cholecystic disease was seriously considered until there appeared physical signs sufficient to call attention particularly to the lower lobe of the right lung. There was no chest pain proper, but, on the contrary, the pain radiated downward from the region of the gall bladder. The disease was not ushered in by a distinct chill nor was the temperature high, and the early diagnosis was further confused by the absence of cough. The respirations were only moderately increased at the beginning. One of these patients was a woman 80 years of age, and there was felt in the right hypochondrium a mass suggesting a dilated gall bladder. Her leucocytes were high, 30,000, and death ensued in a few days. The other patient was a woman of 47 years who was, and had been for ten years, practically bedridden with arthritis deformans. In her case also at the onset of the disease the liver was by palpation and percussion found abnormally below the free border of her ribs. Her leucocytosis was only 18,000 and she also died after a short illness.

Not only may the pain of lobar pneumonia be felt in the epigastrium or hypochondrium, but in rare instances it may be present in one of the inguinal regions. If in the right iliac region the disease may simulate appendicitis so closely as to render some difficulty in diagnosis. In illustration of this point I may cite a case occurring in the practice of Dr. DeLancey Rochester. He was called to see a boy, whom he found with a moderate elevation of temperature, and pain, tenderness and rigidity in the right iliac region. There was constipation, coated tongue and an absence of other symptoms ordinarily attending the onset of pneumonia. Surgical consultation was had, the boy was removed to a hospital, and a normal appendix was removed. The temperature rose, and within the following twenty-four hours the physical signs of pneumonia of the lower right lobe developed. In this instance the early absence of cough and chest signs, coupled with the distinctive manifestations of disease in the right iliac region, led to the adoption of the course related. Leucocytosis, while not often high in early appendicitis, yet reaches a figure that might well accompany pneumonia, and if a high leucocytosis were present in such a case it would not draw attention from the appendix as the seat of the disease. It must be admitted that the symptom-complex in Rochester's case would prompt most alert physicians to advise prompt operation. The case, however, emphasizes how distant from the seat of trouble may be an abdominal symptom in thoracic disease, and at this point it is well to call attention to the fact that with the abdominal pain there is often tenderness on pressure and either rigidity or tympanites. In all the cases above mentioned there existed more or less abdominal tenderness and rigidity, though these symptoms were less marked in the region of the gall bladder than in the region of the appendix in the case last spoken of.

Among the more acute diseases of the lungs or pleuræ that exemplify the point of my paper, none does so more strikingly than empyema. This affection may

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

give rise to symptoms of an acute inflammatory or suppurative condition of a part below the diaphragm. In this connection we are reminded of the atypical behavior of physical signs in some cases of pulmonary disease. It has probably been observed by most of us that in some cases signs are either exaggerated, meager, absent or contradictory when viewed in the light of later developments in the case or when compared with postmortem findings.

It happened in these cases so far recited that physical examination of the chest failed to disclose, early in the history, the nature and seat of the disease. There was a transference of the usual symptoms from the chest to the abdomen and an abeyance of the physical signs, as all the patients were carefully examined by palpation, percussion and auscultation.

The case of empyema illustrative of its possible deceptive character was seen in the Buffalo General Hospital under the care of Dr. Stockton. The patient was a young man of strong physique who entered the ward complaining of severe pain in the left side extending from the lumbar region around to the umbilical region. He had a high intermitting and remitting temperature, a heavily-coated tongue, nor were his respirations more disturbed than might have resulted from the acute abdominal pain. There was some tenderness and rigidity of the muscles of the left side of the abdomen. On deep palpation in the region of the left kidney considerable pain was elicited. There existed some abdominal distension. The patient grew steadily worse and operation for a probable perinephritic abscess was decided on, but at that juncture physical signs of fluid in the left pleural cavity developed and the exploring needle revealed an emypema, from which the man made a timely recovery after an Estlander operation.

The explanation of the transference of pain to the abdomen in thoracic disease is clear when we recall the anatomy of the six lower intercostal nerves, branches of which are supplied to the abdominal parietes. It is notable that pain is especially felt in the abdomen in cases with acute inflammation of the parietal pleura.

To turn from pain in the abdominal regions accompanying pulmonic disease let me call attention to abdominal tympanites as a symptom in lobar pneumonia. This constitutes one of the most troublesome, annoying and unyielding symptoms of the disease. Sometimes it supervenes early in the course of the affection, but it is more often a condition occurring at the height of the disease when nervous, circulatory and muscular powers are overwhelmed by the septicemia. The abdomen is greatly distended, but is flaccid and toneless. Cathartics may reduce the distension in a slight degree, but it is apt to return promptly. High enemata sometimes diminish it, but unfortunately they frequently fail to give relief. The distension seems to be due to extreme relaxation, almost paralysis, of the muscular coat of the intestine, the diaphragm and the abdominal parietes, and not infrequently distension is so pronounced that respiration is materially interfered with, while at the same time the bowels respond readily to mild catharsis, apparently an anomalous state of affairs. In some cases tympanites encroaches on thoracic space to such a degree as to occasion or increase already existing cyanosis, and when the bloating is amenable to treatment the circulation of the patient is seen to improve. This symptom is observed more especially in the extremes of life and in obese subjects with low resistance and myocardial disease. In its most aggravated form it is of ill prognostic significance and its treatment is eminently unsatisfactory. In most cases special remedies are of little or no value, while it yields only to strychnin, fresh air and general eliminative measures. As special remedies, however, physostigmin salicylate, 1/100 grain hypodermically, has seemed useful in a few of my cases, and ergot for its effect on unstriated muscle may prove advantageous. Small doses of digitalis or strophanthus, through their influence on the circulation, sometimes lessen tympanites. Carminatives that are also stimulants, such as compound tincture of cardamom, compound spirits of lavender, kümmel, oxycamphor, aromatic spirits of ammonia, etc., have given relief in some cases, while reputed intestinal antiseptics have, in my experience, proven woeful failures. A light ice-bag or ice-water coil, over the epigastrium occasionally serves to impart tone to the abdominal sympathetics.

Let us now consider abdominal symptoms as they occur in connection with cardiac disease or morbid conditions of the aorta. One of the most common is epigastric pain resulting from myocardial disease, and I may best illustrate this by the case of a woman near three score years of age, who was seized in midafternoon with intense epigastric pain accompanied by vomiting. Under suitable doses of morphin hypodermically the pain subsided and the night was spent with a fair degree of comfort. The next day epigastric pain and vomiting recurred and were again controlled by morphin. The following day the patient suddenly died, and at autopsy there was found hemopericardium with rupture of the left ventricle near the interventricular septum and the apex of the heart. We argued that the tear in the cardiac wall, which was one and a half centimeters long, had occurred slowly and the extreme pain of the processs was referred to the epigastrium.

Another case was that of a middle-aged, hard-working man from the country, who was referred to me some years ago, and who complained of stomach symptoms, chiefly gastric pain, eructation and vomiting. His heart was irregular, weak and dilated; his pulse small, weak and irregular. His blood pressure was low, as pulmonic accentuation was marked and he had considerable cyanosis. Although I wrote his physician that his gastric symptoms were due to his cardiac condition, I failed to predict a rupture of the heart. The patient returned home, was put at rest in bed, was given cathartics, iodids in small doses and strychnin, but he grew steadily worse and died a few days thereafter. His physician wrote me that he found postmortem a small rupture of the left ventricle.

Not alone in such extreme degrees of myocardial degeneration are gastric symptoms pronounced; we frequently encounter them with angina pectoris. In cases now under observation the patients complain of flatulence and periods of great gastric discomfort, and they are persistent in their opinion that most of their trouble arises from disordered digestion. In several such cases within the past few years careful examinations of the stomach have disclosed normal gastric chemistry and motility; commonly, however, the stomach by percussion and inspection is found distended with gas and pressing uncomfortably on the diaphragm. In one case of typical angina pectoris there is present a great prominence, almost protrusion, of the gastric area, tympany rising high and suggesting eventration of the diaphragm. It is to be noted also that the stomach symptoms yield not to digestants, stomachics nor gastric sedatives, but subside under the effects of iodids and nitroglycerin.

Mention of these cases brings to mind a few instances of gastralgia in men who did not complain of chest pang nor of radiation of pain to the shoulders or arms, but who experienced relief by taking iodids and nitrites. In these cases, by direct examination, by exclusion and by therapy, cardiovascular disease was diagnosticated as the cause of their so-called gastralgias.

Doubtless aortitis is the fundamental fault in not a few of such patients, as the pain caused by thoracic aortitis may be felt in the epigastrium.

In many cases of valvular heart disease with failure of compensation resulting in general venous congestion there exists troublesome epigastric distress, pressure and more or less pain which is often associated with nausea and vomiting. In some instances the passively congested liver seems the chief cause of the symptoms, and I have marked it particularly in patients with hepatic enlargement. In others, while the liver dulness is little or not at all increased, the gastric distress is pronounced, and in these patients the symptoms are to be ascribed to general portal engorgement with special gastric congestion and low grade gastritis.

An important factor also exists in the dilated and over-distended superior mesenteric vein. Possibly the abdominal gastric sensations are the result of pressure of the enlarged and heavy heart on the diaphragm; at all events we see increasing cardiac dilatation accentuate symptoms. Whatever the exact explanation of the occurrence of the symptoms, it is plain that they yield only to measures that better cardiac action and the circulation generally.

In addition to the morbid manifestations already mentioned there may result from cardiac failure more or less abdominal distension, ascites or edema of the abdominal parietes.

So also may gastrointestinal symptoms be caused by chronic pulmonary disease such as asthma and emphysema, with or without chronic bronchitis. The intimate relations existing between the digestive organs and the chest organs in asthma are familiar to us all. We are reminded of the disaster following overindulgence at dinner by the confirmed asthmatic, and the difficulty in such cases lies not so much with the stomach as with the lungs.

From this short paper detailed discussion of causes and effects is of necessity omitted, my prime object being merely to summarize a few of the most common and important morbid conditions and symptoms that may result as above described.

This presentation is entirely clinical. Laboratory examinations were made in all the cases mentioned, but bedside observations alone were of most importance in clearing up doubtful points and arriving at correct diagnoses.

436 Franklin Street.

[For the discussion, see the department of Section Discussions in this issue.]

Mind and Body.—Instead of supposing that mind is something indefinite, elastic, inexhaustible, a sort of perpetual motion or magician's bottle, all expenditure and no supply, we now find that every single throb of pleasure, every smart of pain, every purpose, thought, argument, imagination, must have its fixed quota of oxygen, carbon and other materials combined and transformed in certain physical organs. And as the possible transformation in each person's framework is limited in amount, the forces resulting can not be directed to one purpose without being lost for other purposes.—Alexander Bain.

THE ACID INTOXICATION THEORY.*

OTTO FOLIN, Ph.D.
WAVERLY, MASS.

To Boussingault[1] belongs the credit for the important discovery that diabetic urines usually contain extraordinarily large amounts of ammonia. Naunyn and Magnus Levy, and with them all modern writers on acidosis, ascribe this discovery to Hallerworden, though Hallerworden himself wrote of his results as confirming the much earlier findings of Boussingault. The reason why Boussingault's excellent work has been allowed to be forgotten is evidently the highly unfavorable criticisms passed on his analytical technic by his German contemporaries, yet it has turned out, as was definitely shown four years ago by Shaffer,[2] that Boussingault's technic was distinctly superior to that of his critics.

The discovery of oxybutyric acid in diabetic urines was the logical outcome of Stadelmann's endeavor to account for their high ammonia contents.[3] It is perhaps worth noting that this discovery came at a time when French autointoxication hypotheses were attracting much attention, and Stadelmann saw in his new organic acid a possible source of autointoxication. In his first paper he set forth the acid intoxication theory and indicated the logical alkali therapy in essentially the same form as we have it to-day.

Previous to this time and overlapping it by a number of years another intoxication theory had been advanced and energetically investigated by v. Jaksch, then a young man working in his father's clinic. V. Jaksch proved definitely that the volatile substance obtained by distillation of fever urines, and especially of diabetic urines, is acetone, and he held this to be the toxin immediately responsible for the onset of diabetic coma.

In the meantime Gerhardt's ferric chlorid reaction given by the urine in severe cases of diabetes had come into prominence, and in 1883 v. Jaksch[4] published a paper in which he described the isolation of the substance which gives this reaction and positively identified it as aceto acetic or diacetic acid.

This work of v. Jaksch, so far as I know, has never been either questioned or repeated—a rather extraordinary omission considering the important part played by diacetic acid in the acid intoxication theory. There is, in my mind, not much doubt but that the substance in diabetic and fasting urines which gives the ferric chlorid reaction really is diacetic acid; but the product which v. Jaksch isolated and analyzed can not have been anything else than oxybutyric acid contaminated with more or less of the substance which gives the ferric chlorid reaction. The work certainly stands in need of repetition.

V. Jaksch included the diacetic acid in his acetone theory of diabetic coma. That theory, however, failed to hold its own against the extensive researches made in support of the acidosis theory. The toxic effects of acetone were shown to be practicably negligible, and v. Jaksch was unable to substantiate his contention that acetone is the mother substance of the other two so-called acetone bodies.

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* From the Chemical Laboratory of McLean Hospital.

* Presented as a part of a Symposium on Acidosis at the joint meeting of the American Physiological Society and the Association of American Physicians, in Washington, May 9, 1907.

[1] Boussingault: Jour. f. Praktische Chemie, 1850, li, 281.

[2] Shaffer: Am. Jour. of Physiology, 1903, viii, 345; Folin: Ztschr. für Physiol. Chemie, 1902, xxxvii, 162.

[3] Stadelmann: Arch. f. exp. Path. u. Pharm., 1883, xvii, 419.

[4] V. Jaksch: Ztschr. f. Physiol. Chemie, 1883, p. 487.

On the other hand, the injurious effects of acids capable of combining with the basic groups in the blood and tissues could not be questioned, and these effects had indeed been demonstrated in a most striking manner a few years before by Walter.[5]

Only recently the validity of the evidence based on such acid poisoning experiments has been called into question. These objections are based on the newer teachings concerning the chemical reaction of the blood. Considered in terms of hydrogen and hydroxyl ions the diabetic as well as the normal body fluids have the same chemical reaction, i. e., they are practically neutral.[6] The blood of animals poisoned with mineral acids is, on the other hand, according to Szili,[7] not neutral but acid.

I do not think that the acid intoxication theory will suffer materially because of these more recent findings. The definition of alkalinity as derived from the ion theory and the subsequent proof that the animal organism has no such alkalinity is, to my mind, only another illustration of the repeated failures which have attended the plausible but one-sided and inadequate explanations of physiologic processes and conditions in terms of a few laws governing the solutions of electrolytes. Nevertheless it is rather surprising than otherwise that Walter's experiments could have remained so long one of the pillars of the acid intoxication theory. It certainly seems to me unwarranted to expect that the insidious and slowly increasing action of the weak oxybutyric acid, as it gradually accumulates within the diabetic organism, should be identical with the indiscriminate, brutal action of mineral acids when given to animals in doses large enough to kill within a few hours. In Szili's experiments the animals were killed within one hour. Such crude imitations of the acidosis of diabetic coma have, in my judgment, little if any bearing on the validity of the acid intoxication theory.

The startlingly clear, definite and plausible nature of that theory opened in the early 80s as attractive a field for investigation as has ever been found in pathologic chemistry. The close chemical relationship between oxybutyric acid and diacetic acid on the one hand, and between diacetic acid and acetone on the other, accounted admirably for the analytical findings and cleared the way for an attack of the fundamental problem as to the cause and nature of the disturbance in the intermediary metabolism which results in an excessive formation of these "acetone bodies."

The intervening years have produced a steady stream of physiological, chemical and clinical literature on this problem and much detailed information has accumulated. While the primary cause of the acidosis in diabetes is still as obscure as the cause of diabetes itself, much ground has been cleared and we have now at least a working hypothesis defining not only the material out of which the acetone bodies can be formed, but also the chemical reactions involved in their formation. The introduction of this theory, for which we are indebted to Knoop,[8] in Strassburg undoubtedly marks the greatest advance that has yet been made in the study of Stadelmann's acidosis, and in a paper of this kind I can hardly do better than to give it the prominence and the time which I believe it deserves.

The reasoning underlying Knoop's investigation was a happy one. As a result of much previous work it had become clear that while both protein and fat can lead to the formation of the acetone bodies, the fatty acids probably constitute the chief source. The fatty acids are, however, burned so readily and completely within the animal organism as to preclude investigation of the different steps involved in their destruction, yet without information on this subject the chemistry of the oxybutyric acid formation in diabetes and in fasting could not be solved. By the comparatively simple device of linking the fatty acids to the stable benzene group Knoop has now been able to arrest the oxidation of the fatty acids at enough intermediate points to give us a fairly definite conception of the step by step process involved in their destruction. Knoop's paper was published in 1905. The most important data on which Knoop based his important conclusions as to the chemistry of fatty acid oxidation are given in the accompanying table:

KNOOP'S TABLE.

	Intake.	Output.
Benzoic acid	C_6H_5COOH	C_6H_5COOH.
Phenyl acetic acid	$C_6H_5CH_2COOH$	$C_6H_5CH_2COOH$.
Mandelic acid	$C_6H_5CHOH\ COOH$	$C_6H_5CHOH\ COOH$
Phenyl amido acetic acid	$C_6H_5CHNH_2COOH$	$C_6H_5CHOH\ COOH$
Phenyl propionic acid	$C_6H_5CH_2CH_2COOH$	C_6H_5COOH.
Phenyl β-lactic acid	$C_6H_5CHOH\ CH_2COOH$	C_6H_5COOH.
Phenyl β-keto propionic acid	$C_6H_5CO\ CH_2\ COOH$	C_6H_5COOH.
Cinnamic acid	$C_6H_5CH\ CH\ COOH$	C_6H_5COOH.
Phenyl alanin	$C_6H_5CH_2CHNH_2COOH$	Disappears completely.
Phenyl α-lactic acid	$C_6H_5CH_2CHOH\ COOH$	Disappears completely.
Phenyl α-keto propionic acid	$C_6H_5CH_2CO\ COOH$	Disappears completely.
α-Amino cinnamic acid	$C_6H_5CH\ CNH_2COOH$	Disappears completely.
Phenyl butyric acid	$C_6H_5CH_2CH_2CH_2COOH$	$C_6H_5CH_2COOH$.
Phenyl α-keto butyric acid	$C_6H_5CO\ CH_2CH_2COOH$	$C_6H_5CH_2COOH$.
Phenyl iso-crotonic acid	$C_6H_5CH\ CH\ CH_2\ COOH$	$C_6H_5CH_2COOH$.
Phenyl valerianic acid.	$C_6H_5CH_2CH_2CH_2CH_2COOH$.	C_6H_5COOH.

Knoop's conclusion as to the significance of these results is in brief as follows: When ordinary fatty acid derivatives are linked to the benzene group, C_6H_5, and the resulting compounds are fed to dogs, the fatty acid side chains are broken down by oxidation of the carbon atom third from the end of the chain and the intervening two carbon atoms are split off. In other words, not one, but two, carbon atoms are split off at a time, and only so many are split off as can be taken two at a time and still leave at least one carbon atom attached to the benzene ring. If the fatty acid side chain attached to the benzene contains only one or only two carbon atoms these can not be split off and such compounds will pass through the organism unchanged or but little altered. With three or with four carbon atoms in the chain two can be split off, while with five or with six carbon atoms in the chain four can be removed.

It should be clearly borne in mind that the validity of this law of oxidation has as yet been demonstrated only for such benzene compounds as are not completely destroyed within the animal organism. There is also undoubtedly some definite law which determines whether a benzene compound can or can not be completely oxidized, but no adequate hypothesis covering this point has yet been advanced.

Knoop's theory does indeed admirably account for the facts, and it gives us for the first time a tangible conception of the intermediary katabolism involved in the oxidation of food within the animal organism.

Knoop's theory of fatty acid oxidation was soon given practical application in the study of the origin of the acetone bodies. Embden and his associates and Baer and Blum have attacked the problem from two different sides.

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[5] Walter: Arch. f. exp. Path. u. Pharm., 1877, vii, 148.

[6] Benedict (H.): Arch. f. die gesammte Physiologie, 1906, cxv, 106.

[7] Szili: Arch. f. die gesammte Physiologie, 1906, cxv, 82.

[8] Knoop: Ztschr. f. die gesammte Biochemie, 1905, vi, 150.

Embden,[9] then working in the same laboratory with Knoop, had found that when aërated blood is passed through excised livers and afterward subjected to distillation, acetone is obtained in appreciable quantities. Later he attempted to determine whether the acetone yield could be increased by the addition to the blood of different organic acids, and it was found that some substances did and others did not lead to an increased formation of acetone.

In the meantime Baer and Blum[10] fed a number of the same acids to diabetic patients, and the results indicate that those products which in Embden's experiments yielded acetone after being acted on by the liver also gave oxybutyric acid and acetone when fed to diabetic persons. Moreover, most of the substances which did lead to an increased formation of acetone or oxybutyric acid were the same which could readily do so according to Knoop's beta-carbon oxidation theory.

From these researches it would appear that merely by inspection of the chemical constitution of a given substance we are now able to say whether it can or can not give rise to acetone bodies within the diabetic organism. Summarizing the results with regard to normal fatty acids we may say that all of these which contain an even number and not less than four carbon atoms can be oxidized to oxybutyric acid. The ordinary higher fatty acids (oleic, palmitic and stearic acid) can each give rise to but one molecule of oxybutyric acid. Weight for weight caproic acid can yield three times and butyric acid more than four times as much oxybutyric acid as the above-mentioned higher fatty acids. Normal fatty acids which contain an odd number of carbon atoms can not yield oxybutyric acid. The formation of oxybutyric acid and of diacetic acid in all these cases may be said to be due to the fact that the diabetic organism is not able quite to finish the attack on the beta-carbon atom of butyric acid. Whether this failure is primarily a matter of faulty oxidation or of inadequate hydrolysis is, in my opinion, still uncertain.

The original fatty acids of the fats are not the only source of the acetone bodies. The amino acids which go to make up the proteins have only to lose their amino groups to become fatty acids, and these then also become precursors of the acetone bodies. The question whether fat or protein is the chief source of the acetone bodies is, therefore, now, theoretically at least, sufficiently settled.

While emphasizing the important and promising character of these recent researches into the origin of the acetone bodies I must also state that they contain not a little which is not convincing and which stands in need of further investigation. There is need as yet to distinguish sharply between the definite findings of Knoop and the results reported by Embden, and more especially by Blum and Baer. The facility with which the two last-named authors have introduced auxillary hypotheses in order to make Knoop's theory available for the formation of oxbutyric acid out of other than normal straight chain fatty acids will, I fear, only tend to obscure the clear and important beta-carbon oxidation theory as advanced by Knoop.

Even the alleged similarity in the behavior of amino acids and fatty acids with one less carbon atom should be accepted with some reservation. The different behavior of phenyl alanin and phenyl acetic acid in the experiments of Knoop and of Embden has evidently not been considered in this connection.

It is after all to be remembered that even in the faulty katabolism of the diabetic organism the chief trend can hardly be toward the production of the greatest possible amount of acetone bodies.

In connection with the interesting results achieved by the help of Knoop's theory a number of important questions should be discussed: Why does the oxidation of carbohydrates diminish the formation of acetone bodies? Why are only oxybutyric and diacetic acid rather than others, such as lactic and oxalic acid, produced in amounts sufficient to play a rôle in the onset of diabetic coma? Is there any valid reason for assuming, as is almost universally done, that oxybutyric acid is the direct precursor of diacetic acid and acetone? And, finally, what has Embden's localization of the acetone formation in the liver to do with the formation of acetone bodies in the diabetic organism? Time, however, does not permit me to go into these questions.

Before closing I wish to say a few words about the alkali therapy which forms such an integral part of the acid intoxication theory. The administration of sodic carbonate in cases of acidosis has been advocated and tried, consistently and extensively, for the last fifteen years, yet it has hardly been so successful as one would have reason to expect if acidosis were the primary cause of diabetic coma. As a remedial measure, after the onset of coma, it seems to have been practically abandoned.

Exponents of the acid intoxication theory claim, to be sure, greater success for the sodic carbonate treatment than is now conceded by men like v. Noorden, but they have also been compelled to explain its shortcomings. Naunyn's explanation is that, on the one hand, too much damage may have been done by the acetone bodies in the early stages of acidosis and that, on the other hand, the sodic carbonate does not reach the tissues where the acetone bodies are formed and where the damage is done.

Since the alkali therapy must after all furnish the final practical proof of the validity of the acid intoxication theory, this phase of the problem ought, it seems to me, to receive more attention than it has yet received from the exponents of that theory. The use of sodic carbonate alone is not in accordance with current teachings of physiology. The superiority of salt mixtures as against any one salt in maintaining living tissues intact has been abundantly demonstrated. The toxicity of pure sodium chlorid, as shown by Loeb, the superiority of Ringer's solution to "normal salt solution," and a number of other well ascertained facts, clearly indicate that the flooding of a diabetic patient with sodium might in itself be injurious or at least less promising than the use of an equivalent mixture of sodium, potassium, calcium and magnesium.

Moreover, since the greatest skill is required to furnish advanced diabetic patients with sufficient food, and since the blood of these patients shows a diminished capacity for transporting carbon dioxid, it would seem that the useless and burdensome carbonic acid of the carbonates should be replaced by organic acids having some fuel value. The prospect of finding a variety of organic acids the salts of which would be suitable for this purpose is now, of course, greatly increased by the investigations of Knoop, Embden and Blum and Baer, which have already been mentioned.

Aside from the food value of such salts of organic acids, there is another and far more important reason why they should be tried on a large scale. From the that these salts are foods there is every 1eason to eve that they, like other food, should penetrate to y part of every tissue just as the precursors of the utyric acid are supposed to do.

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[9] Embden: Ztschr. f. die gesammte Biochemie, 1906, vii, 121 and 129.

[10] Baer and Blum: Arch. f. exp. Path. u. Pharm., 1906, lv, 89, and lvi, 92.

hrough the oxidation of these acids the oxybutyric formations should tend to diminish and whatever butyric acid did form would, or should, be neutral- in the very cells where it originates—a result con- edly not attained by the sodic carbonate treatment.

ACUTE SPERMATOCYSTITIS.*

A. NELKEN, M.D.

NEW ORLEANS.

To Jordan Lloyd, of Birmingham, England, is due credit of first calling attention to the importance of te infections of the seminal vesicles. In two concise ers[1] Lloyd showed the comparative frequency of orrheal infection of the vesicles and laid stress on treatment.

Following the writings of Lloyd scattering papers eared, especially in the German medical press, but serious consideration was given to the subject until 94, when Eugene Fuller, of New York, began his sterly series of articles on the seminal vesicles, valu- le especially for the thorough presentation of the atomy, physiology and pathology of these organs.

The work of Fuller has awakened at least that part the medical profession who pay special attention to orders of the male sexual apparatus. But it is prob- le that the average practitioner, for the greater part, yet unconvinced and is inclined to bunch all cases acute seminal vesiculitis, prostatitis and infections the so-called vesicle neck under the general designa- n of "inflammation of the bladder." It is not un- ual, even among genitourinary surgeons, to find vesic- itis diagnosed and treated as prostatitis, or, what is r more common, to have the prostatic inflammation cognized, while the vesicular or perivesicular compli- tion is undiagnosed. In perivesicular inflammation pecially is care required in the differentiation, for the per border of the prostate is often continuous with d may be lost in the perivesicular swelling.

It is strange that even yet the difficulties of diagnosis e being constantly exaggerated. Casper's latest book ntains the statement: "Examination of the seminal sicles is difficult because of their concealed position." he entire article gives the impression that in the large ajority of cases examination or treatment of the ves- les through the rectum is impracticable. Great stress often laid on the necessity of the surgeon having a ng forefinger. As a matter of fact what is needed is ot so much the long finger as the trained one.

It is true that stout patients offer difficulties which requently make examinations unsatisfactory, or even npossible. But failure on the part of the experienced perator is usually due to pain or nervousness in the pa- ient, which makes him tighten his perineal muscles on he introduction of the examining finger. In these ases, when failure follows the first attempt, no diffi- ulty is experienced later when pain has been relieved r the patient's confidence gained. In especially favor- ble subjects—thin individuals with relaxed muscles— he examining finger can often outline the furthest orders of the vesicle without difficulty.

The position of the patient is a matter of choice. Most operators prefer the knee-chest or other similar positions. I prefer the dorsal position, the patient lying on the examining table with his feet in the stirrups and the back of the table slightly raised so as to flex the body. This position crowds down the pelvic contents and so facilitates the examination. Besides, the physician is then able to watch the patient's expression for evidence of pain, and can also see any discharge as it flows from the urethra.

The finger first outlines the prostate and notes its size, consistency and sensitiveness; then, passing upward, first to one side, then to the other, feels for the vesicle. The healthy vesicle can often be distinguished. It is an error to assume that every fluctuant vesicle is diseased. It is not at all uncommon to find a certain degree of distension in healthy individuals when there has been no recent emission.

If the vesicle is diseased palpation is ordinarily not difficult and the trained finger rarely fails to make out the trouble. A longitudinal swelling, more or less sensitive, is found lying above and to the side of the prostate, with its long axis directed downward and inward. This mass is usually fluctuant or doughy, in the latter condition pitting on pressure. At times the swelling is hard, almost like a solid body. These variations, of course, depend on the degree of inflammation and on the nature of vesicular contents. It must be noted, however, that sometimes it is impossible to decide by rectal feel whether or not the vesicles are infected. In doubtful cases microscopic examination of the expressed secretion, obtained after a method to be hereinafter described, is required.

Perivesicular inflammation is readily recognized by rectal touch. The swelling varies from a painful, boggy mass above the prostate to a hard, board-like swelling, filling the entire space between the bladder and the rectum and extending above well beyond the reach of the examining finger.

The chief cause of acute spermatocystitis is, of course, gonorrhea. Other causes may be stricture, with its accompanying urethritis; enlarged prostate, complicated by a septic urine; or sexual excesses. In this last named condition it is probably necessary that there be infection either in the urethra or prostate. Acute spermatocystitis due to tuberculosis is so rare that it may be dismissed with mention. Due regard must be paid to the possibility of acute infection being caused by faulty or severe treatment of an urethritis, or by the passage of instruments without proper attention to aseptic technic. I had a number of such unpleasant experiences before I adopted the routine practice of always irrigating a septic urethra before passing an instrument into the bladder.

Acute spermatocystitis is usually complicated by prostatitis. In about 300 cases I have found the prostate involved in over 90 per cent. That this should be so is not strange if we consider that infection to reach the vesicles must pass through the prostatic urethra.

It is interesting to notice here that infection of the vas, the epididymis and the testicles can only take place through the corresponding vesicle. Fuller has clearly shown that the generally accepted idea that the vas deferens joins with a short duct from the vesicle to form the ejaculatory duct is an error. The dilated end of the vas, known as the ampulla of Henle, connects by a sphincteric or valvular opening with the vesicular cavity. Rhythmic contractions of the ampulla pump the testicular secretions into the vesicle. Here it remains until contraction of the vesicle forces it into the prostatic urethra through the ejaculatory duct. Fuller found, on catheterizing the duct through the urethral opening, that the bristle always passed into the vesicle, nor was it possible by any amount of manipulation to make it pass into the canal of the vas deferens.

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*Read before the Orleans Parish Medical Society, April 27, 1907.

[1] Brit. Med. Jour., 1889, i, 882; the Lancet, 1891, ii, 974.

The symptoms of acute vesiculitis vary with the nature and extent of the inflammation and may not be markedly different from the symptoms of inflammation in the neighboring genitourinary organs. Fever, if present, is usually slight. There is a feeling of weight and fullness in the perineum, which, especially if there be marked perivesiculitis, gives the patient the sensation as though all his pelvic organs were dropping out.

Urination is usually increased, both in frequency and quantity and accompanied by more or less tenesmus. Pain on urination is far more acute if perivesiculitis be present. Particularly is the voiding of the last few drops of urine painful, as the inflamed perineal muscles contract.

Some writers, notably Belfield, have ascribed retention of urine to vesiculitis. I have never seen retention occur save where there was sufficient prostatic swelling to cause obstruction to the urinary flow.

An unusual symptom, one that I saw exemplified in a recent case, is colicky pain similar to the pain of hepatic or renal colic. About every twenty minutes my patient would get an exquisitely painful attack, the pain being referred to the penis just in front of the scrotum. These pains, lasting about one or two minutes, would usually be followed by a desire to urinate. Examination showed a hard and swollen, very tender right vesicle. In this case, which is much too lengthy to be reported here in detail, there was probably an obstruction of the right ejaculatory duct, either by inflammatory swelling or by inspissated secretion, or, as is most probable, by both. The pain was due to the contraction of the swollen vesicle in a fruitless attempt to empty itself. Recovery eventually followed a very painful seminal emission, the discharge being freely mixed with blood and pus.

The treatment of acute vesiculitis, when seen in the commencement of the attack, is chiefly symptomatic, and expectant. Rest in bed is always indicated. Pain is sometimes relieved by cold to the perineum, although recent advances in therapy would suggest that cold applications are contraindicated in inflammations. Heat may be applied to the perineum, or by some form of rectal douche, directly over the inflamed region. Pain and tenesmus are best relieved, however, by the administration of some form of opium, either alone or combined with acetphenetidin or acetanilid, given by mouth. The use of rectal suppositories containing opium, belladonna, and cocain is a common practice. Cocain, in safe doses, has only a brief analgesic action, limited to the rectal mucous membrane with which it comes in contact, and, therefore, can have little if any value. The virtue of belladonna in this combination is problematical and can only be exerted through systemic absorption. The valuable ingredient is, of course, the opium. The preparations of opium, as is well known, relieve pain only through their influence on the nerve centers and are more active given hypodermatically or by mouth than by rectum.

Digital examinations are painful and should not be made oftener than may be needed to follow the progress of the case. The possibility of a perivesicular abscess rupturing into the rectum, or even into the peritone cavity, must be borne in mind. If threatened, immedia perineal incision is indicated. Draining into the re tum, as advocated by Belfield, is hardly ideal surger Fortunately, these conditions are rare sequelæ of ves cular infection, and the conservative surgeon is seldo called on for such intervention.

Pus in the perivesicular space is usually absorbed an the inflammatory exudate becomes organized. Reli of the inflamed vesicle takes place as the swelling sul sides, and the now liquefied secretion finds exit throug the ejaculatory duct. Rupture of the distended vesicl into the bladder is, I believe, much rarer than is sup posed by some authorities. At any rate, the cystoscop usually fails to reveal any point of rupture. Ruptur into the urethra, as advanced by Casper and others must be even more infrequent.

The ejaculatory duct is the common route of escap for the pent-up secretions of an acutely inflamed vesicle and the suddenness with which this discharge occurs i no reason to assume that rupture has taken place. I is one of the functions of the seminal vesicles to contract forcefully in expelling their contents.

When the acute symptoms have subsided then only is local treatment indicated. This consists essentially in stripping or milking the diseased vesicle. A number of instruments have been devised for this purpose, but none of them compare in efficiency with the finger.

The position of the patient has already been referred to. No difficulty is experienced in emptying at least the lower segment of the vesicular pouch. The secretion flows either out at the meatus or back into the bladder. It is more likely to appear at the meatus if the bladder be empty. If it is discharged into the bladder it is voided with the urine as a viscid, sausage-shaped mass, as thick shreds or as opaque globules, the form of which, as Fuller suggests, is probably due to the whirling motion imparted by the urinary stream.

In doubtful cases the crucial point in the diagnosis of vesicular infection is the presence of pus in the secretion. I desire to offer the following method of obtaining this secretion uncontaminated, a method which, so far as I know, is original:

The patient urinates, the anterior urethra is washed out and a fair-sized catheter is introduced into the bladder. The bladder is well irrigated and about 200 c.c. of sterile water injected and retained. The catheter is clamped and left *in situ*. The retention of this water, I believe, facilitates the escape of secretion on the side of the catheter and also permits of less delay. The finger is then introduced into the rectum and the prostate is thoroughly massaged, care being taken to avoid pressure on the vesicle. The retained water is then allowed to escape into vessel No. 1. Again the bladder is well irrigated and the same quantity of water retained as before. The right vesicle is then stripped, care being taken to avoid the prostate. The bladder contents obtained are now emptied into vessel No. 2. Finally the irrigations are repeated as before, the left vesicle milked, and the bladder contents labeled No. 3. From the description this procedure may seem to require some time, but the three specimens can readily be obtained in from ten to fifteen minutes. If the irrigations are thorough and the strippings carefully done, vessel No. 1 should contain prostatic secretion, No. 2 the secretion from the right vesicle, and No. 3 that from the left. These specimens can be examined microscopically and exact conclusions arrived at.

Rarely is the vesicular secretion so viscid that it will ot pass through a catheter, but when this does occur he bladder can be irrigated and if the secretion is not nus broken up the catheter may be withdrawn and the atient allowed to urinate. Should the examination not e completed the catheter should be reintroduced.

Epididymitis due to the forcing of pus into the vas s a possible danger in massage of the vesicle, although, ossibly because of the reflex closing of the sphincteric pening into the ampulla of Henle when pressure is nade on the vesicle, is not so common as might be ex-ected.

The chief danger to the enthusiastic beginner is a ekindling of the acute symptoms through treatment too igorous or too often repeated. A number of such un-leasant experiences have taught me the wisdom of naking haste slowly. Treatment should always be tem-orarily discontinued as soon as tenderness appears. The requency of stripping varies anywhere from every day o once a week, about twice a week being the average. It must be adapted to the individual patient both as to ts frequency and as to its vigor.

Intravesical irrigations, after the method of Janet, are desirable after massage, but not absolutely essential. Their chief value is their influence on the complicating urethritis. When there is perivesicular exudate the use of heat is advantageously combined with the massage. For this purpose there are a large number of rectal irrigators on the market, all of them of greater or lesser efficiency. Those made on the principle of the Arzberger hemorrhoidal apparatus, with appropriate curve, are probably the most satisfactory for routine use.

Applications of chemical counter-irritants through the rectal speculum are hardly worthy of serious consideration. Surgical measures, save for the threatening abscess conditions already referred to, are never indicated in acute vesiculitis.

This paper does not include the chronic type of this disease, and that subject is too vast and too complex to be even touched on in the limits of this article.

Under intelligent treatment the prognosis of acute seminal vesiculitis, whether simple or complicated by prostatitis or perivesiculitis, is generally good. We shall see very much less of those obstinate neurotic, sexual and genital symptoms, which so commonly accompany the chronic disease, if we are more prompt in recognizing and treating that common disorder of the male Fallopian tube, acute spermatocystitis.

A METHOD OF PERFORMING TENOTOMY WHICH ENABLES THE OPERATOR TO LIMIT THE EFFECT AS REQUIRED.*

FRANK C. TODD, M.D.
MINNEAPOLIS.

A complete tenotomy of an extraocular muscle effects a change of about 13 degrees. This can be varied only by following Panas' method of stretching the tendon previous to tenotomizing, as described by Dr. A. Edward Davis before this Section in 1901; this produces somewhat less effect, because the muscle, having been previously stretched, reinsertion takes place further forward on the globe. A somewhat increased effect may be produced by extreme rotation of the eye away from the muscle after tenotomizing, thereby stretching or rupturing some of the accessory attachments.

But this does not give much opportunity of regulating the effect of a tenotomy and no possibility of correcting errors of less than about 13 degrees. Furthermore, we do not know where the tendon will become reattached, consequently how much disturbance of the muscle balance not previously existing may be brought about by this effort to make correction. Therefore, complete tenotomy is always undesirable and is, indeed, unsafe when we are aiming to bring about something more than cosmetic results. The partial tenotomy (of Stevens[1]) is unsatisfactory and I have found it entirely ineffective. This we would naturally expect to be the case, for if we leave uncut any of the fibers at each side of the tendon of an extraocular muscle these uncut fibers hold the tendon in place firmly until reattachment takes place in the same location. In those cases in which some effect has been produced by such a partial tenotomy, all of the tendon must have been severed, leaving only secondary lateral insertions (the adeniculum tendinis of Merkel[2]) at the edge.

Savage[3] proposes and practices incision of one side of a tendon; but this is for the purpose of changing the plane of action of the muscle.

Because an error of less than 13 degrees can not be corrected by a tenotomy and because of the facts just mentioned regarding the so-called partial tenotomy, I have practiced the operation described below for producing a limited effect and securing just the amount desired.

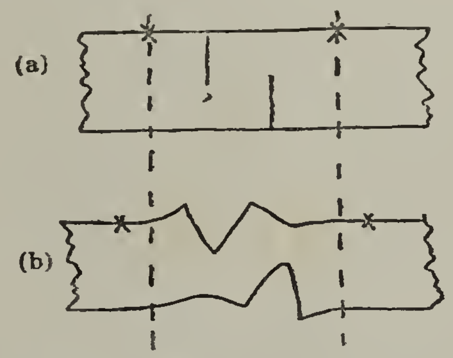

Fig. 1.—Showing the author's method of tenotomy (a) the relative positions of incisions and (b) the lengthening produced.

While the severing of all but a few of the fibers of the tendon will produce no effect we may sever a portion of the tendon on one side and, in another place on the opposite side, situated a short distance longitudinally from the first incision, sever the remaining fibers and thereby lengthen the tendon. However, no lengthening will take place until every fiber is severed in one place or another.

OPERATION DESCRIBED.

Figure 1 describes better than words how this method may be practiced (a) and shows the results secured (b). We only need to lengthen the cut to produce more effect. The tendon is first exposed and a tenotomy hook placed under it, an incision is made in one edge of the tendon near its attachment to the globe (this will be on the corneal side of the hook). At about two-thirds of the width of the tendon from the first incision, but on the opposite edge, the second incision is made (this will be on the side of the hook toward the muscle). The length of the incisions depends on the amount of effect it is desired to secure. Measurements should be taken during the operation, as shown in the description of the operation on Case 1.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Motor Apparatus of the Eye, p. 48.
[2] Howe: The Muscles of the Eye, 1, p. 38.
[3] Ophthalmic Myology, p. 160.

This method is the one I have practiced in the illustrative cases herewith reported.

Case 1.—*Hyperphoria.*—C. P., male, aged 48, consulted me March 5, 1904. Test, homatropin.

R., 6/30, 6/6 + 1.25 ⌒ + .50X 90 R. H. 2°, Superduct 4°.
L., 6/30, 6/6 + 1.75 ⌒ + .25X180 Subduct 2°.

No cyclophoria: at times he had about a degree of esophoria. Patient having been under observation and wearing various corrections, including partial and total correction with prisms, with nothing more than temporary relief, after consultation with Dr. Würdemann it was decided to operate on the right superior rectus. A further study of the case demonstrated that there was a total R. H. of 3¾°.

VERSIONS AS SHOWN BY THE TROPOMETER.

	Super.	Sub.	Ad.	Ab.
R.	45°	40°	50°	45°
L.	35°	40°	50°	45°

Operation.—After making a small conjunctival incision, incisions were made from each side of the tendon of the superior rectus of the right eye, one on the external side near the insertion and the other on the inner side about two-thirds the width of the tendon from the first. Following the first cutting, measurements were made with the single prism and red glass test, which showed no correction; the patient was again put on the table and the length of the incisions increased, bringing about the correction of 1.5° as shown by the prism test; a third lengthening of the incision resulted in 2° more. Desiring to secure an over-correction, a fourth incision was made correcting 1° more, thus giving about 1° of over-correction. The conjunctiva was brought together with a vertical suture and the eye covered with a pad.

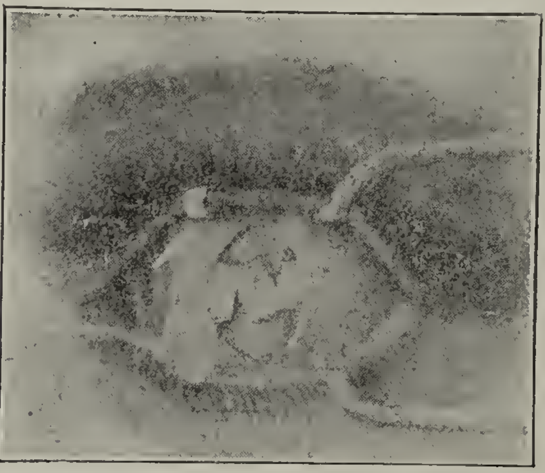

Fig. 2.—Incision in conjunctiva shown large for purposes of demonstration.

Postoperative History.—First day, no diplopia; 0.5° over-correction.

Second day, 2° over-correction; pad was removed and left off.

Third, fourth, fifth and sixth days, from 2° to 2.5° over-correction shown.

Twelve days after operation orthophoria, superduct, 3.5°; subduct, 3.5°.

Test one month later showed orthophoria, superduct, 4°; subduct, 3.5°.

Six months later examination showed orthophoria, superduct, 2.5°; subduct, 2.5°; no cyclophoria, no exophoria, no esophoria.

Case 2.—*Exophoria.*—Mrs. E. K., aged 33, brought a letter from Dr. Taylor, Huron, S. D., stating that on repeated tests she had manifested 14° of exophoria. Dr. Taylor had worked with the case some years and had concluded that an operation was necessary.

My test showed refraction under homatropin as follows:

R., 6/9, 6/5 + .50 ⌒ + .25X 30.
L., 6/9, 6/5 + .50 ⌒ + .25X180.

Exophoria at 6 m. 12°, at 30 cm. 11°; ab. 15°, ad. 28°; no hyperphoria, no cyclophoria.

VERSIONS AS SHOWN BY THE TROPOMETER.

	Super.	Sub.	Ad.	Ab.
R.	30°	45°	40°	50°
L.	30°	45°	50°	50°

Treatment.—Operation was done as above on right extern rectus. First incisions had no effect; the next incision, exten ing considerably further, brought about orthophoria. Desiri to secure considerable over-correction, a third incision w made and brought about 7° esophoria.

Postoperative History.—First day examination, no diplopi esophoria, 4°; second day, esophoria, 9°; third day, esophori 7°; sixth day, esophoria, 7°; eighth day, esophoria, 3°.

Five months later measurements made by Dr. Taylor show exophoria at 6 m. 0.5°.

A study of this operation and the cases reporte bring out the following facts:

1. This method may be practiced in cases of heter phoria; the muscle balance measured by the Madd rod or the prism test at any stage of the operation an the effect increased a little at a time (as low as one-ha degree if desired) until the proper effect is secured.

2. In those cases of strabismus in which it is impo sible to secure single binocular vision, measuremen may be made by the parallax test (of Duane) or by th cover test and the effect regulated at will.

3. This operation may be performed in conjunctio with advancement operation on the opposite tendon.

4. The possibility of the wrong insertion of the muscl is prevented, as the insertion is not interfered with, th muscle simply being lengthened.

5. The operation may be painlessly done under loca anesthesia and the eye left unbandaged.

[For the discussion, see the department of Sectio Discussions in this issue.]

CUTANEOUS TUBERCULOSIS.

REPORT OF A SERIES OF CASES OF SMALL PUSTULAR SCROFULIDE (DUHRING).*

J. FRANK WALLIS, M.D.
NORRISTOWN, PA.

The rapid advance in the study of tuberculosis of th skin during the past twenty-five years has stimulate students of dermatology to greater vigilance in the ob servation of cases in general, with the result that w have an increased classification, which is at times diffi cult to comprehend. The necessity of grouping cu taneous diseases under more general headings is obviou for convenience in study. But to do this, and at th same time convey an intelligent idea of the individua diseases, it is necessary to analyze and digest the variou synonymous terms and include them in their appro priate situations. It will be my aim in this paper t report a series of cases of small pustular scrofulide, ignoring to a large extent the synonymous terms an showing the relation of this affection to the great class o tuberculides.

The classification of these affections as made b Crocker includes them under two great headings—thos directly due to the presence of tubercle bacillus, an those indirectly due to the tubercle bacillus or its toxin Under the first heading he places lupus vulgaris, lupu verrucosus, scrofuloderma, miliary tuberculosis cuti and erythema induratum.

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* Read in the Section on Cutaneous Medicine and Surgery of th American Medical Association, at the Fifty-eighth Annual Sessio held at Atlantic City, June, 1907.

Under the second heading he includes those affections which have been termed "tuberculides" by Darier and designated "paratuberculoses" by Johnston. These embrace lichen scrofulosorum, acne scrofulosorum, acne agminata, morbilliform and scarlatiniform erythema, eczema scrofulosorum, pityriasis of Hebra, dyschromia, and lupus erythematosus. It may readily be seen that it would be difficult to find a place here for our cases.

In the study of cutaneous tuberculosis each observer has seemed to feel it incumbent on him to add one or more names to the already copious nomenclature and thereby increase the existing confusion. This condition of affairs is by no means new. Willin and Bateman designated the condition, "lupus," as such on account of its fancied resemblance to the attack of a wolf. Hippocrates mentions the same affections as eating or gnawing herpes, and Celsus describes it under the term of "therioma." Other terms, such as herpes exedens, herpes ulcerosus, dartre rongeante (Alibert) and eating tetter, were also employed by early medical authorities. The translations of the early Arabian writers introduced the titles formica corrosiva and formica ambulativa, thus rendering the Arabian word that corresponds to the eating herpes of the Greeks.

Mention is made of this variation in nomenclature, both ancient and modern, to illustrate the difficulties encountered in reporting cases of unusual interest in properly designating and classifying them. The cases I have the privilege of reporting, for instance, may be described with accuracy under the term "small pustular scrofuloderm," the appellation coined by Duhring. Side by side with this we have a choice of the terms folliclis (Barthelmy), acne necrotica (Boeck), acne varioliformis (Hebra), impetigo rodens (Devergie), and a host of others. Surely this is confusing, as no two of these terms are accompanied by descriptions sufficiently similar to be fused into one.

Small pustular scrofulide.

The only solution that seems to suggest itself is to reject all except the terms tuberculide or paratuberculide, reserving it for the great aggregations of infections indirectly due to the tubercle bacillus. Descriptive adjectives could then be supplied to designate the clinical variety; for instance, small pustular tuberculide, small papular tuberculide, ulcerating tuberculide, etc. In cases of the diseases directly due to the tubercle bacillus there seems to be no confusion, and I would not venture to suggest any change, but in these allied affections a new departure of some kind is necessary. In the cases of syphilis the nomenclature is almost perfect; no one thinks of giving a special name (others than its descriptive title) to unusual aggregations or appearances of the lesions; they are syphilides, and may be large, small, papular, pustular, ulcerating, etc., but never enter into the entanglements so common to the tuberculides. I classify my cases under the head of tuberculides, since it was observed by one of the original writers (Duhring) that the affection was common in "scrofulous" individuals and those in whom a family history of "scrofula" could be obtained.

Case 1. *History.*—E. S., female, aged 13, Hebrew, born in Odessa. The father and mother had always enjoyed good health. The father, however, when he arrived at the age of the patient was the subject of a pustular eruption which had lasted for two years. A most careful interrogation failed to bring out any information that would aid in properly designating this eruption. The father died at the age of 60 years, two years previous to the time at which this child presented herself. There was no history of consumption or other common forms of tuberculosis in the family. The patient had four brothers, all of whom were healthy. There was one sister, and she also developed an eruption in early childhood, that underwent involution, leaving behind many scars, but since then she had been entirely free from any eruption.

The first manifestation of the eruption in our patient, according to the statement of the mother, was at the age of 16 months. At the time she came under observation, the face, backs of the hands, wrists, elbows and knees were the sites of a pustular eruption, with lesions in various stages of development. Some were mature pustules; some were crowned with ebony-like crusts; others were acute. There were many white scars representing the sites of remote lesions. The more recent were designated by scars of a deeper color; those of about six months brown, those more recent a dark blue. The first visit was in March, 1900, at which time tonic treatment was instituted and then continued for one year with most excellent results. The lesions had undergone partial involution. Three years later she was again seen with a slight eruption on the hands and arms, and one pustule on the forehead, which latter lesion was said to have occurred on the site of a mosquito bite. The case then passed into other hands. She was exhibited at a meeting of the Philadelphia Dermatological Society, in 1904, by Dr. Henry W. Stelwagon, at which time she had but a few lesions on the hands.

Case 2. *History.*—M. S., female, aged 19, Hebrew, born in Russia, sister of the patient in Case 1. This patient gave the history of an eruption similar to that of her sister, and on careful examination exhibited scarring not unlike that of variola, confined to the face, arms, hands and knees.

Case 3. *History.*—R. C., female, aged 14 years, Hebrew, born in Russia. The father and mother were healthy. The father, in childhood, had had an eruption similar to that of which the patient complained. The patient had three sisters and three brothers. One of the sisters and two of the brothers were affected with the same condition. Otherwise the family history was of no importance. When the patient was one year old the eruption appeared, and has continued almost uninterruptedly ever since. It consisted essentially of small pustules, most of which followed some trivial injury, such as a scratch. These pustules passed through various stages of development and disintegration. The most prominent stage was that in which a brownish or blackish crust was formed, which when cast off revealed a pitted scar resembling variola. The eruption in its entirety, when observed on several occasions, consisted of slight scratch marks, pustules, crusts and varioliform scars, distributed over the face, hands, wrists, elbows and knees. As in the preceding case, tonic medication was employed with comparatively good results.

Case 4. *History.*—F. G., female, aged 8, sister of the patient in Case 3. The eruption appeared when the child was six months old. The case came under observation at the same time as the preceding and was identical in every respect.

Case 5. *History.*—A. G., aged 6, brother of the patients in Cases 3 and 4. This case differed in no respect from the two preceding, having all the characteristic lesions induced in the same manner.

Case 6. *History.*—J. G., male, aged 5, brother of the patients in Cases 3, 4 and 5. This case requires no special description, as the condition was exactly the same as the foregoing. These members of this family were exhibited individually and collectively before the Philadelphia Dermatological Society on more than one occasion, and the diagnosis confirmed by its various members.

Case 7. *History.*—R. G., female, aged 8, Hebrew, born in Russia. The family history was entirely negative, there being no trace of tuberculosis or any cutaneous eruption. The manifestations occurred after some slight traumatism, and consisted of pustules, crusts and pinhead to pea-sized pitted cicatrices. The lesions occurred on the face, hands, elbows and knees.

Case 8. *History.*—E. F., aged 7, Hebrew, born in Russia. The family history showed no affections that could in any way be connected with the eruption which began early in the life of the patient and possessed all the characteristic features common to the other cases.

Case 9. *History.*—H. M., female, aged 5, Christian, born in America. The father was born in Austria and the mother in America; both were in the best of health. One brother of the mother had been the subject of Pott's disease and another had died of "consumption." The patient had two sisters and three brothers, all of whom were healthy.

Before attempting an analysis of these cases we beg leave to quote from Stelwagon the following slightly paraphrased quotation from Duhring's original description:

> The face and upper extremities are its usual sites. The lesions are disseminated and as a rule not abundant. They begin as pinhead to pea-sized papulopustules, resembling somewhat closely the small papulopustular syphiloderm. The pustular character is often slight and occupies the central part of the summit, the outer portion of the lesion being slightly hard and in the beginning with an insignificant areola. The formation is superficial, not extending deeply into the derma. They crust over gradually in the course of from one to several weeks, with depressed, shrunken, hard or horny, yellowish or grayish adherent crusts, which in time drop off, leaving marked, punched-out-looking, indelible scars, resembling those of variola. The lesions are further characterized by a sluggish, chronic course, and may last weeks or months. They appear at irregular periods, new ones coming out as older ones disappear, so that the patient is rarely free from them. The disease may continue for years.

It is only fair to state that many of the more recent writers have described this condition under the term "acne varioliformis," but I am inclined to favor the older classification, although I can not but defend the argument that it should be entitled "small pustular tuberculide."

A careful digest of the scant histories we have given will show several interesting features. The first prominent particular is the fact that the patients were all children and, with one exception, Hebrews and of foreign-born parents. This indirectly would serve to advance the theory that it was a disease peculiar to the cities, since immigrants of this class tend to congregate in the pauper settlements of the cities.

A second prominent point in the series of the cases is the tendency to occur in families. Cases 1 and 2 occurred in the same family, and while the patient's history in Case 2 is not sufficiently detailed for scientific purposes, it is convincing from a clinical standpoint. Cases 3, 4, 5 and 6 occurred in the same family. These were observed collectively by several competent authorities, and at one time by Dr. Duhring, thus completely effacing any doubt as to their similarity.

A third feature worthy of remark was the appearance of the lesions on the sites of trivial injuries such as scratches. In children of the slums itching is common by reason of the absence of everything that approaches hygiene. Sometimes it is due to the parasitic diseases and at others times not. In these cases the parasitic diseases were readily excluded. But it would not have been difficult for the novice to have associated these pustules, papules and crusts with scabies, for instance. The situation of the lesions on the face should remove such confusion.

A fourth interesting event was the improvement under ordinary tonic treatment. Unfortunately the patients were of a class that is unable to give continued attention to any form of medical treatment, so that cure even with the best of remedial measures is always a most remote possibility.

In conclusion I can only briefly refer to the circumstances that in only one instance was it possible to elicit any family history of tuberculosis, and that was in the case (Case 9) of the child born in America, whose mother also was American born. It is sincerely hoped that the contribution of this small group of cases may add somewhat to the knowledge of cutaneous tuberculosis.

TECHNIC OF THE OPERATION FOR REMOVAL OF THE MIDDLE TURBINATE.*

GEORGE L. RICHARDS, M.D.
FALL RIVER, MASS.

The so-called middle turbinate bone is a lateral diverticulum or wing coming off from the body of the ethmoid, to which it is attached by a narrow isthmus running along the entire length of the ethmoid anteroposteriorly, and hanging freely in the nasal cavity, with an inferior, external and internal free surface. Posteriorly, it extends as far back as the inferior turbinate; anteriorly, it is from three-quarters to an inch shorter. It serves to hide from view the bulla ethmoidalis, the uncinate process, the hiatus semilunaris and the frontonasal duct. It is removed not only on account of its own size but also to gain access to these structures, hence it is necessary in its removal to take away so much of it as will be sure to be ample for the purposes named. It may be of extremely large size, is frequently in contact with the septum, is abundantly supplied with blood, and has many sensitive nerve fibers.

The technic of its removal should be one which is rapid, simple and, so far as possible, painless. As the operation is a short one, and it is preferable to have the patient in the upright position and free from the annoyances of a general anesthetic, local anesthesia is very much to be preferred, although it is possible to do the operation under general anesthesia. The instruments used must take up but little room and must be stout and well made. I have tried many methods which have been advocated from time to time, but find nothing so satisfactory as the use of a small-bladed, stout, alligator cutting forceps and the snare, finding two sizes of alligator cutting forceps and one stout but small snare (with or without screw thread for tightening) to be all the instruments necessary. I have tried various forms of curved scissors, including those designed by Dr. C. R. Holmes several years ago, but find that they all take up so much space and shut off so much light that they

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

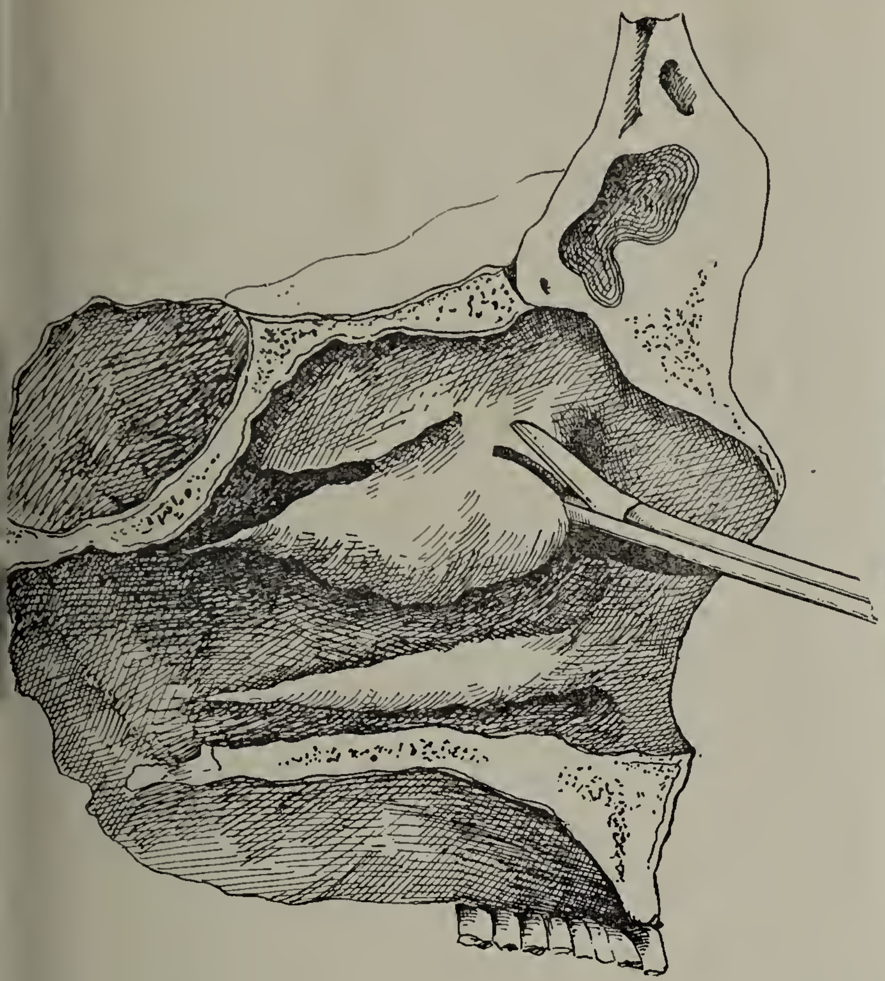

Fig. 1.—First step in the operation for removal of the middle turbinate. The cutting forceps has been withdrawn sufficiently to show the amount removed by the first cut. The second cut can be made in the same line if desired (author's specimen).

are impracticable, at least in my hands. The less room that the instrument occupies the less pain to the patient. The better the vision of the operator the more rapid the operation.

My technic is as follows: About twenty minutes is occupied in preliminary cocainization. First, a little spraying with 4 per cent. cocain directly over the region, also covering the anterior portion of the inferior turbinate and septum, since these are bound to be impinged on more or less by the instruments used; then the careful packing of pledgets of cotton soaked in 20 per cent. cocain, the first underneath the middle turbinate, carrying it clear up in the furrow until it reaches the point where the middle turbinate is joined to the body of the bone, then one exactly underneath, then one be-

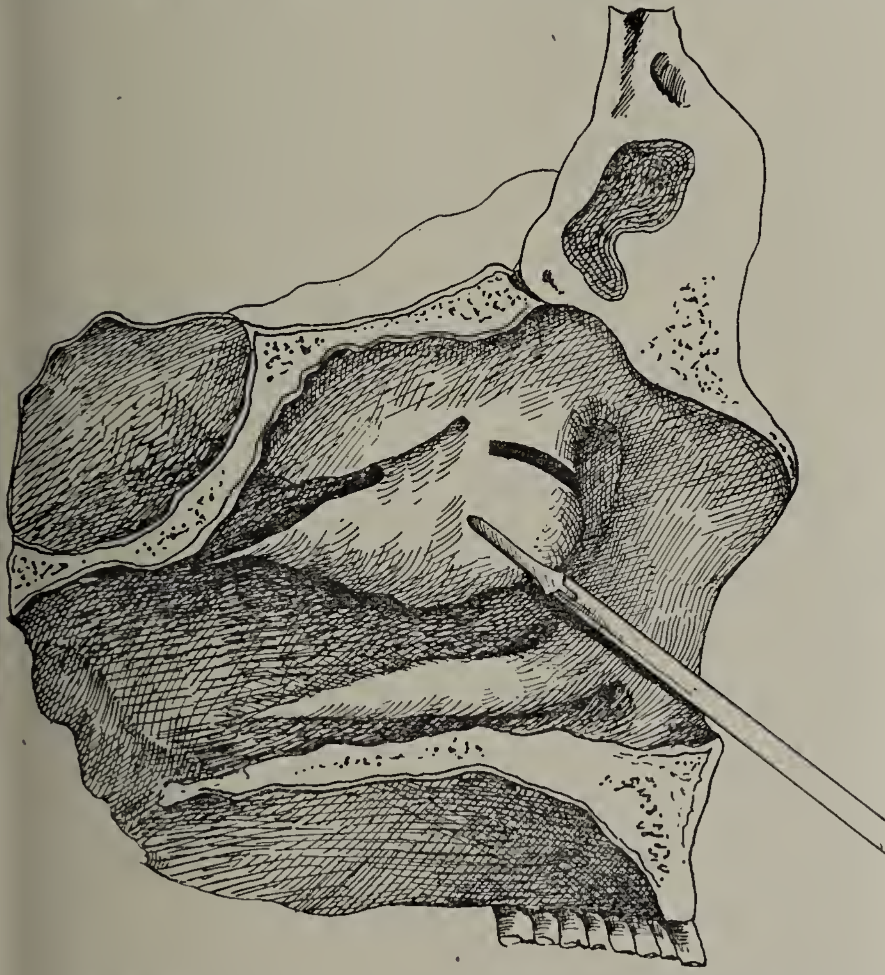

Fig. 2.—Showing position of cutting forceps for the second stage of the operation, the cutting forceps being introduced as nearly vertically as possible and as far back as is required to remove a sufficient portion of the bone (author's specimen).

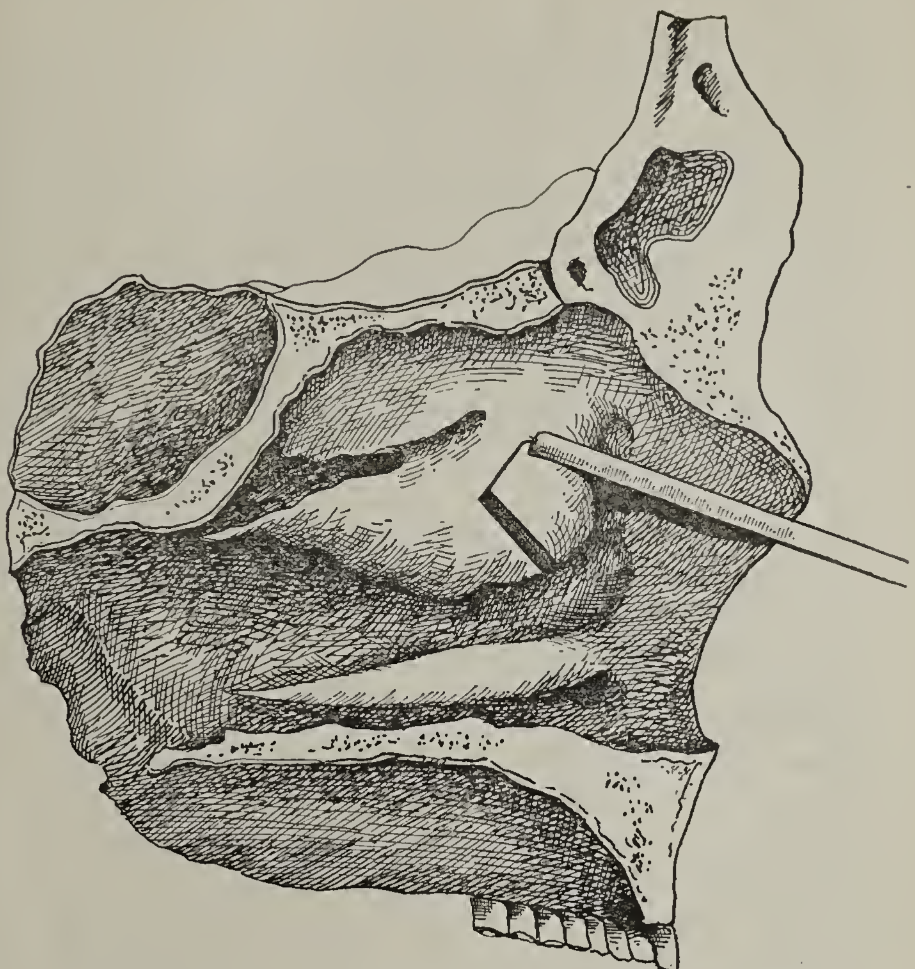

Fig. 3.—Snare in situation ready to be drawn tight to remove the portion outlined by the two previous cuts (author's specimen).

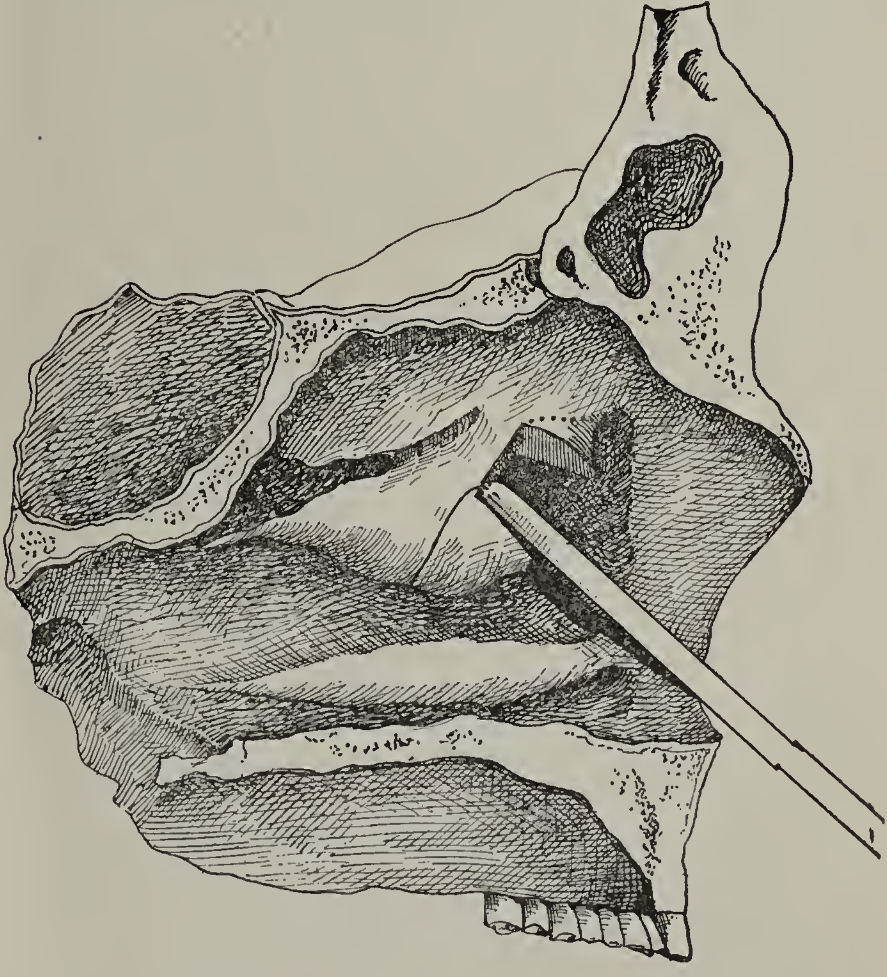

Fig. 4.—Removal of the inferior part of the anterior portion of the middle turbinate with the snare. Dotted lines indicate where snare can be placed if desired to remove any more from upper anterior portion (author's specimen).

tween the septum and the body of the bone, extending up so as to reach above the isthmus. Every portion of the bone which is to be removed is thus in contact with the cocain.

Some of the suprarenalin preparations may be used in this connection or not, as may be desired. On account of the danger of secondary hemorrhage I have not used them of late, instead using the powder at a later stage, as will be explained. These pledgets are left in place until on their removal the patient says he is free from pain at every point where a probe may be used. The alligator cutting forceps is then taken and, with the blades partially opened, is carried in until one blade is above and one below the isthmus; being sure of its position, it is then pushed backward as far as it can be and a cut made, the instrument extracted and the portion cut out removed. If necessary, a second cut is then made directly back of the first and in the same line. This constitutes the first step as illustrated (Fig. 1).

The second step consists of following along the inferior border as far back as the instrument can be carried, depressing the handle as much as possible, and cutting as nearly vertically upward as it can be done. This cut, of course, is not absolutely vertical, rather diagonal (Fig. 2). This leaves the body of the anterior portion of the bone attached by a narrow bony pedicle. The snare with a loop of proper size is then introduced, carefully insinuated in the two openings, and drawn tight. The bone will immediately come away (Fig. 3). So far there has been a relatively small amount of pain although in spite of the cocain there will be some pain when each cut is made, but it is done so quickly that the average patient will not complain much of it or say afterward that it has been very painful. The use of the snare is the most painful part of it. The main body of the anterior portion being now removed, there still remains a possible irregular, somewhat loose portion inferiorly, owing to the fact that the second cut with the alligator forceps is somewhat diagonal. This portion is re-cocainized and the snare again used. There is little likelihood of the snare's slipping at this point, as will be seen by the accompanying drawing (Fig. 4), since it catches easily above and below. This portion being removed, the operation is, as a rule, entirely finished. Should there be any rough portions left or not enough removed superiorly, the further use of the snare or of the medium-sized cutting forceps will remove them.

This method is far more speedy, far less painful, and leaves a much smoother surface than the removal of the bone by biting it away piece by piece with cutting forceps, as is done by many operators.

The next thing is to provide for possible hemorrhage. There will be no bleeding at the time, but it is never safe to send such a patient away from one's office without providing for it. After carefully wiping the surface I apply 12 per cent. solution of acetotartrate of aluminum[1] on pledgets of cotton until I am sure that every point of the denuded surface has been thoroughly touched with it. I then powder the surface with a mixture of one-fourth powdered suprarenalin extract, three-fourths thymol iodid (aristol). I next apply one or more pledgets of cotton, the surface of each of which is completely covered with the following ointment:

℞.	Bismuthi subnitratis		
	Thymolis iodidi, āā....................	ʒiss	6
	Unguenti zinci oxidi		
	Petrolati, āā............................	℥i	30

A sufficient number of these pledgets are put in to occupy the place formerly occupied by the bone, but not to fill the lower meatus, as the inferior turbinate will promptly swell, and they will be retained in place by it and still leave the lower meatus free for breathing. They are left in for two days, are not particularly painful *in situ* on account of being saturated with the ointment, and are removed without difficulty. Some pain invariably follows the subsidence of the cocain anesthesia, and I always give the patient one-eighth of a grain of morphin in my office and another eighth of a grain to be taken an hour or two later should there be pain.

There is but little after-treatment. The pledgets are removed in two days, sometimes in one. They come away without tearing the clot at all, and secondary hemorrhage is rare. Scabbing follows for one or two weeks and is cared for by saline sprays or douches.

The method herewith described concerns chiefly the removal of the anterior third or half of the middle turbinate, since this is usually all that is necessary. In the exceptional cases, should it be necessary or seem desirable, remove the entire bone. This can be done by continuing the cut at the isthmus above with the use of a spokeshave from behind. I have never found it necessary, however, to remove more than the anterior half.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

HOW MAY OUR PRESENT METHODS OF MEDICAL ILLUSTRATION BE IMPROVED?[*]

MAX BRÖDEL.
BALTIMORE.

In looking over our contemporary medical literature one can not help being impressed with the inadequate character of the majority of the illustrations. This applies to our text-books as well as to our periodicals.

I do not refer merely to the artistic inefficiency of the cuts, which is very evident, but also to the scientific inefficiency.

Our popular magazines and the novels of the day are usually very well illustrated, the pictures are artistic, correct and well printed. Why should the medical literature not keep pace with this progress? It is true that medical illustration requires highly specialized knowledge and skill, which is not acquired in the same manner in which the painter of still life, landscape or portraits acquires his, namely, through simple observation of objects with which he has been familiar from childhood up.

The trouble is that the medical illustrator is not familiar with the objects he is to draw or paint. To him they are obscure in meaning, indefinite in form, and sometimes repulsive in character; as a consequence he shuns original study, the only means of preparing his mind for the work. He is satisfied with a superficial examination, fragmentary conception, and frequently ends up by copying some suitable well-known picture or portions of several pictures from the literature, which he modifies to answer the purpose. The result of this plagiarism is an inartistic, incorrect piece of work, frequently so full of faults that it confuses the reader more than it helps.

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[1] The liquor aluminl aceticotartratls of the National Formulary is 50 per cent. strength.

[*] Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

This is especially true in regard to realistic or schematic pictures of operative procedures, pathologic specimens, topographic relationships, representations of physical examination. It does not apply with equal force to drawings of objects which retain their form and are clearly visible, such as good dissections on the cadaver or other anatomic work; for example, reconstructions in embryology and microscopic drawings, although even this class of work frequently shows the artist's lack of knowledge. The altered appearance of the structures of the anatomic, as compared with the fresh material, offers many difficulties to the artist, who has no means of differentiating between accidental postmortem changes and the essentials in a dissection.

Microscopic work is nearly always done schematically, i. e., all the cells look more or less alike, the individual differences of the various cell structures being not represented, and the picture frequently looks more like some pretty fantastic pattern than a portrayal of individual cells. Such pictures may be justifiable on the blackboard or in the note-book of a student of histology, but in a pathologic report the microscopic pictures must be realistic and not schematic.

The cause of this inefficiency of medical illustrators and their work is obvious. The scientist has the knowledge and the clear conception of the matter to be illustrated, but, as a rule, he has not the time or the ability to represent it on paper. An accomplished artist usually can draw or paint anything placed before him, provided he comprehends its nature, but this is not the case with medical work, so there is a wide gap to be bridged over. This statement is made in regard to an artist who can draw and paint, but, unfortunately, they are very scarce in the ranks of medical illustrators.

I wish to emphasize this point because it has impressed itself deeply on my mind. It is, indeed, remarkable what a small amount of artistic skill the average medical illustrator possesses. The work is for the most part amateurish in the highest degree; there is no attempt at a correct contour and the simple principles of light, shade and reflex are not observed. It seems almost as though the talented artists of the present day look down on medical illustrating as beneath their level. Anatomy is studied superficially as a handmaid of figure painting, as in the time of the old masters, but anatomic drawing as a handmaid of science has difficulty in finding well-equipped devoted disciples.

It is an error to think that there is no beauty or charm in medical work. The outlines of the various organs of the human body and their detail always possess a certain grace and an interesting character all their own, which offer many delightful problems to the artist. The artist who has made a failure in the so-called higher branches of art, such as portrait and landscape painting and the allied branches, is usually also unfit for medical work.

So what we want and must have is a higher type of recruit for art in medicine; higher in an artistic as well as an intellectual sense, for the artist should be able fully to enter into the spirit of the scientist. It stands to reason that the artist can produce a valuable picture only if his mind has completely grasped the subject. While a description or word picture may pass over obscure or doubtful portions in silence, a drawing must give a clear account of every feature of the case.

There is no doubt to my mind that the most valuable impression, such as would crystallize itself into a picture without undue labor and experimentation on paper, is the one possessed by the scientist. The person whose hands have palpated or felt of the object which is to be pictured and whose mind has passed through the various stages of the evolution of a mental picture, that person is best fitted to preserve that picture on paper.

The artist usually receives his impressions second hand, so to speak, and no description, however vivid, can make him see the object as the scientist's eye sees it unless he is given the opportunity to study it as carefully as the scientist, with eye and hand, until his mental picture equals that of the scientist in clearness and precision. Unfortunately this is not practicable, since the scientist can not well be expected to pay for the education of the artist.

The mental picture is a very important requisite of all medical work, excepting perhaps the microscopic. It is all-important when a diagramatic or semidiagramatic representation is the best means of showing the condition.

The remedy for this difficulty is simple enough, but its application unfortunately is more difficult, viz.: 1, teach the artist more medicine; 2, teach the scientist more art.

1. Medical illustration is a special branch of art and requires a systematic education; therefore, the artist should devote his entire time to it. This branch of art is not taught as are the other branches, although it should be, for owing to the highly-specialized character of medical work, more training and teaching is necessary than in connection with perhaps any other art work. The simple rule laid down to art students. "Copy naively what you see," is by no means enough, for then the drawing would be merely a worthless imitation of a photograph, with all the redundant accidental forms obscuring the essential features. A medical artist's eye should not work merely like a camera, it should digest the object and bring out the features which justify the task of picturing the case, without, of course, neglecting the realistic and truthful characteristics.

Thus, an intelligent drawing is possible only if the artist is thoroughly familiar with other examples, similar in character to the one he draws. He must know the normal form, its variations and the anomalies, finally the minute structure, for nothing guides the pencil more surely than a knowledge of histology. It is with the aid of such accessory studies only that the artist can intelligently interpret the characteristic features of the case before his eye. The education of a medical illustrator should, therefore, begin in the dissecting room and should be coupled with the study of autopsies and histology.

2. It is of equal importance that the scientist should know more about art—the more the better. Of course, I do not mean he should make his own illustrations, although a primitive outline drawing done by a scientist often has more truth in it than an elaborate halftone drawing by an artist. But he should do a little more than has hitherto been the case. The trouble, I am sure, will be amply repaid if he cultivates the habit of sketching his cases in his records for his benefit and that of his co-workers. A glance at such a sketch will years after bring back to one's memory the important features of a case much more vividly than any description. Moreover, such sketches may form an excellent basis for the

work of an artist. I often recollect the splendid little diagrams Dr. Howard A. Kelly used to make for me when I was a novice at the work. These sketches were alive with suggestion, and there was nothing that could have taken their place. Finally, the scientist himself can elaborate such sketches for publication if an artist can not be obtained.

The advantages of this practice are obvious, and I have often noted in the case of medical men, surgeons, anatomists, and also in my own case, how the making of a sketch or a model produced new ideas of benefit to the investigation and how it aided in the discovery of incorrect conceptions and how it pointed out the best method to overcome the difficulty.

The methods I would suggest are as follows. The region or regions of especial interest to the investigator should be drawn from the front, side, or in section, in simple outlines similar to the prints of the rubber stencils now in use, only life size. These outline drawings may be obtained by drawing with india ink on a glass plate placed in contact with the object to be drawn. In order to eliminate the individual element as much as possible, a sufficient number of such tracings are superimposed. This gives the average contour which should be reproduced in some faint gray or brown tint in large numbers in order to serve as a basis for the records. The stencils now in use are not very helpful, since they are in the first place too small to permit of an accurate insertion of tracings of tumors, etc., and then they are so stereotyped in character that they frequently do not suit the purpose; finally they are mostly incorrect. In this day of specialized work almost every physician or surgeon requires a special set of outlines different from the rest. He knows best what he needs and should endeavor to work them out himself. The contours of smaller structures, such as the eye, ear, nose and throat, might to advantage be drawn enlarged; contours of the entire body, on the other hand, reduced.

On such charts the clinician, surgeon, anatomist or pathologist can insert the salient features of a case. He can express topographic relationships by indicating the deepest structures by faint dotted lines, structures less deep by heavier dotted lines or thin solid lines, the most superficial structures by heavy solid lines. He can differentiate diseased from healthy structures by systems of parallel lines or by means of colored pencils, and adhesions by short strokes passing from one organ to another. Various mechanical features, such as tension, pressure, rotation, direction of fluid, etc., are easily expressed by means of judiciously-placed arrows.

Finally, the different steps of an operation may be inserted each on a separate sheet. In doing this various symbols may be adopted. For instance, heavy black or double lines may stand for incisions, loops for ligatures, loops with an arrow at their end for a ligature of tissue which is to be cut; dotted lines will indicate the continuation of the procedure. Parallel lines, 45 degrees to the horizontal, will express a wound surface, parallel horizontal lines, fluid, etc. In conclusion, each diagram should have the name and date and the necessary explanatory notes written on the margin, each note connected by a line with the region or point it elucidates.

The printed outline forms the guide for all this work; it is the linear foundation which prevents the sketch from losing the correct proportions. Specimens, dissections, frozen sections, etc., can be sketched freehand or, which is much easier, with india ink on a glass plate. The eye should be as far away as possible from the glass plate and kept stationary.

If a sketch fails to represent the structures properly the making of a model of either clay or wax, linen, gauze, rubber tubing, wire, etc., will usually solve the difficulty; the required sketch is then made from this model. The amateur, as a rule, has less difficulty with plastic forms than with drawings, but modeling is unwieldy and time-consuming and should be resorted to only in exceptional cases.

I realize, of course, that the physician or surgeon has often no time to spare for sketching. It is surprising, however, how quickly, after a little practice, a sketch is made. It rarely takes more time than writing a description, and the fact alone that what we have once sketched leaves a much deeper impression in our minds than any written description should induce the scientist to cultivate the excellent habit of sketching.

Besides, a scientist who himself has drawn or sketched is more apt to distinguish between the work of a good and a poor artist. It is undoubtedly his duty toward his profession to reject inartistic and incorrect work and thus contribute toward the elevation of the standard of medical illustration and so of medical education.

For the past two years I have endeavored to bring the scientist and artist nearer to each other. I have taught art to medical students and graduates and the underlying principles of medical illustration to artists. The results have been gratifying, and I shall continue to do my share in bridging over the gap between scientist and artist.

DISCUSSION.

DR. WILLIAM J. MAYO, Rochester, Minn., said that medical illustrating is needed in teaching almost more than any one thing. A certain operation placed on a chart before one's eyes can be quickly visualized, when a great deal of time might be taken in reading a description and in figuring out the different steps of the operation. The art of visualizing does not necessarily belong to the highly intellectual. The person giving the least amount of time to study may have so trained his eye with common every-day objects in life that he will quickly understand things from a drawing. It is not for the best interests of the patient to bring spectators nearer than five feet of an operation. Therefore, we must depend to a large degree on illustrations such as Mr. Brödel has shown. While many things have been given to the profession by the faculty of Johns Hopkins Medical School, their leadership in medical illustrating has certainly been as valuable as anything else they have done. All must recognize the worth of good illustrations as a means of teaching, and even if the services of so good an embryologist and histologist can not be secured, we can at least be grateful to Mr. Brödel for bringing the subject to our attention.

Exploitation of Human Credulity.—A recent editorial in the *Progrès Médical* remarks in regard to the vogue of "patent medicines" that the public will always be credulous and will always allow itself to be gulled by appeals to its credulity. This is a social evil, it adds, incurable, like prostitution, but it is the duty of the physician to seek to attenuate its effects and to enlighten the public in regard to the dangers of this hideous exploitation of human woes for the benefit of the bank account of the charlatans. In France, besides tuberculosis and venereal diseases, remedies for anemia are widely advertised and delicate stomachs ruined by the preparations sold. The physician must teach the public that the science of therapeutics is a complex and difficult art, and that it can never be reduced to the ingenious but mindless mechanism of an automatic slot machine.

OPERATIVE TREATMENT OF EXSTROPHY OF THE BLADDER BY TRANSPLANTATION OF URETERS ON TO THE SKIN OF THE LOIN.

APPLICATION OF THE PRINCIPLE TO OTHER BLADDER SURGERY—REPORT OF TWO ILLUSTRATIVE CASES.*

JOHN T. BOTTOMLEY, M.D.
Surgeon to the Carney Hospital.
BOSTON.

It is fortunate that exstrophy of the bladder is a relatively rare condition, for its unfortunate possessors are in a pitiable condition and, though surgeons have for years devised and tried many operations for its relief, it can not be said that the procedure is yet known that will afford a cure in the sense of a restoration of the parts affected to a condition even approximating the normal. To effect a cure in that sense, a muscle with sphincteric action must be manufactured—evidently an almost impossible task. Our hope then must lie in relief of the condition, and that by such a procedure as will not expose the life of the patient to too great danger either through the mere technic of the operation or through its more remote effects.

Operations for this malformation are many and various. To those interested Hartley[1] and Orlow[2] offer an excellent summary and extensive bibliography of the subject. Little can be added to these except the Lendon[3]-Peters[4] method and the procedure which forms the subject of this paper. In a broad way the operation may be classified under three heads:

1. Plastic operations which attempt to substitute for the missing anterior bladder wall either skin flaps turned in from various directions (Roux, Nélaton, Wood, Thiersch, Billroth, Pancoast and others) or a separated loop of intestine (Rutkowski and others).

2. Operations which have for their object the formation of a urinary reservoir (Gerody, Czerny and others) or conducting groove (Segond) by freeing the separated edges of the vesical mucous membrane and joining them by suture. To facilitate this procedure, to form a more spacious bladder and to attempt to establish a muscular sphincteric action, ingenious methods have been devised, among the most important of which are separation of the sacroiliac synchondrosis (Trendelenburg), moulding the pelvis by apparatus (Passavant), osteotomy or osteoclasis of the pelvis (Konig, Koch and others) and freezing or transplanting the rectus muscles (Sehlange, von Mikulicz and others).

3. Operations which divert the urinary stream by transplanting the ureteral ends into the urethra (Sonnenburg), the vagina (Chevasse, Pawlik, Summers and others), the intestine (Maydl, Gersuny, Frank, Fowler, Lendon, Peters and others) or on to the skin surface of the loin (Harrison).

What may we reasonably expect as a result of any of these measures? There can be no question that if certain conditions could be eliminated and others attained the methods proposed in Classes 1 and 2 would become ideal, for the normal anatomic relation of the parts is preserved and the urine passes through the natural channels—a great desideratum. But the occasional failure to get properly nourished flaps, the frequent tendency to calcareous deposits and to stone formation, obstinate fistulæ requiring numerous operations and, above all, the fact that sphincteric control is practically never obtained[5]—all these factors have combined to bring this class of operation into disfavor or disuse. This lack of sphincteric control makes necessary the wearing of a collecting apparatus over the external genitals—a locality where impedimenta of any kind are particularly disagreeable and uncomfortable. Trendelenburg's procedure and the operations having to do with the pelvic girdle are usually applicable only to the very young and many of them are attended by no inconsiderable risk of life. A series of fourteen Trendelenburg operations has been reported with a mortality of 28 per cent.

Transplantation of the ureteral openings into the vagina or into the urethra is seldom done. The objections to it are evident. The substitution of a separated portion of the intestine for the missing bladder wall is an operation of altogether too great magnitude to be considered as a routine measure.

It is natural that in the absence of a vesical sphincter and in the face of the practical impossibility of forming an artificial one, operators should turn their attention to the feasibility of making use of the anal sphincter by transferring the ureteral ends into the sigmoid flexure or into the rectum. Much brilliant work, experimental and clinical, has been done in this line; the scope of this paper, however, will permit mention of but two methods, both typical and probably the best of their kinds—the Maydl[6] intraperitoneal method and the Lendon[3]-Peters[4] extraperitoneal method, recently modified by Sherman[7] of San Francisco. In both the ureteral ends are transplanted into the intestine, Maydl transferring with the ureters the vesical trigone, Lendon, Peters and Sherman only a small button of the vesical tissue adjacent to the ureteral openings.

No one can doubt that both methods have frequently been followed by results gratifying to both surgeon and patient; the rectum usually tolerates without much difficulty the presence of the urine, while the anal sphincter in the majority of instances does its new duty well; on the other hand, both methods are attended by real dangers. In that class of operations of which the Maydl is a type the peritoneal cavity must be entered, the intestinal canal must be opened intraperitoneally and an intestinal suture must be carried out. All this means that the danger from the operation *per se* is more than nominal. Orlow,[2] in reviewing the results of sixty-one Maydl operations, found that over 8 per cent. of the patients died of peritonitis; the total early mortality was 17 per cent. Other patients died of narcosis, pneumonia, etc., but such deaths do not come into consideration here, because they are incident to all operations. It may be said, perhaps, that with the improved technic of the present day an 8 per cent. mortality from general peritonitis in an operation of this kind would not obtain; be that as it may, the operation is a relatively long and tedious one and the danger of peritonitis either from infection during the operation or from faulty suture must always remain a menace. Drucbert's[8] analysis of eighty-two cases operated on by the Maydl method shows a mortality of 27 per cent. within fifteen days after the operation.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] An. Surg., 1901, xxxiv.

[2] Rev. de gyn. et de chir., 1903, vii.

[3] Trans. Austral. Med. Cong., 1901.

[4] Brit. Med. Jour., June 22, 1901.

[5] Hartley could find record of but one satisfactory case; this followed a Trendelenburg operation.

[6] Wien. Med. Wochschr., 1894, xxv.

[7] The Journal A. M. A., Feb. 4, 1905.

[8] Echo méd. du Nord, Lille, 1904, viii.

Now, the Lendon-Peters method avoids this danger and is open to criticism in practically only one particular, i. e., the danger of an early or late infection of the ureter and of the kidney itself from the rectum; this is the strongest objection not to the Lendon-Peters method alone, but likewise to the Maydl and to all other methods of which intestinal implantation of the ureters is a part. Just how great this danger is can be determined only when the lapse of time has been sufficiently long to permit the collection of a large number of cases and the study of their postoperative condition over a number of years, for the renal infection may come early or late in the postoperative course.

In the Druebert[8] series one-half the early mortality was due to double pyelonephritis; on the other hand, he reports one fatal case thirty-four months after the operation and Orlow another two and one-half years after operation. Yet it must be borne in mind that all these deaths from pyelonephritis are not to be attributed to intestinal implantation. The pyelonephritis may precede the operation, for the exstrophy itself promotes its inception. Orlow quotes Berger to the effect that of seventy-four patients born with exstrophy only twenty-three passed the twentieth year of life, the others dying of pyelonephritis. However, this predisposing influence affects the results of all methods of operation equally. From a study of the statistics it seems fair to assume that one-third of the total mortality following intestinal implantation is due to the implantation itself and that a fatal pyelonephritis may be expected in about 12 per cent. of the cases that survive the fortnight immediately following the operation.

Besides, mention must be made of the fact that, following intestinal implantation, there is occasionally diurnal incontinence, more frequently nocturnal incontinence and sometimes both. Now and then, according to Walsham,[9] there is difficulty in keeping the ureteral orifices open. In seven cases of the Orlow series a fecal fistula followed the operation.

In 1896 Reginald Harrison[10] treated a case of exstrophy of the bladder by removing the kidney on one side and, after a lapse of time, transferring the cut end of the ureter of the remaining kidney to the skin of the corresponding loin. The vesical mucous membrane was not removed, but was left to cicatrize and contract. Why Mr. Harrison removed one kidney is not apparent; it is certainly an unnecessary, harmful procedure and has nothing to recommend it. His, I think, is the only case of exstrophy other than the one now reported in which the ureter has been intentionally transplanted onto the skin surface. I was in ignorance of the existence of this case when I operated on mine.

My technic differs from Mr. Harrison's in that I removed neither kidney, but transferred both ureters to the skin of the loin. Of course, the ureters have often been transplanted on to the skin of either the abdomen or the loin because of injury in the course of other (usually gynecologic) operations. Bovée[11] collected ten such cases, including Harrison's; to these I can add a case of Bardenheuer (reported by Thelen[12]) and two cases of my own.

The postoperative history is known in nine of these thirteen cases. Walsham[9] reports that Harrison's patient died after some months of pyelonephritis. Extension of the malignant disease for which he originally operated caused the death of Le Dentu's[13] patient in one month; the kidneys were microscopically intact. Pozzi,[14] three months after the ureteral implantation, removed the kidney; here, too, microscopic examination proved the kidney to be normal. Chalot's case died of shock following a hysterectomy in the course of which he found it necessary to transplant both ureters. After a similar operation Budinger's[15] patient succumbed to a renal abscess caused by an infection which, the operator admits, had long preceded the operation. Recurrence of the original malignant disease proved fatal to Fullerton's[16] case four months after operation; the kidney had practically ceased functionating before operation; moreover, placing a catheter in the opening of the transplanted ureter, as was done in this case, was unwise, for such a procedure must be conducive to infection. Noble transplanted a ureter because of an injury received in the course of an operation for the removal of an ectopic pregnancy; later he removed the kidney, but no note was made of its condition. Bardenheuer[12] sutured a ureter into an operative wound in the loin under the most unfavorable conditions; recovery followed.

My patient, a young woman with exstrophy, is alive and entirely comfortable eighteen months after implantation of both ureters in the loin. An old woman on whom I did a similar operation as a preliminary to removal of the bladder survived the transplantation and was comfortable; she succumbed, however, to cachexia seventeen days after removal of the bladder.

In but one of these cases can death be attributed to the transplantation. It is claimed that Harrison's case died of pyelonephritis due to an ascending infection from the eroded and ulcerated skin surface.[9] Harrison, however, imposed a most severe handicap on his patient by removing one kidney. Moreover, there is no way of knowing what amount of intelligence and cleanliness was exercised by the patient in the after-care; a certain amount of both these qualities is requisite. A death should not be attributed to a method when the fault is a purely personal one; hence, in all fairness, the evidence in this case against the method is not strong.

What objection can be urged against the implantation of the ureters on the skin? (a) The danger of infection of the ureter and kidney because of contraction of the orifice or of excoriation of the skin in its immediate vicinity. (b) No sphincter is provided.

First, as to the danger of infection. I believe that, given healthy kidneys before operation and granted intelligent care and cleanliness after operation, infection of the kidney will rarely if ever result from skin implantation. Naturally if a patient takes no care of the skin in the neighborhood of the orifice, if the area is allowed to become excoriated and inflamed and if no measures are taken to prevent or to check these occurrences, then it must be granted that the chance of infection is very considerable, but this is not the fault of the method; it is the fault of the individual. After eighteen months the skin of the loin of my patient is still perfectly healthy. Were contraction of the orifice to begin, its treatment could be easily undertaken.

It must be admitted that no sphincter is provided by this operation. This is a legitimate objection to the method and is a disadvantage, but I believe that this disadvantage is more than counterbalanced by the greater safety afforded the patient. An apparatus can be provided that will keep the patient dry and which can be worn with but little inconvenience. The patient is comfortable and, in my opinion, is in much less danger of developing pyelonephritis than if the ureters were implanted in the intestine, for, looking at the question from a purely common-sense point of view, it seems as if we must regard the skin surface of the loin as a much cleaner locality than the mucous coat of the intestine; it seems evident, too, that it is a far easier matter to keep a skin surface clean than to care for a mucous surface properly.

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[9] The Practitioner, 1899, 151.

[10] Lancet, 1897, 1091.

[11] Trans. Am. Gyn. Soc., 1900.

[12] Centrbl. für Chir., 1882, xii.

[13] Affect. chir. des reins, etc., Paris, 1889.

[14] Des blessures de l'urétère au cours de la lap., Ann. des mal. gen. urin., 1891, 539.

[15] Arch. für klin. chir., 1894, lxviii.

[16] Am. Gyn. and Obst. Jour., 1898, xii, 91.

The question that the surgeon must decide is: Shall I do a rectal implantation with a very considerable chance of fatal renal infection and with a sphincter that usually acts well but may not, or shall I transplant onto the skin of the loin, with no sphincter, but with, I believe, practically no danger of future renal infection, if an effective collecting apparatus be used and proper after-care be assured?

The principle exemplified in this operation has a still wider range of usefulness. As far back as 1886 Ballance and Edwards,[17] after experiments on the cadaver, recommended implantation of the ureters on to the skin of the loin as a preliminary to all operations in which removal of the bladder is contemplated and in conditions by reason of which the pelvic ureters are pathologically or physically involved. They made drawings showing the ureters in their new relations. They recall the experimental work on animals by Gluck and Zeller,[18] who were strongly disposed in favor of skin transplantation. Le Dentu's idea is in harmony with that of Ballance and Edwards, and he pictures an apparatus for collecting the urine. Mr. Reginald Harrison[19] also coincides with their views. No one, as far as I know, actually followed out these suggestions. In one case, the history of which will be found at the end of this article, I had an opportunity of employing the measure as a preliminary to removal of the bladder and with so much satisfaction that should a similar opportunity again present itself I shall not hesitate to take advantage of it.

Even if so radical an operation as removal of the bladder be not contemplated, this method of diverting the urinary stream and thus alleviating severe symptoms may be considered simply as a means of relief, as, for instance, in intractable or inoperable vesical disease.

Watson,[20] in an excellent article on tumors of the bladder, strongly advises nephrostomy as a preliminary to removal of the bladder. He prefers it to ureteral implantation of any kind; the latter, he says, is often followed by renal infection, while it is "very rare to have the kidney infected after nephrostomy, provided adequate drainage be provided." While thoroughly agreeing with Watson that the urinary stream should be diverted in such cases and fully coinciding in his view of the dangers of intestinal implantation, I must take issue with him as to the superiority of nephrostomy over implantation of the ureter on to the skin of the loin. The argument most strongly urged against implantation is the high mortality attributed to it. An investigation of his statistics with regard to this mortality leads me to believe that he is in grave error when he ascribes 40 per cent. of the total mortality in such cases to the implantation itself. Apart from my personal cases and that of Bardenheuer, we both quote the same group of cases of skin implantation. On examining the original reports of these cases, I could find but one in which the fatal result could be attributed in any way to the implantation; this is the case of Mr. Harrison which I have previously discussed.

To me skin implantation appeals more strongly than nephrostomy; it is a more surgical procedure, its accomplishment is fully as easy and it injures less important structures, the danger of renal infection is at least no greater and the resulting conditions are more easily and just as successfully cared for by a collecting apparatus. After all, the most important thing is not the measure, not the method, but first, last and always the principle and the result.

A CASE OF EXSTROPHY OF THE BLADDER.

History.—The patient was an otherwise healthy young woman, 28 years of age and unmarried. She was in the usual wretched condition of these unfortunates.

Operation.—Jan. 19, 1906, the following operation was performed, my colleague, Dr. Munro, working on the left side, I on the right. A four-inch incision was made, following in a general way the crest of the ilium, about one inch above and to its inner side. The external oblique aponeurosis and muscle was split in the direction of its fibers; the deeper muscular layers were divided sufficiently to allow the peritoneum to be pushed forward; the ureter was freed by blunt dissection for several inches of its length, divided where it crossed the iliac vessels, the distal end ligatured and, through a stab wound in the loin, the end of the proximal portion was brought to the surface and fastened to the skin by chromic catgut sutures which did not penetrate the mucous coat. The end of the ureter, which projected about one-eighth inch, was split and the flaps thus formed were turned outward and sutured. The anterior abdominal wound was sutured in layers. Neither shock nor disturbance of the urinary function followed the operation.

Second Operation.—Two weeks later the patient was again etherized. The vesical mucous membrane was removed and with it the distal portions of both ureters, which were easily freed by blunt dissection. During the operation the peritoneal cavity was opened; the rent was closed immediately. The skin margins about the denuded area were widely freed and by a suture line which took the form of a T, the area was well covered. Temporary drainage was established.

Postoperative History.—Complete recovery followed. An apparatus, furnished by Leach and Greene of Boston, keeps the patient dry; the urine collects in a bag hung to the inside of her skirt. She is very comfortable, has gained much weight, works in a department store and has no urinous odor about her. The urine is normal. At first the apparatus was not effective when the patient was lying down, but this difficulty has now been overcome by the apparatus makers. The apparatus wears out quickly and in the experimental stage had to be replaced frequently.

A CASE OF GANGRENOUS CYSTITIS.

History.—The patient, a woman, 54 years old, was senile; her arteries were atheromatous, she was sciolikyphotic and her general condition was wretched. A vesical stone had been crushed some weeks previously. Subsequently a most severe cystitis caused her constant and almost intolerable suffering. Ten days before she came under our care an unsuccessful attempt to alleviate her distress had been made by forming an artificial vesico-vaginal fistula. The operator was a very competent surgeon, who noted: "By bimanual examination her bladder is solid and stiff-walled and can not be compressed; it feels just as if it were covered with plaster-of-Paris."

Operation.—Under ether, Feb. 2, 1907, an operation similar to the one described in the preceding case was done. The thickened right ureter clearly showed chronic infection. Dur-

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17. St. Thomas Hosp. Reports, New Series, 1886, xvi.
18. Arch. für klin. chir., 1881, xx.
19. Surg. Disorders of the Urinary Organs, fourth Ed., 1893.
20. Anns. of Surg., 1905, lxii.

ing the operation a large, tuberculous, retroperitoneal gland was removed from just above the pelvic brim on the right. The preliminary operation gave the patient much relief; her general condition improved greatly. Two weeks later the bladder was removed. This was a difficult undertaking; for the wall was a thick, calcified mass enclosing numerous areas of gangrenous slough and pus; the tissue was friable and fragile. The cavity left after the removal of the bladder was packed; the peritoneal cavity, opened during the manipulations, was drained. The patient rallied well from the operation, but soon after began to fail, gradually grew weaker and died on the seventeenth day. I think now that I would have acted more wisely had I been satisfied with the preliminary operation and not attempted the removal of the bladder.

[For the discussion, see the department of Section Discussions in this issue.]

THE ETIOLOGY AND RECENT TREATMENT OF HAY FEVER.[*]

H. HOLBROOK CURTIS, M.D.

NEW YORK.

The factors which enter into the causation of hay fever, or better, hyperesthetic rhinitis, a name proposed by Sajous, are: First, a nervous element; second, a pathologic change in the nasal mucous membrane; third, an exciting constitutional dyscrasia, as a lithemic or uric acid diathesis; and fourth, some adventitious irritation, as dust, pollens or animal emanations.

1. Hyperesthetic rhinitis may occur from an adynamic state of the nervous system irrespective of other causes, or may result from a combination of external irritation and a predisposing neurotic factor. The first class is illustrated by the cases of spontaneous attacks accompanied by sneezing and lachrymation, occurring at any time of day and irrespective of the season. Cases of this character demand a careful investigation as to the cause of nervous trouble, and as treatment, toning up of the general system by baths, exercise, diet, etc., I can not help mentioning a tablet which has given very excellent results in this class of cases:

R. Strych. arseniatis	gr. 5/6		054
Atropin. sulph.	gr. 1/3		02
Camphor	gr. xxv	1	62
Ipecac. pulv.	gr. v		32

M. et ft. in pil. No. c. Sig.: One of such pills p. r. n.

From three to six a day have a very favorable effect. Those cases resulting from an external cause in combination with a neurotic susceptibility will be considered later.

2. Hyperesthetic rhinitis may be due to pathologic changes in the nasal mucosa, which may arise from polypi, deflections of the septum, hypertrophies, synechiæ, etc. The simple correction of these conditions may effect a cure of the disorder. For this reason before condemning any remedy we should be careful to ascertain that the nasal respiratory tracts are free from abnormalities.

3. Hyperesthetic rhinitis may arise from a lithemic or uric acid condition, as found in subjects of gout, rheumatism, obesity and disorders of digestion. In these cases we may have a change in the epithelium of the nasal mucosa or an indirect action through derangement of the sympathetic nervous system. Remembering how frequently brittle finger nails and hang nails, together with itching scalp, are concomitant symptoms of uric acid excess, may it not be reasonable to suppose that a similar influence might be exerted on the epithelium of the nasal mucosa? Autointoxications caused by intestinal fermentation are also a prolific cause of nasal irritation, probably due to excitation of the sympathetic ganglia. Digestive disturbances should be eliminated by proper treatment before judging the value of any remedy, especially if it is supposed to be simply antitoxic as regards excitation of the mucosa from pollens.

4. Hyperesthetic rhinitis may be produced by dust, drugs, perfumes, animal emanation and many pollens. We are all familiar with travelers' hay fever, caused by tunnel gases and coal dust, elephant and even cat hay fever (banish the term), and the evidence is very convincing that some individual predisposition is essential to the development of all of these.

We have mentioned various causes which produce hyperesthetic rhinitis independent of any external irritation. The question that naturally suggests itself is this: How much of a predisposing influence do any of these causative factors of hyperesthetic rhinitis exert in rendering an individual susceptible to the reaction of pollen toxins? It may be in the range of possibilities to suppose that a constitutional disturbance might render the sympathetic system very near the state of inhibitory collapse, without exhibiting the vasomotor phenomena usual in hay fever, and that only the slightest local exciting cause as dust, odors or pollens was wanting to make the intoxication complete. Unless this were more than hypothesis it would be difficult to explain the extreme ganglionic explosion caused by simple dust or odors. There has been no more beautiful illustration of the effect of shock impressions conveyed through the sympathetic ganglia than that classical investigation of Dr. Weir Mitchell, when an army surgeon, as to the reason why a soldier shot through the ulnar nerve always fell, when a wound of the radial nerve, though a larger nerve, produced no such result. In this case a clever dissection showed that the cervical sympathetic ganglion which supplied the ulnar nerve intercommunicated by fibrillæ with the otic ganglion which supplied the labyrinth, the center of equilibrium. The shock which produced the explosion in the otic may be compared to a toxin shock which affected the sphenopalatine ganglion, reacted on the vagus through the collateral fibers in the medullary substance of Rolando, the receptive nucleus of the trigeminus, thus producing the picture of the asthmatic type of hyperesthetic rhinitis.

So much for the etiology of this puzzling and complex disorder. In regard to the recent treatment, a brief sketch of the subject will introduce the discussion. The various views of the disputants may lead us to a better estimation as to the efficiency of a newer remedy than it has been the good fortune of the writer to discover. One thing is apparent, that the personal element, viz., suggestion, enters largely into the result of treatment. Note in the literature the results of the men who have been dominated by their convictions, as compared with the result of the experiments of the skeptical observer. So also with the patient. It was found with ambrosia that patients of the neurotic type who believed that a specific had been discovered were rapidly relieved, a fact which caused initial results to exceed those of the fourth season of experimentation. I well remember the fifteen tuberculous patients in the Home for Consumptives who were treated under my observation by the first serum of Koch. In every case there resulted lowering of afternoon temperature, decrease of cough and expectoration and great improvement in the general strength until, alas, one day an article appeared in the *Tribune* saying that the great Virchow had stated that the improvement noted in the treatment of patients by Koch's lymph was of a temporary character and that the injections were but disseminating the foci of infection. The paper passed around the ward, and from that instant, the element of hope and confidence being removed, every chart showed a return to the old conditions. In the case of tuberculin the pendulum undoubtedly swung too far in the other direction. Let us accord to pollantin a just trial and only relegate it to the list of failures when we are convinced that in uncomplicated cases it does not fulfill the conditions and claims set forth by Professor Dunbar. A short sketch of the development of the antitoxin theory will not be out of place.

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[*] Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

In the spring of 1900 I read a paper before this Section in which the theory of prevention of hay fever caused by various pollens was discussed and cases cited in which, by hypodermic injection of a watery extract of the pollens of ragweed, golden-rod and lily-of-the-valley, cures had been effected.[1] In these cases immunization was supposed to have been effected by habituation of the individual to the point of toleration of the drug.

Subsequently the hypodermic method, on account of the disturbances which frequently followed its use, was replaced by the internal administration of fluid extract of the respective pollens of ambrosia, solidago and convallaria, used separately and in combination.

It is interesting to note that the first responses to the circular sent with every bottle of ambrosia at the request of physicians were generally of an enthusiastic and favorable character, more than 60 per cent. reporting great improvement or cures.[2] How much of this was due to the season of 1900 and how much was due to the effect of a novel remedy on neurotic patients it is difficult to determine. In 1902 no more samples were sent to physicians, but some four thousand bottles of the remedy were dispensed on the reputation the medicinal virtues of the ambrosia had acquired.

In 1903 the fluid extract of ambrosia (artemisiæfolia) was mixed with that of solidago (odora) five drops of each to the dram of aromatic water. Besides advising that the internal administration of the ambrosia mixture be begun ten days before the attack was expected, it was suggested that a solution of adrenalin chlorid in Dobell's solution, with two drams of ambrosia to the ounce, be employed as a nasal spray during the acute attack. The results of the combined remedies were excellent, but it was difficult to arrive at any positive facts concerning the real value of the remedy, as adrenalin was so important an adjunct to the treatment. When Professor Dunbar published his first paper[3] I gladly relinquished the field to him, as it was apparent that his experiments were conducted on a more scientific theory and in a much more satisfactory manner. While I had simply relied on the extract made from fresh pollen, he had gone farther by extracting the active principle and preparing an antitoxic serum which he obtained by inoculating young high-bred horses. The active principle obtained by Dunbar reacts on susceptible patients in a normal salt solution of 1 in 40,000. The active toxin is soluble in ether and water and is precipitated by alcohol responding to the albumin tests; it is, therefore, a tox-albumin. After trying goats, rabbits, etc., Dunbar found the horse the most susceptible to the toxin reaction, and after injecting increasing amounts for months, found all the animals so treated to possess a blood serum of more or less definite strength.

A unit of value is represented by an antitoxin which will neutralize an equal volume of toxin solution. The strength of the antitoxin may be pushed to the extent that one volume of antitoxin serum from good horses neutralizes forty volumes of toxin solution. This is called "forty fold" serum.

As the serum does not remain stable, and from the fact that preservatives are apt to cause irritation of the membranes to which the serum may be applied, the next step in the progress of Dunbar's experiments was that of supplying the serum in an evaporated form as powder, to which was added sugar of milk or some bland substance. The method of employment was to place a small particle of powder known as pollantin on the lower eyelid by means of a brush, or on the mucous membrane of the nose by means of a spatula or a Goldstein powder blower.

Hay fever in Europe is due to the pollen of wheat and rye, and on those grains Dunbar has chiefly done his work. Recently, however, he has made a ragweed and golden-rod pollantin, which is prepared for the American market by Schlimmel & Co., of Leipsic. Professor Dunbar instances his own case, which in 1904 he cured in Scotland by pollantin, and then coming to the United States and waiting for an attack, he speedily cured the same by golden-rod (Solidago) pollantin. Dunbar himself admits that however satisfactorily the pollantin has worked in many cases he is not satisfied that it is a specific. McBride of Edinburgh reports[4] positive results in three out of four causes. Sir Felix Semon[5] reports satisfactory results in twice the number of cases. Finke[6] takes opposite views. Schadle of St. Paul in his experiments claims that in hay fever he finds a fluid of butter milk consistency filling the cavities of the antra. Loeb[7] of St. Louis has written an exhaustive article highly commending the virtues of the Dunbar treatment. He advises against the employment of too large doses and warns us not to confound false hay fever or vaso-motor rhinitis with the true variety.

McCoy[8] of Philadelphia has extolled the serum treatment, having in 1903 had great success, but in 1904 he was not so fortunate, but believes that he employed too large doses.

Knight[9] of New York reports 219 cases collected from eighty-one physicians, which are summarized as follows:

Effectively benefited, 114, or 52 per cent.
Partially benefited, 66, or 30 per cent.
Not benefited, 39, or 18 per cent.

Of the total number of cases, there were among them 68 asthma cases. Of these there were:

Effectively benefited, 30 or 44 per cent.
Partially benefited, 26 or 36 per cent.
Not benefited, 13 or 20 per cent.

This corresponds closely to results of Lübbert and Prausnitz.[10] Somers of Philadelphia[11] in 1903 obtained gratifying results in nine out of ten cases. Since 1903 the results have been quite as satisfactory. The more recent experience, however, has cleared up certain doubtful points, viz: The vernal type, though greatly ameliorated, runs its usual length of time.

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[1] N. Y. Med. News, July 7, 1900.

[2] N. Y. Med. Rec., July 13, 1901.

[3] Zur Ursache u. specifischen Heilung d. Heufiebers, 1903, Deutsche Med. Wochschr., 1903, ix; Reps. Berliner klin. Wochschr., 1903; Anns. of Otol., Rhino. and Laryngol., June, 1905.

[4] Edinburgh Med. Jour., July 18, 1903.

[5] Brit. Med. Jour., July 18, 1903.

[6] Therap. Monatschr., December, 1904.

[7] Anns. of Otol., Rhino. and Laryngol., June, 1905.

[8] N. Y. Med. Jour., 1903, xxi.

[9] Med. Rec., March 10, 1906.

[10] Therap. Monatschr., 1904, 175.

[11] Phila. Med. Soc. Proc., Dec. 31, 1904, and Laryngoscope, May, 1906.

In the autumnal catarrh the antitoxin shows its superior qualities. The asthma and dyspneic symptoms disappear a few days later than the others, but its effect here is remarkable. Errors in diagnosis play the greatest part in the failures. In treatment by antitoxin the results would be better if commenced before the intumescent period, so that the powder or serum could be more readily absorbed. The smallest dosage is to be used and repeated every ten minutes if necessary. Especially it should be given on first going out of doors.

His chief conclusions, as a result of his larger experience, are:

1. The antitoxin produces a prompt and positive amelioration of the symptoms of hay fever in a large majority of cases.
2. In a smaller number, this is accompanied by complete disappearance of the affection for that season.
3. Where slight or no action is seen, it is due to improper administration; while in a small number, some idiosyncrasy is undoubtedly active.
4. When results are obtained, it favorably influences all the manifestations of hay fever in the larger number of cases; while in a smaller class, one or more of the symptoms seem to be most markedly influenced.
5. When given during the attack irrespective of its severity, it produced palliation rather than an absolute cure.
6. When successfully used during one season, it does not prevent the reappearance of the disease the following season, although there is reason to believe that a slight influence in modifying future attacks does exist.
7. The antitoxin is effective in both liquid and powder form, but the latter is preferable, as it is staple, does not require a preservative and is more convenient for the use of the patient.

Joachim[12] of New Orleans has written a most comprehensive paper, to which is referred any one who wishes to know every detail of the preparation of the pollen toxins and their antitoxins. In this monograph it is asserted that the antitoxin of one grain as rye will neutralize the toxin solution of golden rod. This fact suggests the possibility of an antitoxin being discovered which will eventually be a universal curative agent and prophylactic against all pollen coryzas.

In response to three hundred inquiries made by me of specialists as to their opinion of the value of the Dunbar preparations, it is interesting to note that in the responses a great majority state that without the removal of spurs, ridges, etc., the treatment has been unsatisfactory.

It must be a surprise to bacteriologists to find that the theory of micro-organic toxins and their side-chain immunizing antitoxins as demonstrated by Ehrlich should hold good for the toxins of vegetable pollens and their antitoxins. If it be truly a fact that pollantin will cure a limited class of cases properly diagnosed we must accord honor to whom honor is due. All widely-heralded specifics are satisfactory at first, so is Christian science; but truth in the end will prevail and by careful dissection we will eliminate the bad from the good, and only by means of such discussions as this which I am formulating can we discover what is good. It will be interesting to give a few abstracted replies to my 300 inquiries as to the effect of the Dunbar treatment, to illustrate the difficulty of obtaining statistics from widely-separated experimentors.

D. H. Trowbridge, Fresno, Cal.: Dunbar's treatment used in a few cases with only partial success. I have had marked success by removing the turbinates with several entire cures. I have found adrenalin efficacious in many cases.

John J. Kyle, Indianapolis: I have never seen any cures from pollantin. As regards adrenalin and its tendency to cause arteriosclerosis, I call attention to article of Pearce and Stanton.[13]

H. L. Swain, New Haven, Conn.: It will take many years to determine its value and limitations (pollantin). In some cases it seems to act favorably. Adrenalin gives unquestioned comfort, if not complete relief, to many a victim.

Walter J. Freeman, Philadelphia: I have used the Dunbar treatment in a few cases with not sufficiently encouraging results for further trial.

F. C. Ard, Plainfield, N. J.: I have used pollantin in a few cases only, the results were not particularly satisfactory.

T. P. Berens, New York City: Have not used it myself, but judge from about twelve cases which have been reported to me by others that about nine of the patients have received decided benefit.

Urban G. Hitchcock, New York City: I have had most gratifying results by the use of adrenalin solution given internally and as a nasal spray.

J. M. Ingersoll, Cleveland, Ohio: I have used the Dunbar treatment considerably during the past three years. With intelligent cooperation on the part of the patient a large percentage obtain very marked relief. Old cases are not as amenable as recent ones, but receive benefit.

Thomas J. Gallagher, Denver: I have found benefit in cases occurring in June and July; in those of August and September the results were very unsatisfactory, though the appropriate serum was used.

L. C. Cline, Indianapolis, Ind.: I tried pollantin on several patients with no better results than with adrenalin and bromids; with either treatment patients do better who remain indoors.

George C. Stout, Philadelphia: I would say that I have come to regard Dunbar's serum as a routine beginning treatment. It has given excellent results in 60 per cent. of all cases, and has improved nearly 30 per cent. of the remainder, even when the patients were not confined to the house. The powdered form of pollantin has proved most popular. Ambrosia has materially benefited a few cases. The percentage of improvements would probably not be higher than 10 per cent. In selected cases the application of 10 per cent. solution of chromic acid (after cocainization) to the vaso-dilated area has been very beneficial. Modified adrenalin sprays have been successful enough to warrant their use in many cases. In all hay-fever cases which come to me between the attacks I aim to restore the nose to a normal anatomic condition before the onset of the attack.

Frank E. Miller, New York City: Have found the Dunbar treatment of very great value. While not a specific, it brings great relief.

George E. Keiper, Lafayette, Ind.: Have used Dunbar's serum with no effect.

J. Payson Clark, Boston: Have used Dunbar's pollantin the past two seasons with marked benefit in a majority of cases.

John Dunn, Richmond, Va.: Have used Dunbar's treatment in several cases. In no case did it prove of the slightest benefit.

B. S. Booth, Troy, N. Y.: Professor Dunbar's treatment combined with adrenalin 1 to 5,000 nasal spray has controlled every case on which I have used it.

Francis R. Packard, Philadelphia: I have used Professor Dunbar's treatment in exactly six cases of hay fever, in every one of which it was a complete failure. I unfortunately suffer from the complaint myself, and tried the remedy on my own person with the effect that it made me considerably worse. I do not believe that there has been yet found any specific. My own treatment is to correct any pathologic conditions which may exist in the nasal cavities, to dminister strychnin and arsenic internally, and to constringe he tissues with a weak solution of adrenalin.

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[12] New Orleans Med. and Surg. Jour., 1904, lvi.

[13] Jour. of Exper. Med., 1906.

J. Solis-Cohen, Philadelphia: I have used Professor Dunbar's treatment with success on some patients, and with indifference and absolute failure on others. Last year I found very excellent results in a powder used in the same way and composed of suprarenalin 1 part, magnesia silicate 450 parts, heavy magnesia carbonate 450 parts, and compound zinc stearate 100 parts. I always try to attend to constitutional conditions no matter what tropical measures may be employed, and make my patients use as loose and light clothing as they can be comfortable with, make them abstain from stimulating and spicy diets, avoid mental excitement and keep their emunctories in good working order. My daughter still pins her faith to liq. ambrosia.

F. T. Rogers, Providence, R. I.: Have used the Dunbar treatment in four cases the past year. The result in three was absolutely nil. In one the severity of the attack was lessened.

F. E. Hopkins, Springfield, Mass.: I still cling to adrenalin.

John V. Mackenzie, Baltimore: For my views on the Dunbar treatment I must refer you to a previous paper.[14] The pollantin relieves some temporarily, has no effect in many, aggravates the trouble in not a few. Among my friends and acquaintances, lay and professional, the general consensus of opinion is that while Dunbar's work is a model of scientific and laboratory research, it is at the same time virtually barren of practical result. I delivered the annual address last Friday before the Students' Club at the Jefferson College, in Philadelphia, and took as my subject the "Pathogenesis of Hay Fever." In conversation afterward with some of the leading men there, I found that they had abandoned the Dunbar serum from failure to get results.

W. G. B. Harland, Philadelphia: I have used pollantin in ten cases. It has afforded some relief in four, which were of an especially nervous type.

Otto J. Stein, Chicago: I have somewhat modified my enthusiasm since my paper,[15] read before the Chicago Medical Society in 1905. Chiefly on account of the patent feature and style of package. While success has been attained in some cases with ambrosia and other drugs, must candidly admit that pollantin has given best results.

Norton J. Wilson, Elizabeth, N. J.: Pollantin is to my mind the nearest approach to a specific which has been put on the market.

E. Fletcher Ingals, Chicago: I tried Professor Dunbar's treatment quite exclusively, but without much success except in one case. A patient after first using it told me that he had never had anything relieve him so much in his life, but I saw him about a month later and in answer to my inquiry how he got along, said that he had had a very bad time and that the remedy, like all the others, had proved useless.

James A. Thompson, Cincinnati: I have not used the Dunbar serum. Late last fall I received from Parke, Davis & Co. a ragweed serum that was wonderfully effective in one case. In another it had comparatively little effect. The serum was received so late in the fall that I treated only two patients with it. I have been using for several years a treatment that has proved very effective. The nose is first sprayed with a 1 to 8,000 solution of adrenalin chlorid. Five minutes later with a powder blower the membrane is covered with a powder containing equal parts of stearate of zinc and boric acid. Dunbar's experiments have shown that the toxic portion of the pollen is soluble only in alkaline solutions. By a repetition of this treatment at short intervals you can keep the nasal secretions mildly acid and relieve irritation so that 75 per cent. of your patients can go about their daily work in comfort. This treatment has proved so effective in my cases that I have not resorted to the Dunbar serum.

L. M. Hurd, New York City: I have found benefit in about 50 per cent. of cases. Adrenalin seems to give as good results.

Robert Levy, Denver: My results in 1906 have been sufficiently gratifying to warrant me in continuing the Dunbar treatment.

P. F. Gildea, Colorado Springs, Colo.: In twenty-five cases treated with Dunbar serum last season the results were as follows: Ten total relief, ten partial relief and five received no benefit.

Dunbar Roy, Atlanta, Ga.: I have used pollantin for two seasons in a limited number of cases, with no decided results one way or the other.

George A. Richards, Fall River, Mass.: I have only heard of negative results from patients who have used pollantin.

Dr. Richards uses adrenalin chlorid in normal salt solution 1 to 14,000. He finds aristol alone, or combined with stearate of zinc, or powdered suprarenalin very efficacious applied with a powder blower. Itching eyes are controlled by a drop of 10 per cent. to 20 per. cent. solution of argyrol. He gives extract of belladonna or atropin internally until dryness of throat is produced, after this occurs the doses are diminished.

T. W. Corwin, Newark, N. J.: I consider pollantin the remedy of choice. If results are not almost immediately obtained, the remedy is useless.

Dr. Corwin sent tabulated report of twenty-one cases, the control being full and satisfactory in thirteen.

B. R. Kennon, Norfolk, Va.: I have used Professor Dunbar's in four cases, two of which were much benefited; the other two reported no effect.

Robert Levy, Denver: I am pleased to say that my experience during the summer of 1906 with 18 cases, only 4 of which were not relieved, warrant me in continuing the pollantin treatment for the present.

Dr. Levy, after failures in the Dunbar treatment, visited Hamburg, and an interesting account was published[16] of his conversion by Professor Dunbar.

SUMMARY.

A careful study of the facts at my disposal leads me to the following conclusions:

1. Hay fever is a disorder amenable to no specific treatment.
2. The number of cases of hyperesthetic rhinitis from other causes than rag weed and other pollens is about one-third of the total number.
3. About one-third of the cases supposed to be due to pollen reaction may be relieved by constitutional and surgical methods of treatment. Predisposition to attack in these cases being due to definite causes, would suggest the theory that induced enervation of the sympathetic was an important etiologic factor.
4. Primary intoxications may take place from pollen toxins in cases where the sympathetic system apparently is not previously enervated. These cases, theoretically, should react to antitoxin treatment.
5. The consensus of opinion to-day is against the claims made for pollantin, though observers who have been instructed personally by Professor Dunbar indorse unqualifiedly the great benefit to be derived from the treatment.
6. Medically the suprarenal capsule products hold the first place to-day in the treatment of hyperesthetic rhinitis.
7. The importance of constitutional treatment as an adjunct to any local application is of supreme importance.
8. The best of all treatments yet found is the climatic, with previous attention to nasal conditions.

118 Madison Avenue.

[THE DISCUSSION ON THIS PAPER AND THAT OF DR. KYLE WILL APPEAR LATER IN CONNECTION WITH THE LATTER PAPER, WHICH IS NOT YET RECEIVED.]

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[14] Trans. of American Laryngol. Assn., 1905, 265.

[15] Chicago Med. Rec., April, 1905.

[16] Colorado Med., April, 1906.

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[*For other information see second page following reading matter.*]

SATURDAY, JULY 13, 1907.

ABDOMINAL ARTERIOSCLEROSIS.

The importance of arteriosclerosis as a cause of obscure abdominal conditions has not yet received wide recognition. The more common manifestations of the disease are now well known, and the fact that arterial lesions are apt to be associated with a clinical picture in which intermittency is one of the striking features is appreciated so far as certain organs are concerned. In proof of this, it is only necessary to refer to the large literature of recent years bearing on the pathogenesis of angina pectoris and the growing number of reports on the so-called *"intermittierendes hinken"* or intermittent limping.

The association of certain intermittent abdominal conditions with arteriosclerosis of the vessels of the abdominal viscera was first pointed out by Henri Huchard and the French school, but has recently been the subject of comment by German writers also. Perutz[1] gives an excellent summary of the subject in a recent article. His paper shows that a variety of clinical pictures may be associated with abdominal arteriosclerosis, and also indicates that in some cases of thoracic arteriosclerosis the symptoms are referred to the abdomen, making errors in diagnosis likely. It has been recognized by cardiologists for years that in attacks of true angina pectoris the pain may be referred to the epigastrium. Perutz emphasizes this fact by the histories of certain patients of his own and by others culled from the literature. It would seem very necessary to differentiate sharply such cases of angina pectoris from real angina abdominis in which the seat of the trouble is in the abdominal cavity. This differentiation will usually be easy if the physician does not content himself with an abdominal examination only in such patients. Generally cardiac and arterial changes will be found and the patient will give a history pointing to intrathoracic disease, such as radiation of the pain down the left arm or the presence of dyspnea or cardiac uneasiness on slight exertion.

The diagnosis of the conditions due to abdominal arteriosclerosis is by no means simple. The results of treatment may be the only index to the true condition in a good many instances. Many of the patients give a history of general nervousness and gastric catarrh. In others the occurrence of pain after eating only, with vomiting, distension, and even gastric hemorrhage, leads to the diagnosis of ulcer or carcinoma of the stomach. Hematemesis in abdominal arteriosclerosis is not very uncommon. Meteorism and constipation are often present. When such symptoms occur intermittently in an individual with well-marked arteriosclerosis, and are relieved by medicaments directed against the arterial condition, such as iodids and nitrites, we are justified in suspecting that abdominal arteriosclerosis is at the root of the matter. It is well to remember, too, that there is evidence that, just as in angina pectoris, a toxic form of the condition associated with excessive use of tobacco and other poisons may occur. Some, in fact, believe ordinary lead colic to be of this nature. The essential lesion seems to be a spasm of the vessels, and here, as in angina pectoris, it is a question whether the pain originates in the walls of the spastic vessels or is due to the indirect influence of the circulatory disturbance on the nervous system.

THE PLAGUE OF RATS.

The Darwinist tells us that if it were not for the law of the survival of the fittest, and for the equally cruel law of Nature which impels sentient creatures to prey one on another, any single given species would within a few years overrun the earth. This dictum seems well borne out in an official bulletin recently issued,[1] in which we are warned against the rat. This prolific pest breeds three or four times a year; the females breeding when about four or five months old. The average litter is ten, but it often numbers fourteen or more. As a conservative estimate, a single pair, breeding without check or life losses, three litters of ten each in the year, would in three years have a progeny numbering upward of twenty million. The eleventh generation would begin the fourth year numbering over one hundred millions.

The roof, or Egyptian rat (*Mus alexandrinus*) infests ships especially, and is more common along our coast, especially in the south. The brown rat (*Mus norvegicus*) is the inland pest, and it destroys more of our property than all other noxious animals combined. "If for each cow, horse, sheep and hog on the farms of the United States the farmers support one rat on grain the toll levied on the cereals by these rodents would reach the enormous total of $100,000,000 a year."

But to the physician the matter is especially important in that rodents—both rats and mice—are perhaps more frequently than we imagine disseminators of disease. It seems they have been almost entirely responsible for the propagation of bubonic plague from port to port. They have brought forth from their sunless and foul hiding places the germs of typhus and typhoid fevers, and no doubt also of tuberculosis. It would seem that they may in very loathsome ways stand in a causative relation to cases of trichinosis in human subjects. It is declared that in the Chicago stockyards hogs have been seen to catch and eat rats, and that on the other hand rats are known to devour the tainted, diseased flesh of the hog. Remlinger, of the Pasteur Institute in Constantinople, has found rodents to be very susceptible to hydrophobic infection; they may, therefore, be responsible for canine rabies.

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[1] Münch. med. Wochschr., May 28 and June 4, 1907.

[1] Farmer's Bulletin 297, U. S. Department of Agriculture, Washington, D. C.

The methods for the destruction of the rat given in the bulletin here noticed are those which careful experiments have shown to be the best, yet they are not infallible. Such a method "would be worth more to the people of the United States in a single decade than the Department of Agriculture has cost since its establishment."

The more important measures suggested for destroying them are poison, traps, ferrets and fumigation. Barium carbonate and strychnin are the most useful poisons. Traps are a most effective method of destroying rats if persistently used. The so-called guillotine or "break-back" type of trap, made entirely of metal, is probably the best. Ferrets and dogs are useful, but only when employed by persons experienced in handling them. In fumigation a wad of cotton saturated with carbon disulphid is pushed into the burrow and the opening closed with soil to prevent the escape of gas. This method is not available in dwellings.

We would observe, however, that the rat after all serves a purpose, as does pretty much everything else in Nature. If communities will permit the accumulation of filth and putrescence they must perforce endure this creature, which is a natural scavenger of such matter. Rats, unless they would starve, must necessarily desert habitations which are properly constructed, well drained and clean from the foundations up. In cities the careful screening of the entrance to sewers and the stopping of all holes in the floors and walls of houses should form a part of the sanitary crusade and would go far to making it impossible for the pest of rats and mice to continue. The most effective means of exterminating them lies in strict obedience to those laws of sanitation and prophylaxis which modern science has succinctly formulated.

MEDICAL ADMINISTRATION AND MEDICAL RESEARCH.

A severe indictment of the methods of British medical administration in India—and incidentally elsewhere—is made by Dr. Ronald Ross in a signed communication in *Nature* June 13. Notwithstanding the numerous opportunities tempting a progressive physician to research in almost unknown fields, investigation formerly was not merely not encouraged by the higher medical authorities, but it was positively discouraged. During about twelve of his eighteen years in the Indian Medical Service he says he was one of many junior medical officers who had practically little to do, his official duties occupying him hardly more than two hours a day. Yet, when in 1884 he asked his chief if he would like to have him investigate the indigenous fevers during his abundant leisure, he was told that his duty was not to investigate but to cure, as if the second were possible without the first. There was no encouragement for efficiency, examinations for promotion were unknown, leave and opportunity for study could scarcely be obtained and apparatus was generally unsupplied. When at last he had, under all these disadvantages, succeeded in working out the life history of the malarial parasite in the mosquito he could obtain no satisfactory assurance that he would be allowed to follow up his work and not be deprived of the necessary facilities; he, therefore, left the country to continue his investigations elsewhere. No steps were taken for years by the authorities to follow his recommendations to control malaria by proper drainage, etc., and no official recognition was given of his services. He does not know, he says, of a single instance in British administration where promotion or good service pension has been given as a reward for medical research. On the other hand, men have actually suffered because of their investigations, like King, who many years ago produced a good bovine vaccine from the calf and lost his position on account of it, and, more recently, Haffkine, who, notwithstanding his universally recognized great services, is now out of government employ because of an utterly unfounded charge that tetanus was produced by his plague vaccine.

Recently, however, probably since Ross wrote this article, Mr. Morley stated in Parliament that the government desires to retain Mr. Haffkine's services, and such a statement practically constitutes an apology. At present Ross admits that matters are somewhat improved, some of the medical budget of the Indian Medical Service is being devoted to encouraging research on diseases like kala azar, Malta fever and plague, officers of the service are allowed study leave, and outside of India creditable work has been done on Malta fever and sleeping sickness. But, in his opinion, there is still too little official encouragement of scientific work by medical men in the British government employ. There is abundant opportunity, he thinks, for the employment of at least 5 per cent. of all the expenditure by the government for medical and sanitary purposes in research work. Britain's position in the scientific world, he says, is not due to government encouragement, but to private individual effort. This is true not only in medical matters but in all other deparments as well, and whether or not a nation so wedded to conservatism will be able to change its ways in time for its own salvation, should the struggle for national supremacy or even existence become urgent, is a question he says he can not touch on in his communication.

Ross paints a black picture of certain conditions of British medical administration in the comparatively recent past, and one that is only partially relieved by more hopeful indications in the present. While we can not charge our own national government with discouraging scientific medical or other research, it nevertheless has its own faults and it is no part of patriotism to ignore them. In India they at least recognized one need that we fail to appreciate, to our cost in times of stress, that is the need of maintaining a medical corps that will be sufficient in case of emergency.

THE MODE OF ACTION OF THE FINSEN LIGHT.

When in 1896 Finsen introduced the use of concentrated light rays into therapeutics he did it chiefly with the idea that the light rays acted by destroying the bacteria in the tissues without considerably injuring the tissues themselves. It was well known that bacteria are readily destroyed by light, and, therefore, it was naturally assumed that the healing of lupus and similar conditions depends on a powerfully bactericidal effect of the concentrated light rays. When, stimulated by Finsen's researches, the exact method of the action of light on bacteria was more carefully investigated there were found reasons to question the correctness of this assumption. In particular it was shown by Bang that whereas the chief bactericidal power of light depends on certain of the ultra-violet rays, it is these very rays that have the least power of penetrating the tissue; even a thin layer of hornified epidermis is sufficient to shut them entirely out. Agreeing with this fact, it has been repeatedly demonstrated that exposure of tuberculous tissues to the Finsen lamp does not destroy the bacilli in them.

The entire mechanism of the action of Finsen light has been elaborately reviewed and investigated by Jansen[1] in the Finsen Institute at Copenhagen, and he finds the capacity of the therapeutic lamp to disinfect tuberculous tissues to be extremely small; a one-hour exposure destroys bacteria only to a depth of, at the most, 0.2 millimeter from the surface. Furthermore, contrary to the hope once held forth that the light rays affect bacteria more than tissues, it was found that the same degree of exposure kills epithelial cells to a depth of 0.5 millimeter and causes a severe serohemorrhagic exudation and thrombosis. Connective tissue cells are much less affected by the light than are the epithelial cells, and the collagenous interstitial substance is highly resistant; consequently the exposure to light is followed by a marked fibrous hyperplasia. This fibrous tissue growth is in no way a specific result of the action of the light rays, but is a simple inflammatory reaction.

Jansen concludes that the Finsen light acts merely as a form of caustic which is peculiarly effective because it acts most on the pathologic cells and spares the connective tissues to an unusual degree, thus favoring regenerative activity. Only the ultra-violet rays have any considerable effect on the tissues, the blue rays being but feebly active, while red, yellow and green rays produce no demonstrable histologic changes.

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[1] Ziegler's Beiträge, 1907, xli, p. 277.

THE ST. LOUIS LUNACY COMMISSION.

In view of the recent exacerbation of public distrust of medical expert testimony since the Thaw trial in New York the proposition to give legal recognition to the St. Louis Commission on Insanity of the city jail is of interest. The plan adopted has been to give to the prosecuting attorney, in the case of every prisoner concerning whose sanity there was question, the opinion of a committee of prominent physicians, two of them professors of mental diseases in medical schools. The opinions of this—in a sense—self-constituted and voluntary commission have been accepted and acted on by the prosecuting attorney and the judges of the criminal courts. In case the prisoner is declared insane by the commission the prosecuting attorney can ask that he be placed in an asylum instead of coming to trial. Heretofore the practice has been to let the defense of insanity be raised at the trial and be vigorously combated by the prosecution. The chances of injustice to a really insane person accused of crime and the needless expense to the public of such a course need no demonstration. Thus far no attempt has been made to question the right of the commission to declare an accused person insane, but the possibility of the question being raised at any time has led to the steps to give it a recognized legal status. The commission has acted in about fifty cases, furnishing disinterested testimony that is declared invaluable by the prosecuting attorney. There is no apparent reason why a similar arrangement would not be equally practicable in any of our large cities and equally advantageous. It may not be possible to abolish the defense of insanity altogether, as the St. Louis circuit attorney suggests, but it certainly would be less frequent if the mental condition of the accused could always be passed on before trial by a commission of disinterested experts, and the avoidance of even a percentage of the useless and expensive trials of insane persons that now occur would be a blessing. Of course the judgment of such a commission would not necessarily mean conviction or acquittal; in many doubtful cases the commission might with propriety suggest a temporary commitment to an asylum for observation, and there ought to be legal provision for such commitment. The plan seems to be as good a one as any that have been suggested for the relief of the present unsatisfactory situation as regards medical expert testimony in criminal trials, and the fact that it has worked so well in St. Louis should be taken as a recommendation of its trial elsewhere.

HYGIENE VS. FEEDING IN INFANCY.

From investigations recently made in Great Britain[1] and further borne out by similar studies in this country, there seems to be no doubt that correct feeding of infants is a more potent factor in the development of healthy children than hygienic surroundings. It was found on examining a large number of Jews and gentile children in the slum districts of London and Leeds that the preponderance of health and general physique is largely with the Hebrews. This is the more strange, as it was found that the poorer class of Jews live under the most unhygienic and unspeakably squalid surroundings and are much more poorly housed and overcrowded than a similar class of gentiles. The explanation advanced is that the Jewish mothers invariably nurse their infants and the older children have a food richer in fats and oils than do the gentile children. Another point of interest is the fact that the Jewish mother practically never works in factories, sweatshops, etc. The manager of a large factory, in which are employed a number of women and girls, stated that when a Jewess leaves the factory to get married that is the last he sees of her. With gentiles of the same class it is a common thing for them to reapply for positions after a few weeks or months of married life. The reason ascribed in this case was that there is among the Hebrews a feeling that it is a disgrace for the wife and mother to have to do aught than keep up the home. These facts appear to be another verification of the oft-expressed belief that mother-care and what goes with it will cover a multitude of hygienic sins.

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[1] The Journal A. M. A., June 22, 1907, 2127.

PANICKY SANITATION AGAIN.

Announcement was made in the newspapers recently that the public health officials of Texas were about to proclaim a permanent quarantine against all cases of advanced tuberculosis, placing the disease in the same class with smallpox and yellow fever as a peril to the public health. If the report is true it is to be hoped that the health authorities have by this time reconsidered their determination. The conquest of tuberculosis is not to be achieved by such measures as quarantine, but by building up the resistance and improving the environment. The danger of the infection from even the most advanced cases is not comparable to that of other legitimately quarantinable diseases; it is avoidable by the use of very simple and practicable precautions. Even advanced cases—a rather indefinite class—are sometimes curable, and if the climatic conditions in Texas are such as to afford some of the sufferers their best chance for recovery or relief the proposition to exclude them from such benefits is liable to be criticised as hardly creditable, under the circumstances, to the head and heart of the one originating it. It is useless to attempt to exclude a ubiquitous infection by any such methods, and it is worse than futile to attempt to excuse them on the ground of philanthropy or a desire to protect the citizens of the state. As might have been expected, the proposition is reported to have aroused a storm of protests from Texans who see in it a threat against the honor and prosperity of the state, and it is to be hoped that their wishes will prevail.

ACCIDENT POLICIES AND PROFESSIONAL RISKS.

A decision of the United States Court of Appeals at St. Louis may be of interest to physicians. A dentist while operating on a patient received some particles of septic matter in his eye that were coughed or spat out by the patient, and it was alleged blood poisoning occurred, disabling him for many weeks. He recovered judgment against the Fidelity and Casuality Company of New York in the Federal Court at Denver for $1,000, which judgment was reversed by the Appellate Court. This court held that a wound, within the meaning of an accident policy covering blood poisoning, must be an abrasion of the skin or membrane by which the germs are introduced into the blood. This may be a good legal technicality, but it will hardly receive medical approval. The ability of mucous membranes to absorb germs should be taken into account in any accident policy of this sort. The use of such a technicality on the part of an insurance company to evade its obligations is, we may reasonably assume, a violation of the implied understanding with which every physician takes out such a policy. All physicians are liable to serious risks, often unavoidable, and the question of determining the existence of an abrasion is sometimes a difficult one. It may exist without its subject either being aware of it or of being able to prove its existence afterward and the fact of blood poisoning through the skin is itself presumptive evidence of such lesion. On especially vulnerable parts like the eye the fact that an actual abrasion is not necessary for the production of serious results from the contact with toxins or germs should be recognized in every policy issued by an accident insurance company. It will be well for physicians to see that their accident policies cover all reasonable professional risks and take them out in companies that specifically recognize such liabilities.

Medical News

CALIFORNIA.

Society Meeting.—At the annual meeting of the Yuba-Sutter County Medical Society, held in Yuba City, June 17, the following officers were elected: President, Dr. James H. Barr, and secretary-treasurer, Dr. George W. Stratton, both of Marysville.

Personal.—Dr. Allen F. Gillihan, Berkeley, has been appointed medical examiner at the university during the absence of Dr. George F. Reinhardt in Europe.——Dr. Thomas C. Stockton, San Diego, who was injured by inhaling smoke at a brush fire June 24, is reported to be much improved.

Hospital Notes.—The McCloud Hospital, recently built, is now fully equipped and occupied. The staff consists of Drs. Robert T. Legge and Harrington B. Graham.——Drs. Norman D. Morrison, H. D. Bowers, Wood C. Baker and A. L. Oldfield are interested in building a fireproof steel and stone hospital at San Mateo.

Vital Statistics for May.—During May 1,992 births, 1,796 marriages and 2,540 deaths were reported in the state. Of these deaths 378, or 14.9 per cent., were due to tuberculosis; 340, or 13.4 per cent., to diseases of the circulatory system; 296, or 11.7 per cent., to diseases of the respiratory system; 204 to diseases of the nervous system, and 62 to meningitis. Of the epidemic diseases measles caused 28 deaths; typhoid fever, 27; diphtheria, 19; scarlet fever, 16; whooping-cough, 15, and malarial fever, 7.

COLORADO.

May Deaths.—During May 911 deaths were reported, equivalent to an annual death rate per 1,000 of 17.42. Of the deaths 27 were due to scarlet fever, 7 to typhoid fever, and 4 to diphtheria.

Contagious Diseases.—During May 430 cases of scarlet fever were reported, 241 of which were in Denver County; 158 cases of smallpox; 35 cases of diphtheria, and 27 of typhoid fever. As compared with the previous month, May shows a decrease of 3 cases of diphtheria and 5 cases of smallpox, and an increase of 162 cases of scarlet fever and 11 cases of typhoid fever.

Corner-stones Laid.—The corner-stones of the five new buildings being erected by the Jewish Consumptives' Relief Society at Edgewater were laid June 27 with appropriate ceremonies. The buildings comprise a pavilion for bedridden patients, medical building, boiler house and brick stables.

ILLINOIS.

Donation to Charity.—By the will of the late John C. Proctor, Peoria, $300,000 is given to the Cottage Hospital in that city.

Personal.—Dr. William B. Kunze has been appointed health commissioner of Belleville.——Dr. Alexander Gray has been elected health officer of Savanna.——Dr. Don A. Vanderhoof and family, Byron, will sail for Vienna August 3, for a year of postgraduate work.

Communicable Diseases.—Malignant diphtheria has appeared in Arenzville. There has been one death in one family and four children are seriously ill.——Three homes in Belvidere are quarantined on account of smallpox.——Several cases of smallpox have been reported to the state board from Tolono, Champaign County.——Aurora reports 35 cases of smallpox in 13 families.

Chicago.

Sanitarium Opened.—La Rabida, the Jackson Park sanitarium, had its formal opening June 29, for members of the board and guests. On July 1 the institution was opened to the public.

New Hospital Addition.—Several buildings on Hermitage Avenue are being razed to make preparations for the erection of the $300,000 addition to the Presbyterian Hospital. The plans provide for 75 rooms, besides quarters for nurses and employés.

Lectures to Women.—Lectures to women and girls are being delivered each Saturday afternoon in July at the Public Library and at the Academy of Science, in Lincoln Park, under the management of the Chicago Women's Club and the Chicago Society of Social Hygiene.

Another Sundown College.—Another night medical school has begun work in Chicago under the name of the Reliance Medical College. This makes four schools of this kind in the city. Its announcement states that 34 physicians have been enrolled on the faculty and that a class of 60 has already registered.

The City Clean.—The distribution of 100,000 signs, to be posted all over the city, was commenced recently by the commissioner of public works. The signs read as follows: "Post No Bills. Don't Sweep Dirt into Street. Don't Spit on the Sidewalk. Don't Litter the Streets. Police Will Enforce the Above. Fred A. Busse, Mayor."

Fourth of July Accidents.—The ambulances of the health department made 216 runs on the Fourth of July, or 40 fewer than those made for the previous week. They removed 120 sick or injured persons to the hospital, 15 to their homes. The ambulance surgeons treated 63 sick or injured persons at police stations, 9 at places of accident and gave one treatment for heat stroke.

Deaths of the Week.—The total number of deaths from all causes during the week ended July 6 was 456, or 23 fewer than for the preceding week and 15 fewer than for the corresponding week of last year. The death rate was equivalent to 11.28 per 1,000 annually. Pneumonia caused 54 deaths; consumption, 53; heart disease, 42; violence (including suicide), 34; acute intestinal diseases, 27; cancer, 21, and nervous diseases, 17.

Medical Society Meeting.—At the annual meeting of the Chicago Medical Society, held June 19, the reports of the work done during the year by the branch and affiliated societies were read. In the report of the organization committee it was stated that there had been addded to the society 228 members during the year, increasing the membership to 2,058 at the present time, and that one new district had been formed in the extreme south end of the county. Much work was done by the committee under the direction of the council and the committee on public relations at the last session of the state legislature. The contract practice committee reported that in its opinion the only solution of the entire question must come through complete organization of the medical profession and that the more completely the profession is organized the more satisfactory will be the final adjudication. The committee on the abuse of medical charities made a recommendation that a committee be appointed whose duty it shall be to bring into one federation all reputable dispensaries for the purpose of overcoming the evils that now exist; that all dispensaries be required to keep complete and open records of all cases treated; that all dispensaries have conspicuous signs, stating that the dispensary is for the deserving poor only, and that none but the deserving poor shall receive treatment or be received at any dispensary and that whenever patients are treated gratuitously at free dispensaries they shall be used for teaching purposes. The committee on criminal abortion reported that it had succeeded by means of harmonious cooperation with the coroner and state's attorney in suppressing all objectionable advertisements in the daily press of Chicago. The report of the secretary showed that the society at present has 66 life members, 29 members emeritus, 5 honorary members and 1,877 resident members and 130 nonresident members, making a total of 2,107. During the year 228 new members have been elected, and 38 have been lost by transfer, resignation, removal or death. The president, Dr. George W. Webster, in his annual address, gave a brief report of the work of the committees for the year. The treasurer reported receipts of $11,231.76; disbursements of $7,599.46, and cash on hand, $3,632.30. The following officers were elected: President, Henry B. Favill; secretary, Dr. Robert T. Gillmore; councilors, Drs. Adolph Gehrmann, William L. Noble, George Bell, Frank X. Walls and William L. Baum; alternates, Drs. Heman Spalding, Charles E. Paddock, A. Belcham Keyes, William S. Pickard and Ernest C. Riebel.

INDIANA.

Tuberculosis Farm Site Wanted.—At a meeting of the Indiana Tuberculosis Hospital Commission, June 13, it was decided to divide the state into sections for a preliminary inspection of sites for the proposed hospital. The site should be on good land, part timbered, 600 feet above sea level, with sheltered portions, good water and railroad facilities, and should contain at least 500 acres.

Tuberculosis Dispensary.—The tuberculosis clinic at the City Dispensary, Indianapolis, under the charge of Dr. George Wysong, opened for the reception of patients July 10. The patient will be furnished with instructions as to his care of himself and the avoidance of the spread of the disease, and a nurse will visit the home of the patient and instruct the members of the family as to the care required.

Personal.—Dr. John L. Freeland, Indianapolis, has been appointed superintendent of the City Hospital, vice Dr. Norman E. Jobes, and will assume his duties July 15.——Dr. Edwin Walker, recently elected first vice-president of the American Medical Association, was given a banquet by the local medical profession of Evansville July 7. Dr. Ludson Worsham presided as toastmaster, and Dr. Walker responded to the toast to the American Medical Association.——In the case of Dr. Paul F. Martin against the city of Indianapolis, in which $1,077 was asked for services at the pesthouse, judgment was given in favor of Dr. Martin, June 29.——Dr. George Revis has been appointed physician to the Lafayette Detention Hospital, vice Dr. William P. Youkey, deceased.

IOWA.

Personal.—Dr. Park A. Findley, formerly of Des Moines, has been appointed assistant chief surgeon of the Mexican Central Railway and placed in charge of the Railway Hospital at Monterey.——Dr. Wilbert E. Harriman, physician of the Iowa State Agricultural College, Ames, since 1895, has resigned.

Faculty Changes.—The board of trustees of the Sioux City College of Medicine announces the following changes in its faculty: C. T. Stevens, professor of biology; W. W. Scott, professor of chemistry; Dr. Delmer S. Davis, assistant professor of chemistry; Dr. George S. Browning, profession of infectious diseases, and the Hon. W. L. Harding, professor of medical jurisprudence.

Society Meetings.—At the June meeting of the Dubuque County Medical Society, held June 18 and 19, Dr. Charles L. Scudder, Boston, read a paper illustrated by lantern slide demonstration on "Stenosis of the Pylorus in Infants;" Dr. George K. Swinburne, New York City, contributed a paper on "Kidney and Ureteral Stone;" Dr. Robert W. Lovett, Boston, delivered a paper on "Infantile Paralysis and Its Treatment," and Dr. Albert I. Bouffleur, Chicago, contributed a paper on "Compression of the Chest with So-called Traumatic Asphyxia."——At the annual meeting of the Alumni Association of Drake University, College of Medicine, Des Moines, Dr. Charles N. O. Leir, Des Moines, was elected president; Dr. Calvin W. Bufkin, Runnells, vice-president, and Dr. Robert L. Parker, Des Moines, secretary-treasurer.——At a meeting of the Central District

Medical Association, held in Boone, June 18, the following officers were elected: President, Dr. George H. Stanger; vice-president, Dr. Maurice A. Healy, and secretary-treasurer, Dr. James C. Walker, all of Boone.——The thirty-sixth annual meeting of the Des Moines Valley Medical Association was held in Ottumwa June 20. The following officers were elected: President, Dr. William L. Downing, Moulton; vice-presidents, Drs. Lewis A. Rodgers, Oskaloosa, and Jerry A. Replogle, Udell; secretary-treasurer, Dr. Fred W. Bowles, Ottumwa (re-elected); assistant secretary, Dr. Henry C. Young, Bloomfield, and censors, Drs. Marcus M. Pascoe, Ottumwa; Emmet T. Wickham, Washington, and James S. Gaumer, Fairfield.

KANSAS.

License Revoked.—The Kansas Medical Board is reported to have revoked the license of Dr. W. S. Ferguson, Kansas City, July 4.

Personal.—In a fire at Wetmore the office of Dr. Benjamin Skinner was destroyed.——Dr. E. B. Kneer has been appointed physician to the city and county of Atchison.——Dr. William H. Bogle, Atchison, is reported to be seriously ill with uremia.

State Board of Health Election.—At the annual meeting of the State Board of Health, held at Topeka, July 2, the following officers were elected: President, Dr. Jonathan B. Carlisle, Leon; vice-president, Dr. Alexander B. Scott, Jetmore, and bacteriologist, Dr. Sara E. Greenfield, Topeka.

Dispensary Moved.—The Kansas Medical College free dispensary has been moved from 204 Monroe Street to 209 Kansas Avenue, Topeka. Lecture rooms are to be fitted up at the dispensary and the last two years of the medical course will be carried on there.——The building and grounds of the Washburn Medical College, Twelfth and Argyle Streets, Topeka, have been sold for $8,000.

KENTUCKY.

Personal.—Dr. John C. Bogle has been elected health officer of Danville.——Dr. Louis H. Mulligan, Lexington, has been made superintendent of the Central Kentucky Hospital for the Insane, Lakeland; Dr. James W. Stephens, Lakeland, superintendent of the Western Kentucky Hospital for the Insane, Hopkinsville, and Alexander Bailey, Hopkinsville, superintendent of the Kentucky Institute for the Feeble-Minded, Frankfort.——Dr. W. Hamilton Long, Louisville, who has been ill at the Norton Infirmary for several weeks, is reported to be convalescent.——Dr. James T. Reddick, Paducah, has been elected a member of the hospital board, vice Dr. John G. Brooks.

Society Meetings.—At the annual meeting of the State Association of Railway Surgeons, held in Frankfort, Dr. E. E. Hume, Frankfort, was elected president; Dr. Charles Kearns, Covington, vice-president, and Dr. James B. Kinnaird, Louisville, secretary (re-elected). The next meeting of the society will be held in Louisville in May.——The Southwestern Kentucky Medical Society, at its recent meeting in Paducah, elected Dr. Van A. Stilley, Benton, president; Drs. Frank V. Kimbrough, Maxon Mills, and John S. Davis, Lovelaceville, vice-presidents; Dr. Charles E. Purcell, Paducah, secretary; Dr. Charles H. Brothers, Paducah, treasurer, and Dr. Robert T. Hocker, Arlington, historian.——At the annual meeting of the Owensboro Medical Society, held June 24, Dr. Charles H. Todd was elected president; Dr. Otway W. Rash, vice-president, and Dr. William S. Little, secretary-treasurer——At the annual meeting of the Louisville Medico-Chirurgical Society Dr. William Bailey was the guest of honor, and was presented with a loving cup on the occasion of his completing a half-century of practice in Louisville. The following officers were elected: President, Dr. Sidney J. Meyers; vice-president, Dr. Lewis S. McMurtry, and secretary-treasurer, Dr. Frank C. Simpson.

MARYLAND.

Fire in Sanitarium.—A fire in the Ladies' Sanitarium, Waverly, June 19, caused damage in the upper part of the building, with a loss of $250.

Society Meetings.—At the annual meeting of the Anne Arundel County Medical Society, Dr. Thomas H. Brayshow, Glenburnie, entertained the society at his home. The meeting was held in the open air and was addressed by the president of the Medical and Chirurgical Faculty of Maryland and others. ——At the meeting of the Baltimore County Medical Society, held at Towson, Dr. Charles O'Donovan delivered the address on "Professional Organization," and the fact was commented on that only about one-third of the physicians of the county were members of the society.

Baltimore.

Hitchcock Bequest.—The faculty of physic of the University of Maryland has devoted the Hitchcock bequest, amounting to about $4,500 invested in 5 per cent. securities, to the maintenance of two scholarships.

Hospital Report.—The sixty-fourth annual report of Mount Hope Retreat shows that 377 new cases were admitted during the year, making a total of 1,072. There were 298 patients discharged; 74 died, leaving 644 at the close of the year. The use of opiates and drugs has been discontinued at the institution, and diversions have been introduced for both sexes.

Personal.—The University of the South, Sewanee, Tenn., has conferred the honorary degree of D.C.L. on President Ira Remsen of Johns Hopkins University.——Dr. John A. Sperry has been made chief resident physician to the Church Home and Infirmary, vice Dr. George MacGregor, who has gone to the West.——Dr. Charles Steubenrouch has been made a member of the staff of the institution, vice Dr. Elliott H. Hutchins, resigned.——Dr. Harry Friedenwald has been re-elected president of the Federation of American Zionists.——Dr. William E. Tyson commenced on his new duties as resident physician at the Kensington Hospital, Philadelphia, July 1.——Dr. G. A. Christian Deetjen sailed for Bremen, July 1.——Prof. William H. Welch of Johns Hopkins University has been suggested as a candidate for the United States Senate, on the initiative of Dr. Charles M. Ellis, Elkton.——Dr. Thomas H. Buckler sailed for Europe, July 5.——Dr. Robert W. Johnson and Reverdy M. Hall sailed for Bremen, July 4.

MINNESOTA.

Personal.—Dr. and Mrs. James H. Beaty, St. Cloud, sailed last week for Europe.——Dr. Roy H. Labbitt, St. Paul, is to be interne at the City Hospital.——At the annual meeting of the Women's Medical Club of Minneapolis, June 20, Dr. Florence C. Baier was elected president; Dr. Esther H. Young, vice-president; Dr. Ethel E. Hurd, secretary, and Dr. Maud Slocumb, treasurer.

Pasteur Institute to be Established.—A Pasteur institute under the supervision of and supported by stated funds granted to the State Board of Health will be established in the Institute of Public Health and on the University Campus, Minneapolis, about August 1. Citizens of the state of Minnesota will be treated gratuitously. There will be no provision for beds, therefore people who are badly bitten or bedridden will have to be treated at the hospitals. The work will be under the general charge of the director of the Minnesota State Board of Health, Dr. F. F. Wesbrook, and under the immediate supervision of Dr. Orianna McDaniel.

MISSOURI.

Consolidation of Journals.—The publishers of the *Interstate Medical Journal* announce that they have purchased the *St. Louis Courier of Medicine*, one of the oldest western medical journals, and consolidated it with the *Interstate Medical Journal*, beginning with the July issue.

Personal.—Dr. John E. Bruere, St. Charles, was tendered a banquet by the physicians of the city, June 21. Dr. Bruere has retired from practice and will reside in New York City. ——Dr. and Mrs. Herman Prinz, St. Louis, sailed for Europe, June 26.——Dr. C. R. Lytle, interne at the Ensworth Hospital, St. Joseph, has resigned and will move to Chicago.

University to Absorb College.—It is reported that the Barnes Medical College, including its departments of dentistry pharmacology and the Centenary Hospital, are to be consolidated with the state university, the transfer to become effective in September, 1908. This, it is supposed, will mean that the Missouri University, Medical Department, will give its last two years' course in St. Louis.

Asylum Changes.—Dr. Benjamin H. Smith has resigned as assistant physician of State Hospital No. 2, St. Joseph.——Dr. Frank S. Vernon has been re-elected superintendent of State Hospital No. 4, Farmington, and Dr. Frank L. Long, assistant physician.——Dr. De Vilbiss has succeeded Dr. V. A. Williams as assistant physician at State Hospital No. 3, Nevada.——Dr. William F. Kuhn, Farmington, on July 1 assumed charge of State Hospital No. 2, St. Joseph, succeeding Dr. Charles R. Woodson, resigned.——Dr. G. Wilse Robinson, Kansas City, has been elected superintendent of State Hospital No. 3, Nevada.——Dr. Walter E. McKinley, Denver, has been appointed assistant physician at State Hospital No. 2, St. Joseph.

NEW YORK.

Buffalo Personal.—Drs. Benjamin H. Grove and Matthew D. Mann wil spend the summer in Europe.——Dr. Jacob S. Otto is spending the summer on the Massachusetts coast.

Personal.—Dr. Joseph C. Palmer, chief of the medical inspectors of public schools of Syracuse, is acting as health officer in the absence of the health officer and his deputy.——Dr. Medina Preston has been appointed heath officer of Waterville.——Dr. Charles E. Darrow, Rochester, sailed for the Mediterranean, June 29.

State Board Election.—The State Board of Medical Examiners met June 25 and effected temporary organization. The following officers were elected: President, Dr. William Warren Potter, Buffalo; vice-president, Dr. William S. Searle, Brooklyn; question committee, Drs. Lee H. Smith, Buffalo; William W. Potter, Buffalo; Frank W. Adriance, Elmira, and R. H. Williams, Rochester. The topics of obstetrics and gynecology were temporarily assigned to Dr. W. W. Potter, Buffalo. pathology was given to Dr. Lee H. Smith, Buffalo; diagnosis to Dr. William S. Searle, Brooklyn; bacteriology to Dr. Frank W. Adriance, Elmira; anatomy to Dr. William S. Ely, Rochester; hygiene and sanitation to Dr. Eugene Beach, Gloversville; physiology to R. H. Williams, Rochester; chemistry to Dr. Floyd S. Farnsworth, Plattsburg, and surgery to Dr. Floyd M. Crandall, New York City.——The regents have appointed Dr. Maurice J. Lewi, the present secretary of the joint board, as secretary of the new medical board.

New York City.

Tuberculosis.—The department of health is gradually but surely reducing the number of deaths from tuberculosis. The death rate in New York has been decreased from 4.27 to the 1.000 of population in 1881 to 2.16 in 1906, or about 50 per cent.

Floating Hospital.—The Floating Hospital of St. John's Guild starts the season with trips to New Dorp, S. I., and return, with the same schedule of landings as last year. Tickets have been issued to the board of health, hospitals, churches and physicians.

Personal.—Dr. and Mrs. Frank E. West of Brooklyn sailed for Europe, July 2; Dr. and Mrs. Virgil P. Gibney and Dr. and Mrs. Valentine Mott, July 4, and Dr. J. E. Stillwell, July 6.——Dr A. L. Wolbarst has been elected professor of genitourinary diseases at the New York School of Clinical Medicine and attending genitourinary surgeon at the West Side German Dispensary.

Adulterated Soda Water.—The board of health intends to punish severely those who adulterate soda water. In Manhattan alone there are 3,000 druggists who dispense soda water, and a conservative estimate shows that over 60,000,000 gallons of soft drinks are consumed yearly, one-half of which is soda water. The board of health intends to keep a sharp lookout this summer for offenders against its regulations as to the purity of food and drinks.

Hospital for Sailors.—A movement is on foot for the establishment of a hospital for the treatment of sailors with infectious diseases, for which there is no adequate provision at present. More than a million sailors come to this port annually and fully 10 per cent. of them are afflicted wth infectious diseases. It is hoped that $250,000 will be raised for the erection of such an institution, and that a similar amount will be raised for the endowment of the hospital.

Institution for Tuberculosis Patients.—The health department proposes to have a large institution built for consumptives on Randall's Island. This will be for the purpose of segregating these patients and, at the same time, permitting them to keep employed and provide for those dependent on them. Dr. Darlington, president of the health department, believes that these people should sleep under the best hygienic surroundings and receive food properly prepared. Those who are able to work may go to and from the city, but will spend the remainder of the time in these dormitories.

Home for Convalescents.—John M. Burke is still hale and hearty at the age of 95, and hopes to pass the century mark. He has given $5,000,000 for the establishment and maintenance of a convalescents' home. Mr. Burke is the president of the fund, which is known as the Winifred Masterson Burke Relief Foundation, named in memory of his mother, who died 40 years ago. The deed of the trust provides for the erection, after his death, of a home for the care and treatment of convalescents. It further provides that all persons needing rest as a means of cure shall be eligible for admission to the home.

Coroner's Record for June.—There were reported to the coroner's office in June 498 deaths, of which 236 were due to violence or accident, and 262 were due to natural causes. Of the deaths by accident or violence 52 were homicides, 26 were suicides. 39 bodies were found floating in the river; 80 persons were killed by fractures received from falls, 7 by collapse of buildings, 14 of gas poisoning, 7 of drug poisoning, 2 were shot, 4 were burned to death, and 2 resulted from caisson disease. Sixteen persons were killed by vehicles, 15 by street railways, 9 by assault, 3 by malpractice, 3 by automobiles and 3 by shooting. Of the suicides 7 were by drowning, 6 by shooting, 4 by jumping, 6 by gas, 4 by throat cutting and 2 by poison.

Contagious Diseases.—For the week ended June 22 there were reported to the sanitary bureau 661 cases of measles, with 33 deaths; 526 cases of scarlet fever, with 26 deaths; 396 cases of diphtheria, with 29 deaths; 380 cases of tuberculosis, with 155 deaths; 58 cases of typhoid fever, with 13 deaths; 23 cases of whooping-cough, with 3 deaths; 12 cases of cerebrospinal meningitis, with 11 deaths, and 62 cases of varicella, a total of 2,118 cases and 260 deaths.——For the week ended June 29 there were reported to the sanitary bureau 762 cases of measles, with 34 deaths; 401 cases of scarlet fever, with 29 deaths; 356 cases of diphtheria, with 41 deaths; 317 cases of tuberculosis, with 142 deaths; 54 cases of typhoid fever, with 6 deaths; 31 cases of whooping-cough, with 12 deaths; 9 cases of cerebrospinal meningitis, with 16 deaths, and 154 cases of varicella, a total of 2,084 cases and 281 deaths.

PENNSYLVANIA.

Fourth of July Death List in Pittsburg.—The coroner's office of Pittsburg shows that all records of fatalities following the celebration of Independence Day were broken this year. Fifteen violent deaths were reported, including two murders and one suicide.

Typhoid in Pittsburg.—The epidemic of typhoid fever which has been prevalent in Pittsburg shows no sign of abatement; indeed, it seems to be gradually increasing. The total number of new cases reported during June aggregated 498. The superintendent of the health bureau believes the epidemic to be due to the infected water supply.

Personal.—Dr. Fred C. Johnson, state medical inspector, was admitted to the Harrisburg Hospital July 5, to undergo an operation for appendicitis.——Dr. Mary M. Wolfe, resident physician of the women's department of the State Insane Hospital, Norristown, has been appointed to represent the United States at the International Congress on Psychiatry, Neurology, Psychology and the Nursing of Lunatics, at Amsterdam, Holland, September 2-7.

Health of the State Camps.—It is reported that Dr. Samuel G. Dixon, state commissioner of health, is making special arrangements to insure the health of the encampment of the Third Brigade at Mount Gretna. He plans to make the camp a model from a sanitary standpoint, and has submitted a detailed report to the military authorities, together with his recommendation for the sanitary control of the encampment. He pointed out that liability to pollution of surface waters of any military camp or in its vicinity is always great, but this is especially so at Mount Gretna, where many thousands of people congregate, for many purposes other than visiting the military reservation.

Labor's Death List.—The records of the coroner of Allegheny County show that almost 50 per cent. of the deaths in that county are violent and are the result, directly or indirectly, of the rush and grind of the industries in the district of Pittsburg. Deaths from natural causes, contagious diseases, suicides, murders and accidents met in the ordinary walks of life are not considered in this percentage; 2.660 deaths were reported to the coroner in the year 1906, of which 919 were the result of accidents in mills, mines or on railroads. Some of the victims were burned by molten metal, bursting of glass furnaces; others were caught in rollers and many crushed in the machinery of the rail mills. Many were also killed in mines by falling slate, some by gas explosions, others by falling derricks, scaffolds and similar structures. The average number of deaths reported by the coroner is about 250 a month. For the first five months of the present year there were 1,095 deaths, 344 of which may be classed as "sacrifices." For the same period in the preceding year there were 1,015 deaths, of which 350 may be placed in the same category. Comparing the loss of life by the accidents with the tonnage and production of the Pittsburg district, one life is paid for every 50.000 tons of coal shipped, and the annual shipment is about 50,000,000 tons. For every 3,800 cars that carry freight out of or into Pittsburg a life is lost. This is exclusive of cars that are carrying freight through to other points. Every 7,600 tons of the 7,000,000 tons annual production of iron and steel costs a life, and of the 800,000 tons annual output of steel rails every 807 tons is responsible for a life.

White Haven Sanitarium Report.—The eleventh annual report of the White Haven Sanitarium shows that during the first six years of the society's existence it devoted itself to the care of consumptives in existing institutions, paying for the maintenance of dying patients in hospitals in which it could secure beds for them, and early stage cases at sanitariums which were willing to accept patients for the cost of maintenance. During the first six years the society paid out $30,702.88 for the care of patients of this character. The entire amount was raised by public charity. In 1901 the Society af the White Haven Sanitarium was established; the sanitarium had a capacity of 32 beds, and during the first year 69 patients were cared for in the sanitarium and 267 in other institutions. The amount of money expended by the society during this year was $21,045.91. In the following year three additional cottages were erected with 16 beds each, and during the year 561 patients were cared for. During the following years new buildings were constantly added to the small beginning and more patients were correspondingly cared for. In 1906 the society increased the capacity of the sanitarium to 169 beds, which is the present capacity of the institution, and the society has maintained 751 patients during the year at an outlay of $60,035.42. The amount of money expended during the year aggregated $71,896.67. Of the resources, $21,474.43 came from patients' board; $34,288.55 from the state, and $17,296.36 from private sources. As now constituted, White Haven Sanitarium consists of three brick buildings with a capacity of 16 beds each; a barn, pavilion with 32 beds, two infirmaries with 16 beds each; eight shacks with 8 beds each; one large infirmary shack with 16 beds, making a total of 196 beds. Besides these buildings for the patients there are a cottage for the superintendent, a farmhouse for the employés, a power-house, and many other buildings. Many of these have been erected with a view of later using them as infirmaries with a large bed capacity. The cost of maintenance of the White Haven Sanitarium since the institution was opened, including office expenses of the society, cost of raising money, interest on investment, and repairs and replacements has averaged something less than $7 a week per patient. This, the authorities believe, is the lowest cost of maintenance of any institution of the kind in the world, and yet the dietary is one of the most liberal given in the institutional world. The low cost of maintenance is asserted to be due largely to the system employed at the sanitarium of making work by the patient part of the treatment. All patients who are not on rest are given useful occupation for exercise. This occupation is of the character which is ordinarily paid for in other institutions. The results obtained at the sanitarium show that of the patients who have entered the institution from the beginning, 60 per cent. have left it improved. There have been 18 deaths in the sanitarium since it was opened and, therefore, it can not be said that the good results have been obtained from the selection of cases, and only 20 per cent. of the patients admitted so far have been in the first stage of the disease. Nearly 40 per cent. have had both lungs involved, and nearly 15 per cent. have had well-defined cavities.

Philadelphia.

Personal.—Dr. and Mrs. William M. Sweet sailed for Europe July 4, and Dr. and Mrs. McCluney Radcliffe, Dr. and Mrs. Francis D. Stewart and Dr. Horace H. Jenks, July 2.

Money for Charity.—By the will of the late W. C. Burk, the German Hospital receives $5,000 for the establishment of a free bed in memory of the testator's father, David Burk. The will also bequeaths $5,000 to the German Protestant Home.

Alumni Officers.—At a meeting of the alumni association of the medical department of the University of Pennsylvania, the following officers were elected: President, Dr. James B. Walker; vice-president, Dr. Henry R. Wharton; secretary, Dr. Wilks O'Neill; treasurer, Dr. O. G. Levis.

Ban on Kissing.—By a decree of the bureau of health, "kissing games," as practiced by school children, will be banished from the city's playgrounds. The sixty playgrounds of the city are to be visited daily by the medical inspectors and the 50,000 children will be as carefully guarded against contagious diseases as they are during the school term.

Aftermath of the Fourth.—The cost of the Fourth's celebration in this city counted in the city's hospitals shows that 648 individuals were injured and one death resulted. This is an increase over 1906, when 417 cases were treated in the various hospitals. The death reported was due to severe burns resulting from fireworks setting fire to the patient's clothing. Some of the accidents reported were serious and in some instances eyes were lost.

Health Report.—The total number of deaths reported for the week reached 406, a decrease of 38 from the number reported last week and of 245 from the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 12; measles, 3; diphtheria, 5; consumption, 54; cancer, 23; apoplexy, 13; heart disease, 33; acute respiratory disease, 41; enteritis, 37; congenital debility, 6; suicide, 4; accidents, 23; and marasmus, 14. There were 137 cases of contagious disease reported with 17 deaths, as compared with 136 cases and 20 deaths reported in the previous week.

GENERAL.

Ohio Valley Meeting.—The ninth annual meeting of the Ohio Valley Medical Association will be held November 13 and 14 under the presidency of Dr. Brooks F. Beebe, Cincinnati.

American Proctologic Society.—At the annual meeting of the American Proctologic Society the following officers were elected: President, Dr. A. Bennett Cooke, Nashville, Tenn.; vice-president, Dr. Lewis J. Krouse, Cincinnati; secretary-treasurer, Dr. Lewis H. Adler, Jr., Philadelphia, and executive council, Drs. J. Rawson Pennington, Chicago; Samuel G. Gant, New York City, and the president and secretary.

Medical Editors' Meeting.—At the annual meeting of the American Medical Editors' Association, held in Atlantic City last month, the following officers were elected: Charles S. Taylor, Philadelphia, *Medical World*, president; Kenneth W. Millican, St. Louis, *St. Louis Medical Review*, first vice-president; H. Edwin Lewis, New York City, *International Journal of Surgery*, second vice-president; Joseph McDonald, Jr., New York City, *American Journal of Surgery*, secretary-treasurer. Wallace C. Abbott, Chicago; William A. Young, Toronto, and David C. English, New Brunswick, N. J., executive council.

Railway Surgeons Meet.—The Baltimore & Ohio Association of Railway Surgeons, at its annual meeting, held in Washington, June 26-28, discussed among other important matters the advisability of making the examination of railroad employés and applicants for admission to employment more strict as regards color perception. The following officers were elected: President, Dr. John E. Russell, Mount Vernon, Ohio; vice-presidents, Drs. Franklin B. Smith, Frederick, Md.; James O. Howells, Bridgeport, Ohio; secretary-treasurer, Dr. James H. Kennedy, Aberdeen, Md.; and assistant secretary, Dr. Walter F. Donald, Pittsburg, Pa. The next meeting is to be held in Chicago.

International Association of Medical Museums.—The first stated meeting of this association was held at the Army Medical Museum, Washington, D. C., May 6, 1907. The committee on organization was empowered to frame a constitution and by-laws and to submit it to the active members. The following officers were elected: President, Major Carroll, Army Medical Museum, Washington, D. C.; vice-presidents, Prof. W. G. MacCallum, Johns Hopkins Medical School, Baltimore; Prof. J. Ritchie, Oxford University, England; and Prof. J. Ludwig Aschoff, University of Freiburg, Germany; secretary-treasurer, Dr. M. E. Abbott, McGill Medical Museum, Montreal, Canada. A bulletin of museum information will be issued to facilitate exchange of specimens. The next meeting is to be held in connection with the Congress of Tuberculosis in Washington, D. C., in October, 1908. The first bulletin of the association contains an introductory statement of the purposes of the association, a full account of the meeting, a list of the organizing members, and an appeal for specimens for the Medical Museum of the McGill University which suffered very serious loss by fire.

Rockefeller Institute Research Workers.—The Rockefeller Institute for Medical Research has adopted the following series of titles for its staff: Member, associate member, associate, assistant, fellow and scholar of the Rockefeller Institute, and has made the following list of appointments, with the department of work specified in each case:

Member and Director of the Laboratories: Simon Flexner (pathology).

Members: S. J. Meltzer (physiology and pharmacology), E. L. Opie (pathology), P. A. Levene (biologic chemistry).

Assistants: Hideyo Noguchi (pathology), John Auer (physiology), Alexis Carrel (experimental surgery), J. W. Jobling (pathology), Nellie E. Goldthwaite (chemistry).

Fellows: C. M. A. Stine (biologic chemistry), Donald Van Slyke (biologic chemistry), Martha Wollstein (pathology), Maud L. Menten (pathology), Mabel P. Fitzgerald (bacteriology), Don R. Joseph (physiology), Benjamin T. Terry (protozoology), Thomas W. Clarke (pathology).

Scholar: Bertha I. Barker (pathology).

Grants to aid special researches have been made to the following:

Brown, Robert M., New York.
Bunting, C. H., Charlottesville, Va.
Collins, Katherine, New York.
Field, Cyrus W., New York.
Foster, N. B., New York.
Goldthwaite, Joel, Boston.
Jackson, Holmes C., Albany.
Kendall, Arthur I., New York.
Koch, Waldemar, Chicago.
MacCallum, W. G., Baltimore.
Manwaring, Wilfred H. Bloomington, Ind.
Maury, J. W. D., New York.
Novy, F. G., Ann Arbor.
Ophüls, W., San Francisco.
Pearce, Richard M., Albany.
Ricketts, H. T., Chicago.
Schulte, Herman W., New York.
Simon, Charles E., Baltimore.
Warthin, Aldred S., Ann Arbor.
Wood, Francis C., New York.

CANADA.

Public Vaccine.—The provincial government of Saskatchewan has purchased a vaccine plant and will produce vaccine for that province.

Lepers Transported.—The entire leper colony on D'Arcy Island, B. C., has been transported to China, and there are now no more lepers in British Columbia.

Large Infant Mortality.—The infant death rate in Montreal during the week ended June 29 was the largest in the history of that city. Seventy-eight children under 5 years of age died.

Grocers on "Patent Medicines."—The Canadian Retail Grocers' Association recently met in Hamilton, Ont., and passed resolutions favoring the regulation of the sale of "patent" and proprietary medicines, as proposed by the Dominion government.

Medical Council Meeting.—At a meeting of the Ontario Medical Council, held in Kingston, July 2, the following officers were elected: President, Dr. William Spankie, Kingston; vice-president, Dr. Peter Stuart, Milton; registrar, Dr. John L. Bray, Chatham, and treasurer, Dr. W. Henry B. Aikins, Toronto.

Societies.—The Northern Alberta Medical Association met on the 16th of May and recommended either Dr. Henry C. Wilson, Dr. William A. P. Turman or Dr. Charles W. Cobbett of Edmonton, to be a representative on the Alberta board of health.——The High River District Medical Society was recently organized in western Canada, with Dr. H. W. Welch, Okotoks, as president, and Dr. G. Everett Learmouth, High River, as secretary.

Personal.—Dr. Henri A. Lafleur, professor of clinical medicine in McGill University, has returned from his trip to England.——Dr. C. K. Clarke, superintendent of the Toronto Provincial Hospital for the Insane, and Dr. Edward Ryan, occupying a similar position in the Kingston Hospital, have been sent by the Ontario government to Germany to study and report on the latest psychiatric practices in that country.——Dr. O. M. Jones, Victoria, B. C., has gone on a trip to Europe.——Dr. James D. Lafferty, Calgary, Alta., has resigned from the Alberta medical council to accept the position of registrar of the council.——Dr. Daniel G. Revell, Tyrconnell, Ont., has been appointed provisional pathologist to the Alberta government.——Dr. J. C. Davie, Victoria, B. C., is recuperating at Los Angeles, Cal.——Dr. William A. P. Turman of Edmonton, Alta., has been appointed medical health officer of that city, succeeding Dr. Irving.——Dr. Lewis E. Irving, formerly medical health officer of Edmonton, has been appointed provincial health officer of Alberta.——Dr. Murray MacLaren, St. John, has been appointed principal medical officer of the eighth military district of New Brunswick.

Hospital News.—The Sarah Maxwell Memorial Hospital for Children is to be erected in Montreal, in memory of the heroic action of Miss Maxwell, a school teacher of that city who recently saved so many lives in a calamitous fire which occurred in one of the schools there a few months ago.——Edmonton, Alta., has raised $50.000 for a municipal hospital.——Strathcona, Alta., has bought a site for a new isolation hospital.——The Toronto local council of women are requesting that women physicians be appointed on the new staff of the Toronto General Hospital. Already over 400 applications have been filed for positions on the staff of the proposed new hospital.——The cost per patient per day in each of the four largest hospitals in Canada is as follows: Royal Victoria, Montreal, $1.74; Toronto General, $1.33; Montreal General, $1.54; Winnipeg General, $1.30 1/3.——The Winnipeg General Hospital is reported to treat more patients than any other single hospital in Canada. In 1906 the number treated in the wards amounted to 4,741. In the Toronto General the number was 4,085; Montreal General, 3,458, and Royal Victoria, Montreal, 3,093. The total number of beds in the Winnipeg General Hospital in all departments, exclusive of those in tents, is 352. It costs $13,000 per month to run this hospital, and it has a mortgage indebtedness of $60,000.

LONDON LETTER.

(From our Regular Correspondent.)

London, June 22, 1907.

The Red Cross Conference.

The Eighth International Red Cross Conference was opened June 11. Field Marshal Lord Roberts, who presided, said that since the British Red Cross Society was established in 1870 no less than $2,500,000 had been expended in providing comforts for soldiers and sailors in hospitals. Of this sum $800,000 was spent in the South African war. He expressed the hope that the conference would result in further development of the methods of alleviating the sufferings of war and read a letter from the Queen, the president of the British Red Cross Society, welcoming the first international meeting on British soil. He also read a letter from the veteran pioneer of army nursing, whose services to the British soldier in the Crimean war have earned undying fame, Florence Nightingale. Delegates were in attendance from every civilized country, from whom vice-presidents were appointed, those for Great Britain and the United States being respectively Sir Frederick Treves and Colonel Cary. After discussion it was decided that the income of the Empress Augusta fund, which amounts to $1,000 a year, should be devoted to the establishment of traveling scholarships, so that selected members of the German Red Cross societies could visit different countries and investigate the methods of other societies. Thus the next international conference in 1912 will be provided with a body of experts in international questions.

Breathing Appliances in Mines.

The first report of the royal commission appointed to inquire into and report on certain questions relating to the health and safety of miners is confined to the subject of the use of breathing appliances in mines. The experiments show that the existing appliances have been greatly improved as compared with the earlier types. There are defects, but the question is ripe for further development. Sufficient advance has not been made to justify making the use of any of the appliances compulsory.

Death Rate, Birth Rate and Marriages in England.

Dr. John Tatham, registrar general of births, deaths and marriages, has issued recently the decennial report. The inhabitants of Great Britain have been congratulating themselves for some time on the falling death rate of this isle. Dr. Tatham points out that there is less cause for pride in this respect than is generally supposed, because there is an interdependence between the birth rate and the death rate which has a distinct influence on the figures. *Pari passu* with the decline in the birth rate the age distribution of the sexes has been materially altered, and the proportion of the more robust ages among the total living, has increased while the percentage of children has become less. This makes an undoubted difference in the calculations. Undoubtedly the past 40 years, however, have seen an undubitable fall in the mortality of both sexes in Great Britain. This fall has amounted to about 16.3 per cent. In every case the death rate among females is less than that among males. Says the registrar general: "The health of the adolescent as well as of the adult portion of the community has shown a steady improvement in the period from 1891 to 1900, as compared with preceding years. When, however, the mortality of infants in their first year of life is considered, we are met by the sad reflection that the improved conditions affecting adult life have not been shared by the most sensitive portion of the community." Speaking generally, infant mortality in what may be termed the urban counties of England is higher than in the rural counties by almost one-third. While many of the agricultural counties contain extensive areas in which the deaths of infants under one year average less than 10 per cent. of the births, there are other, and chiefly industrial, counties, such as Lancashire, that contain considerable areas in which the waste of infant life is twice as great as it is in the rural areas. In the past 40 years there has been a remarkable decrease in the deaths from tuberculosis. In the decade 1851 to 1860, 3,457 were set down to this cause for every million people living; in the period 1891 to 1900 the figure had fallen to 2,010, a decline of 42 per cent. Cancer, on the other hand, though a less frequent cause of death, shows an alarming increase. In the period 1851 to 1860 the deaths from this disease per million of the living population was 325, and in the decade 1891 to 1900 they had grown to 758. In the 40 years the death rate from this disease among males has trebled in England, and among females has doubled. A new English "life table" compiled for Dr. Tatham's report shows that the average lifetime of males, or the mean expectation of life at birth, is 44.13 years. In the case of females the expectation of life at birth is 47.18 years. This is a very considerable increase.

Pharmacology

New Remedies.

The following new remedies have been investigated at the Pharmaceutical Institute of the University of Berlin, under the direction of Prof. H. Toms, corresponding member of the Council on Pharmacy and Chemistry of the American Medical Association. The work was done directly by F. Zernik, and was originally published in the *Apotheker-Zeitung* of Berlin, from which the following abstracts are made:

Novaspirin is a substitute for aspirin (acetylsalicylic acid), introduced because the latter has shown some of the unfavorable by-effects of salicylic acid, from which novaspirin is said to be free. The new compound is the disalicylic ester of anhydromethylene citric acid. Anhydromethylene citric acid has been introduced into medicine as a constituent of several synthetics such as citarin (sodium anhydromethylene citrate), and helmitol and new urotropin which are identical compounds of the acids with hexamethylenamin. Anhydromethylene citric acid is formed by acting on citric acid with chlormethyl alcohol, CH_2ClOH. The acid is then converted into the dichlorid by the action of phosphorus pentachlorid and the dichlorid in turn salicylated by the action of salicylic acid in benzene solution in the presence of dimethylanilin.

The examination by Zernik shows that the substance corresponds to its asserted composition. Novaspirin, anhydromethylene citric acid disalicylate, is a white powder, odorless and with a slightly sour taste, melting at 150-151 C. (302-303.8 F.). It is insoluble in cold water, but dissolves with decomposition in hot water. It is easily soluble in alcohol and acetone, less easily in ether, chloroform and benzol.

Vinopyrin is introduced by the firm of Walter Fischer as a new antipyretic, etc., said to be free from injurious action on the heart and stomach. It is said to be a combination of tartaric acid with paraphenetidin. Examination by Zernik showed it to be the bitartrate of paraphenetidin, a substance already described in chemical literature and closely related to acetphenetidin (phenacetin). It is the complete analogue of citrophen, phenetidin dihydrogen citrate, which has been considerably used in doses of from 0.5 to 1 gm. (8 to 15 grains) three times a day as an antineuralgic and antipyretic. Vinopyrin tablets are put up containing 0.75 gm. (12 grains) each and have been found by Zernik to have the same composition as the powder except the addition of a little talcum. The statements of Aufrecht that the tablets contained a mixture only of phenetidin and tartaric acid were not confirmed. One objection to the tablets is the slowness with which they disintegrate and enter into solution.

Vinopyrin is a white crystalline powder with a melting point of approximately 186 C. (366.8 F.). It dissolves in about 25 parts cold water, more difficultly in alcohol and is insoluble in ether. It dissolves readily in boiling water with some decomposition, which gives a red color to the liquid. It is recommended in doses of from 0.75 to 1.25 gm. (12 to 20 grains) three to four times a day.

Coryfin corresponds in composition to the published formula, and is a menthol ester of ethylglycolic acid. It is a colorless and odorless liquid, very slightly soluble in water, easily soluble in alcohol, ether and chloroform, neutral in reaction and leaves no residue on heating. It is recommended as a means for gradually developing the anesthetic and analgesic properties of menthol.

Cystopurin is claimed to be a combination of two molecules of sodium acetate with hexamethylenamin, having the formula $C_6H_{12}N_4.2CH_3COONa + 6H_2O$. It is recommended as a urinary antiseptic. The analysis shows that it does not possess the above composition, but contains a larger quantity of hexamethylenamin than corresponds to the formula and less sodium acetate and water. Attempts to produce a combination of hexamethylenamin and sodium acetate failed.

Monotal is the guaiacol ester of ethylglycolic acid. It is a colorless oily liquid having a characteristic aromatic odor. Monotal is very slightly soluble in water, easily so in alcohol, ether, chloroform and fatty oils. Its watery solution has a neutral reaction.

Formidin is a preparation put out by Parke, Davis & Co., who claim that it is an iodid of methylene-disalicylic acid and that it has the formula $C_{15}H_{10}O_6I_2$. It is said to be produced by condensation of formaldehyd, salicylic acid and iodin, and is recommended for internal use and also as a dusting powder for wounds. It is claimed that the original constituents are slowly reformed when the product is in contact with alkaline secretions. Zernik states that it is a chocolate-colored, fine amorphous powder which is insoluble in ordinary solvents except alcohol, in which it dissolves to a clear, reddish-brown liquid which remains clear on diluting with water, but precipitates a yellowish flocculent precipitate when an acid is added. Quantitative analysis showed that the substance does not conform to the published formula, but contains about 20 per cent. less iodin; tests failed to show the separation of formaldehyd in presence of either acids or alkalies.

Correspondence

The Scientific Temperance Federation—A New Movement.

Hartford, Conn., July 1, 1907.

To the Editor:—All physicians and writers have experienced great difficulty in securing exact data on subjects pertaining to alcohol and narcotics and the allied topics of insanity, crime and hygienic subjects associated with these. Many valuable papers, pamphlets, books and studies have had a very limited usefulness because they were scattered and not gathered and put on file in some central place. Not any of the large libraries do more than file away the various independent publications on these subjects and make no effort to secure a general literature covering all phases of the subject. The physician and the teacher, as well as the writer, have long ago recognized the need of some central agency for the collection and dissemination of the rapidly accumulating facts in this field. The late Mrs. M. H. Hunt of Boston had gathered more than 2,000 books and pamphlets on these subjects, and with this as a nucleus a society called the Scientific Temperance Federation has been formally organized and incorporated under the laws of Massachusetts, with power to hold real estate and receive legacies and endowments to carry on the work of a scientific bureau. Its aim is to bring together the facts developed by scientific research and experience, making them accessible to all persons interested in the great questions of sobriety, alcohol and drink neurosis and hygienic living; and to disseminate such facts in every possible way. Also to enable the specialist and writer to put his conclusions on file, where they can be sought for and examined by every student and worker who is desirous of obtaining exact information along these lines. The federation is not a society for the promotion of any reform movement, but aims simply to collect and keep on file every fact and statement and study made in this country and Europe concerning alcohol, narcotics and allied subjects. It will be a clearing-house as well as a storehouse for physicians, teachers and philanthropists, where societies can deposit and place on file their conclusions; and in turn receive abstracts or copies of everything written on this subject. A small membership fee will be charged to persons who would like to assist in the development of this work, for which they will receive abstracts or data of what has been written and copies of any future publications. To others, not members, a research fee will be charged for abstracts and copies of papers. The income from this source and from endowments will eventually build up a very rich library and bureau of literature of immense value for the future. Every one interested in helping on this movement should address the secretary, Miss C. F. Stoddard, 23 Trull Street, Boston. Every author of books or papers that bear on the subject of alcohol or narcotics, either directly or indirectly, should send copies to the above address. These papers will be filed, catalogued and put away where they can be used on any future occasion. A large number of distinguished men have become members and the organization is non-partisan in the broadest sense of the word. T. D. Crothers, M.D.

Quinin-and-Urea Hydrochlorid in Malaria.

Philadelphia, June 28, 1907.

To the Editor:—In the demonstrations which, following the recent meeting of the American Medical Association, I gave to visiting members, in the medical ward at Jefferson Hospital, I had the opportunity to illustrate the treatment of malarial fever by hypodermic injections of quinin-and-urea hydrochlorid. The patient was a young man with double tertian infection. The injection was made shortly after a paroxysm. According to prediction a paroxysm appeared on the succeeding day, but there were no further paroxysms for six and three-fourths and thirteen and one-half days respectively, although organisms were found in the peripheral blood (also according to prediction) on the fifth and twelfth days respectively, having been absent in the meanwhile. I have made this demonstration repeatedy in my public clinics at the Philadelphia Hospital, and published it occasionally,[1] during the last fifteen or sixteen years. My object in now publishing it again is to ask observers who have skill and opportunity to test, by blood taken from the spleen or other deep source, whether, during the resting period of something less than fourteen days, conjugation of microgametes and macrogametes takes place in the human (avian or animal) body. A single injection of 0.7 to 1 gm. (10 to 15 gr.) in a syringeful—1.5 to 2 c.c. (20 to 30 m.)—of sterilized distilled water, thrown deeply under the skin, and preferably about two hours before an anticipated paroxysm, will secure this non-paroxysmal period of between thirteen and fourteen days in single tertian and between six and seven days in double tertian infection, in almost every case. I have tested it 100 times. According to the time (in relation to the paroxysm) at which the injection is given, and also according to other factors as yet undetermined, the period at which organisms can again be discovered peripherally,[2] varies somewhat, as does likewise the form in which the paroxysm recurs. Sometimes there is full chill, fever and sweat; sometimes only rise of temperature without other disturbance; and between these extremes many varieties. Of course, the injection must be made carefully and aseptically. But if this be done and the point of puncture painted with tincture of iodin, or sealed with iodoform-collodion or sterile collodionized cotton, there will be no local injury.

The coincidence between the 6 to 7 days and 12 to 14 days' periods of freedom respectively following the injection of this most powerful of the quinin salts with the periods of the pre-cystic and post-cystic stages and entire sporogonic (mosquito) cycle of the malarial organism—especially when we recall the old clinical observations of recurrent paroxysms on the seventh and fourteenth days—is suggestive of some fundamental relation between the various phenomena. Just what it is remains to be proved, but it must be connected in some way with a cycle of development different from the ordinary schizogony, that occurs somewhere in the body of the infected person. The "quantitative" explanation does not seem to be sufficient. It would also be of interest to observe the effect, if any, of a very weak solution of the drug on the development of the organism in the mosquito. Solomon Solis-Cohen.

Beware of an Alleged Repair Man.

Scranton, Pa., July 1, 1907.

To the Editor:—Physicians using electric appliances should beware of a man giving his name as "Dr." C. P. Hoffman, claiming connection with Van Houten & Ten Broeck of New York, and proposing to repair appliances. He contracted to clean and rebuild my static machine (June 15, 1907), and to take two days (himself and assistant). They worked spasmodically three hours and packed their tools (while I was absent about 15 minutes) and skipped, leaving my machine one-third torn down and useless, having broken several plates and caused me an unlimited amount of trouble. He is a fraud, certainly no mechanic, and I take this occasion to warn the profession against being swindled. Moreover, I would be pleased to hear of any one he has treated similarly to myself.

D. W. Evans, M.D.

The Alexander Cancer "Cure."

Philadelphia, July 8, 1907.

To the Editor:—Referring to the editorial in The Journal, July 6, 1907, on the publication in *Leslie's Weekly* of the report of an alleged clinic asserted to demonstrate the usefulness of Alexander's so-called cancer "cure," I would call your attention to a reprint of the article, issued as an advertising circular, so soon after the publication you have criticised as to leave little room to doubt the commercial origin and connection of both.

The old code of ethics of the American Medical Association well said, concerning nostrums, that their proprietors must confess either to gross inhumanity or to fraudulent avarice. Surely this applies in a peculiar degree to alleged cures for cancer. If a real discovery has been made in the treatment of this sad affection, it should be published to the world, as Beard has published his experience with trypsin and amylopsin, as Jacobi has published his use of methylene blue, and as all other physicians worthy of the name, publish their discoveries, their experience and their suggestions. Concealment could only be for the sake of gain, and to characterize it as inhuman avarice would be mild. But when such concealment exists there is no reason to believe that a genuine discovery has been made; rather is it to be concluded that to inhuman avarice fraud, equally inhuman, has been added. *Leslie's Weekly*, therefore, even if deceived, has lent itself to inhuman avarice; and if not deceived, it has lent itself to inhuman avarice and fraud.

Solomon Solis-Cohen.

Queries and Minor Notes

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

GRAMS AND MILLIGRAMS.

Chicago, June 28, 1907.

To the Editor:—In the "Laboratory Manual" by Dr. B. Fantus, p. 21, I find this clear and cogent rule: "In reading quantities including several denominations, only one unit is used, thus 0.065 gm. is read 65 milligram (65 mg.) not 6½ centigram, nor 65 thousandth of a gram." Now, applying the above rule or any other rational rule, how would you read W. A. Jolley's table 2 on p. 1718, vol. xlviii, or this: "Dose of atropin is 0.0004 gm. or 0.4 mg."? Now what I can not understand is what are the exact words, that is, written, read, or spoken words, to express entirely the "unit" 0.0004 gm? If I may not say what I am cautioned not to say in Fantus rule, then I am completely "stuck." We easily say or read 1.0 c.c., or 15.0 c.c., but what is correct reading for 0.3 c.c., is it 3 tenths of a c.c.?

A. H. De Mendoza, M.D.

Answer.—Among chemists, who use these terms more than any one else, it is customary to use as denominations of weight the gram and-milligram, omitting the intermediate terms and occasionally using the term kilogram. Following this custom quantities smaller than a milligram would be spoken of as decimal fractions of a milligram, but would be written as fractions of a gram. A similar plan is followed with regard to measures of volume which are expressed in liters, cubic centimeters, and decimal fractions of a cubic centimeter. Thus the dose of atropin would be written 0.0004 and would be read four-tenths of a milligram, 0.3 c.c. would read three-tenths of a cubic centimeter. It would be very desirable if physicians would abandon the terms decigram and centigram and express dosage, etc., for small quantities in milligrams and for the larger amounts in grams, with the alternative of using tenths of a gram for quantities between a gram and 100 milligrams.

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[1] The Polyclinic, Philadelphia, March, 1893, p. 66.

[2] Sometimes it has seemed that they could be found more readily at night, but the elements of the problem are not sufficiently clear to warrant an unqualified statement.

HIGH FREQUENCY TREATMENT OF ARTERIOSCLEROSIS.

Detroit, Mich., June 24, 1907.

To the Editor:—Can you inform me in regard to the treatment used by Dr. Houtier, of Paris, for arteriosclerosis?

E. V. Riker, M.D.

Answer.—The treatment referred to is by electricity, employing high frequency currents after a method advocated by d'Arsonval. This method is briefly designated by Moutier as d'Arsonvalisation. Moutier claims that in a few seances, in from four to seventeen, the blood pressure in arteriosclerosis with hypertension can be lowered to normal. Each treatment lasts from two to five minutes. Even normal pressure may be lowered according to d'Arsonval, who asserts a hypotensive action of the current in animals. The details can be found in numerous contributions to the French Academy of Sciences. The following are some of the references: *Compt. rend.*, vol. cxxxvii, p. 1655: cxxxviii, p. 1368; cxxxviii, p. 781; cxxxix, p 238; cxl, (1905), p. 742. In the *Bull. et Mem. de la Societé medico-Chirurgicale de Paris,* December, 1899, is an article by Moutier, "Traitement de l'hypertension arterielle par la d'Arsonvalisation." In the *Ztschr. f. Elektrother.*, 1905, vii, 33-40, is another article by the same author, entitled "Die Behandlung der Arteriosklerose mittelst Arsonvalisation." This latter article will, we believe, contain the detailed information desired.

SCROTAL ICE BAG TO STOP PULMONARY HEMORRHAGE.

Texas, June 26, 1907.

To the Editor:—A colleague has been using, to stop pulmonary hemorrhage, an ice bag applied to the scrotum. Its action, he says, is reflex. It is being used in some of the sanatoria in Colorado with advantage. In your query column can you tell us something about it? Has it any scientific foundation?

L. P.

Answer.—The method and its theoretical explanation are probably fallacious. In pulmonary hemorrhage the object should be to lower peripheral blood pressure and prevent the heart from forcing the blood at too high a pressure through the pulmonary circulation. Aconite is, therefore, regarded as one of the best remedies. If the application of the ice bag had any influence it would be to raise blood pressure and favor bleeding.

MEANING OF HEMOGLOBIN PER CENT.—VARIATION IN PULSE RATE SITTING OR STANDING.

Lebanon, Ill., July 2, 1907.

To the Editor:—1. In the report of cases of anemia, when it is stated that the hemoglobin is a certain per cent., what does it mean? Does it mean that 30 or 70 per cent. of the volume of a red corpuscle is hemoglobin?

2. What is considered to be the normal variation in the pulse of an adult sitting and standing? What is the difference between a healthy individual and one with tuberculosis of lungs or with exophthalmic goiter?

J. H. Fulgham.

Answer.—1.-No. Hemoglobin constitutes about 14 per cent. of the volume of human blood and about 95 per cent. of the weight of the dried red corpuscles. In Fleischl's hemometer, the tint with which the blood of patients is compared is derived by a certain dilution of normal blood, which is then imitated by colored glass. In the Tallquist test the color of normal blood absorbed by blotting paper is taken as 100 and the other tints determined by the color given to the paper by anemic blood containing certain percentages of hemoglobin. When we say that a certain specimen of blood contains 50 per cent. hemoglobin we mean that it contains 50 per cent. of the amount present in normal blood. The standards are somewhat arbitrary, however, and frequently blood that comes from perfectly healthy and vigorous individuals will show not more than 80 or 90 per cent. hemoglobin.

2. The difference between the pulse in a sitting and a standing position amounts to from five to ten beats per minute. It is subject to great variations, due to the vigor of the heart and the condition of the blood vessels. In the sitting or recumbent position the blood vessels of the abdomen are usually dilated and the blood pressure is low. On rising these vessels contract and the blood pressure rises; if they do not the heart beats more rapidly to make up for the deficiency and to bring the blood pressure to normal. If the contraction of the vessels occurs slowly the rapid pulse will continue longer than if they respond promptly to the stimulus of rising. Tuberculosis of the lungs is usually accompanied by low blood pressure so that rising would be accompanied by an unusual increase in the pulse rate. The same is true of exophthalmic goiter.

RESORBIN.

Grand Rapids, Mich., July 1, 1907.

To the Editor:—Will you kindly inform me, if possible, of what Resorbin is composed and where it can be obtained? It has been put on the market as a vehicle for mercury in the inunction treatment.

F. E. Berge, M.D.

Answer.—Resorbin is a German proprietary article. It can be bought, we believe, from wholesale druggists generally. A German publication (Arend's *Neue Arzneimittel,* 2d edit., p. 450), has proposed the following formula: Almond oil, 25 parts; castile soap, 10 parts; white wax, 15 parts; hydrous lanolin, 30 parts, are melted together, and, while still warm, a solution of gelatin, 5 parts, in water, 15 parts, is added and the mixture stirred until cold. Parts means parts by weight.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 6, 1907:

Macy, Frederick S., asst.-surgeon, ordered to Fort Williams, Me., for duty.

Crosby W. D,, surgeon, in addition to his present duties will report in person to the president of the Army Medical School, at the Army Medical Museum Washington, D. C., for duty as instructor, vice Major, W. C. Borden, surgeon; also detailed member of board to determine the results of preliminary examination of applicants, and final examination of candidates for admission to the Medical Corps, vice Major W. C. Borden, surgeon.

O'Connor, R. P., asst.-surgeon, granted 30 days' leave of absence.

Rukke, G. V., King, Edgar, Pillsburg, H. C., Christie, A. C., Johnson, H. H., Bryan, R. W., Gostin, B. S., and Richardson, W. H., asst.-surgeons, will proceed to San Francisco, and take transport to sail from that place about July 25, 1907, for the Philippine Islands, and on arrival at Manila, will report in person to the commanding general, Philippines Division, for assignment to duty.

Bartlett, W. K., asst.-surgeon, ordered to proceed to San Francisco, and report in person to the Medical Superintendent of the Army Transport Service in that city for duty as surgeon on the *Buford* during the trip of that transport to the Philippine Islands. and on arrival at Manila will report in person to the commanding general, Philippines Division, for assignment to duty.

Stanton, S. C., contract surgeon, granted leave of absence for 9 days.

Leeper, J. F., contract surgeon, granted sick leave of absence for 3 months.

Shepherd, J. M., contract surgeon, ordered from New York, N. Y., to Fort Apache, Ariz., for duty.

Tignor, E. P., dental surgeon, order for temporary duty at Fort Leavenworth, Kans., revoked; will proceed to Ft. Adams, R. I., for duty at expiration of leave of absence.

Hollingsworth, R. M., dental surgeon, ordered from Terre Haute, Ind., to San Francisco, for temporary duty; and thence by first available transport to the Philippines Division for duty.

Wing, F. F., dental surgeon, granted an extension of 24 days to his leave of absence.

Voorhies, H. G., dental surgeon, granted leave of absence for one month.

Long, C. J., dental surgeon, left Fort Yellowstone, Wyo., and arrived at Fort Keogh, Mont., for duty.

Wolven, F. H., dental surgeon, granted leave of absence for one month.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending July 6, 1907:

Russel, A. C. H., surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, July 15, and granted sick leave for three months.

Norton, O. D., surgeon, detached from the *Missouri* and ordered to the Marine Recruiting Station, New York, N. Y., and to additional duty in attendance on officers and men of the Navy and Marine Corps in New York City not otherwise provided with medical attendance.

Diehl, O., surgeon, ordered to the *Lancaster*.

Grow, E. J., surgeon, detached from the Marine Recruiting Station, New York, N. Y., and ordered to the Naval Hospital, Navy Yard, Washington, D. C.

Spear, R., surgeon, to the Navy Yard, League Island, Pa.

Spratling, L. W., surgeon, detached from the Navy Yard, League Island, Pa.; ordered to the *Missouri.*

Rose, M. E., Garrison, H. A., Miller, J. T., Trible, G. B., Huffman, O. V., asst.-surgeons, appointed assistant surgeons from June .27, 1907.

Bunker, C. W. O., acting asst.-surgeon, appointed from June 29, 1907.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended July 3, 1907.

Eager, J. M., asst.-surgeon general, granted leave of absence for one month from July 8, 1907.

McIntosh, W. P., surgeon, granted leave of absence for one month and 15 days from July 25, 1907.

Stimpson, W. G., surgeon, directed to proceed to Bellingham, Washington, for special temporary duty: on completion of which to rejoin his station.

Stimpson, W. G., surgeon, leave of absence granted for 15 days amended to read for 12 days only.

Frick, L. D., P. A. surgeon, granted leave of absence for 3 days from June 22, 1907, under Paragraph 191 Service Regulations.

Billings, W. C., P. A. surgeon, granted 3 days' extension of leave of absence.

Stansfield, H. A., P. A. surgeon, relieved from duty at Havana, Cuba, and directed to report at the Bureau in Washington, D. C.

Schereschewsky, J. W., P. A. surgeon, granted leave of absence for one month from Aug. 1, 1907.

Salmon, T. W., asst.-surgeon, directed to proceed to Richford, Vt., for special temporary duty; on completion of which to rejoin his station at Boston.

Sweet, E. A., asst.-surgeon, leave of absence granted Asst.-Surgeon Sweet for 14 days amended to read for 8 days only.

Simpson, Friench, asst.-surgeon, granted leave of absence for 7 days from June 22, 1907, under Paragraph 191 Service Regulations.

Safford, M. V., acting asst.-surgeon, directed to proceed to Richford, Vt., for special temporary duty; on completion of which to rejoin his station at Boston.

Stevenson, J. W., acting asst.-surgeon, granted leave of absence for 20 days from July 5, 1907, and excused without pay for the further period of 2 months.

Stoddard, C. S., acting asst.-surgeon, granted leave of absence for 30 days from May 20, 1907.

Tarbell, B. C., acting asst.-surgeon, leave of absence granted for 10 days from April 15, 1907, revoked; granted leave for 30 days from May 15.

BOARD CONVENED.

A board of medical officers was convened to meet at Richford, Vt., for the examination of an alien immigrant. Detail for the board: Asst.-Surgeon T. W. Salmon, chairman; Acting-Asst.-Surgeon M. V. Safford, Acting Asst.-Surgeon J. H. Hamilton, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the surgeon-general, Public Health and Marine-Hospital Service during the week ended July 5, 1907:

SMALLPOX—UNITED STATES.

District of Columbia: Washington, June 15-22, 1 case.

Illinois: Chicago, June 22-29, 4 cases; Galesburg, June 15-22, 1 case; Springfield, June 20-27, 1 case.

Indiana: Indianapolis, June 16-23, 2 cases; Lafayette, June 17-24, 3 cases; South Bend, June 15-22, 2 cases.

Kansas: Kansas City, June 15-22, 4 cases.

Kentucky: Covington, June 22-28, 5 cases; Louisville, June 21-28, 2 cases.

Louisiana: New Orleans, June 15-22, 5 cases, 1 death.

Massachusetts: Lawrence, June 15-22, 2 cases.

Michigan: Detroit, June 15-29, 22 cases.

Minnesota: General, May 1-June 16, 516.

Missouri: St. Joseph, June 15-22, 2 cases; St. Louis, 5 cases.

Ohio: Toledo, May 18-22, 24 cases.

Tennessee: Nashville, June 23-30, 2 cases.

Texas: San Antonio, June 15-22, 3 cases.

Virginia: Richmond, June 15-22, 3 cases.

Washington: Spokane, June 15-22, 3 cases.

Wisconsin: Milwaukee, June 15-22, 3 cases.

SMALLPOX—FOREIGN.

Africa: Lorenz Marques, April 1-30, 3 deaths.

Austria: Trieste, May 25-June 1, 1 case.

China: Hankau, May 11-18, present; Shanghai, May 11-18, foreign 2, natives 20 deaths.

Ecuador: Guayaquil, May 1-31, 4 deaths.

Egypt: Cairo, May 20-June 3, 6 cases, 3 deaths.

France: Cannes, May 1-21, 9 cases, 2 deaths; Nice, 1 case, 1 death; Paris, June 1-8, 10 cases, 4 deaths.

India: Bombay, May 14-21, 1 death.

Italy: General, June 6-13, 27 cases.

Java: Batavia, May 11-18, 4 cases, 1 death.

Korea: Seoul, May 18 25, present.

Madeira: Funchal, June 2-16, 44 deaths.

Manchuria: Dalny, May 18-June 1, 5 cases, 1 death.

Mexico: Aguas Calientes, June 15-22, 17 cases.

Portugal: Lisbon, June 1-15, 10 cases.

Russia: Moscow, May 25-June 8, 17 cases, 4 deaths; Odessa, June 1-8, 2 cases; Riga, 24 cases; St. Petersburg, May 11-25, 27 cases, 2 deaths.

Spain: Almeria, May 1-31, 4 deaths; Barcelona, June 1-10, 1 death; Cadiz, May 1-31, 6 deaths; Huelva, May 1-31, 1 death; Seville, May 1-31, 15 deaths; Valencia: June 9-16, 12 cases.

Straits Settlements: Singapore, April 27-May 4, 1 death.

Turkey: Bagdad, May 11-18, present; Constantinople, May 19-June 2, 3 deaths.

YELLOW FEVER.

Brazil: Manaos, May 11-18, 1 death.

Cuba: Habana, June 24, 1 case, from Union de Reyes.

Ecuador: Guayaquil, May 1-31, 5 deaths.

Guatemala: Puerto Barrios, June 27, 1 case.

CHOLERA.

India: Rangoon, May 4-11, 9 cases.

PLAGUE.

Chile: Antofagasta, May 18-25, 30 cases, 13 deaths.

Egypt: Alexandria, May 30-June 6, 1 death; Assiout Province, 3 cases, 5 deaths; Beni Souef Province, 5 cases, 4 deaths; Keneh Province, 42 cases, 42 deaths; Minieh Province, 2 cases, 2 deaths.

India: General, May 4-11, 91,275 cases, 82,400 deaths; May 11-18, 77,005 cases, 67,681 deaths; Bombay, May 14-21, 124 deaths; Rangoon, May 4-11, 37 deaths.

Peru: Callao, May 18-June 1, 2 cases, 2 deaths; Chiclayo, 3 cases, 1 death; Lambayeque, 1 case; Lima, 8 cases, 3 deaths; Mollendo, 3 cases, 1 death; Trujillo, 6 cases, 2 deaths.

Association News

New Members.

The following is a list of new members of the American Medical Association for the month of June, 1907. Those marked with either star or dagger joined the Association at Atlantic City, those marked with a dagger having previously been subscribers to The Journal:

ALABAMA.

Fonville, W. D., Ensley.
*McElroy, C. I., Mt. Sterling.
Turner, J. P., Cropwell.

ARIZONA.

Hagan, John, Bisbee.

ARKANSAS.

Amis, J. C., Ft. Smith.
Brown, E. T., Barton.
Duncan, L. D., Waldron.
†Guthrie, Adam, Prescott.
Hamil, W. E., Pocahontas.
Magee, L. F., Frostville.
McCaskill, M. E., Little Rock.
Putman, E. H., St. Francis.
†Wayne, J. R., No. Little Rock.
Youart, J. D., Dyer.

CALIFORNIA.

Bacigalupi, L. D., San Francisco.
Closson, L. M., Los Angeles.
Henry, J. W., San Francisco.
Hewlings, H. A., Pacific Grove.
†Howard, H. W., Los Angeles.
Kohlmoos, H. J., Oakland.
Pottenger, J. E., Monrovia.

COLORADO.

Charles, R. L., Denver.
Dunkel, R. C., Cokedale.
†Johnson, Carl, Montrose.
†Kenney, F. W., Denver.
Toney, M. J., Aguilar.
Williams, J. J., Hotchkiss.

CONNECTICUT.

*Fleck, Harry W., Bridgeport.
†Harrington, J. L., New London.
*O'Neill, Owen, Willimantic.
Sullivan, J. F., New Haven.
†Verdi, W. F., New Haven.

DELAWARE.

Draper, J. A., Jr., Wilmington.
†Samuel, M. I., Wilmington.
*Thompson, Hannah M., Wilmington.

DISTRICT OF COLUMBIA.

†Fowler, H. A., Washington.
†Friedrich, L. L. Washington.
*Wilbur, C. L., Washington.

FLORIDA.

Holloway, H. S., Jacksonville.
†Rogers, C. P., Jacksonville.
Van Valzah, J. A., Daytona Beach.
†Wallace, J. B., Tampa.

GEORGIA.

Adams, W. E., Madison.
*Alexander, W. H., Blakely.
Allen, J. E., Augusta.
Horne, G. T., Augusta.
Hubbard, F. M., Commerce.
Liddel, J. A., Cedartown.
Lokey, H. M., Atlanta.
McKay, M. E., Macon.
†Sawyer, Annie L., Atlanta.
Singleton, O. G., Ft. Valley.

ILLINOIS.

*Avery, F. T., Chicago.
*Barothy, A. M., Chicago.
Pell, F. H., Sycamore.
Church, J. L., De Kalb.
Dietrich, F. G., Freeport.
Farnum, C. G., Brimfield.
Gardner, E. W., Literberry.
Graham, J. A., Chicago.
Gray, P. M., Chicago.
Haeberlin, J. B., Chicago.
Hagey, J. B., De Kalb.
Hamburger, W. W., Chicago.
Hanelin, W. B., Chicago.
Harman, I. C., Chicago Heights.
Hayes, R. F., Freeport.
†Hultgen, J. F., Chicago.
Krohn, W. O., Chicago.
*Love, G. T., Dana.
McIntosh, J. H., Danville.
Murphy, G. S., Waterman.
Myers, Jacob, Chicago.
†Ottis, D. M., Springfield.
Paterson, J. C., Batavia.
Potter, C. A., St. Charles.
Rankin, J. S., De Kalb.
Rothgeb, H. D., Gibson City.
*Ryan, Walter, Springfield.
Schupmann, Albert, Chicago.
Sher, I., Chicago.
Smith, A. E., Freeport.
†Smith, L. W., Wabash.
†Smith, R. A., Chicago.
Weir, S. W., West Union.
†Wherritt, D. H., Chicago.
Wilson, J. F., Versailles.

INDIANA.

Burkle, J. C., New Ross.
*Hoffman, G. E., Logansport.
†Jones, R. E., Clayton.
†Kuhn, B. F., Elkhart.
Souder, C. L., Columbia City.
†Spigler, O. R., Terre Haute.
Tully, L. H., Lamar.
*White, C. H., Cataract.

INDIAN TERRITORY.

Conn, P. C., Gans.
Rawls, W. E., Paoli.
Reeves, W. B., Wapamucka.
Taylor, John B., Vinita.
Wallace, W. B., Lehigh.

IOWA.

Donelan, J. M., Glenwood.
†Evans, F. B., Dow City.
Henriksen, H. G., Eagle Grove.
†Jaynes, E. T., New Hartford.
Littig, J. V., Davenport.
Martindale, W. H., Marengo.
†Mullarky, Hugh, Manson.
†Mullarky, W. G., Cedar Falls.
†Shore, F. E. V., Des Moines.
Smith, F. C., Lost Nation.
Walker, E. R., Marshalltown.
Warner, E. W., Delhi.

KANSAS.

Crabb, J. A., Topeka.
*Finney, R. M., Kirwin.
*Stelle, H. L., Pittsburg.

KENTUCKY.

Biggs, J. D., Louisa.
Depp, W. G., Summer Shade.
*Falconer, R. G., Lexington.
*Carson, J. O., Bowling Green.
Givens, L. S., Cynthiana.
*Grigsby, G. P., Bardstown.
†Minor, O. R., Louisville.

LOUISIANA.

*Gibson, P., Homer.
†Irion, C. H., New Orleans.
Levin, I. H., Berwick.

MARYLAND.

†Blake, C. F., Baltimore.
*Burnam, C. F., Baltimore.
†Cairnes, G. H. Baltimore.
Clarke, L. R., Baltimore.
Davis, C. R., Baltimore.
Douglas, Eugene, Baltimore.
†Gaither, E. H., Williamsport.
Gough, T. R., Newburg.
†Gundry, L. H., Relay Station.
*Hayden, H. H., Baltimore.
*Jones, C. H., Baltimore.
Janney, F. W., Baltimore.
Jones, C. F., Baltimore.
*Jones, E. L., Cumberland.
Leitch, J. W., Huntingtown.
Mable, G. W., Baltimore.
†Quinn, W. A., Chewsville.
Reinhardt, O. M., Baltimore.
Stokes, S. A., Cambridge.
Townsend, W. G., Baltimore.
Ullrich, J. H., Baltimore.
†Van Ness, E. McE., Baltimore.
*Wegefarth, H. M., Baltimore.

MASSACHUSETTS.

Barrett, E. W., Medford.
Bates, L. B., Boston Harbor.
*Downing, F. C., Lanesboro.
*George, A. W., Boston.
†Good, F. L., Boston.
Hammond, Charles, Hanover.
*Kingman, R. A., Boston.
Riordan, W. D., Lawrence.
*Weeks, J. F., New Bedford.

MICHIGAN.

†Barber, C. L., Lansing.
†Bennett, C. L., Gobleville.
Cadieux, H. W., Detroit.
†Cudworth, L. M., Perry.
†Gallagher, Morton, Bay City.
†Hickey, P. M., Detroit.
Kellogg, P. S., Battle Creek.
†McNamara, W. E., Freda.
Snyder, W. H., Kalamazoo.
†Swaney, H. N., Eagle.
Tomkinson, W. S., Kalamazoo.
Walmsley, D. L., Detroit.

MINNESOTA.

†Aling, C. P., Minneapolis.
Brown, Sherman, Madelia.
Helk, H. H., Minneapolis.
Jern, J. H., West Duluth.
†Nicholson, Elmer, Minneapolis.
†Palmer, W. L., Albert Lea.
Tuohy, E. L., Duluth.
Valentine, W. H., Tracy.
Wright, F. R., Minneapolis.

MISSISSIPPI.

Ferguson, J. J., Greenville.
Harrington, J. B., Crawford.

MISSOURI.

Baltzer, H., Cottleville.
Benham, C. E., Parkville.
†Boehm, J. L., St. Louis.
Bowman, Dora E., Kansas City.
Chandler, J. J., Lutesville.
Evans, R. A., Amity.
Gale, W. S., Osborn.
Garstang, D. B., St. Louis.
Hogeboom, R. W., St. Louis.
Keehn, G. A., St. Louis.
Kimball, A. C., St. Louis.
Morroway, J. H., Ridgway.
Pope, C. H., St. Louis.
Reynolds, A. C., Martinsville.
Reynolds, E. M., Union Star.
Rowland, W. P., Bevier.
Sampson, C. M., St. Joseph.
Stroup, E. R., Weatherby.
Swint, W., Gilman City.
Switzer, Clyde, Kansas City.
Watson, T. S., Bevier.
Whitford, E. P., Westboro.
Wiley, W. H., Ridgway.

MONTANA.

Biddle, A. C., Butte.
Grey, F. S., Miles City.

NEBRASKA.

Allen, G. V., Bancroft.
Corbin, B. X., Schuyler.
*Henry, E. C., Omaha.
†Lehnhoff, H. J., Lincoln.
Waggener, H. A., Omaha.

NEW JERSEY.

Braddock, C. S., Jr., Haddonfield.
†Charlesworth, I. E., Bridgeton.
†Cook, F. B., Laurel Springs.
†Corson, E. S., Bridgeton.
*Davis, H. H., Camden.
†Day, S. T., Port Norris.
†Ewens, A. E., Atlantic City.
†Foley, M. F., Hoboken.
*Howard, J. E., Haddonfield.
†Laws, G. C., Paulsboro.
*Leavitt, J. F., Camden.
*Lee, B. R., Atlantic City.
*Madden, Walter, Trenton.
†Marshall, Randolph, Tuckahoe.
*McBride, A. F., Paterson.
†Morrison, J. B., Newark.
*Parry, W. C., Hainesport.
*Phelan, Edward, Newark.
*Rafferty, P. P., Red Bank.
†Reese, J. M., Phillipsburg.
*Stauger, P. F., Trenton.
*Stewart, J. M., Paterson.
†Taggart, T. D., Atlantic City.
*Tracy, G. T., Beverly.
*Wilbur, W. K., Trenton.

NEW MEXICO.

Lapsley, J. Y., Van Houten.

NEW YORK.

*Adams, C. F., Carthage.
†Albee, F. H., New York City.
†Armstrong, A. W., Canandaigua.
†Baner, W. L., New York City.
Banta, E. W., New York City.
†Barnum, M. W., Ossining.
Bassler, Anthony, New York City.
Berkman, J. S., Rochester.
Bingham, J. R., New York City.
Bogart, B. D., New York City.
†Booth, B. S., Troy.
Bostwick, W. W., New York City.
Breed, R. H., Wappingers Falls.
†Brittin, G. S., Syracuse.
Broun, Le Roy, New York City.
*Bullard, W. E., Larchmont.
Bullman, W. F., New York City.
†Burritt, H. M., Kendall.
Cardwell, J. C., Brooklyn.
*Carter, C. E., New York City.
*Chamberlin, E. C., New York City
*Clapper, W. B., Victor.
†Colles, C. J., New York City.
Comiskey, L. J. J., Brooklyn.
Cuddeback, W. L., Port Jervis.
*Dailey, W. M., New York City.
Dillon, J. A., New York City.
*Dithridge, Louise M., New York City.
†Dolphin, B. E., New York City.
Draper, W. K., New York City.
Evans, A. H., Guilford.
Fulkerson, W. T., Cohocton.
Gillette, Willard, Roseboom.
†Goler, G. W., Rochester.
Graef, Charles, New York City.
Hartshorn, W. M., New York City.
Henderson, A. C., New York City.
†Henry, J. P., New York City.
Herrick, Jessie L., Elmira.
†Hicks, H. M., Amsterdam.
Himmelsbach, G. A., Buffalo.
*Holton, D. C., Brooklyn.
*Hough, F. P., Binghamton.
Jewett, Mary B., New York City.
*Johnson, R. H., Buffalo.
Jones, W. B., Rochester.
Kernan, J. D., Jr., New York City.
†Kneer, F. G., New York City.
†Lewi, W. G., Albany.
†Loveland, B. C., Syracuse.
Lusk, T. G., New York City.
*Macpherson, J. D., Akron.
Malcolm, W. J., Jericho.
Malony, J. M., Dundee.
Marxuach, M. J., New York City.
*Mead, Harry, Buffalo.
Meehan, J. H., Niagara Falls.
†Mercer, A. C., Syracuse.
†Meyer, Alfred, New York City.
Meynen, G. K., Jamaica.
†Mosher, Eliza M., Brooklyn.
†Muench, W. G., Syracuse.
Murphy, F. N., Staatsburg.
*Newland, F. H., Clifton Springs.
*Nichols, H. B., Pulteney.
O'Brien, J. M., New York City.
†Page, K. B., New York City.
*Palmerston, R. K., Cannonsville
Phelps, F. V., New York City.
Potter, W. H., Niagara Falls.
Pulley, W. J., New York City.
Sabel, S. O., New York City.
*Saxer, L. A., Syracuse.
*Schoonmaker, Perry, New York City.
†Sears, F. W., Syracuse.
*Simmons, J. G., New York City.
*Slaight, Mary J., Rochester.
†Snow, E. E., Batavia.
†Snow, W. B., New York City.
*Sturges, P. H., Brooklyn.
Talmey, B. S., New York City.
Thomas, W. S., New York City.
†Vanderlyn, J. Du Bois, New York City.
Wadsworth, Augustus, New York City.
Wagner, C. P., St. Johnsville.
Weston, A. T., New York City.
†Woehnert, A. E., Buffalo.
Wouters, J. F., New York City.
Wright, F. R., Ithaca.
*Zabriskie, E. G., New York City.

NORTH CAROLINA.

Hargrove, W. F., Kinston.
*Holmes, F. H., Clinton.
Keerans, L. C., Charlotte.
†Manning, I. H., Chapel Hill.
†Maxwell, H. B., Whiteville.
*McMillan, B. F., Red Springs.
†Northrop, T. L., St. Pauls.
*Skinner, L. C., Davidson.

NORTH DAKOTA.

Ransom, E. M., Drake.

OHIO.

Ayers, M. M., Ohio City.
Bell, A. J., Cincinnati.
Bradley, Isabel A., Columbus.
Boone, D. W., Bellaire.
Brown, A. L., Cincinnati.
*Buchman, L. A., Pierce.
Butler, O. W., Hartwell.
*Donnelly, Peter, Toledo.
†Eberhard, Le Roy C., Akron.
†Evans, C. W., Springfield.
†Geier, O. P., Cincinnati.
Handley, S. C., Cincinnati.
Hecker, L. E., Dayton.
Hill, A. J., Canton.
Hurlburt, J. W., Uniopolis.
*Keever, B. W. D., Centerville.
†Kinney, J. J., Wooster.
*Kline, Flint, Portsmouth.
Leonard, William, Fostoria.
*LeRoy, B. R., Athens.
*Manchester, W. C., Alliance.
†Metcalf, H. M., Elyria.
†Millikin, C. W., Akron.
†Neal, W. E., Cincinnati.
†Phillips, J. McI., Columbus.
Pyle, H. W., Oberlin.
Reemelin, E. B., Cincinnati.
Reiff, C. F., Fremont.
Ruhlmann, R. A., Minster.
†Sloan, C. R., Marietta.
Stage, A. L., Columbus.
†Stewart, W. D., Toledo.
†Strietmann, W. H., Cincinnati.
Tinker, K., Athens.
Virtue, D. B., Iberia.
*West, K. S., Cleveland.
Wright, A. T., Waynesville.

OKLAHOMA.

Carson, F. L., Shawnee.
*McIlwain, Wm., Lone Wolf.
*Miller, W. W., Gotebo.
Moss, R. E., Waukomis.
Norton, Porter, Mangum.
*Stolper, J. H., Krebs.
†Walker, J. A., Shawnee.

OREGON.

Dale, W. H., Harrisburg.

PENNSYLVANIA.

Apery, T. J., d', Philadelphia.
†Bailey, M. L., Carbondale.
†Bauer, R. F., Philadelphia.
Bickings, Mary L. D., Philadelphia.
Bing, E. W., Chester.
Balentine, P. L., Philadelphia.
†Bloomhardt, F. H., Altoona.
†Boyle, J. C., Butler.
†Brown, F. K., Philadelphia.
*Brown, J. C., Smethport.
*Bruner, J. W., Bloomsburg.
Burckhalter, W. W., Laurel Hill.
Caldwell, J. D., Herminie.
Callahan, Andrew, Philadelphia.
*Cameron, J. L., Philadelphia.
*Carnett, J. B., Philadelphia.
*Carrier, Frederic, Philadelphia.
Catterson, A. D., Palmerton.
†Chaffee, Francis, Towanda.
*Cleemann, R. A., Philadelphia.
*Coburn, E. S., Plumsteadville.
Critchfield, J. B., Ralphton.
†Croft, J. W., Waynesboro.
†Devitt, B. F., Philadelphia.
*Dillinger, G. A., Pittsburg.
†Ditchburn, D. T., Arnot.
†Dixson, J. W., Wilkinsburg.
Dorsett, R. S., Philadelphia.
†Dumm, J. M., Mackeyville.
Earnshaw, H. C., Bryn Mawr.
*Eldon, R. T., Altoona.
Evans, F. H., Chester.
Evans, J. K., Malvern.
*Everett, Edward, Millville.
Feinberg, S. E., Scranton.
*Fetterolf, D. W., Philadelphia.
†Flick, L. F., Philadelphia.
†Garton, A. F., Philadelphia.
Glick, W. H., South Bethlehem.
Gildersleeve, G. H., Philadelphia.
†Goodman, E. H., Philadelphia.
*Gorman, J. A., Philadelphia.
*Grube, J. E., Punxsutawney.
Hensyl, W. C., Berwick.
*Hepler, A. J., New Bethlehem.
†Toban, C. J., Philadelphia.
Hungerbuehler, J. C., Philadelphia.
†Jackson, D. F., Pittsburg.
*King, H. O., Curwensville.
Kline, L. B., Catawissa.
†Knapp, H. B., Philadelphia.
*Knipe, W. H., Limerick.
Kyle, E. B., Philadelphia.
Leedom, John, Philadelphia.
Lehman, W. F., Chester.
†Locke, Melvin, Bellefonte.
Long, W. H., Philadelphia.
Manges, W. F., Philadelphia.
*Manley, J. A., Scranton.
Mantz, F. A., Philadelphia.
*McDevitt, C. H., Philadelphia.
McGinnis, Arthur, Philadelphia.
*McGowan, H., Harrisburg.
†McKee, E. D., Sugar Grove.
Miller, W. M., Philadelphia.
†Milnor, M. T., Warrensville.
†Mongel, E. B., Philadelphia.
†Moore, G. H., Schuylkill Haven.
†Murphy, F. A., Philadelphia.
†Muschlitz, C. H., Philadelphia.
Neiman, H. Y., Pottstown.
*Nock, T. O., Philadelphia.
Patrick, Ellwood, West Chester.
†Pfromm, G. W., Philadelphia.
Pilling, G. P., Jr., Philadelphia.
†Price, F. F., Carbondale.
†Pyle, W. T., Swissvale.
*Ramsay, R. F., Philadelphia.
Reddie, J. S., Philadelphia.
*Richards, J. N., Fallsington.
†Richardson, W. W., Norristown.
*Risley, J. N., Philadelphia.
†Shope, S. Z., Harrisburg.
†Siggins, J. B., Oil City.
†Timmons, J. M., West Alexander.
Smiley, Anne E., Philadelphia.
†Stauffer, N. P., Philadelphia.
*Stevens, A. B., South Canaan.
*Stevens, W. A., Hamlinton.
†Stimson, G. W., Philadelphia.
Stiteler, C. I., Chester.
Storer, F. M., Wilkinsburg.
Stover, M. E., Allegheny.
†Stackhouse, C. P., Wilkes-Barre.
Sutliff, F. A., Philadelphia.
Tallant, Alice W., Philadelphia.
†Thomas, B. A., Philadelphia.
Twaddell, T. P. H., Philadelphia.
†Van Korv, Wm., Philadelphia.
Wagner, J. A., Scranton.
†Wehlan, Alma L., Scranton.
Weida, G. A., Frederick.

RHODE ISLAND.

*Bennett, J. M., Providence.
Hardman, M. S., Providence.
Yates, Cora G., Pawtucket.

SOUTH CAROLINA.

Parker, J. W., Smithville.
*Sarratt, S. G., Union.
Smith, A. C., Glenn Springs.
†Weston, Wm., Columbia.

SOUTH DAKOTA.

Brown, P. H., Nemo.
†Young, S. A., Lennox.

TENNESSEE.

†Austin, W. S., Knoxville.
Dunn, T. F., Nashville.
*Frey, J. H., Cheap Hill.
Jones, R. A., Jackson.
*Miller, S. M., Knoxville.
†Vaughan, G. E., Clarksville.

TEXAS.

Allen, W. H., Marlin.
Barber, T. H., Comanche.
Barnett, G. W., Reynolds.
Bernard, E. D., Port Arthur.
Bishop, Ida E., El Paso.
Black, T. R., Blossom.
Blair, J. M., Houston.
Bradford, C. T., Cooper.
Brown, J. D., Jr., Stephenville.
Brown, J. P., Gustine.
Bryant, B. T., Whitehouse.
Burns, J. W., Cuero.
Carlton, A. L., Nederland.
Carman, E. M., Red Oak.
Cole, C. A., Beaumont.
Collins, W. D., Gustine.
Cox, A. B., San Angelo.
Crabb, R. H., Leonard.
Crawford, C. H., King.
Curlee, W. O., Ecton.
Dudgeon, H. R., Galveston.
Duringer, W. C., Ft. Worth.
Eargle, J. H., Lamkin.
Eargle, J. J., Proctor.
Eastham, J. G., Pritchett.
Edgar, J. H., Richland.
Ellis, B. V., Paris.
Evans, J. H., Palestine.
Flinn, J. F., Hutto.
French, J. H., Greenville.
Funk, P. C., Bridgeport.
Gibson, J. W., Austin.
Gray, A. J., Comanche.
Holland, J. T., Itasca.
Holt, H. L., Bluff Dale.
*Howard, W. E., Dallas.
Hubbard, B. J., Kaufman.
Hudgins, B. E., Crandall.
Hunter, R. H., Ballard.
Jarrett, J. C., Valley Mills.
Jenkins, W. M., Penelope.
Johnson, R. M., Hereford.
Jones, J. A., Palmer.

Jones, J. S., Galveston.
Kahn, M. S., Hallettsville.
Lankford, A. E., Seldon.
Leverette, C. L., Paris.
Longino, S. B., Sulphur Springs.
Mackechney, Laurie, San Augustine.
Magee, W. E., Chilton.
Martin, T. A., Grand Saline.
McCall, W. P., Ennis.
Moody, Thos., Paris.
Murray, J. A., Walnut Springs.
Paschall, J. G., Dallas.
Peak, P. A., Greenville.
Pierce, F. A., Ferris.
Plemmons, J. T., Clarette.
Price, J. W., Rosser.
Price, W. A., Hereford.
Puckett, J. M., Hainesville.
Randall, L. J., Bridgeport.
Richmond, W. T., Edna.
Robertson, P. F., Rock Springs.
Rosco, Isaac, Amarillo.
Saunders, R. F., Fort Worth.
Seafers, C. F., Port Arthur.
Slataper, F. J., Houston.
Smith, J. A., Greenville.
Smith, W. H., Alba.
Still, J. M., Kemp.
Sullivan, W. R., Mineral Wells.
Tabler, J. N., Rouse City.
*Thurston, D. M., Beeville.
Tindall, C. H., Lonona.
Trueheart, C. W., Galveston.
*Vance, James, El Paso.
†Williams, E. C., Collinsville.
Williamson, W. A., Coolidge.
Yeager, C. P., Corpus Christi.

UTAH.

†Stewart, C. W., Salt Lake City.

VIRGINIA.

†Barlow, C. H., Portsmouth.
*Coleman, C. C., Buena Vista.
*Corbett, H. C., Arlington.
Edwards, G. M., Newport News.
Fitzgerald, R. S., Richmond.
Gibson, E. L., Staunton.
Miller, C. M., Richmond.
†Moon, S. B., Richmond.
Moseley, E. J., Jr., Richmond.

WASHINGTON.

*Kinnear, C. H., Tacoma.

WEST VIRGINIA.

Albert, C. W., Hinton.
†Campbell, C. R., Chester.
*Campbell, J. A., Wheeling.
Ferguson, J. H., Sweet Springs.
Hume, W. W., Beckley.
Judy, W. J., Mingo.
Kirk, J. B., Elkhorn.
McFerrin, S. A., Falling Springs.
Shirkey, W. F., Malden.
Smith, L. S., Gypsy.
Spangler, A. M., Pageton.
†Thornhill, G. T., Herndon.
Wade, S. S., Morgantown.
†Warden, A. A., Grafton.
Watts, T. H., McComas.

WISCONSIN.

Baker, W. F., Birnamwood.
Crockett, W. W., Beloit.
Flinn, Minnetta C., Monroe.
Grafton, G. A., Hayward.
Judd, W. H., Janesville.
†Knauf, N. J., Chilton.
Leets, H. N., Algoma.
Loofbourow, N. A., Monroe.
Lyman, F. A., Madison.
Mertens, H. G., Bayfield.
Nelson, Norman, Madison.
Quigg, C. E., Tomah.
*Remaly, C. E., Melrose.
Sizer, E. M. A., Fall Creek.
Smith, C. E., Beloit.
Smith, G. C., Jefferson.
Thorne, J. P., Janesville.
Winter, A. E., Tomah.
†Wolter, H. A., Green Bay.

CANAL ZONE, PANAMA.

Bowen, A. S., Christobal.

Marriages

T. Martin Wiersen, M.D., to Miss Inga Norby of Chicago, June 27.

Bernard S. Talmey, M.D., New York City, to Miss Cecelia Osborne, June 27.

John A. Sherger, M.D., to Miss Kreamer, both of Harrisburg, Pa., June 12.

Albert F. Kaeser, M.D., to Miss Jennie Latzer, both of Highland, Ill., June 26.

Phreeborn G. Paugh, M.D., to Miss Alice Jessup, both of St. Louis, Mo., June 23.

Charles A. Wilson, M.D., to Miss Caroline S. Reingruber, both of St. Louis, June 20.

Irving J. Spear, M.D., Baltimore, to Miss Hortense Greenwald, at Baltimore, June 24.

Frank M. McGauley, M.D., to Miss Nora E. McKenna, both of Fond du Lac, Wis., June 26.

James A. Randall, M.D., U. S. N., to Miss Edith Adele Thompson of Denver, June 26.

Francesco A. Caruso, M.D., to Miss Estella G. Bianchi, both of St. Louis, Mo., July 2.

Joseph Harrison Humphrey, M.D., to Miss Marie Clerico, both of St. Louis, Mo., July 2.

Frederick Fraley, M.D., Philadelphia, to Miss Mary Lapsley Pyle of Bala, Pa., June 26.

Oscar W. King, M.D., Baltimore, to Miss Maud A. Selby, at Washington, D. C., June 26.

John B. Donaldson, M.D., Lorain, Ohio, to Miss Ida Kindler of Saginaw, Mich., June 27.

James Wade Elphinstone, M.D., to Miss Mary Robinson, both of Allegheny, Pa., June 27.

Charles Wright Ellyson, M.D., Alta, Iowa, to Miss Selma Damm of Albert Lea, Minn., June 26.

Mary Emily Jones, M.D., Philadelphia, and Mr. Edwin E. Mentzer of New York City, June 27.

Harvey Elmer Yoder, M.D., Cleveland, Ohio, to Miss Blanche Lesh of Fowlersville, Ohio, recently.

H. C. Antle, M.D., Renfrow, Okla., to Miss Elizabeth Van Danacker of La Harpe, Kan., June 26.

Roscoe S. Wilcox, M.D., Rochester, N. Y., to Miss Elizabeth A. Bashore of Mount Wolf, Pa., June 8.

Albert Ernest Small, M.D., Melrose, Mass., to Miss Ina Olive Sawyer of Clinton, Mass., June 25.

Willis Elliot Bowen, M.D., Rochester, N. Y., to Miss Emily Edwards of Washington, June 29.

Arthur J. McCracken, M.D., Bellefontaine, Ohio, to Miss Jennie Jenkins of Valley Mills, Ind., June 25.

Charles Adams Holder, M.D., Colorado Springs, Colo., to Miss Margaretta Bonsall Taylor, at Philadelphia, June 26.

Walter Ponder Conaway, M.D., Atlantic City, N. J., to Miss Emilia A. Haymaker of West Philadelphia, Pa., recently.

Deaths

Richard Henry Derby, M.D. Medical School of Harvard University, Boston, 1867; a member of the medical societies of the State and County of New York; American Ophthalmological Society, and New York Academy of Medicine; surgeon to the New York Eye and Ear Infirmary; consulting ophthalmologist to the Ophthalmological Hospital, New York Orthopedic and Trinity hospitals; a member of the State Charities Aid Association; trustee of the New York Institution for the Blind, etc.; a well-known specialist in diseases of the eye, died in Litchfield, Conn., July 4, from neurasthenia, after a short illness, aged 63.

Frank Horace Getchell, M.D. Dartmouth Medical School, Hanover, N. H., 1862; Jefferson Medical College, Philadelphia, 1871; a member of the American Medical Association; assistant surgeon of the Third Maine Volunteers during the Civil War; a member of the College of Physicians of Philadelphia, and of many other leading medical organizations, died at his home in Philadelphia, June 27, from spinal injuries sustained in a fall in February last, aged 71.

Albert E. Carrier, M.D. Bellevue Hospital Medical College, New York City, 1865; a member of the American Medical Association and Northern Tri-State Medical Association; professor of dermatology and syphilology in the Detroit College of Medicine, and visiting dermatologist to Harper Hospital, St. Mary's Hospital, Woman's Hospital and Foundlings' Home, Detroit, died suddenly, from heart disease, at the Marshland Club, Detroit, July 4, aged 66.

James William MacIntosh, M.D. Jefferson Medical College, Philadelphia, 1898; a member of the American Medical Association and College of Physicians of Philadelphia; assistant in the surgical department of Jefferson College Hospital, and demonstrator of bandaging in Jefferson Medical College; a specialist in anesthesia, died June 24, at the Pennsylvania Hospital, from tuberculosis, after a prolonged illness, aged 36.

Charles Edwin S. McKee, M.D. University of Maryland School of Medicine, Baltimore, 1858; surgeon of the Third Maryland Volunteer Infantry during the Civil War; from 1874 to 1876 mayor of Hagerstown, Md., and one of the leading citizens of that place, died suddenly at his home in Hagerstown, from cerebral hemorrhage, June 30, aged 71.

Alfred William Ford, M.D. New York University Medical College, New York City, 1872; for more than 20 years surgeon in the police department of Brooklyn, and one time major and surgeon of the Sixty-ninth Infantry, N. G., N. Y., died suddenly, July 2, from cerebral hemorrhage, at his home in Brooklyn, aged 54.

William Mason Price, M.D. Medical Department of the University of Nashville, Tenn., 1865; a member of the Medical Association of the State of Alabama and Lauderdale County Medical Society, and for several years president of the latter; died at his home in Florence, Ala., after a lingering illness, June 29, aged 70.

Alexander H. Hewetson, M.D. Miami Medical College, Cincinnati, 1867; a member of the Ohio State, Eastern Ohio and Belmont County medical societies; one of the oldest practitioners of eastern Ohio, died at his home in St. Clairsville, March 15, four days after an operation for ruptured gall bladder, aged 69.

James P. McNamara, M.D., C.M. Faculty of Medicine of Queen's University, and Royal College of Physicians and Surgeons, Kingston, Ont., 1907; recently appointed house surgeon at the Water Street Hospital, Ottawa, died at the Hôtel Dieu, Kingston, Ont., June 16, after an illness of four weeks, aged 33.

Albert W. Corner, M.D. Washington University, Medical Department, St. Louis, Mo., 1901; a member of the Montana State Medical Association and Silver Bow County Medical Society, died June 21, in his apartments in Butte, Mont., from septicemia, after an illness of four days, aged 36.

Edward W. Schirmer, M.D. Berlin, Germany, 1878; for many years a practitioner of Johnson and Otoe counties, Nebraska, and recently a resident of Nebraska City, died at St. Joseph's Hospital, Omaha, June 24, after an operation for gall-duct obstruction and pancreatitis, aged 55.

George T. Brown, M.D. University of Georgia, Medical Department, Augusta, 1897; a member of the Medical Association of Georgia and Jefferson County Medical Society; local surgeon for the Central of Georgia Railway, died at his home in Wadley, June 28, after a lingering illness.

William H. Nelson, M.D. Jefferson Medical College, Philadelphia, 1869; a member of the Medical Society of the State of New York and Oneida County Medical Society; for half a century a practitioner of Taberg, N. Y., died recently at his home in that place, aged 77.

John Haviland Otis, M.D. New York Homeopathic Medical College and Hospital, New York City, 1892; charity commissioner of Poughkeepsie, N. Y., and president of the county medical society, died at his home in Poughkeepsie, from heart disease, June 30, aged 35.

Clyde P. Platts, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1892; a member of the Florida East Coast Railway Hospital Surgeons' Association; of White City, Fla., died at the City Hospital, St. Louis, June 26, from anemia, aged 37.

Alexander J. Gould, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1894; formerly division surgeon of the Southern Pacific Railroad at Tucson, Ariz., died at the home of his mother in Toronto, recently, after a prolonged illness, aged 39.

Thaddeus H. Pennington, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1856; a member of the Louisiana State and Bienville Parish medical societies, died suddenly, June 22, while leaving his office in Arcadia, La., to go home, aged 74.

James H. Matthews, M.D. Medical College of Ohio, Medical Department of the University of Cincinnati, 1873; for many years a practitioner of Madison, Ind., died at the King's Daughters' Hospital in that city, June 23, after an illness of several years, aged 61.

Harvey K. Hoy, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1881; is reported to have committed suicide at his home in Altoona, Pa., July 5, by taking carbolic acid, while despondent on account of business losses, aged 57.

John Monsell Peacocke, M.D. College of Physicians and Surgeons in the City of New York, 1883; a member of the Medical Society of the State of New York and Kings County Medical Society, died at his home in Brooklyn, Juy 3, aged 59.

P. W. Capehart, M.D. Georgetown University School of Medicine, Washington, D. C., 1898; once one of the city physicians of Norfolk, Va., died suddenly at his home in that city, from heart disease, June 29, aged 37.

Charles Douglas, M.D. Bellevue Hospital Medical College, New York City, 1875; of Black River, N. Y.; a veteran of the Civil War; died at the City Hospital, Ithaca, N. Y., June 25, after an illness of about a week, aged 65.

Henry H. Clapsaddle, M.D. Albany (N. Y.) Medical College, 1872; a member of the medical societies of the State of New York and County of Otsego, died from heart disease at his home in Toddsville, June 29, aged 66.

Ralph Comer, M.D. Atlanta (Ga.) College of Physicians and Surgeons, 1899; a member of the American Medical Association and a promising young physician of Tignall, Ga., died June 26, after a short illness, aged 35.

James Braden, M.D. University of Virginia, Department of Medicine, Charlottesville, 1850; for many years a resident of Indianapolis, died at Gold Hill, Ore., May 12, from influenza, after an illness of five days, aged 82.

William Bradley, M.D. Geneva (N. Y.) Medical College, 1864; formerly of Lockport, Ill., but latterly a resident of Evanston, died June 30, at St. Luke's Hospital, Chicago, from cerebral hemorrhage, aged 69.

Seaborn J. M. Cox, M.D. University of Georgia Medical Department, Augusta, 1873; a charter member of the Edgefield Medical Society, died at his home in Johnston, S. C., June 26, after a long illness, aged 61.

Franklin J. Vose, M.D. New York University Medical College, New York City, 1886; a Brooklyn specialist on diseases of the lungs, died at his home in that city, June 28, from disease of the throat, aged 56.

Frank Vernon Gates, M.D. University of Nebraska, College of Medicine, Lincoln, 1904; died at his home in Glidden, Iowa, June 7, from pneumonia complicated with asthma, after an illness of two weeks, aged 38.

George W. Manwaren, M.D. Eclectic Medical College of the City of New York, 1891; died at his home in Fairbury, Ill., June 25, from uremia, after an illness of about two weeks, aged 56.

Thomas S. E. Pyle, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; was found dead in his office in Allensville, Pa., June 29, from heart disease, aged 55.

George H. Crittenden, M.D. Vanderbilt University, Medical Department, Nashville, Tenn., 1879; died at his home in Madison Station, Davidson County, Tenn., June 28.

Eugene A. Bassett, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1884; formerly of Chicago, died at Barre, Mass., July 6, from nephritis, aged 67.

George H. Wells, M.D. University of Minnesota College of Medicine and Surgery, Minneapolis, 1888; died suddenly at his office in Butte, Mont., June 30, aged 45.

Benjamin Gorsuch Franklin, M.D. University of Maryland School of Medicine, Baltimore, 1866; died at his home in Westminster, Md., June 24, aged 63.

John Mastenbroek (Years of Practice, Michigan); for many years coroner of Ottawa County, Mich., died at his home in Grand Haven, recently, aged 76.

John Stafford Benson, M.D., M.R.C.S. Eng., died at his home in Chatham, N. B., June 22, after a lingering illness, aged 68.

Thomas M. Brown, M.D. Louisville (Ky.) Medical College, 1886; died at his home in Oakland City, Ind., June 25.

Joseph C. Sayre, M.D. Dearborn Medical College, Chicago, 1904; died at his home in Chicago, July 4, aged 41.

W. D. Wolford (Years of Practice, Kentucky), died recently at his home in Jamestown, Ky., aged 70.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

A Live County Society.

The Jefferson County (Ala.) Medical Society has issued a very attractive program for the year, outlining the topics for the weekly meetings. Without following exactly the plan of any other society, a comprehensive program for the year has been gotten up, in which practically all of the different interests in medicine and surgery are represented. The program for July, for instance, is as follows: Monday, July 1, clinical meeting and presentation of cases. Monday, July 8, the following subjects are considered: "Etiology, Prognosis and Treatment of Convulsions in Young Children;" "Infantile Derangements Due to Improper Breast Feeding;" "Home Modification of Milk." The program for Monday, July 15, includes: "Leucorrhea, Etiology and Proper Method of Treatment;" "Dysmenorrhea, Etiology and Treatment;" "Etiology and Treatment of Endometritis." The fourth meeting in the month is given up to obstetrics. The program consists of papers on "The Management of Normal Labor;" "The Use and Abuse of Anesthetics in Obstetrics," and "Postpartum Hemorrhage." The last meeting of the month is taken up by a symposium on non-tubercular joint disease, including rheumatoid arthritis, infections of the joints, etc.

Among the special meetings provided for is a joint meeting with the Birmingham Bar Association and papers on medicolegal subjects, and a meeting with the Birmingham Pharmaceutical Association with a discussion of topics of mutual interest to the doctor and the druggist. The meetings are held in the city hall, in which a special hall is set apart for this purpose. This society is one of the most energetic and progressive in the South, and its meetings are well attended.

The County Society.

In the May number of the *Journal of the South Carolina Medical Association* appears an article on "The County Society," by Dr. J. W. Jervey, read at the annual meeting of the South Carolina state society. Dr. Jervey asks a number of questions regarding county societies which he proceeds to answer. The question, "What is it?" he answers by saying that the county society is the professional and social clearing-house of the medical men of the country; the cemetery of envy, hatred, malice and uncharitableness; the whip that stings the inert to activity and the spur that drives the lazy and self-satisfied. It is a body that can make itself a power to be reckoned with in every phase of life. As to the query, "Why is it?" Dr. Jervey finds the reason for organization in the necessity for association, contact of individuals, diffusion of fellowship and effusion of new ideas. It also increases the strength of the profession and of its individual members.

The greater part of the paper is devoted to answering the question, "How should the county society be conducted?" After emphasizing the necessity for improvement in the conduct of county societies, Dr. Jervey emphasizes the importance of frequent meetings and of permanent meeting places. He also advocates issuing occasional invitations to an outsider to read a paper or discuss a topic. "Invite a good lawyer to give a lecture on forensic medicine or medical jurisprudence." He also urges the importance of an active and energetic secretary, of the selection of proper men on the committees, of the report to the state journal of society matters and universal matters of importance and of regular attendance at the meetings of both the county and state societies as a means of arousing and sustaining enthusiasm.

Colorado Legislature Regulates Publicity.

The Colorado legislature has adopted a bill restricting and regulating advertising and methods of publicity. The text of the bill is given herewith:

AN ACT TO PROTECT THE PUBLIC MORALS BY PROHIBITING THE GIVING OF GENERAL PUBLICITY TO TREATMENTS AND DEVICES FOR THE CURE OR PREVENTION OF SEXUAL OR MENSTRUAL DISEASES, TO PRESCRIBE PENALTIES FOR THE VIOLATION OF THIS ACT AND TO REPEAL ALL ACTS AND PARTS OF ACTS IN CONFLICT HEREWITH.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. It shall be unlawful for any person, association, society, partnership or corporation to circulate, disseminate, spread, print, publish, or cause the circulation, dissemination, spreading, printing or publication of, any public advertisement, announcement, publication, notice or information of the treatment, alleviation, palliation, cure or prevention of any sexual or menstrual disease, weakness or condition; or to display, or expose, to the public view, on any public street, alley or road, any instrument, device or thing designed or intended or sold for the treatment, cure, alleviation, palliation or prevention of any sexual or menstrual disease, weakness or condition. But this act shall not prevent such publication or dissemination of any such advertisement in exclusively medical publications and publications designed and circulated among dealers as trade journals not for public inspection.

SEC. 2.—Any person, association, society, partnership or corporation, who, or which shall violate any provision of this act shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be fined not less than twenty-five dollars, nor more than three hundred dollars, and in the discretion of the court, may be punished by imprisonment, either accompanied or unaccompanied by a fine, for a period not less than ten days nor more than six months. In construing and enforcing this act, the act of any officer, agent, employé, or servant, acting within the scope of his employment, shall in every case be deemed to be the act of such person, association, society, partnership or corporation.

SEC. 3. All acts and parts of acts in conflict herewith are hereby repealed.

Approved April 3, 1907.

Section Discussions

TREATMENT OF LACHRYMAL OBSTRUCTION.

BY DR. M. D. STEVENSON, AKRON, OHIO.

(*Concluded from page 119.*)

DISCUSSION.

DR. G. E. DE SCHWEINITZ, Philadelphia, emphasized the fact that epiphora does not necessarily mean that dacryostenosis is present, and that it alone should never be the occasion for the use of probes until a most searching examination has eliminated the various possible causes related to refractive error, lack of balance of the ocular muscles, organic and functional nervous disease, paretic condition of Horner's muscle, etc. Many cases characterized by epiphora exist without catarrhal or purulent secretion in which the obstruction in the lachrymonasal duct apparently depends on swelling of its mucous membrane and not on true stricture. In these cases, while it is perfectly permissible to dilate the punctum and irrigate the sac and the *ductus ad nasum* with the ordinary antiseptic fluids, treatment of subacute or chronic nasal inflammation is of paramount importance. Injudicious use of probes may induce stricture in a perfectly remediable inflamed and swollen mucous membrane.

A certain number of cases of obstruction in old persons are due not to swelling, nor to stricture, but to contraction, and are associated with atrophic changes in the nasal mucous membrane. Nasal obstructions which have subsided under treatment may reappear on exposure and cause epiphora. The number of cases of stricture, which necessarily require incision and probing, would be greatly lessened if due care along the lines indicated were exercised. There is not the slightest value in the use of very large probes. Excision of the sac is the most satisfactory treatment for chronic dacryocystitis and long-continued suppuration. It is a simple operation, easily performed, and, in many subjects, perfectly feasible without an anesthetic. Careful syringing with suitable antiseptics, with massage over the sac, may be tried, but if it fails the sac should be excised. It is hardly to be expected that the lesions shown by the microscope to be present—dense infiltration of the mucosa, fibrosis of the wall of the sac, and disintegration of the lining epithelium—should be removed by probing and irrigation. Dr. de Schweinitz has never found it necessary, except on one occasion, to remove the lachrymal gland. He has some faith in excision of the palpebral portion of this structure, and as MacNab has recently written, the epiphora after the operation is always much less than it was before, providing the whole of the sac is removed. Epiphora in a nasal duct stricture is due not so much to the mechanical obstruction as to the irritation set up by the secretion retained in the sac which causes reflexly an increased lachrymal secretion. When the sac is removed this reflex stimulation of the lachrymal gland usually ceases, although it may persist as a habit for a few months, and the normal flow of tears is only sufficient to moisten suitably the cornea.

In summary then: Epiphora unassociated with purulent secretion, if found to be really due to dacryostenosis, is often caused by swelling of the mucous membrane, and can be suitably relieved by proper intranasal treatment, associated with dilatation of the punctum and irrigation of the *ductus ad nasum* and sac with suitable antiseptic and astringent lotions. In the presence of a stricture, or failure to induce the fluid to pass through the duct, a suitably sized probe properly passed is a proper procedure, to be repeated at suitable intervals, and followed by the same antiseptic irrigations until the mucous membrane is brought into a healthy condition. This probe can often—indeed usually—be passed, especially through the upper canaliculus, without its incision. Suppurative dacryocystitis of long standing, when there is reason to believe that the walls present the pathologic conditions already described, is best treated by excision of the sac. Under all conditions the most searching investigation of the nasopharynx, and particularly of the ethmoid and antral sinus, is not only an important part of the treatment of lachrymo-nasal disease, but an absolutely essential one.

DR. C. R. HOLMES, Cincinnati, spoke of the advisability of removing the lachrymal gand when it is absolutely necessary to remove the sac. Of course, he said, we all realize the necessity for rhinologic examinations and that the source of trouble in 90 per cent. of the cases lies in the nose. Treatment is required there instead of probing the duct above, but several years ago he undertook the removal of the gland, finding that after removal of the sac there is still epiphora, which is annoying to the patient and he, therefore, looks on removal of the sac alone as an imperfect operation, while it is perfectly safe, under aseptic methods, to remove the gland. He has done the operation 17 times with successful results. There is great satisfaction in being able to tell a patient he will be cured and be free from epiphora. In the early series he did not remove the accessory glands, and after a few months found that the patient still had epiphora; after that he removed all the accessory glands that he could find. There is slight dryness of the eye for a few days, but the patients are not conscious of it. One can detect it in refracting the patient; a drop of water in the eye will increase the vision. Some of the patients he operated on ten years ago are still in good condition and satisfied with the operation.

Dr. W. H. Wilder, Chicago, differed with the essayist, and the first discusser, on the point that most of these patients, especially of the poorer class, must come to operation and that it relieves them of the misery of long probing. Many of the people who can give the time will come back for subsequent probing, but in the clinics he thinks it is the conservative method of treatment. Dr. Wilder suggested a way to make the procedure more simple, namely, the distension of the sac with such a substance as paraffin, which he believes is harmless when thus used. He does not agree with Dr. de Schweinitz that the operation is always an easy one, but with the sac distended with paraffin (and there is now in use a syringe that forces hard paraffin right into the sac), a landmark is provided that helps very much in the dissection.

Dr. John S. Kirkendall, Ithaca, N. Y., thoroughly agreed with Dr. de Schweinitz and others who had spoken as to operative interference after the ordinary causes have been removed. They failed to speak of one cause, however, that is, refractive errors, which may cause hypersecretion of tears so that the ingress of tears is greater than the egress.

Dr. A. G. Bennett, Buffalo, N. Y., said that he rather hesitated on the experience of one case to recommend very highly a procedure that acted very well in a case of dacryocystitis occurring in a man too feeble to stand a general anesthetic, in which he had opened and drained the sac and packed with iodoform gauze. The inflammation rapidly subsided, but there still kept up a mucous discharge. He then closed both puncta with the actual cautery; the discharge immediately ceased and remained so for a couple of weeks. Then he found that he had only imperfectly closed the upper punctum, and on closing this the discharge ceased, the wound healed absolutely, with no return of the trouble. Dr. Bennett believes that in certain cases by shutting off the tears and using simple drainage with packing and allowing it to granulate and closing the puncta good results may be attained. It will help particularly in that class of cases that Dr. Wilder speaks of as not having time to undergo the long continued probing.

Dr. A. E. Prince, Springfield, Ill., wished to express himself in favor of excision of the gland. His first experience was in the case of a young man with extreme epiphora coming on spasmodically. He corrected the visual trouble, but still had this difficulty. As a sort of last resort he removed the gland. The healing was complete in twenty-four hours. After that he began to take out the gland in conjunction with excision of the sac, and now whenever he takes out a sac he excises the gland. The operation is simple. He makes an incision through the folds of the skin in such a way that the scar is not seen, and with the exception of a slight amount of ptosis, which usually disappears in a short time, he can not see any objection to it. The results, he said, are very satisfactory, and under aseptic precautions he has never seen a single instance of difficulty.

Dr. Frank C. Todd, Minneapolis, said that there are two methods deserving of consideration which Dr. Stevenson had not gone into. One is that suggested by Gould, of having the patient lie down and dropping into the hollow made at the internal canthus, a solution, followed by massage with the finger over the tear sac. This is with the idea of securing benefit by massage and the entrance into the sac of some such remedy as boric acid solution. This, of course, is only suitable in cases of mild inflammatory conditions, but has the advantage that it can be used by the patient at home. The other is the permanent insertion of gold canulæ. Dr. Todd said that for some years he has been using canulæ in certain severe and suitable cases with great satisfaction. The canulæ, however, must be made of gold and be properly fitted to each individual case. He showed the kind he has had made and used. It must be carefully bent, properly fitted and the ends ground off until it is the required length; the shoulder is made heavy to prevent it from sinking into the canal. He finds that patients are able to draw the secretion through the tube by closing the nose and in this way clear the tube of secretion when necessary. The Dunn dental syringe is, he thinks, a very convenient one to use, for the injection of solutions into the tear canal. Dr. de Schweinitz speaks of argyrol as something harmless, but he wants to warn the members against the use of argyrol. He had one patient in whom the tissues of the orbicularis became permanently discolored. In a still earlier case of a patient in whom the argyrol extravasated into the tissues and caused a swelling, Dr. Todd injected a salt solution the following day and when the swelling subsided the stain disappeared with it. Whether or not this had anything to do with its disappearance he did not know.

Dr. M. D. Stevenson, Akron, Ohio, said that the consensus of opinion seems to be against the removal of the lachrymal glands, but this may be due, as suggested by Dr. Prince, to timidity. Of the replies to the second question only four in this country seemed to have done this operation, and of these but two do it at all times. In removing the gland the orbit has to be opened and exposed to the slight dangers of infection which can never be totally eliminated. The other glands of the conjunctiva ordinarily supply sufficient secretion for the eye, but a flow of tears is useful in removing irritants. If the removal of the sac has been thorough, and sufficient time is given for the conjunctiva to regain its normal condition, there will not be much complaint of epiphora, except when due to special irritations.

THE TREATMENT OF STRABISMUS IN YOUNG CHILDREN.

BY DR. A. R. BAKER, CLEVELAND, OHIO.

(Concluded from page 121.)

DISCUSSION.

Dr. Linn Emerson, Orange, N. J., said that when it is decided that the case is a suitable one for orthoptic treatment the order of procedure is as follows: 1, Refraction objectively; 2, blurring of the fixing eye with atropin; 3, covering the fixing eye with a pad; 4, training of sight, and later of fusion.

The most important matter, he said, is accurate fitting of glasses, and since the child is young and one or both eyes generally amblyopic it must be done objectively. Here the greatest patience and perseverance must be called into play. It is sometimes necessary to see the patient half a dozen times before proper glasses can be ordered as children are often diffident, unruly, or lachrymose. Very small children can not be made to fix any definite object, thus rendering accurate retinoscopy very difficult. To overcome this difficulty he is accustomed to work at half a meter with the light above and slightly behind the patient's head, deducting plus 1.50 instead of plus 1.00. He is thus able to hold the lenses or skiascopes in his left hand, changing them rapidly, and often getting information from a few seconds' fixation which would not be possible by the usual method. He believes that the best time to institute treatment is between the second and fourth years, but does not hesitate to begin earlier if cooperation can be secured. The use of atropin and the pad to the fixing eye should be continued until the patient fixes for all distances with the unatropinized eye, but care must be taken not to follow it up too long as transfer of the squint to the sound eye has been observed. Dr. Emerson said that the amblyoscope is of great value, but practice and skill are required to get satisfactory results with it. Satisfactory work can often be done with a stereoscope and Kroll's pictures. Sometimes vision is so poor that weeks of patient work are necessary before the child can be made to perceive the image with the amblyopic eye. The results, however, are truly astonishing. In the alternating cases where vision is equally good in the two eyes, keeping both eyes atropinized and wearing bifocal glasses has yielded the best results. The orthoptic methods advocated in nowise interfere with the operative treatment to be undertaken later and are in fact to be recommended after all operations for the correction of squint. These statements are founded on the observation and treatment of about 500 patients during the past four and a half years.

Dr. Wendell Reber, Philadelphia, said that we can say there are four classes of strabismus in children; first, the paretic cases, which constitute from 5 to 20 per cent.; second, those due to congenital deficiency of the fusion impulse; third, the accommodative class, which also is small, possibly 5 per cent.; and, fourth, the largest number is represented by a mixture of these two factors. A child with the congenital deficiency, he said, may recover enough to go through life without strabismus, but if you add to that congenital deficiency a high degrees of refractive error you have the conditions which are the ideal ones for production of paretic strabismus. Dr. Reber's series of cases presented some years ago show a cure of 76 per cent. of children under seven years of age by means of glasses, and he does not think these patients should be tenotomized. We must not overlook the influence of vertical deviations in these cases.

Dr. A. E. Davis, New York City, is opposed to fitting young children, certainly those under one year, with glasses; he would just as soon think of giving them a set of artificial teeth. He uses atropin. If you want to change the squint from one eye to the other put atropin in the sound eye and make them use the other. In this way you can prevent amblyopia from lack of use. That is all we are justified in doing up to two years. While he believes the objective method should be used, he does not understand how you can get these children under one year to look in any direction in order to use the retinoscope or ophthalmometer. Another point is that the refraction of the eye at the fovea varies widely from that at the other parts.

Dr. Lucien Howe, Buffalo, said that we are confusing two different things. We use that one word strabismus, which is indefinite enough, but we do not say what makes the eye turn in; whether there is an excessive action of the adductors or not. We have come to the point where we must recognize an active esophoria and a passive exophoria. When we have settled that point we have the key to the situation and plan of treatment. We know then whether we should do a tenotomy or put on glasses and whether we should divide widely or do an advancement. What we need, he said, is not better methods of treatment so much as more clearness in diagnosis.

Dr. Oscar Wilkinson, Washington, D. C., said that the longer he practices the more convinced he is that the sooner we put on glasses the better effect we will get from them. It is in those cases which are the longest neglected that we get only a cosmetic effect. There are many of these patients, as you can see from reading the literature on the subject, that are never absolutely cured; never get binocular vision. If we want to attain that, he is convinced that the best method is to put the glasses on as soon as we can. Along this line there is special need of education among general practitioners and parents. It seems that the general practitioners have false ideas in regard to the use of glasses in the cure of these cases. They invariably advise the mothers to wait until the child is five or six years old and then they can have a tenotomy done and the eyes will be straight. In regard to operation in these cases Dr. Wilkinson agrees with the chairman, that tenotomy is never justified in very young patients.

Dr. A. R. Baker, Cleveland, Ohio, said that he has a patient, Mrs. D., aged 51, who, when 4 years old, was taken to Professor Donders in Utrecht by her father (who was a professor in the university) with convergent strabismus. Spectacles were prescribed and according to the patient's statement the same strength lenses were worn until she first consulted him in 1898. The lenses she was wearing at that time were the same as a prescription she had which purported to be a copy of Donders' original prescription. The lenses were:

Left plus 8.50 ax. 75, V. 20/50 plus.

Right plus 1.25 with plus .50 ax. 90, V. 20/30 plus.

A careful examination under a mydriatic gave the same as this, and at the present time she is wearing a bifocal of the same distance lens combined with a plus 2.25 for reading. She has good binocular vision. This case shows that Donders had the courage of his convictions even fifty years ago and was prescribing glasses accordingly, and that his refraction work fifty years ago was as accurate as we do to-day. Dr. Baker said that in his brief paper he attempted to differentiate between concomitant squint and strabismus due to paralyses, congenital cataract, opacities of the cornea, central scotoma and chorioiditis; indeed all cases described by Dr. Posey as congenital squint. His theory is that concomitant squint is due to an error of refraction and can be cured by its correction, if done soon enough. It can not be done by correcting one-third of the error, as stated by one of the speakers. If the child refuses to wear the full correction, it is simply an evidence that you have not done your work well, and it must be done over again.

TENOTOMY.

BY DR. F. C. TODD, MINNEAPOLIS.

(*Concluded from page 134.*)

DISCUSSION.

Dr. A. E. Davis, New York, said that he did not believe in operating in the conditions for which the operation is proposed to be used most frequently; that is, for latent strabismus, and had little faith in graduated or limited tenotomies for the correction of manifest squint. In his experience the majority of these cases of muscular insufficiency are relieved by wearing the proper glasses, aided by tonics, rest and a sane use of the eyes. He has not had occasion to change his opinion or practice in such cases since presenting his paper in 1901. As to the relative value of complete and limited or graduated tenotomy in manifest squint, even of low degree, his views are not in accord with those of Dr. Todd. That squint of less than 13 degrees may and can be corrected by complete tenotomy, not of one but of two tendons (both the internal in convergent squint, both external in divergent squint), he has demonstrated time and again, obtaining thereby complete single binocular vision.

To the statement that "complete tenotomy is always undesirable," he is utterly opposed. It might be applied to graduated tenotomy, and correctly so, judging from his own experience in such cases. As he said in his paper in 1901: "If the treatment of latent squint by means of prisms and graduated tenotomies is of little practical value, how much less so is the treatment of manifest squint by these means. In fact, the treatment of manifest squint by means of prisms, or by graduated tenotomies, has been abandoned by most oculists, and, at most, is but a sad memory to those who have tried it."

Dr. Davis doubted if sufficient stretching of the tendon could be obtained even by cutting all the fibers of the tendon, but at two separate places. Since receiving the presession papers Dr. Davis tried the operation in two cases of manifest squint; one of 10-degree convergence, and the other of 20 degree, in each of which the operation was not sufficient to correct the error.

With the statement of Dr. Todd that the effect of a complete tenotomy can be varied only by following Panas' method of stretching the tendon previous to tenotomizing, Dr. Davis also takes issue, although he is a strong advocate of the Panas method. While it is true that we may limit the effect of the tenotomy by first stretching the tendon, by stretching the muscle and at the same time temporarily paralyzing it, thus allowing the tendon to attach itself at exactly the place on the globe at which it is left at the time of operation, yet one very important point in the technic of the operation has been overlooked. An important feature in limiting and regulating the effect of a tenotomy is the extent of the dissection of the capsule of Tenon. The effect of a tenotomy may be considerably increased by dissecting the capsule of Tenon widely in the lateral direction from the attachment of the muscle tendon, and also by dissecting the capsule free from the tendon back toward the belly of the muscle, thus permitting the tendon to attach itself farther back on the globe.

To those members of the profession who perform operations for muscle insufficiency, Dr. Todd's operation seems to be the ideal method, because the effect may be limited exactly as the operator desires.

Dr. H. V. Würdemann, Milwaukee, Wis., said he had had satisfactory experience with this operation, both to the patient and himself, in a case of esophoria of ten degrees due to excessive version of one internus. As it has only been a month ago he could not answer for future consequences, but the immediate result was good. Here the question comes up, whether or not the operation will give permanent results. Will not the edges of the cut tendon come together, forming scar tissue, and contract the tendon so as to make it shorter than before?

Dr. Francis Valk, New York City, said that this operation seemed to him to be a kind of modification of one recommended by Landolt some time ago in which he made the two cuts above and below the muscle and then connected them by a lateral incision and reattached the two ends of the muscle by sutures. He thinks if either operation is advisable that one would be preferable. Dr. Valk said he can not understand why Dr. Todd, who has given us such an excellent operation as the one done with his tendon tucker, should devise another operation for the same purpose. If you will strengthen a muscle by shortening it with the tendon tucker you will certainly get a better result, more permanent and with more benefit to the patient than by this cutting operation, which, as Dr. Würdemann has said, will probably grow together again. In the case of latent squint, it seems to him that the ideal thing to do is to find out the weak muscle and make it stronger, and one need not be afraid of poor results.

Dr. S. L. Ziegler, Philadelphia, said that he believes this operation of Dr. Todd's is somewhat similar, though not quite the same, as the one he proposed at the Pan-American Medical Congress some fourteen years ago, in which the incisions were made in the tendon, but they were made on either side and opposite to each other, thus leaving a central strand of fibers. With this central strand you have a balance and not the irregular pull or vertical slipping, which you may have in the operation of Stevens. The cut tendon or central strand is then lifted up by the tenotomy hook, and using the scissors as a probe, in the same way that you would to find the optic nerve in performing enucleation, you cut through the remaining fibers that seem to be the strongest in their pull. Then stop and measure how much effect you have and in that way you can graduate your result to the smallest amount. The effect can be graded from as low as ½ or 1 degree, and carried up to at least 8 degrees. It is possible by thinning down the tendon to its very last fibers to get a little more effect. If you desire to carry it further you can possibly get as much as 12 or 13 degrees. You have the advantage of not cutting the muscle completely off, and hence the power of traction is still unimpaired. This is a matter of satisfaction to the patient. The ultimate effect in these cases is to permit perfect balance, and the result is excellent, chiefly because there seems to be less postoperative slipping than by other methods.

Dr. A. E. Bulson, Fort Wayne, Ind., said that he had had some experience with Dr. Todd's operation and the result had been most gratifying up to date. He has operated four times by his method and the results have been very satisfactory. All were cases of exophoria, varying from 5 to 14 degrees. The patients continued with esophoria from three to eight days, which gradually subsided, and in one patient there is at the present time esophoria. The question is as to how permanent it is going to be. Dr. Bulson said he was one of many a few years ago to be taken with the idea of the graduated tenotomy, but he has abandoned that operation, finding that the results were not permanent. He has had under his observation patients who have been tenotomized five or ten times, and were worse than at first; he, therefore, abandoned it. He adopted Dr. Todd's operation with great hesitation, fearing that the ultimate results might not warrant the operation, but the ones that he has done have given great satisfaction.

Dr. G. E. Savage, Nashville, Tenn., said that he wished to say a word in favor of any operation that will put a stop to complete tenotomies. A complete tenotomy should never be done. Dr. Todd's operation is a good one. It is nothing more or less than a partial tenotomy. It is no better than the partial tenotomy devised by Stevens. The mistake that everybody has made is in cutting the tendon without cutting the capsule of Tenon. That should be divided coextensive with the division of the tendon. If this is done you will get results, and the only danger is that you may do too much. Todd's operation, Ziegler's operation, and Stevens' operation are all good. The marginal operation is indispensable in certain cases, but it is a good one.

Dr. Frank Todd, Minneapolis, said that regarding Dr. Davis' operation, in which he spoke of doing this operation in conjunction with advancement in strabismus, he would suggest that perhaps his failure may be due to the fact that he did not do the right advancement operation, which is, of course, the tucking operation. Dr. Tood first did this operation one year ago last February, and has done it alone and combined with the advancement operation. Of course, results secured when done in conjunction with the advancement operation can not be quoted to prove the permanency of the operation. The oldest case in which he has had an opportunity to measure carefully and in which no advancement operation was done, is this one of six months, showing permanency for that length of time. We know that when a complete tenotomy is done on a patient with exophoria and a full effect secured immediately, that some times these patients come back some years later with a return of the original trouble. But these cases are not due to contraction. He believes that contraction will not take place here, if it does not within six months. The other case reported was five months. With reference to Dr. Valk's criticism he believes there are certain cases which require the advancement and certain cases which require lengthening (as note the versions and ductions in the two cases reported), and that it is desirable to do both sometimes, certainly in strabismus it is often necessary to do them together. One must be governed by thorough examinations of each case as to whether lengthening, shortening or both are required.

EXSTROPHY OF THE BLADDER.

BY DR. J. T. BOTTOMLEY, BOSTON.

(Concluded from page 144.)

DISCUSSION.

Dr. Hugh H. Young, Baltimore, said that a year ago Dr. Watson of Boston brought out the subject with reference to the treatment of malignant tumors of the bladder, and during the past year Dr. Young has applied the method to one case of malignant disease of the bladder. The plastic operations on the bladder and abdominal wall have been entirely unsatisfactory, he said, because even after the greater number of operations the patient has been left with incontinence which requires an apparatus to collect the urine. The presence of numerous fistulas and the occurrence of calculi made the convalescence of these patients a very tedious and painful one, and even the operation was not satisfactory. The various operations contemplating the transplantation of the ureters into the rectum certainly have not been satisfactory, and there has been a large mortality. The operation devised by Dr. Bottomley, Dr. Young thinks, promises good results. It seems to be a rational one. The abdominal defect can be restored and the hernia that is nearly always present can be cured, while with the apparatus devised the patient is given perfect comfort for the remainder of his days. Dr. Young's patient had an inoperable tumor of the bladder; he did a double nephrostomy according to the suggestion of Dr. Watson. The patient is still alive, although he has two tubes running into his kidneys. These tubes carry off the urine very satisfactorily. Dr. Young thought with Dr. Watson that to use the ureters instead of doing a nephrostomy would lead to pyonephrosis, and the fact that the ureters were unable to drain the kidneys thoroughly led him to suppose that there would be a considerable amount of retention, and that the patient would be more liable to die from transplantation of the ureters than following a nephrostomy. With a permanent drainage tube there is always renal infection, but if there is good drainage, he said, this does not amount to much. Dr. Young feels certain that many cases of enlarged prostate are associated with renal infections. The fact that he now has 82 cases without a single death after perineal prostatectomy shows that if the obstruction be removed any renal infection that may be present will take care of itself. The use of a large amount of a good mineral water ought to check a renal infection and let the patient live, even though a pyelitis be present.

Dr. Guy L. Hunner, Baltimore, said that in his opinion the Peters operation, called by Dr. Bottomley the London operation, is the one best suited to this condition. Surgeons have not yet had sufficient experience with the operation to draw any satisfactory conclusions. Dr. Hunner believes that 10 cases have been recorded in which this operation was done, and it seems to him that for so serious an operation, as any on the ureters is bound to be, the death rate has not been high. There have been but two deaths in the 10 cases, and one of these Peters rightly ascribed to a mistake he made in leaving in his renal catheter after operation, thus causing an ascending infection. Dr. Hunner said that if he had a child that had to have an operation for this trouble he would certainly take a chance on implantation of the ureters into the rectum. He does not believe that the patient is any better off to have the ureters transplanted posteriorly. Any one who has to wear a rubber bag under the clothing is in a most unfortunate condition. Peters wrote Dr. Hunner not long ago that of his five patients four are now living, the first seven years after operation. They hold the urine from one to four hours during the day, and from six to eleven hours at night. It seems to Dr. Hunner that this is something worth taking a few risks for. The operation itself—the extraperitoneal implantation of the ureter down along the side of the bladder into the side of the rectum—should be practically without risk.

Dr. F. Gregory Connell, Oshkosh, Wis., said that the question of ureterorectal or vesicorectal anastomosis has resolved itself into the prevention of ascending infection. That such infection does not occur if the ureteral orifice is preserved intact, is well shown by a case which he has under observation at present. The patient, a male, aged 32, was born with an imperforate anus. The attending physician made an opening into the rectal pouch, but, in addition, punctured the neck of the bladder. This opening between the rectum and the bladder has never closed, and most of the urine has been passed by rectum. Eight operative attempts have been made to close this communication, but when seen by Dr. Connell there was an opening surrounded by dense connective tissue of sufficient size to admit the tip of the index finger. The patient is entirely well physically, and there is no evidence of kidney infection 32 years after the opening into the rectum was established.

Dr. Jacob Frank, Chicago, declared that many things must be taken into consideration when operating for exstrophy of the bladder. He made a number of experiments on dogs several years ago, and found that every dog who had the ureters cut off and transplanted into the rectum had an ascending infection and died sooner or later. This was not the case when the ureteral openings were preserved. In one case a culture was made from the kidney and proved negative. The fact that in Dr. Connell's case the ureteral openings were preserved explains why the patient did not become infected. Dr. Frank said that he can not see that the patient will receive any benefit from transplantation of the ureters from the front to the back. The patient must wear some sort of an apparatus, the ureteral openings are destroyed and ascending infection is favored. It is known that if, by transplantation of the ureters, any pressure is caused on them, sooner or later the patient will have some form of kidney disease. Dr. Frank said that he has devised an operation which has not been done much on the human being. His experiments on dogs consisted in making an opening between the bladder and the rectum or sigmoid flexure. He does not see why one should destroy the bladder wall, the mucous membrane of which is accustomed to urine. If in some way that bladder can be utilized as a urine receptacle it ought to be done, and he thinks that there are cases in which the baldder is large enough to permit the opening to be made between the rectum and the bladder, utilizing the latter by shutting it off and closing it over, thus making an entirely new bladder. Experiments on dogs have shown that if the bladder is anastomosed to the intestines, the mucous membrane of the bladder wall takes on the functions of the mucous membrane of the intestine, and ascending infection will not take place if the ureteral openings are preserved.

Dr. Ap. Morgan Vance, Louisville, Ky., stated that several years ago he operated on a young man of 19 for exstrophy of the bladder. The man is getting on well, is married and carries on a large business. Dr. Vance did an autoplastic operation on that man, which he thinks should be carried out in every case. He fails to see the advantage of putting a hole into the patient's back for the purpose of carrying off the urine.

Dr. J. T. Bottomley, Boston, said that he did not mean to claim that this operation is a perfect one, nor did he put it forward simply as an operation for exstrophy of the bladder. It may be used in such cases, but its most important use, he believes, is in cases of inoperable bladder conditions in order to relieve the patient of distressing symptoms. But considering exstrophy of the bladder alone, it has been admitted and known for many years, that plastic operations for relief of the exstrophy are exceedingly unsatisfactory. Fistulas form and calcification takes place and repeated operations are necessary. Besides this, the patient must of necessity wear an apparatus for collecting the urine, and it must be worn in an exceedingly uncomfortable place. The Peters operation is an excellent one, but all operations of which implantation into the rectum is a part are attended by the danger of infection of the kidney. That can not be disregarded. So far as statistics go, 12 per cent. of all operations in which the ureters were implanted into the rectum have been followed by renal infection. Of course, implanting the ureters into the loins is not a pleasant procedure and it does not leave the patient in a pleasant condition, but it is choosing the lesser of two evils, because if the rectal implantation is done there will almost certainly be an ascending infection sooner or later.

THE TECHNIC OF APPENDECTOMY.

BY DR. J. A. WYETH, NEW YORK.

(*Concluded from page 124.*)

DISCUSSION.

Dr. John E. Cannaday, Hansford, W. Va., said that he did not believe that a four-inch incision is an absolute necessity, or that it is even desirable. He held, with Dr. Robert T. Morris of New York, that a two-inch incision is long enough for most cases and that in some cases an inch and a half incision may do. The incision he favors would be made through the rectus muscle, either separating the fibers, as Dr. Wyeth described, or making the McBurney incision. He believes that the McBurney incision is favorable because it gives the gridiron effect and it leaves a better and stronger abdominal wall after healing. There are no nerves or blood vessels of importance cut, so muscular atrophy will be avoided. In regard to hemorrhage following the inversion method, he thinks this can be avoided by following the technic suggested by Dr. Davison of Chicago, who carries a ligature under the artery. The arterial supply of the appendix usually comes through the mesoappendix, yet at times the artery is misplaced and is carried in the wall of the cecum to the base of the appendix. These are the cases that will bleed after operation. If the purse-string suture is carried under this vessel, where it passes through the wall of the cecum, then such bleeding can not take place. A good deal of dissection can be done in many cases by a well-trained finger, especially where the adhesions are of a comparatively light type. Dr. Cannaday does not believe that a good quality of chromic catgut will break down before the wound has had time to heal, and he believes that cauterization and sterilization of the stump of the appendix with the thermocautery is better than the use of carbolic acid, or at any rate just as good, and it takes less time. In a recent number of The Journal (June 1, 1907), he described a slight modification of the usual method of inversion of the stump of the appendix, which, he thinks, has something to commend it. The use of a buried non-absorbent suture of silk may cause trouble afterward. If there is any suppuration around the buried suture, as when part of it protrudes into the lumen of the bowel, the suppuration will persist until the suture comes away. If catgut is used, it will be absorbed and nothing like that happens. Of course, a buried suture of fine silk or Pagenstecher thread will seldom give any trouble, but now and then it will.

Dr. R. H. M. Dawbarn, New York City, said that the purse-string suture is being used more and more, and frequently hemorrhages have been the consequence of the surgeon's neglect to tie the artery in the stump of the appendix. It is a question of anatomy. One-half of the appendices get their blood supply through the mesoappendix. The other half get it through the appendix itself. It is the latter supply that cause trouble. If the stump is crushed thoroughly, or if each blood vessel is tied individually, as it should be, there will never be any hemorrhage. As to the material to be used: Since Dr. Willy Meyer years ago proved that linen thread and silk are tolerated equally well in the tissues, linen being the strongest and not weakened by boiling, there is no excuse for using silk in surgery.

He said that whenever we have gangrene of the cecum or appendix, it is not caused by the streptococcus, but by microbes of less virulence, namely, the *Bacillus coli communis* and the *Proteus vulgaris*. When he has to do with a case where the odor of the pus is not offensive, he puts in two rows of sutures, because he knows that he has to deal with more virulent germs. The cecum is the largest part of the large intestine and the ileum the smallest of the small intestine, and you can reduce the cecum three-fourths without obstructing the exit of the ileum, and because it is so thick there is no danger in putting in a purse-string suture by going through the thickest part of the intestine.

Dr. Emory Marvel, Atlantic City, declared that Dr. Wyeth's paper impressed him as dealing with the technic of a simple appendectomy, in which no complications had arisen and in which the disease had limited itself to the apppendix. First, Dr. Marvel does not see the necessity for a four-inch incision. In the majority of cases, unless there is very much fat, the appendix can easily be reached with a small incision, say an inch or an inch and a half in length. So why make a longer incision? If the patient is a woman, and there is need for going beyond the appendix to the pelvic organs, when these are involved, the Deaver (splitting right rectus) incision seems to be the one most clearly indicated. That gives one the opportunity of removing, if necessary, the ovary and tube at the same time with the appendix. Dr. Marvel stated that he has had one secondary hemorrhage in an appendectomy, fortunately not fatal. He does not believe that it was due to faulty technic, but to failure to carry out what he intended to do, or carelessness on his part. He does not see the necessity of putting a ligature around the appendix if the organ has been crushed and the mucosa is crushed out and only the peritoneal coat is left. He can not see any objection to excising the appendix, or to the use of the Lembert suture, or the method which Dr. Joseph Price uses (two invaginating sutures) for the care of the stump of the appendix. The use of carbolic acid and the actual cautery seems to Dr. Marvel to be an additional precaution which is not necessary.

Dr. C. Van Zwalenburg, Riverside, Cal., called attention to one point which emphasizes the necessity of operating early, that is, that appendicitis in its beginning is in reality a strangulation. All have seen appendices removed that were fully distended so that in removing them it was feared that they would burst during the removal, and some have burst. This was within the first forty-eight hours of the disease. Every appendix, in a measure, comes to this point when it is acutely inflamed. The cause of appendicitis is obstruction; not always at the point of junction with the colon, but in some portion of its lumen.

If the obstructing plug is very small, the gradual distension of the appendix will quickly drive it out, and we have to deal only with the infection which is present at that time. A short time ago he made some experiments on dogs. He drew a loop of intestine out of the abdomen and placed it under a microscope. To the bowel was attached a compression apparatus which could be regulated, and a small electric lamp was introduced into the intestine. In that way he could study the circulation of the intestine very nicely, under varying degrees of pressure. At 30 mm. pressure there was a very decided slowing of the circulation, so slow that it was easy to see the individual corpuscles. At 60 mm. pressure there were very many blood vessels in which blood had ceased to circulate. At 100 mm. pressure there was practically no circulation at all, and at 130 mm. pressure the circulation was entirely occluded. Dr. Van Zwalenburg succeeded in demonstrating the same thing in the appendix of a dog. This interference with the circulation from overdistension of a hollow viscus is, to his mind, a very important one. He presented a specimen of a gangrenous appendix that was removed postmortem, three days after the appendix burst. The point I wish to emphasize is that the mesoappendix is not gangrenous; the gangrene is confined to the portions of the lumen of the appendix which were involved in the strangulation from overdistension.

Dr. John A. Wyeth, New York, referring to Dr. Cannaday's suggestion to ligate the artery as a precautionary measure, said that the ligature around the stump ties everything. Why, he asked, take any extra precaution? For this technic, he said that there is no good catgut. Here linen and silk alone are good; they can not be broken. Dr. Wyeth prefers infection and opening up an abscess to holding a postmortem in a case in which death is due to any form of suture. In case of bullet hole in the intestine Dr. Wyeth uses the purse-string suture. In the peritoneum he makes only an inch incision. He asked: "Why crush the stump when everything is securely tied?" When the mesoappendix and the appendix are tied, all the arteries are tied also. If every patient with appendicitis were operated on within twelve hours of the appearance of the first symptoms, Dr. Wyeth asserts that the death rate would not be even three in 1,000 when the operation is done by competent men. He mentioned a case in which Dr. Grant of Denver tied on the appendix and the patient recovered, and also stated that Dr. Cordier of Kansas City, Mo., has done 1,200 operations for appendicitis with the ligature without a death.

LIGATION OF CAROTID FOR HEMORRHAGE OF VITREOUS.

BY DR. G. S. DERBY, BOSTON.

(*Concluded from page 110.*)

DISCUSSION.

Dr. William H. Wilder, Chicago, said that this appears to be a very heroic remedy for a very serious condition, and it may be compared to the decompression operation for optic neuritis. Whether it will prove any more satisfactory or not remains to be seen, but one should naturally resort to it only in those extreme cases in which blindness in the remaining eye is threatened. One would not be tempted to resort to such a measure when one eye is perfectly sound, but even then one must consider very carefully the dangers of ligation of the common carotid artery. Dr. Wilder said that he discusses this paper purely from a theoretical standpoint, not having had any experience with the measure, but all ophthalmologists are seeing cases of this kind and wondering what can be the cause of these hemorrhages. He referred to a case which he has seen. A strong, healthy man of 19, sent for consultation, had had sudden blindness coming on in the right eye. He was in perfect health; a strong, young fellow, with no suspicion of syphilis or tuberculosis, who suddenly, four days before Dr. Wilder saw him, noticed a dimness of vision coming on and blindness soon supervened. He had only light perception in that eye and when the ophthalmoscope was used the pupil was perfectly black, and only at one place was there a red reflex; nor was anything to be seen floating in the vitreous. Dr. Wood also saw this case and agreed that it was a case of spontaneous hemorrhage in the vitreous. The cause was obscure. The patient was placed in the hospital, and the blood was examined as to its opsonic index, which was found slightly lowered. Tests were then made with tuberculin, using 1 mg. of the old tuberculin; there was no reaction. Later 3 mg. were injected and a faint general reaction followed—only a slight malaise, with three-quarters of a degree of fever. Some days later 5 mg. were used and there was a marked general reaction, with temperature of 103 F., and not a well-marked but distinct ciliary injection of the right eye and some even of the left. The man refused to remain for treatment, but went back west. In another somewhat similar case a man had lost completely the sight of his left eye, from what cause was not clear, and there was a calcareous cataractous lens in the eye. In the right eye was the condition before described—perfectly black pupil. It was impossible to get any view of the fundus. Dr. Wilder resolved to try tuberculin in this case. Unfortunately, the patient was not examined in the same scientific way as was the other, but at any rate he was given a diagnostic dose, 1 mg. being used, and somewhat to Dr. Wilder's surprise there was a well-marked general reaction and also a well-marked local reaction—ciliary injection, pain in the eye and signs of uveitis. Treatment was begun with tuberculin in small doses, gradually working it up until after several months this man's vision, which had been reduced to *nil*, began to improve. To-day his vision is 20/60 in the right eye; no change occurred in the left.

Dr. John E. Weeks, New York, said that he thinks that the case reported by Dr. Derby and the last case of Dr. Wilder's belongs to the category of what is ordinarily known as retinitis proliferans. It is known that that affection, which is usually congenital in its origin, affects both eyes almost invariably; that it is characterized by the presence of new-formed tissue in the vitreous; that it originates primarily in cases not of the congenital variety and possibly in the congenital variety in hemorrhage, with the formation of coagula, and that the membrane subsequently develops. On this membrane are new-formed blood vessels, which possess very thin walls, and from these the hemorrhages, which have been termed malignant hemorrhages, take place. Treatment by ligation of the common carotid artery can not change the character of the walls of these new-formed blood vessels, and if collateral circulation is sufficient again to fill these vessels the ligation can not be of any value, as the hemorrhage into the vitreous will recur. There are two other causes for the development of retinitis proliferans; one is syphilis and the other traumatism. The development of the membrane and blood vessels is the same in both cases.

Dr. Harry Friedenwald, Baltimore, in a paper published several years ago, called attention to the fact that in several cases he had observed there was evident disease of the finer veins throughout the course of the trouble, and that these changes in the veins often preceded the hemorrhages. He has since then observed other cases of the same kind in which decided, sometimes very extensive, changes in the finer veins existed. Another point: these hemorrhages recur a number of times in some cases, and he is afraid that in such cases the eyes would be permanently lost. In all the cases that he has been able to observe for any time the hemorrhages ceased after a while, and he has several cases still under observation in which no hemorrhages have occurred for a number of years, and the patients have very good vision.

Dr. S. D. Risley, Philadelphia, mentioned a clinical fact observed after ligation of the common carotid for the cure of an aneurism situated in the cavernous sinus. Up to the time of ligation there had been no marked changes in the fundus of the eye, but twenty-four hours later the entire ground was studded with large hemorrhagic patches. He has not been able to explain satisfactorily the mechanical reasons for such an occurrence. Its possibility should be considered when advising ligation of the carotid for any cause.

Dr. Allen Greenwood, Boston, said that perhaps he could answer Dr. Weeks' question as to the probable cause of hemorrhage in the case mentioned. He saw the patient with Dr. Derby, and both eyes presented the characteristic proliferating condition in the vitreous, so much so that there was the appearance on first examination suggestive of the remains of the hyaloid artery. This condition existed in both eyes, and was very characteristic of proliferation. Dr. Greenwood suggested that Dr. Derby try lactate of calcium before tying the common carotid. Dr. Weeks' explanation of the lack of good result is probably the correct one; that is, that the hemorrhage was from weakened vessels within the proliferating tissue.

METASTATIC CONJUNCTIVITIS IN GONORRHEA.

BY DR. JAMES J. CARROLL, BALTIMORE.

(*Concluded from page 114.*)

DISCUSSION.

Dr. Robert Randolph, Baltimore, said that he had never seen a case of metastatic gonorrheal conjunctivitis. In several cases in which he thought this condition present it proved to be the forerunner by a few hours of an iritis. The involvement of the iris is accompanied by marked changes in the conjunctiva and these changes in his experience at least, seem to be more generally distributed over the ocular conjunctiva than is usually seen in iritis from other causes. It seems to him that a gonorrheal conjunctivitis of metastatic origin is one which runs its course without coexistent iritis. The first case which Dr. Carroll reports was doubtless a genuine case of this form of conjunctival inflammation, for although iritis occurred, there seemed to be a definite period of time between the conjunctivitis and the outbreak of the iritis, during which period the eyeball was apparently free from inflammation. Dr. Randolph does not think, however, that the same view can be taken of the second case. This case was seen on the fourth day and was characterized by the phenomena of an intense conjunctivitis which involved also the subconjunctival tissue. On the next day iritis showed itself and Dr. Randolph is disposed to regard the case as one of metastatic iritis, accompanied with the usual conjunctival changes which are particularly pronounced in this variety of iritis. It is important, too, in this variety of conjunctivitis that repeated examinations of the conjunctival exudate be made so as to be certain that no gonococci are in the conjunctival sac. The failure to find gonococci in this location the first and second time would not justify one in concluding that they are not there. He thinks that such an examination should be made every day and that not only coverslips should be made, but also inoculations into the proper culture media, and that the failure of these two methods to reveal gonococci would probably be sufficient grounds for regarding the case as one of metastatic origin. Just as Dr. Carroll has intimated, the exact way in which the metastasis takes places is unknown, so Dr. Randolph is inclined to think that the toxins of this organism, which are doubtless in the conjunctival fluid, are sufficiently irritating to lower the resistance of this part of the eye, and thus an opportunity is given to those bacteria which are always present in the conjunctival sac to multiply, in other words that there is here a mixed infection.

Dr. Hiram Woods, Baltimore, said that Dr. Carroll had asked him to see Case 2. It presented the picture of plastic iritis with mucopurulent conjunctivitis. This association seems the rule; first, conjunctivitis, with more or less purulency (and in this respect differing from the conjunctival hyperemia preceding iritis), followed rapidly by iritis. Dr. Woods narrated a case which may come under the class of metastatic conjunctivitis. A woman, aged 34, was first seen in 1903, in consultation with Dr. Howard A. Kelly of Baltimore. She was an invalid from plastic pelvic inflammation, having its origin in gonococcic infection several years previous, after marriage. Dr. Woods was asked to determine, first, the possibility of ocular origin of headaches; second, cause of recurrent conjunctival and circumcorneal right hyperemia, associated with mucous secretion. Refraction error was trifling. Several times in the space of two or three months the right eye showed mild catarrhal conjunctivitis, usually associated with circumcorneal injection. Never was there iritis. During these months the patient had intermittent vaginal discharge, gonococcic in nature. From 1903 to February, 1907, Dr. Woods did not see her. Returning to Baltimore she told him of the continuance of her old eye trouble. It was deemed advisable in February, 1907, to give her an injection of gonococcic vaccine. In forty-eight hours there was profuse vaginal discharge containing gonococci. At the same time she presented definite right mucopurulent ophthalmia. The condition was the same as observed four years ago. There was slight circumcorneal injection as before, but neither cornea nor iris was involved. It seems evident that during these years there has been latent gonococcic infection. Several pelvic operations have been performed, some trivial, others serious. There have been two relapses of conjunctival discharge at these times. Dr. Burnham, a pathologist, made careful examinations of the conjunctival secretion, but failed to find organisms either by coverslip preparations or in cultures. The recurrence of the eye disturbance at time of operation recalls the insistence of Professor Wright of London to the effect that mechanical interference is apt to be followed by clinical manifestations. Dr. Woods does not know whether or not to consider this case one of metastatic gonorrheal conjunctivitis, but he can find no other explanation. The eye was entirely well in February before and at the time of the injection of gonococcic vaccine.

Dr. Herman Knapp, New York, said that this form of metastasis shows itself particularly in the anterior chamber and in the vitreous, so much so that it often frightens the patient. The iritis which comes with the disease is not so intense. It shows itself later and the exudate is different. In these cases there is a good deal of disturbance and the patients are very much frightened. As soon as Dr. Knapp sees a spongy exudate in the vitreous he suspects this condition. It lasts three or four weeks and then the symptoms disappear and the exudate clears up from the anterior chamber. It may have the appearance of a dislocated lens and has been mistaken for that. Dr. Knapp sees this condition occasionally, but is certain that there is no danger to the eye. The diagnosis is characteristic: a sickle on the upper part which enlarges by absorption of the fibrinous exudate. Rarely the exudate contains blood. This exudate is present also in the vitreous. In the grave cases Dr. Knapp said that the physician should not fail to warn the patient and the husband or wife as the case may be.

Dr. W. Campbell Posey, Philadelphia, said that metastatic gonorrheal conjunctivitis has certainly not received the recognition which its frequency deserves. In a paper which he read before the Section on Ophthalmology of the College of Physicians of Philadelphia, in 1906, Dr. Posey reported a case of this nature, and dwelling on its symptomatology, referred to a monograph by J. W. White which was published twenty years ago, in which a comparative table was given showing the distinction between this form of conjunctivitis, or gonorrheal ophthalmia, as it was formerly called, and true gonorrheal conjunctivitis, or conjunctivitis from direct infection. White, who is a syphilographer and genitourinary surgeon of wide experience, said that in from seven to eight hundred gonorrheal cases he had observed but one instance of true gonorrhea conjunctivitis, but that he had noted one of metastatic conjunctivitis in from fifty to sixty cases of the same disease. There can be no question but that conjunctivitis may arise in gonorrheal cases from metastasis, similarly to iritis, scleritis and optic neuritis, and the explanation of this is not difficult when one reflects how often the mucous membrane constitutes an avenue of escape for abnormal and toxic fluids. How often, Dr. Posey asked, do we find that rheumatic and gouty inflammations of the conjunctiva and episcleral tissues, and the eczematous eruptions which occur there are attributable to an autointoxication of gastrointestinal origin? The extensive lymphatic system in this region, and the circulation of fluids through it, doubtless frequently occasions the deposit there of liquids which are more or less laden with toxins, and even with microbes themselves. Cleanliness with astringents, which should be varied in character and strength to meet the varied degrees of inflammation, should be included under the local treatment, and the salicylates, he said, will be found of great service in controlling the toxemia.

Dr. S. L. Ledbetter, Birmingham, Ala., reported a case occurring in a young married woman who applied to a surgeon for treatment for some urethral trouble. She had been subjected to several urethral irrigations and finally, under anesthesia, a portion of the urethra was removed for microscopic examination. The patient did not feel well after that and was given morphin rather regularly. The surgeon was told that she had urethritis—he had been examining for tumor. She went along in this way until the twelfth day, when she developed a conjunctivitis, with considerable redness and injection and a mucopurulent secretion, very slight, not the usual secretion seen in direct contagion. Dr. Ledbetter examined the eye and gave it as his opinion that it was not a case of gonorrhea direct, and on examination found the retina and media in normal condition. He decided that it was a metastatic condition. The woman was in a highly nervous state. Her mental condition grew worse and she died on the twentieth day from the time of the removal of the section of urethra, eight days from the time the ocular symptoms appeared. Two examinations of the conjunctival secretions were made—one showed the gonococcus, the other did not.

Dr. John Green, Jr., St. Louis, said that he had encountered in a woman a case in which, by exclusion, he was unable to arrive at any diagnosis other than metastatic gonorrheal conjunctivitis, possibly associated with dacryoadenitis. F. M., a prostitute, was admitted to the St. Louis Female Hospital with the diagnosis of gonorreal conjunctivitis. The history was as follows: Four months previously she had contracted gonorrhea, which was followed by inflammatory trouble in the right ankle, knee and left elbow joint. The arthritis was accompanied by fever and she was confined to bed for several weeks. In the meantime the vaginal discharge had greatly lessened in amount and finally ceased. Two weeks prior to the onset of the ocular trouble she suffered a second attack of gonorrhea. Two days before entering the hospital she awoke to find her eyes greatly swollen and bloodshot. Ocular examination showed both conjunctivæ chemotic. The discharge was very slight and of a mucoid character. The palpebral conjunctiva was scarcely, if at all, involved. The upper lids were considerably swollen. Palpation in the region of each lachrymal gland revealed an ill-defined swelling, not painful to pressure. Corneæ were intact. Vision = 20/20, each eye. Ophthalmoscopic examination was negative. Smears from the scanty conjunctival secretion on five different occasions revealed no gonococci, although smears from the vaginal discharge showed gonococci in abundance. The treatment consisted solely in the application of cold compresses. Within three days the chemosis had subsided and at the end of a week the eyes were so nearly restored that the patient declined to remain longer in the hospital. It is, of course, possible that a dacryoadenitis was the primary condition and that the conjunctival inflammation was secondary to it.

Dr. H. A. Rothrock, Westchester, Pa., reported a case of this kind that came under his care several years ago. The patient, a young man, was suffering from a gleet. What impressed Dr. Rothrock most about the case were the small amount of discharge with the marked injection, and the swelling and tenseness of the lids, and the duration of the disease which lasted about three weeks. About a year later three similar cases were reported in one of the French magazines by a Japanese physician. In the case which Dr. Rothrock treated a bacteriologic examination failed to show any gonococci.

Dr. James Carroll, Baltimore, said that in order to rectify what might be a false impression from Dr. Randolph's remarks, he would like to say the bacteriologic examination in the second case, which is the doubtful one in his estimation, was made twice a day so long as there was any conjunctival secretion, namely, for five days. There is a decided difference between the hyperemia of the ciliary region in beginning iritis and the marked injection, swelling and secretion of the conjunctiva in beginning metastatic conjunctivitis. In regard to confusing it with metastatic iritis the following points should be considered: First, the localization of the inflammation; if the case is seen early the inflammation in metastatic conjunctivitis is localized in the conjunctiva, whereas in metastatic iritis it is the iris; second, the severity of the symptoms in metastatic conjunctivitis is decided less than in metastatic iritis; third, metastases of the joints in metastatic conjunctivitis usually follow the inflammation in the conjunctiva; whereas in metastatic iritis they precede the iritis. So far as Dr. Carroll can find, all the cases reported occurred in the male, most authors finding it difficult to explain this fact.

GALL DUCT OBSTRUCTION BY MOVABLE KIDNEY.

BY DR. M. B. TINKER, ITHACA, N. Y.

(*Concluded from page 126.*)

DISCUSSION.

Dr. Robert T. Morris, New York, said that in cases in which the range of the kidney in the retroperitoneal plane carries it to the fixed point of the duodenum, gastric disturbances are very apt to be a dominant feature, with dilatation of the stomach or a chronic gastritis. He has seen a number of cases in which a loose kidney caused obstruction by direct mechanical pressure on the fixed part of the duodenum. He has not seen pancreatitis as a complication in these cases, although he would expect to see it if a sufficient number of cases had come under his observation. The superior mesenteric veins should be compressed by this range of the kidney, but he has not noted as yet that he has had a greater proportion of cases in which Edebohl's symptom of appendix congestion is associated with a loose kidney. The chief difficulty in making a diagnosis of this fact will be because in so many cases, associated with a loose kidney, there are adhesions about the bile tract causing very much the same symptoms—the gall spider cases. Most physicians have met cobwebs up in the attic of the abdomen due to chronic cholecystitis, dating usually from childhood, with or without symptoms, and most are unaware of the presence of adhesions. These are found in the postmortem room so commonly that they seem to represent almost a normal condition, but in a certain proportion of the cases they cause certain definite symptoms not readily distinguishable from symptoms caused by a kidney which ranges in the retroperitoneal plane toward the fixed part of the duodenum. In making the diagnosis cases with panoptosis must also be eliminated, in which the liver, descending the reverse of the line of ascent in fetal life, has angulated the common bile duct. Dr. Morris has been on various sides of the question of treatment of the gall-bladder, and has tried to base his action on the moral ground of statistical reports, but every man has his own technic and results which are not always to be compared with the statistics of others, and at present Dr. Morris is much in favor of cholecystostomy, preferring now a very simple technic in removing the gall bladder, as a rule, because the gall-bladder once infected is always infected, and by removing it he avoids the adhesions which are so patent in causing obstruction, adhesions to the hepatic flexure of the colon, to the pylorus, or causing angulation of cystic or common ducts. In the technic of fixation of the loose kidney in these cases he uses a combination of the methods of Goelet and Senn. The former quickly hangs the kidney in the desired place by a single suture. This can be done in a moment. The use of gauze, as recommended by Senn, obliterates the pouch behind the peritoneum into which the kidney is likely to range again, unless granulation tissue, followed by the formation of new connective tissue, has closed the pouch. That combination allows one to complete the operation in a very few minutes; seven or eight, or at the most ten minutes, will suffice to do the operation of fixation of the kidney, as a rule. In these cases of obstruction by a loose kidney, Dr. Morris has seen jaundice twice distinctly, and he thinks, in one other case; but usually the cases have been those in which there were more commonly the painful features, the spasm of the muscularis of the ducts and the common symptoms of obstruction.

THE ABDOMINAL SYMPTOMS OF THORACIC DISEASE.

BY DR. A. A. JONES, BUFFALO.

(*Concluded from page 128.*)

DISCUSSION.

Dr. Alexander Lambert, New York, stated that in various consultations the frequency with which abdominal conditions had been diagnosticated when the trouble was in reality angina pectoris has been forcibly impressed on him. The cases in which pneumonia has been mistaken for appendicitis and in which pleurisy has caused acute abdominal pain have been very interesting. So far as his experience goes, when the pain is due either to pleurisy or to pneumonia, there is a short space of time between expiration and inspiration when the abdominal wall relaxes. The muscular rigidity, so characteristic of peritoneal involvement can be caused by pleurisy, but there is a period during which the rigidity is momentarily relaxed, when this differentiation can be made. In true appendiceal attacks there is invariably some point of abdominal tenderness; in pneumonia or pleurisy this tenderness is lacking.

Dr. W. S. Thayer, Baltimore, mentioned a case of thoracic disease with certain remarkable abdominal symptoms, which he believes worth recording. Last year he saw with Dr. I. E. Atkinson of Baltimore, a man who had been under Dr. Atkinson's care for some years suffering from epilepsy. The patient was 52 years old and had had these attacks for two years at intervals of several months. He was an excessively nervous man, irritable, querulous and difficult, full of fears and fancies. One day he sent for his physician, complaining of excruciating pain in his chest; this began apparently with a sharp pain about opposite the third left intercostal space. When seen he seemed to be suffering greatly, but could not definitely localize the pain. For the following day he was in bed, complaining of pain now at one point, now at another, now in his back, now throughout his chest. He seemed to be in great suffering, but was kept reasonably comfortable by two hypodermic injections of one-fourth grain of morphia. Dr. Thayer saw him on the following day, and again two days later. During that time he was very irritable and nervous, complaining of the same indefinite pain. He asserted constantly that he was in agony and feared impending death. On careful examination a few crackling râles were heard in the lower left axilla which might have been a slight pleural rub or simply the expansion of the atelectatic lung. On the fourth day there was also noticed a slight dulness at the right base, with enfeeblement of respiration and a slightly nasal character of the voice sounds. The abdomen was slightly distended and a little tender, especially in the region of the appendix. The leucocytes were 18,000. He remained in about the same condition until the morning of the seventh day, when he suddenly collapsed. Dr. Atkinson found the patient with a gray, peritoneal facies; pulse ranging from 120 to 130; abdomen excessively distended; temperature from 101 to 102 F. Dr. Halsted operated shortly afterward. The patient became pulseless and nearly died on the table. On opening the abdomen the colon was found to be enormously distended, so much so that the case was regarded as one of obstruction. No exploration could be made. The colon was opened and the distension immediately relieved. The patient seemed actually to come to life again. The distension of the colon was so great that the peritoneal coat was ruptured at the point exposed. The man died two days after the operation. Necropsy showed a dissecting aneurism beginning at the end of the arch of the aorta. Its onset had caused the intense pain in the chest. It had burrowed downward and there had been some escape of blood into the base of the right pleural cavity, which had accounted for the dulness on percussion and the nasal voice sounds. It had extended through the diaphragm into the region of the celiac axis, resulting in a paralytic ileus. The distension of the colon was so great that the peritoneal coat was torn in several places. The great distension of the colon stopped rather sharply at the splenic flexure without apparent cause. Dr. Thayer mentioned this case because of its remarkable characters and because of the fact that it was, after all, an instance of abdominal symptoms depending primarily on a thoracic change.

DR. W. H. NEILSON, Milwaukee, said that he is especially interested in Dr. Hoover's remarks regarding the points of tenderness because hitherto he has been obliged to wait until the development of symptoms other than those referred to. He has had a number of cases in which the first symptoms are abdominal, some simulating gastritis and some appendicitis. In all the cases, if he waited a few days, thoracic symptoms showed themselves. A few weeks ago he was called in consultation to see a woman with symptoms similar to those described by Dr. Thayer, restlessness, slight elevation of temperature, with trouble of several months' duration, variously diagnosed. He found the heart with a galloping rhythm, pulse unequal at the two wrists, and the patient complained of pain over the sternum, stomach and colon. He could detect no bruit. A diagnosis of aortitis was made. The pain was arrested only by the use of morphin. About three weeks later he was again called in and found the patient in a comatose condition and with hemiplegia.

DR. ALLEN A. JONES, Buffalo, said that the points made by Dr. Hoover are very valuable in certain cases, but there are cases in which they will be lacking. He referred to the points of tenderness along the distribution of the phrenic nerve. The abdominal symptoms are often pronounced in thoracic disease, especially in children. Dr. Jones did not make the same observation as did Dr. Lambert, regarding abdominal rigidity in cases of pneumonia. On the other hand, in his paper Dr. Jones speaks of the flaccid condition of the abdominal walls. Dr. Jones said that Dr. Lambert's statement regarding the period of relaxation of the rectus muscle is of value and he will watch for it in the future. Dr. Jones had referred in his paper to the cases of appendicitis being closely simulated by pneumonia. Dr. Thayer's report illustrated splendidly, he said, the unreliable character of abdominal pain as a symptom. In many cases it is most misleading and keeps one guessing at all sorts of diagnoses. His report is valuable in corroborating what was stated regarding aortic disease occurring with abdominal symptoms.

SYMPOSIUM ON THE TURBINATE.*

(*Concluded from page 138.*)

DISCUSSION.

DR. JOSEPH A. WHITE, Richmond, Va., said that in his article in Burnett's "System of Diseases of the Ear, Nose and Throat" he had called attention to the stuffy and obstructive sensations about the nose resulting from indigestion and also the production of difficult breathing from gastric and intestinal disturbances. The gastrointestinal tract and the nose have, he said, both a direct (by way of the mucosa) and a reflex (by way of the pneumogastric) connection that explains their physiologic and pathologic interdependence one on the other. Dr. White said that gastralgia, indigestion, etc., have been reported as resulting from nasal affections and cured by getting rid of the latter, and that it is, therefore, rational to suppose that the reverse process can take place resulting in impeded nasal circulation, swollen turbinates, irritable pharynx, etc. In gastrointestinal irritation resulting from the presence of uric acid and oxalate of lime, it has been shown that both these substances are eliminated by the skin and by the nasal mucous membrane, causing more or less irritation and pathologic reflexes in the nose. The presence of indican in excess, as stated by Dr. Stucky, is, he believes, always evidence of intestinal fermentation with absorption of toxins and ptomains due to putrefaction of undigested food. In addition to the manifest effects of this process on the circulation in general and on the nasal circulation in particular, the local irritation of the intestinal tract resulting could, he thinks, bring about irritation of the nervous system also, with in many cases, manifestations of nasal symptoms by direct or reflex influence. These manifestations are not only found among the "good livers," but are frequent in young women, many of them working girls, especially seamstresses, milliners, cigarette and packing-box makers and packers of cigars. It is among this class in his community that he has observed most cases of this kind. They all suffer from constipation, with gastrointestinal disturbances, and with the added element of overwork they become as neurotic as the good livers who lead a mental rather than physical existence. While it may be true that the latter class are more liable to these symptoms, they have not a monopoly of them. While agreeing in the main with Dr. Stucky, he differed from him somewhat as to the necessity of local treatment in some of these cases with a tendency to obstruction first of one nostril, then the other, especially at night, the obstructed nostril being on the side they lie on. He usually suggests shrinking of the turbinates with galvano-cautery, properly applied in linear cauterization. In the main, however, simple cleansing of the nasal spaces and treatment directed to the regulation of the digestive process, proper diet and physical exercise will accomplish the desired results.

DR. CAROLUS M. COBB, Boston, said that in a previous paper he had called attention to a peculiar formation of the middle turbinate which was closely associated with progressive deafness. When seen by anterior rhinoscopy the condition presents a well-marked picture. In the first stage the nasal chambers are rather narrow and generally free from signs of disease of the mucous membrane; the nasal chambers as they form the apex of the triangle superiorly are extremely narrow, and the middle turbinate is not at all prominent in front, but does extend downward in its posterior part, often below the inferior turbinate. The prolongation downward of the posterior part of the middle turbinate is often extremely thin on its front edge, but if investigated it will be found that it immediately grows thicker, and if the attempt is made to introduce a probe between it and the septum it will be found that it is very difficult and many times almost impossible. It is generally as closely applied to the other nasal wall. The membrane does not have the appearance of congestion or inflammation in the first stage of the disease, but that part of the nose is thoroughly blocked by the bony enlargement of the middle turbinate. It forms such a tight wedge that it is often difficult and sometimes impossible to introduce the blades of the ethmoid forceps on either side of it when one attempts to remove a portion of it. Dr. Cobb has often been compelled to use a fine saw, introduced on the most accessible side, to make a small opening for the introduction of the forceps. The stage of the disease which is marked by this enlargement of the middle turbinate is closely associated with the beginning and progressive stage of the middle ear disease. Before atrophy takes place he believes that it is possible to arrest the deafness by removing a part of the prolongation of the middle turbinate. Whether this disease is a part of the disease which affects the ears or whether the ear disease is caused by the nasal disease Dr. Cobb is unable to say, but from the fact that an operation on the middle turbinate, before it has reached the stage of atrophy, has a decidedly favorable influence on the ear disease he is inclined to believe that the nasal disease may act as a cause of the aural disease.

DR. JOSEPH GIBB, Philadelphia, said that he thinks the operation of excision of the anterior third of the middle turbinate bone marks a very distinct advance in the treatment of sinus disease. In many cases it is not merely a preliminary to more radical procedures, but is the sole operative measure required, since it furnishes adequate drainage and enables the operator to wash out effectively the affected sinus.

The second indication for the removal of the middle turbinate is to promote drainage and cleasing in certain types of atrophic rhinitis. In his own experience, however, he sees very few cases of atrophic rhinitis in which the disease may be localized in or limited to the ethmoid cells. In those cases of atrophy in which the sinuses are involved the maxillary alone, or with the ethmoid and sphenoid, is about the order in which they have come to his knowledge. And in these it would seem better to resort to more radical measures to effect the removal of the confined inspissated pus and to provide for subsequent drainage and treatment. In the divisions of the subject Dr. Casselberry did not specifically mention hypertrophy as an indication for operation, but, since he refers to numerous conditions the result of pressure which have ever been associated with hypertrophic conditions, I infer that he means the removal of a hypertrophied turbinal for the relief of these conditions.

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* This is a general discussion, which took place at Atlantic City in the Section on Laryngology, on all the papers on the turbinate. These papers have appeared as follows:

"Anatomy of the Middle Turbinate, with Special Reference to Its Topographic and Surgical Relations," Hanau W. Loeb, M.D., St. Louis, THE JOURNAL, June 22, 1907, 2098.

"Pathology of the Middle Turbinate," J. L. Goodale, M.D., Boston, THE JOURNAL, June 22, 1907, 2105.

"Non Operative Treatment of the Middle Turbinate," J. A. Stucky, M.D., Lexington, Ky., THE JOURNAL, June 29, 1907, 2174.

"Indications for Resection of the Middle Turbinal," W. E. Casselberry, M.D., Chicago, THE JOURNAL, July 6, 1907, 21.

"Technic of the Operation for Removal of the Middle Turbinate," George L. Richards, M.D., Fall River, Mass., THE JOURNAL, July 13, 1907, 133.

Perhaps some of the most gratifying successes that have fallen to the lot of the rhinologist is the relief secured in the various so-called neuroses by this simple operation. Leaving out of consideration those cases of sinus disease, a safe guide in determining which cases of reflex neuroses are likely to be relieved by operation is to note the appearance and position of the turbinate.

Dr. Gibb said that one indication for excision of the middle turbinate is that peculiar condition misnamed cyst of the middle turbinate. Whatever the true pathology of this condition may be, there can be no doubt that it constitutes an imperative indication for resection, since by its presence alone it may in a merely mechanical way produce many of the conditions which we all recognize in smaller hypertrophies as constituting indications for resection, to say nothing of the necessity for its removal because of its intrinsic pathologic nature.

Dr. Cullen F. Welty, San Francisco, said that, because of its anatomic situation, the middle turbinate is responsible for so many nasal affections that it of necessity assumes a very important place. First, to promote drainage and for diagnostic purposes it will yield more good than any single minor operation at our command. In chronic cases all the hypertrophied or polypoid tissue should be removed before attempting the radical operations, as the remaining pathologic tissue will reinfect the cavity that has been thoroughly cleaned. Furthermore, he does not consider the operation through the middle meatus justifiable under any circumstances, because of the anatomic situation. His first conservative operation on the antrum of Highmore is by way of a carious tooth root; his second by way of the inferior meatus. Dr. Welty is more and more convinced that the radical operation is the best procedure generally speaking. Second, to promote drainage in atrophic rhinitis. All cases of one-sided atrophic rhinitis, accompanied by crust formation, should be diagnosed as suppurative in nature. He believes that most of the trouble comes from the ethmoidal labyrinth. At times it may be necessary to remove the whole or part of the middle turbinate for polypi, and this can sometimes be accomplished very satisfactorily by fracturing the middle turbinate from its attachment by the introduction of a Killian speculum within the middle meatus. That part of the middle turbinate that touches the septum or the lateral wall of the nose after cocainization should, he thinks, be removed in all cases of headache, neuralgia, frequent coryza, or a sense of fulness referred to that region. Dr. Welty said the sense of smell is much benefited by operations of the middle turbinate when diseased.

Dr. W. L. Ballenger, Chicago, said that Dr. Mosher had called attention to the fact that the middle turbinate body often is so coapted to the infundibulum or outer wall of the nose as to obscure all the cells that drain into it; the frontal sinus, anterior ethmoidal cells and the antrum of Highmore. Furthermore, sometimes there are cells in the unciform process which enlarge it towards the middle line, and this may lead to obstruction. This certainly is a motive leading us to do the operation. When the middle turbinate body is coapted against the septum its whole length there is obstruction of the cells. As to the technic he thinks Dr. Richards' method is excellent, and he commended him for it and, in addition, offered another method of removal of the middle turbinate, one which seems to him to be under perfect control and easily completed. He has designed two knives, one for use on the right side of the nose and one for use on the left side. This little knife can be inserted under the middle turbinate and engaged at any desired point, then drawn forward, the knife turned upward into the superior meatus. The advantage of the knife is that the middle turbinal can be cut from its attachment with ease and facility. Hence if there is obstruction to the naris, the middle turbinate can be removed so completely that it absolutely dislodges the obstruction to the infundibulum. In addition, it is under easy control both in introducing and removing it through the tissues. The shank of the instrument goes above the middle turbinal, and the blade hangs down into the nose, cutting off the attachment of the middle turbinate. The blade can be inserted at any point to the posterior extremity and all or part of the middle turbinate removed at will. The blade is attached at an angle to the axis of the handle; it hangs down, pointing a little outward, and is drawn forward so as to shave off the attachment of the turbinate and completely uncovers the infundibulum. As Dr. Mosher said, it is important that the middle turbinal is so removed as to uncover absolutely the infundibulum, and he wished to emphasize the point that we should devise instruments to do this with the least laceration of the tissues.

Dr. Cullen F. Welty, San Francisco, said that cocainization is the all-important procedure in the removal of the anterior half of the middle turbinate. The cocain should be applied by rubbing it into the part to be operated on, preferably a 20 per cent. solution. This rubbing process should continue until the patient says that he does not experience any more pain. By this procedure a minimum amount of cocain is used. Usually it will require three different applications, more often less, than more. In case of hypertrophy or polypoid hypertrophy, he does not consider it necessary to make an incision or bite out tissue prior to the use of the snare. This latter procedure he confines to those cases that do not have pathologic tissue, but produce disturbances from pressure on the septum or the lateral nasal wall. The cold snare is the best instrument, and a small biting forceps for tags of mucous membrane. Dr. Welty does not believe in a tampon for the nose following operation, and particularly so after the removal of a part or the whole of the middle turbinate, for the following reasons: It is unnecessary, uncomfortable and liable to produce infection of the accessory cavities.

Dr. Robert Levy, Denver, said that in regard to the after-treatment following operation on the middle turbinate, he is opposed to packing. It is a serious mistake to fill the upper part of the nose with gauze or other dressing. As to the use of elaborate preparations of ointment and other medication, such as Dr. Richards suggests, he does not see the necessity for it, if the nose is kept clean after an operation. There rarely is severe bleeding from the middle turbinate. Should secondary hemorrhage occur, it is then time enough to pack which should be done purely for the purpose of stopping hemorrhage. The packing should only remain long enough to accomplish this purpose and then be removed. Free drainage is thus permitted, the patient being instructed to breathe through the nose. If there is any danger of infection in intranasal operations, as unquestionably there is, this danger is less when the nose is left free.

Dr. Christian R. Holmes, Cincinnati, said that he had been very much interested in the question of whether the intranasal operation made a short time before the external operation is really attended by the dangers pointed out. He had frequently made the intranasal operation, and in a week or ten days done the external operation. But a short time ago he had a fatal case, which has made him think a little more seriously on the subject. This was a case of fibroma involving the accessory sinuses on the right side, and in order to ascertain the character of the growth he made an excision of a fragment of the growth in the right naris to get a piece for examination. A fistulous opening discharged pus very freely near the inner canthus. There was a tumor and a chronic empyema of the accessory sinuses. A careful examination of the piece removed failed to develop anything sinister, yet after a radical operation, which involved, of course, a very extensive opening of the sinuses, on the second day the man developed a high fever and then active symptoms of pyemia, and he died a week afterward. Dr. Holmes has been wondering whether or not the germs stimulated by this first operation were at fault. We should bear in mind the fact that although the germs in the nose may be practically harmless in a particular individual, let an operation be done and they will take on new activity, and during that period of fresh activity there is danger in making a fresh wound.

He has had one interesting case of the suprarenal habit, acquired from using it extensively in hay fever. This young lady formed the habit so strongly that it was necessary for her to take the spray with her when she went to a party, and every hour or so she had to go up stairs and spray her nose. There was no occasion for it except the habit she had formed. He had to take her into his hospital and keep her there several weeks in order to break the habit. Dr. Holmes decidedly objects to packing. He never packs until hemorrhage comes.

He has had trouble with the sphenoid opening. The difficulty was he never opened extensively enough. Last year in Berlin he got an instrument that cuts away the whole front wall with the greatest ease, opening the sphenoid cavity. It is now his habit, if he opens the sphenoid cavity at all, to cut away all of the wall that he can.

As to ozena or atrophic rhinitis, he is not a believer in the theory that it is a disease sui generis. If you find the sinuses at fault, open thoroughly and drain and you will have cured the trouble.

Dr. B. A. Randall, Philadelphia, said that he would like to emphasize what has been said as to the simplicity of operation in these cases and to commend an aneurism needle, which he often uses in otologic cases of jugular ligation. This instrument is capable of loosening the attachments of the turbinal in many cases, as well as does the instrument devised by Dr. Ballenger. It is one of the best instruments for freeing the tonsil and opening quinsy abscesses. It is a simple, easy instrument to employ, can do little damage, and is in many ways valuable. He believes the scissors, particularly those of Dr. Holmes', constitute the best instrument for detaching the forward part of the turbinal, if used as Dr. Holmes has advocated. Laid flat against the external side of the nose they reach the turbinal at its insertion, and it is easier cutting through at this point than as advocated by Dr. Richards.

In regard to the cases that are simple and capable of resolution, he believes that in the reduction of the milder hypertrophies, or intumescent stages, we have no better medication than mild chlorid. Simple calomel insufflation serves as a protective in so far as it is insoluble; as an antiseptic as it is converted into bichlorid; and as an alterative in its absorption. As an alterative he believes it to be of value and it should hold a place which has not been taken from it by iodoform or any of its substitutes. Dr. Randall always uses it and will continue to do so until something more valuable is offered.

Dr. N. L. Wilson, Elizabeth, N. J., said that it was his pleasure, about eleven years ago, to hear Bosworth speak in the New York Academy of Medicine. Bosworth looked on operations on the turbinate bodies with great horror, and never touched them with cutting instruments. A few years later, in London, he saw Wokes rip out the middle turbinate body with his spoke shave. This made him appreciate Bosworth's saying that the turbinate bodies must be treated just as any other mucous membrane. We must now strike a happy medium. There are conditions in which the turbinate body must be, at least partially, removed. To say that we shall operate by Miles' method or Holmes' method, or Richards' method, is, to his mind, nonsense. In other words, we must select the operation for the individual case. Recently he had used a drill; there are a few cases in which this answers well. He drills through the anterior portion of the turbinate body, leaving the mucous membrane intact, and brings the surfaces together by Yankauer's method of stitching, thus shrinking the turbinate, and getting drainage behind the body, yet preserving enough of the turbinate body to functionate.

Dr. H. W. Loeb, St. Louis, said that he wished to say a word with reference to the importance of the after-treatment in these operations. The adrenalin-chlorin solution is used after the cocainization is completed. The adrenalin solution is applied in a strength of 1 to 1,000, and being kept in contact with the parts operated on for a short time the operation is bloodless. He always packs with gauze more or less tightly, removing it after three to five hours. The gauze is necessary because in two hours there is reaction on the part of the adrenalin so that the tendency to hemorrhage is increased, unless a clot be tightly formed. But in three hours the reactive effect is over, so that the gauze may be removed and the patient's nose permitted to bleed without the application of anything, except perhaps hydrogen peroxid. Dr. Loeb advocates the use of a packing to be removed in a few hours; if it remains longer there is liability to infection and severe pain, and perhaps that is why Dr. Richards finds it necessary to use morphin.

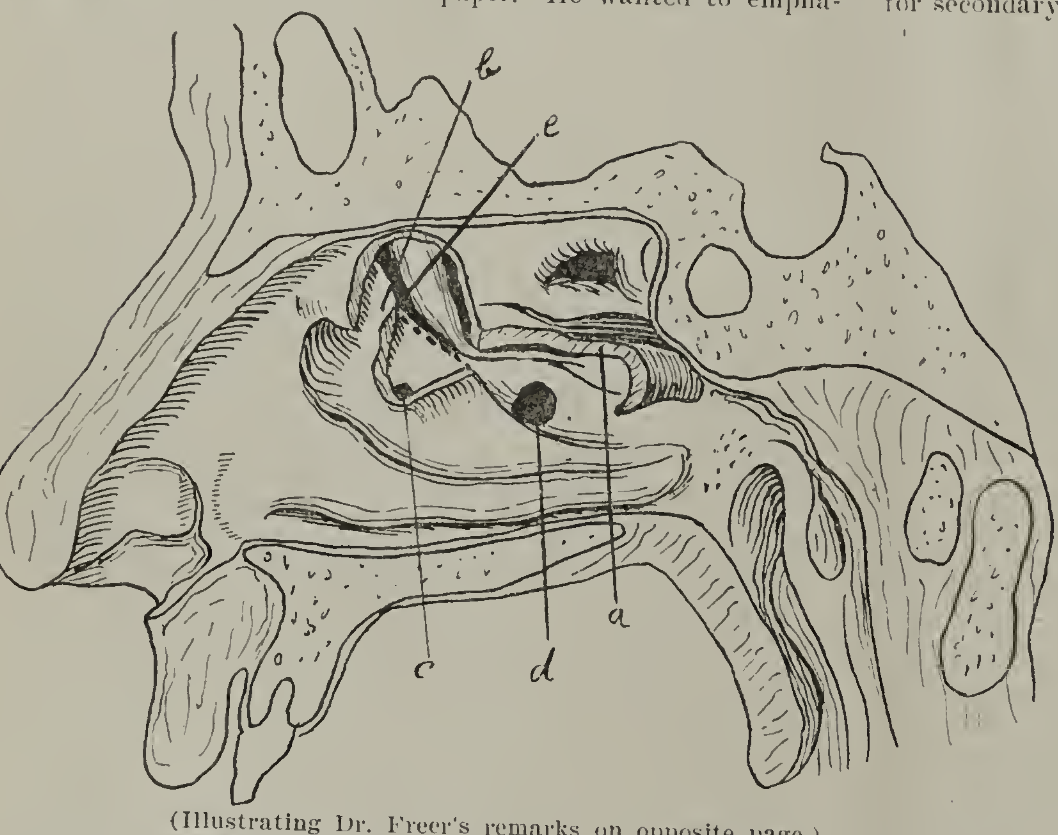
Dr. Allen B. Thrasher, Cincinnati, said that it struck him while listening to the anatomic papers, that Nature has gone to a great deal of trouble to hide away the mouths of the openings of these sinuses under the turbinates, and he thinks there must have been some reason for doing this. That reason, it seems to him, is for the preservation of the sinuses, to prevent the easy entrance into these sinuses of different foreign bodies, whether chemical, mechanical or biologic. Of course, should these sinuses be occluded by pressure of the middle turbinal, then it would be rational to resect this body. The method we take to remove it is not of such importance as the result obtained; whether it be the method presented by Dr. Richards, or whether we use the Holmes scissors for the purpose of detaching the middle turbinal from its attachments, or whether we use the forceps. It seems to him that instead of using this or that method we should select for each patient that which is best adapted for the removal of the turbinal from that individual, and only operate in cases fitted for operation. Dr. Thrasher asked Dr. Casselberry if the beautiful scheme he presented of atrophic rhinitis is not made up of a whole lot of cases rather than one occurring in a single individual? He could not imagine that atrophic rhinitis was ever caused by anything of the kind. He confessed that he was not convinced that atrophic rhinitis is always caused from sinusitis, as he has seen a number of cases in which there was apparently no sinusitis. It seems to him they should go to a neurologist rather than a surgeon of the nasal cavities; that the condition is rather an atrophic one due to some neuritis, or, possibly, neurosis, which prevents the proper blood supply, or proper innervation of these parts, with resulting shrinkage.

Dr. Joseph C. Beck, Chicago, said that last February he presented a number of skiagraphs in Cleveland showing the relation between atrophy and sinus disease, and Dr. Coakley also had a number of skiagraphs to show the rôle sinus disease played in relation to atrophic rhinitis. In almost all of the plates affection of the sinuses were found; that is, sinuses with thick walls, and it was concluded that there must be a distinct relationship between sinusitis and atrophic rhinitis. Postmortem examinations did not show any involvement of the sinuses in atrophic rhinitis, but Dr. Coakley suggested that these cases of atrophic rhinitis have congenital malformation or malnutrition of the parts, the sinuses are small, and that is why the Roentgen rays show an involvement. Dr. Beck has operated on a number of atrophic cases in removing the middle turbinate, and he believes the results are due to the stimulation, or reaction established in the nasal cavity, thereby improving the condition. He practices Dr. Richard's method of operating, except that he uses the Holmes scissors with great satisfaction, and always puts the patient to bed over night. He objects to packing, as he believes it to be injurious.

Dr. Joseph L. Goodale, Boston, said that one point referred to by two of the speakers was the undesirability of an operation following soon after a previous operation in sinusitis. It seems to him that an important matter was overlooked; in an individual who is a victim of chronic sinusitis there is, in his sinuses, a growth of streptococci or cocci of various sorts, which is harmless to him, but if an active inflammation is set up the virulence of these cocci is very greatly enhanced, and if there is an incision or wound of the bone or skin in the vicinity this increased virulence will enable the micro-organisms to penetrate deeply and give rise to erysipelas, phlegmon or osteomyelitis. With regard to packing, he did not see any object in it; it seems to him there is greater advantage to be obtained from securing an aseptic blood clot in the parts. But dusting antiseptic powders on the mucous membrane is harmful. If a sufficient amount of powder is put on the mucous membrane to sterilize the parts, enough antiseptic to kill any organisms growing there, the natural process of repair will be hindered.

Dr. Dunbar Roy, Atlanta, Ga., said that three years ago he gave up packing entirely. At that time he used a method Dr. Pischel of San Francisco was instituting: After the removal of the middle turbinate and cleaning the cavity of blood clots, to smear thoroughly over the parts that had been cut, with collodion, and dust with powder. In his last fifty cases he has used this method entirely, no packing, nothing but collodion and dusting with aristol powder. He has had very little bleeding, and never any secondary hemorrhage; no trouble whatever was experienced with a patient bleeding several hours or even a day after operation.

Dr. Joseph A. Stucky, Lexington, Ky., said that the treatment suggested by Dr. White is surgical and therefore does not come under the head of his paper. He wanted to emphasize what Dr. Casselberry said about the relation of the middle turbinate to atrophic rhinitis. In the majority of the cases he has observed the sinuses are the cause of the atrophic condition, and removal of a half to two-thirds of the middle turbinate gives the most satisfactory results. There is an objection to the biting forceps and the use of the snare in two parts and two places, instead of making a clean-cut incision, as made by the scissors invented by Dr. Holmes. Unfortunately, the average scissors that go under the name of Holmes' scissors are not properly made; they are too large, take up too much space and obstruct the view. He has found in the method suggested by Dr. Richards, which is practically the Myles method, that where so much of the turbinate is crushed off with the snare, where a clean-cut incision is not made, there frequently follows a necrosing osteitis and a sore nose for several days or a week or two afterward. Whereas if the snare is used only for cutting off the patulous mucous membrane, after using the scissors, that danger is not incurred. Replying to Dr. Freer's remarks about lithemia, he does not think the word "lithemic naso-pharyngitis" is the correct term. He does not know what to call it, but does not believe much in the uric acid diathesis. Uric acid plays very little part, he thinks, in the condition, but he believes there is much in a faulty metabolism found in the intestinal canal. It is up to some one else to tell us what that is and explain it. Dr. Stucky was surprised at the objections made to an intranasal operation just prior to doing an external operation. In some twenty modified Killian operations it has been his rule to remove the middle turbinate at least a day or two before doing the external operation. He thinks the danger that has followed has been the one referred to by Dr. Holmes and Dr. Myles, that we have been too radical with the external operation. We have gone just a little too far back and injured the cribriform plate in a way we did not intend.



(Illustrating Dr. Freer's remarks on opposite page.)

View of external wall of the nasal fossa. The middle turbinated body has been removed, showing its cut attachment arching upward in front to form the recessus frontalis; b, is the uncinate process of the ethmoid bone from which a v-shaped piece has been excised to show the portion of the infundibulum underneath it and the normal opening of the antrum of Highmore, c; d, accessory opening of the antrum; e, upper portion of infundibulum into which naso-frontal duct of frontal sinus opens.

Dr. Theodore Corwin, Newark, N. J., said that in regard to packing it has never been satisfactory and he gave it up entirely long ago. He spoke of the use of a remedy that was introduced to the profession for the treatment of hemorrhage in general, that is, the chlorid of calcium, introduced by Professor Wright of England. It has been found of material service after all kinds of surgical procedures, for the prevention and relief of hemorrhage. Dr. Corwin has used it for seven or eight years in all surgical work in the nose and throat with great advantage and relief from attending the patient for secondary bleeding. The method of administration in these nasal cases is to give 30 to 40 grains to the patient at the conclusion of the operation. In operating on the tonsils he gives the remedy in smaller doses three times a day for three days preceding operation. But for all middle turbinate work it is amply sufficient to give a pretty good dose at the time of operation.

Dr. S. MacCuen Smith, Philadelphia, said that it has been his custom, for eight or ten years, probably, in the majority of cases, first to put the patient under general anesthesia. He believes in keeping patients in the hospital, and almost uniformly keeps them in bed for twenty-four hours or more. In cases treated by the methods which have been described, possibly the danger of secondary hemorrhage is lessened, but he agrees with Dr. Holmes that in the majority of these operations, if worth operating on at all, the patients should be kept in bed for a time.

Dr. W. E. Casselberry, Chicago, said that he did not say the bulla was always responsible for the bifid condition of the middle turbinate, but in the particular case that was represented in that drawing. He agreed that the unciform process, the lower lobes of the hyoides semilunaris, is often enlarged, and that it may also produce an appearance of a bifid middle turbinate. In the two cases illustrated it was the bulla, and he punctured that bulla and removed its floor and satisfied himself that it was the bulla.

Dr. Cobb does not find many cases in which there is a focal suppuration in the sinuses where there is atrophy. In the text of the article he will find it said that in Dr. Casselberry's opinion in this class of cases, there was once a focal suppuration, and that this suppuration has later become diffused over the general surface. This also answers Dr. Beck's remarks that at postmortem pus is not found in the sinuses. Dr. Casselberry did not, in all of these cases, find actual pus in the ethmoidal sinuses, but he found desiccated secretion of a semipurulent nature decomposing there, and, by giving it free exit, alleviated the condition. That is all he can say and all the text of the paper maintains. The question of Dr. Thrasher is also answered in the text. The plausible scheme, as he called it, does not purport to be a single case in which all these different stages would be observed. That is manifestly impossible. We have to get information as best we can and put it together piece by piece, and that is what was done.

Concerning the operative technic: In 1891, when first he advocated resection of the middle turbinal, he made a curved scissors with serrated blades. He has found it in his hands better for the purpose for which it is made than other seissors. Usually with this instrument, one bite instead of two, will suffice.

As regards the hospital: In the text it is stated that few were hospital cases; most of them were office patients of the better class. He does not think it necessary to go to a hospital as a rule.

Dr. O. T. Freer, Chicago, said that the apparently bifid aspect of the middle turbinated body occasionally seen, is explained by Dr. Casselberry as due to the projection of a bulging bulla ethmoidalis into the field of vision, external to and beside the middle turbinal in the middle meatus. A prominent bulla ethmoidalis can undoubtedly create the appearance of a double turbinate referred to, in cases where a large bulla extends well forward under a thin middle turbinal that lies unusually far away from the external wall of the nasal fossa so that it leaves the bulla uncovered to an uncommon degree. In the great majority of cases, however, it is his experience that the bifid aspect of the middle turbinate is due rather to a swelling of the mucous coverings of the uncinate process of the ethmoid bone than to a projection forward and consequent visibility of the bulla. Dr. Freer referred to a drawing (see opposite page) which shows the parts underneath the middle turbinated body. The latter is supposed to be cut away to its attachment, showing the arching upward of the latter toward the frontal sinus, creating a pocket or prolongation of the space under the turbinate in this direction called by Killian the recessus frontalis. The uncinate process (b) is seen to be the foremost structure underneath the middle turbinate, and when swollen it exactly simulates a second middle turbinal lying close against and external to the real one. Behind and external to the uncinate process, bounded by it in front and the bulla ethmoidalis behind, lies the deep groove called the infundibulum or hiatus semilunaris into which the ductus nasofrontalis, the outlets of the antrum of Highmore and of the anterior ethmoidal cells commonly open. Some confusion exists, as he had noticed in discussions, as to whether the terms hiatus semilunaris and infundibulum are synonyms or whether they describe different structures. They are names for one and the same thing, hiatus semilunaris being the term used by Zuckerkandl, and infundibulum ethmoidale being the name adopted by the anatomic commission.

Society Proceedings

COMING MEETINGS.

Minnesota State Medical Association, Duluth, August 13.
Wisconsin State Medical Society, Superior, August 20-22.
Ohio State Medical Association, Cedar Point, August 28.

NEW HAMPSHIRE MEDICAL SOCIETY.

One Hundred and Sixteenth Annual Meeting held at Concord, May 16-17, 1907.

The President, Dr. Ira J. Prouty, of Keene, in the Chair.

The number of papers was limited to twelve in order that there might be more time for discussion. The result was most gratifying, an unusually large number participating in the discussions, which were full and free.

The Three Long Continued Fevers of New England.

Dr. Richard C. Cabot, Boston, said, in part: It has impressed itself on me that there are but three long, common, continued fevers of New England, also that there are some of the profession who do not realize that there are but three. As long as that is so, and as long as the facts show that considerably over 90 per cent. of all long-continued fevers do belong to one of three, it seemed to be worth while to emphasize that point, to insist on those three fevers and to speak of their diagnosis. I mean by "long fever" a fever which lasts two weeks or more. A continued fever, of course, is a fever which does not touch normal at any time during 24 hours, and by fever itself—going simply by temperature measurements—any disease in which the temperature is continuously above 99 F. Statistics show that there are but three long-continued fevers of New England—typhoid, tuberculosis, sepsis. The clinical records and postmortem examinations of the Massachusetts General Hospital show that 97 per cent. of all cases in which there was a fever of more than two weeks turned out to be typhoid, tuberculosis or sepsis. Out of 784 cases which I studied for this purpose there were 586 cases of typhoid. Sepsis followed with 70 cases, or 9 per cent. Next to these three causes, come the minor affections. The commonest is meningitis. Although it often has a fever which touches normal, it may have a continued fever; and 27 of these cases were cases of cerebrospinal meningitis. Influenza came next with 10 cases. Acute articular rheumatism followed with 10 cases. Then came 5 cases of leukemia and 4 cases of malignant abscess with fever; then cirrhosis and gonorrhea, two cases each; and then a number of other diseases.

In the diagnosis of these fevers, the first and most important thing to realize is that there is no such thing as simple continued fever, or slow fever, or low fever and gastric fever. Among those seen in consultation, a considerable number have been diagnosed as some one of these things.

Another important fact is that, aside from cases brought in from the tropics, there are no malarial fevers in New England which run a continuous course. They are all intermittent fevers which yield readily to quinin. There are no long-continued fevers due to hysteria, neurasthenia or any other affection of the mind, and none due to constipation. Mistakes are often made in this matter by paying too much attention to the symptoms and not enough to the signs; too much attention to what the patient says and not enough to what we find on examination. Many mistakes can be avoided by an examination of the blood. In examining for tuberculosis, one of the surest ways of stirring up râles is to make the patient take in full breath; let it all out, and then cough at the very end. It still needs to be said that typhoid fever in the majority of cases presents the picture of a patient who has fever and nothing to show for it. Typhoid is not a disease of the intestines at all, any more than diphtheria is a disease of the throat. It is a disease which has lesions in the intestines but in which bacteria are circulating through every organ in the body. The blood test is most important.

Dr. Wm. T. Smith, Hanover, expressed the wish that Dr. Cabot's suggestions might be incorporated in the text-books, also that physicians might have, free of charge, blood examinations done by the state laboratory.

Lead Poisoning from Drinking Water.

Dr. C. E. Butterfield, Suncook, emphasized the importance of careful diagnosis, the symptoms being so easily attributable to some other disease.

Tarsal Injuries.

Dr. John G. W. Knowlton, Exeter, strongly urged examination by the Roentgen ray in all cases of obscure fracture. Continued tenderness in connection with injuries to the ankle is an indication of great injury to the bones rather than to the ligaments. Examination under an anesthetic will tell little, if anything, about the condition.

Dr. Charles R. Walker, Concord, strongly advised the use of the Roentgen ray in any injury of the ankle joint, as did also Dr. C. Wilkins, Manchester, Drs. Fred B. Lund and John C. Munro, Boston.

Brain Abscess.

Dr. F. E. Kittredge, Nashua, described some cases that had come under his observation. In his opinion many of these cases are largely due to ear infections following grip, and can be avoided by prompt evacuation of the middle ear abscess. It is in the delayed cases of middle ear abscess that we usually get the most serious complications.

Dr. Fred B. Lund, Boston, said that occasionally brain abscesses arise without any suppuration in the bones of the ear or any suppuration of the bones of the skull to guide us. In these cases the symptoms are very similar to those of tumor of the brain and are very likely to go unrecognized. Symptoms of brain tumor show an operative condition.

End Results in Benign Lesions of the Stomach, Surgically Treated.

Dr. John C. Munro, Boston, gave an analysis of 150 benign stomach lesions. In his opinion, the simpler the technic and the closer it follows anatomic lines, the better the result. He had attained almost complete success with the Roux operation, modified by making both anastomoses with the clamp and suture. Almost any form of anastomosis will cure many cases of gross lesion. Excision of the ulcer-bearing area, which is also the cancer area to a great extent, would be the ideal process in all suspicious cases beyond middle life. The simplicity, cleanliness, rapidity and safety of the clamp and suture operation are strong arguments at the present time against any substitutes. Ether, given intelligently and in minimum doses, closure of the omental bursa against hernia, and the elevated head position after operation, assist in reducing the danger of the operation *per se* to a minimum.

Dr. George Gay, Boston, described several cases of persons who had starved to death with benign ulcers, who, he felt sure, could have been saved and their lives prolonged, if they could have had Dr. Munro's services.

Dr. Fred Lund, Boston, considered the operation of gastroenterostomy a very safe and simple procedure, providing adequate drainage for the stomach. It will relieve ordinary chronic ulcers near the pylorus also. Excision of the ulcer is a more difficult and dangerous procedure, and should only be attempted after failure of the gastroenterostomy to relieve such an ulcer.

Gastritis.

Dr. Lee V. Knapp, Danbury, described the symptoms and treatment of simple acute, simple chronic, and atrophic gastritis.

The Medicolegal Side of a Physician's Life.

Dr. George W. Hazelton, Haverhill, believes that medical men, as a rule, look too lightly on the legal side of their profession. They should become familiar with the laws relating to malpractice as a protection to themselves. The line of cases that leads to the most lawsuits is that of fractures, because the results are so rarely perfect. Another frequent cause of these suits is ill-advised remarks by other physicians than the one who attended the case. We should be very guarded in our criticisms of the treatment given by our brother physicians, for we may find later that we did not possess all the facts in the case. The absurdity of the medical expert system is frequently demonstrated. It would seem that justice would be promoted by legislation establishing a permanent board of inquiry, whose judgment should be final, or by enabling the Court to appoint a commission to determine the question of malpractice, leaving the jury or other trier of the fact to determine the amount of damage in dollars and cents, in case the commission finds that there has been malpractice.

Dr J. M. Gile, Hanover, said that in his opinion a large number of suits for malpractice are the result of a failure on the part of the physician to take the patient into his confidence in regard to many features of his case. He believed it to be better always to fight a suit for malpractice where there is any reasonable likelihood of winning it.

Dr. E. C. Crossman, Lisbon, believed it was always wise to call in a second physician in a case of fracture, no matter how trivial it might seem to be.

Some Personal Experiences in Abdominal Surgery.

Dr. A. C. Heffenger, Portsmouth, considered the use of salt solution to be a great aid in abdominal operations, diminishing the mortality rate and postoperative suffering, and hastening recovery. It is good surgery in all sections with immediate closure of the wound, to leave a quart or more of salt solution in the abdomen, for it certainly prevents sepsis, and through its rapid absorption increases the blood volume, diminishes shock and alleviates thirst. Effective hemostasis, with sterile and absorbable suture material, has lowered the mortality rate in the graver operations from fifty to five per cent.

Dr. D. W. Parker, Manchester, said that he did not place salt solution in the abdomen as a routine measure, and found that his patients got along better if the intestines were disturbed just as little as possible during the operation.

Dr. J. M. Gile, Hanover, doubted if the use of saline solution led to fewer adhesions.

Dr. John C. Munro, Boston, said he rarely uses the salt solution now. He believed that where there is sepsis in one part of the abdomen, the irrigation immediately scatters the infection over the whole cavity. The less the intestines are handled, the less trouble one is likely to have afterward.

Neurasthenia of School Children.

Dr. Louis W. Flanders, Dover, deplored the constantly increasing demand on the intellectual capacity of the child which, instead of former coarser ills, is subjecting him to the more insidious derangements which result from an overtaxed nervous system. If the present pace is continued, we may have a generation of nervous invalids ahead of us. The doctor said that in his opinion children should not be sent to school before the age of seven; that there should be separate rooms for recitation and study; that the examination of the eyes of all children at least once a year should be compulsory; that a more elastic curriculum for pupils in feeble health should be provided; that a most careful study of the child should be made by both parents and teachers to see that no more mental work is required of him than he can endure without detriment to his health. Better a generation of healthy fools than a race of wise invalids.

Dr. A. Noel Smith, advocated the systematic examination of all school children by physicians so as to prevent as far as possible, infectious diseases.

Dr. Emdon Fritz, Manchester, said that in his opinion the various nervous depressions from which tired school children suffer are most frequently caused by uncorrected errors of refraction or unbalance of the ocular muscles.

Spina Bifida.

Dr. G. B. Morey, Manchester, reported a case of this kind.

Anesthetization.

Dr. A. W. Abbott, Laconia, reviewed the history of anesthesia and described different methods of anesthetization.

Medical Defense Fund.

The House of Delegates voted to appoint the following committee to consider the question of medical defense fund, to report at the next meeting: Dr. Ira J. Prouty, Keene; Dr. J. M. Gile, Hanover; Dr. F. A. Stillings, Concord; Dr. John H. Neal, Rochester; Dr. G. D. Towne, Manchester.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. John H. Neal, Rochester; Vice-President, Dr. J. M. Gile, Hanover; Secretary, Dr. D. E. Sullivan; Treasurer, Dr. D. M. Currier; members of council, five years, Dr. John Z. Shedd, North Conway; Dr. F. W. Evans, Coos; trustee, three years, Dr. John W. Parsons, Portsmouth; delegate to American Medical Association for two years, Dr. Wm. T. Smith, Hanover; alternate, Dr. F. A. Stillings, Concord.

The next meeting will be held at Concord, May 14-15, 1908.

MAINE MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, held at Lewiston, June 12 14, 1907.

The President, Dr. C. E. Williams, of Auburn, in the Chair.

The following officers were elected for the ensuing year: President, Dr. B. B. Foster, Portland; vice-presidents, Drs. A. D. Sawyer, Fort Fairfield, and C. S. Davies, Augusta; secretary, Dr. W. L. Tobie, Portland; treasurer, Dr. A. S. Gilson, Portland.

Bangor was selected for the meeting in 1908.

The meeting was well attended, over 200 physicians having registered and many interesting and valuable papers were read, which elicited considerable discussion. Dr. W. T. Councilman, Harvard University, delivered the annual oration, discussing tumors.

In accordance with suggestions made by Dr. Williams, in his presidential address, a committee was appointed to consider means for remedying the abuses of public charities and to report at the next meeting.

The subject of the reorganization of the association on the plans outlined by the American Medical Association was discussed at great length, and a committee was appointed, consisting of one member from each county society, to be appointed by the chair. This committee will take the matter of reorganization under advisement, consulting with the physicians in the state, and will report at the next annual meeting.

MICHIGAN STATE MEDICAL SOCIETY.

Forty-Second Annual Meeting, held at Saginaw, May 15 and 16, 1907.

(Concluded from page 72.)

Rupture of the Bladder.

Dr. H. O. Walker, Detroit, reported four cases of intraperitoneal rupture of the urinary bladder. Three were fatal, one after operation; one, after suture with fine silk, drainage and use of silver catheter, recovered. Alcohol was regarded as an etiologic factor because it predisposes to distension of the bladder and to trauma.

DISCUSSION.

Dr. J. A. King, Manistee, reported a case of spontaneous rupture of the bladder from gangrene of the penis and urinary retention.

Dr. F. B. Tibbals, Detroit, spoke in favor of prompt surgical exploration in cases of obscure trauma of the abdomen.

Dr. A. W. Hornbogen, Marquette, suggested that no anodyne be given patients with abdominal lesions, who refused operation, thus forcing them to consent to the needed operative treatment.

Dr. F. W. Robbins, Detroit, said that rupture of the bladder was consistent with the retention in the bladder of even a large amount of urine.

Dr. G. C. Hafford, Albion, reported a case of rupture of the bladder from a high dive. Operation at the end of a week, until which time operation had been refused, was followed by death.

Dr. H. O. Walker, Detroit, said that hematuria did not always indicate rupture. In obscure cases abdominal section should be performed for diagnosis as well as treatment.

Perforation of Small Intestine.

Dr. W. T. S. Gregg, Calumet, reported a case of obscure origin successfully treated by resection and end-to-end anastomosis by the Murphy button.

DISCUSSION.

Dr. H. C. Wyman, Detroit, spoke in favor of anticipating perforation in typhoid or other lesions by enterostomy.

Dr. J. A. King, Manistee, reported a case of rupture of the intestine from a heavy blow by a plank. There was no surface indication.

Dr. F. E. Parkinson, Saginaw, reported the case of a child that had been hurt and complained only of his ankle; the patient died of intestinal perforation.

Dr. F. W. Robbins, Detroit, emphasized that rupture can occur without pain.

Dr. William Fuller, Grand Rapids, reported a case of perforation of the intestine after reduction of a hernia.

Dr. H. O. Walker, Detroit, said that he thought the sinus in the case reported by the writer might be due to the Murphy button free in the abdomen.

Two Common Orthopedic Causes of Sciatica.

Dr. W. E. Blodgett, Detroit, said that sciatica is a symptom, not a disease, and that neuritis, if present, is usually secondary to the underlying cause. Two common causes of chronic sciatica are hypertrophic arthritis of the lower spine, and relaxation and sprain of a sacroiliac joint. A sign of the former is stiffness of the lower spine more marked in flexion toward one side than toward the other. Signs of the latter are tenderness over the sacroiliac joint, pain in the corresponding sciatic nerve, which passes close to the joint, and limitation of motion of the spine when the motions involve the pelvic articulation, as in standing, but less limitation of spinal motion when the patient sits and the pelvis is steadied by the operator's hands. Diagnosis of either condition depends on and needs their assistance and support in furthering the good work and they, on their part, miss much from the lack of thorough exclusion of other possible causes of the sciatica, and prompt improvement by appropriate treatment. The principle of treatment of each condition is protection; in the case of the spine, by a low corset or stiff jacket; in the case of the sacroiliac joint, by lateral compression of the pelvis just below the great trochanters, as by adhesive plaster strapping around the sides and back of the pelvis.

Surgical Cases Presenting Unusual Points of Interest.

Dr. C. B. G. de Nancrede, Ann Arbor, reported a case of fistula in ano in an infant less than one year old; three cases of actinomycosis, resembling sarcoma, difficult to identify by microscopic findings, and treated in addition to operative means by massive doses of iodids; a case of hemophilia complicating an operation for appendicitis, and a case of hypernephroma.

Surgical Anatomy of the Female Pelvis.

Dr. William Fuller, Grand Rapids, stated that the round ligament divides into two parts, the smaller part passing in front of the uterus. The ligament, therefore, can be used to correct anterior as well as posterior displacement. A pyosalpinx can be readily drained by incision through Hesselbach's triangle and finger dissection between the layers of the broad ligament.

Dr. John N. Bell, Detroit, said that the vaginal route for draining a tubal abscess was preferable to the route proposed by the author, because the latter way did not drain the most dependent part of the abscess.

Dr. Fuller replied that drainage through Hesselbach's triangle had given him good clinical results.

Ocular Symptoms of Nasal Origin.

Dr. O. A. Griffin, Ann Arbor, said that in all cases of ocular symptoms the nose and adjunct sinuses should be examined. The patient should be asked if he has recently had a cold in the head.

Dr. W. R. Parker, Detroit, said that in epiphora the eye itself should be forgotten and attention centered on the nose.

Relation of Eye Diseases to General Medicine.

Dr. E. J. Bernstein, Kalamazoo, said that expert examination of eyes that were producing no marked symptoms sometimes gave the earliest indication of general diseases, such as tabes, nephritis, syphilis and arteriosclerosis.

Vaccine Treatment in Surgery.

Dr. W. P. Hutchings, Detroit, has found that a large initial injection produces after the negative phase a very marked rise in the opsonic index, but that this elevation can not be maintained. He gets better clinical results by small doses, beginning with 50 mm., thus avoiding a negative phase, and maintaining a slightly elevated index. He gets better results from doses of 1/4000 to 1/2000 mm. T.R. than by the ordinary larger doses. He has treated by vaccination several cases of acute gonorrhea with prompt relief.

DISCUSSION.

Dr. A. W. Crane, Kalamazoo, described a method of mixing the patient's blood with a standardized bacterial emulsion, and making comparative determinations, thus avoiding comparison with normal blood, and much simplifying the process.

Dr. H. R. Varney, Detroit, reported a number of chronic dermatologic cases successfully treated by bacterial therapy.

Dr. F. W. Robbins, Detroit, said that two cases of gonorrheal arthritis treated one with and the other without bacterial injections did equally well. The patient who had received the bacterial injections had a high pulse and a tremor.

Dr. E. M. Houghton, Detroit, said that the great need was for uniformity in methods, so that results would be comparable.

Dr. Hutchings replied that a method similar to Dr. Crane's had been published by Wright several years ago, and abandoned by him on account of inaccuracy. He had not observed general depression after injections.

Tuberculous Adenitis with Special Reference to Cervical Lymphatics.

Dr. J. A. Attridge, Detroit, advocated complete and early removal of tuberculous cervical lymph nodes as soon as the diagnosis of tuberculosis of the nodes was made. Removal of the tonsils and adenoids is desirable, and microscopic examination of these structures often establishes the diagnosis of tuberculosis. A half to a quarter of the cases of unremoved tuberculous glands develop metastases. After excision patients should always be instructed with reference to antituberculous living.

Menorrhagia and Metrorrhagia.

Dr. W. P. Manton, Detroit, said that in seeking for the cause of the hemorrhage he uses the following scheme: 1. Uterine causes: Unsuspected pregnancy, threatened abortion, low implantation of the placenta; metritis; endometritis; erosions of the os; displacement; polypi; fibroids; degeneration of the uterine blood vessels; malignancy. 2. Diseases of near and remote organs: Adnexal diseases; pathologic conditions of ovaries and tubes, broad ligament, pelvic fascia and vessels, intestines, heart, lungs, liver, kidney and other abdominal viscera. 3. Constitutional disorders: Anemia; plethora; tuberculosis; eruptive and other fevers; disorders of the nervous system (menopause, shock, fright, psychic disturbances). 4. Habits of life: Excessive venery; indolence; obesity; gormandizing; alcoholic excess; change of climate; change of occupation.

Amenorrhea.

Dr. R. R. Smith, Grand Rapids, said that deflection of the uterine canal is not a cause of amenorrhea, hence it is wrong to interfere, with the object of straightening. Lack of development is a very rare cause. Age of beginning of menstruation is by no means definite; primitive people menstruate early. Later development of this function is characteristic of higher races. Our knowledge of constitutional causes is imperfect. Change in mode of living is a frequent cause, as instanced in nurses, immigrants, change of residence from country to city. Certain occupations are often associated with amenorrhea; school teachers and mental workers are examples. The most common causes are disturbances in nutrition. Certain diseases cause it, as tuberculosis, typhoid, pneumonia, Addison's disease, acromegaly or any acute or chronic disease causing ill nutrition. Amenorrhea is not a cause of tuberculosis. One of the commonest causes is chlorosis. Anemia at any time in life is likely to be accompanied by amenorrhea. Treatment consists in removing the cause. If due to any obstruction the cause should be determined, then time enough to think of means of relief. Cases without distinct local cause demand no operative or local treatment. Much harm results where measures are taken without distinct purposes in view.

Dysmenorrhea.

Dr. Reuben Peterson, Ann Arbor, said that menstrual pain is not always an indication of disordered genital apparatus, hence therapeutic measures are not so simple. The entire organism is affected by recurrence of menstrual flow, as shown by temperature, pulse and blood pressure. General make-up of individual must be considered in ascertaining cause of pain. Dr. Peterson groups patients suffering from menstrual epoch under two heads: (a) Patients suffering at menstrual period from defects in general nervous system, slight or no derangement of genital apparatus being ascertainable. (b) Patients suffering pain probably due to distinct pelvic lesions. Local treatment is wrong when the cause is general.

Roentgen-Ray Study of Position of Cecum in Nephroptosis.

Dr. H. W. Longyear, Detroit, described the nephrocolic ligament as an aggregation of fine fasciculi, originating in and being identical with the fibrous tissue forming the framework of the fatty capsule of the kidney, which, after enveloping the kidney in a fine network, passes downward and is inserted into the posterior wall of the ascending colon on the right side D. Longyear utilizes this ligament for the purpose of supporting both the bowel and the kidney.

Conservative Treatment of Inflammatory Pelvic Conditions.

Dr. Rolland Parmeter, Detroit, said that all cases should be first treated by rest in bed, together with superheated air and hot douches. Greatest aid is superheated air. Cases were cited which were treated with this method with brilliant results. The percentage of cured patients is very high. He stated that it is time enough to operate after this method has proved unsatisfactory and urged conservatism in operating.

Hygiene in Pregnancy.

Dr. W. H. Haughey, Battle Creek, said that birth is a physiologic process. Modern environment produces larger percentage of pathologic conditions than formerly. It is impossible to change the present mode of life, but we can lay down principles of hygiene which, if followed out, will aid in producing health, happiness and longevity. If determining influences be for good during pregnancy, then environment must be looked to in particular. Neuralgias, reflex vomiting, hysterical seizures, eclampsia and puerperal insanity occurring during or immediately after parturition, are due to exhaustion of the nerve cells or to the weakening of them so that they do not properly functionate. There is need for study on the part of the gynecologist together with the family physician. Wholesome food, outdoor exercise, pleasant surroundings, freedom from care and harrowing tales told by anxious but ignorant friends are necessary if we would prevent sequelæ.

Practical Suggestions for the Limitation of Puerperal Infection.

Dr. J. E. Davis, Detroit, said that it is better to have a slight tear properly repaired than sloughing as a consequence of pressure. Principal factors in the prevention of puerperal infection are cleanliness and accurate approximation of tears. Dr. Davis advises delivery to be made on table. Best means for preparation before surgical interference are hot sterile water and liquid soap. Men doing aseptic surgery and obstetrics have no moral right to come in contact with septic matter. Elevation of bed to promote drainage is important in after treatment. Nurses are often a factor in production of puerperal infection.

Home Treatment of Pulmonary Tuberculosis.

Dr. W. M. Donald, Detroit, said that the home treatment of tuberculosis is of the greatest importance, since under present conditions fully 98 per cent. of the patients suffering from pulmonary tuberculosis must be treated at home and by the family physician. Only about 2 per cent. of the victims of this disease are able to avail themselves of the advantages derived from change of climate. There are other factors of greater importance than change in climate. The improvement derived from proper and nutritious food in a poor climate is greater than that obtained from a favorable climate unaccompanied by good food. The important thing is that the patient should have an abundant supply of fresh air, and this can be obtained at home as well as elsewhere. In the majority of instances where the patients belong to the middle or poorer classes, the essentials of treatment, fresh air, sunshine, good food and rest, may be secured to the best advantage at home. If the nature of the trouble is recognized early, there is no disease which is more curable than pulmonary tuberculosis. The pretubercular stage or the stage in which the patient is in a general weakened condition and furnishes a suitable soil for tuberculous infection should receive more careful attention at the hands of the family physician.

DISCUSSION.

Dr. W. H. Haughey, Battle Creek, reported an interesting case treated with small doses of tuberculin. The patient showed marked improvement, accompanied by a rise in the opsonic index.

Dr. George Dock, Ann Arbor, spoke of the impossibility of caring for all tuberculous patients in sanatoria. Many of them must either be treated at home or else receive no treatment at all. There are two important factors which tend to invalidate home treatment. One of these is lack of confidence in the treatment, and the other is the failure to attend to details of treatment on the part of the physician. The fact that the treatment of pulmonary tuberculosis is primarily non-medicinal should be fully explained to the patient at the outset. The value of the properly conducted sanatorium is not only therapeutic, but educational as well, and many patients may be sent to sanatoria, not until they are well, but until they have learned in what manner they can best care for themselves and avoid infection to others.

Treatment of Arthritis by Bier's Passive Hyperemia.

Dr. Frank W. Smithies, Ann Arbor, said that passive venous hyperemia is produced by constriction only, and hence in that sense is applicable only to the extremities and in a less degree to the head. The application of the bandage requires careful attention. A preliminary cotton roller bandage should be applied to the limb in which the venous hyperemia is to be induced. The rubber bandage should then be applied over this at the point at which it is desired to make constriction. It is very important that the proper degree of constriction be maintained. As a rule, chronic joint affections require fairly strong constriction applied from one-half to two hours daily.

Dr. A. W. Hornbogen, Marquette, spoke of the great success attending the treatment of infected wounds of the extremities by Bier's method.

Dr. George Dock, Ann Arbor, spoke of the value of passive hyperemia in the treatment of joint diseases, particularly those which are characterized by their chronicity. In his opinion, the benefit derived from the application of Bier's method in these cases is much greater than that obtained from hot air, hot compresses or packs.

Treatment of Diabetes Mellitus.

Dr. Hugo A. Freund, Ann Arbor, stated that in the treatment of diabetes mellitus the physician should fully understand several things. First, strict diet is incompatible with health. Second, a small amount of sugar in the urine is no cause for alarm, so long as the patient is in good health. Third, to treat each case, an individual problem must be solved. Daily and painstaking observations are essential to this. Roberts' fermentation test is the best method for the practitioner to make use of. Treatment must be guided by the effects on the sugar excretion and results of tissue metabolism. Dietetic methods are the primary and essential ones. Drugs are secondary. Several starches may be tried with strict diet and the ones used that keep sugar excretion at low ebb. Strict diet must never be maintained. Drugs that are useful are opium, antipyrin and salicylic acid. They are to be used in conjunction with diet in severe cases.

The Roentgen Ray in Internal Medicine.

Dr. P. M. Hickey, Detroit, said that the lung is favorable for Roentgen examination on account of being an organ which normally contains a large percentage of air changes in its density through inflammatory infiltration show distinctly on the photographic plate. The size, shape and position of the heart are better shown by the ray than by percussion. Chronic rheumatism has been demonstrated to be a form of arthritis. The physical basis of neuralgia can often be shown. The general diagnostic use of the ray will be found more useful in medicine than in surgery.

Diazo Reaction in Urine.

Dr. Wilfred Haughey, Battle Creek, found that whenever the diazo reaction was present it was accompanied by a low percentage of urea. It can be found in either febrile or in nonfebrile diseases. It is not infrequently present in chronic heart disease, with normal or even subnormal temperature. The reaction has but a moderate amount of diagnostic value, though a positive reaction during the course of a prolonged fever would point toward typhoid, but the reaction may also be present in miliary tuberculosis. When taken in connection with other symptoms, the diazo reaction forms an important aid to diagnosis.

The Diagnostic Importance of Blood in the Stool.

Dr. L. J. Hirschman, Detroit, made a plea for the early and complete proctoscopic examination of all patients who present themselves with the history of the loss of more or less blood with the fecal passage. He emphasized the importance of not taking for granted the diagnosis of hemorrhoids simply from the history of local hemorrhage. He mentioned the various local rectal diseases, such as internal hemorrhoids, prolapse, fissure, ulceration, stricture, cancer, proctitis, fecal impaction, polypus, villous growth and venereal diseases which cause local hemorrhage. He laid particular stress on the importance of blood not accompanied by pain or other symptoms, as the danger signal in commencing malignant disease. Quoting Boas, he stated that out of 500 cases of cancer of the digestive tract, 83, or over 16 per cent., were located in the rectum, showing how much more frequently cancer is located in this region than is generally supposed. He stated that in his own experience he frequently has cases brought to him with the history of bleeding without pain or other symptoms, who on examination with the proctoscope and sigmoidoscope, showed malignant disease so far advanced that colostomy was the only hope of even temporary relief, and emphasized the importance of early and complete examination when bleeding, however slight, with the stool is encountered.

Other Papers Read.

The following papers were also read:

"Etiology and Clinical Features of Acute Septic Peritonitis," by Dr. T. C. Irwin, Grand Rapids; "Diagnosis of Gall-bladder and Bile Duct Diseases," by Dr. F. B. Walker, Detroit; "Ear Cases," by Dr. E. Amberg, Detroit; "Surgical Anatomy of Supports of Rectum," by Dr. J. A. MacMillan, Detroit; "Diagnostic Significance of Abdominal Pain," by Dr. H. W. Yates, Detroit; "The Accoucheur," by Dr. A. N. Collins, Detroit; "Neurasthenia and Neuritis," by Dr. T. Klingman, Ann Arbor.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Illinois State Board of Health, Great Northern Hotel, Chicago, July 25-27. Secretary, Dr. J. A. Egan, Springfield.

Kentucky State Board of Health, City Hall Building, Louisville, August 1-2. Secretary, Dr. J. N. McCormack, Bowling Green.

California Board of Medical Examiners, San Francisco, August 6. Associate Secretary, Dr. F. Dudley Tait, San Francisco.

Massachusetts March Report.—Dr. E. B. Harvey, secretary of the Board of Registration in Medicine, reports the written examination held at the State House, Boston, March 12-14, 1907. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 51, of whom 37 passed, including one osteopath, and 14 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Georgetown University	(1906)	76.4 80.2
Howard University	(1906)	79.8
Medical School of Maine	(1905)	81.4
Baltimore Med. Coll.	(1906)	75.2, 75.5, 75.5
Boston University	(1906)	75.7, 77.7, 78.5
Harvard University—(1905) 83.2, 83.8, 84, 84.1; (1906) 84.2, 86.8, 92; (1907) 78.3, 78.8, 79.7.		
Tufts Coll. Med. School..(1903) 80; (1905) 77.4; (1906) 75.5, 75.5, 78.7.		
University of Michigan	(1905)	83.8
Bellevue Hosp. Med. Coll.	(1897)	81.4
College of P. and S., New York	(1905)	82.2
Hahnemann Med. Coll., Philadelphia	(1897)	75.1
Jefferson Med. Coll.	(1906)	76.5
Woman's Medical College of Pennsylvania	(1906)	76.7
University of Vermont	(1899) 77.4; (1906)	82.7
McGill University, Quebec	(1898)	83.8
Bishop's University, Canada	(1905)	75
Royal Coll. of P. and S., Ireland	(1905)	75.6

FAILED.

College.	Year Grad.	Per Cent.
National Med. University, Chicago	(1904)	62
American Med. Miss. Coll.	(1902)	70.5
Baltimore Med. Coll.	(1903) 61.8; (1906)	62.3, 70.8
Baltimore University	(1906)	67.5
College of P. and S., Boston	(1905)	65.5
Tufts Coll. Med. School	(1906)	71.8
College of P. and S., St. Louis	(1906)	50.8

Barnes Med. Coll	(1900)	33
University of the South	(1905)	64.2
Laval University, Quebec	(1901) 69.2; (1906)	61.5
University of London	(1889)	*5.2

* Average on three papers, examination not completed.

Colorado April Report.—Dr. S. D. Van Meter, secretary of the Colorado State Board of Medical Examiners, reports that 34 candidates were licensed at the meeting held at Denver, April 2, 1907. All applicants were submitted to an oral examination; 11 were required to take a supplementary written examination, but 4 did not comply. Of the 7 who took the written examinations 6 passed and one failed. The following colleges were represented:

REGISTERED WITHOUT SUPPLEMENTARY WRITTEN EXAMINATION.

College.	Year Grad.
Northwestern University	(1896), (1903), (1904)
Rush Med. Coll.	(2, 1896)
College of P. and S., Chicago	(1886)
Medical Coll. of Indiana	(1896) (1905)
Drake University	(1905)
Hospital Coll. of Med., Louisville	(1905)
Kentucky University	(1906)
University of Louisiana	(1906)
Baltimore Med. Coll.	(1881)
Maryland Med. Coll.	(1893)
Harvard Medical School	(1905)
Tufts College Medical School	(1900) (1906)
University of Michigan	(1905)
Kansas City Med. Coll.	(1887) (1893)
College of P. and S., New York	(1881)
Miami Med. Coll.	(1875) (1906)
University of Pennsylvania	(1906)
Jefferson Med. Coll.	(1899)
University of Vermont	(1887)
Western University, London, Ont.	(1893) (1895)
	(1896)

PASSED SUPPLEMENTARY WRITTEN EXAMINATION.

College.	Year Grad.	Per Cent.
Denver and Gross Coll. of Med.	(1906)	80.6
University of Kansas	(1906)	71.9
Missouri Med. Coll.	(1899)	73.7
Medical Coll. of Ohio	(1901)	72.1
McGill University, Quebec	(1905)	81.2
Kanazana Med. Coll., Japan	(1903)	70.6

DID NOT TAKE SUPPLEMENTARY WRITTEN EXAMINATION.

College of P. and S., Chicago	(1902)
Medical Coll. of Indiana	(1903)
Maryland Med. Coll.	(1904)
University of Pennsylvania	(1884)

FAILED AT SUPPLEMENTARY WRITTEN EXAMINATION.

Keokuk Med. Coll.	(1895)	63.8

Nebraska February Report.—Dr. George H. Brash, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Feb. 13-14, 1907. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 12, of whom 8 passed and 4 failed. Four reciprocal licenses were granted. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Northwestern University	(1893)	81.6
Rush Med. Coll.	(1902)	87.8
College of P. and S., Boston	(1893)	75.5
Barnes Med. Coll.	(1906)	77.3*
University of Nebraska	(1905)	76.8‡
Western University, London, Ont	(1906)	79, 82.8, 84.8

FAILED.

Sioux City Coll. of Med.	(1906)	72.6
Barnes Med. Coll.	(1904)	73.1
Creighton Med. Coll.	(1906)	65.7,† 70.6*

LICENSED THROUGH RECIPROCITY.

Northwestern University	(1905)	Illinois
Keokuk Med. Coll.	(1906)	Iowa
Sioux City Coll. of Med.	(1902)	Iowa
Hospital Coll. of Med., Louisville	(1905)	Kentucky

* Second examination.
† Third examination.
‡ Fourth examination.

Nevada May Report.—Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written and oral examination held at Carson City, May 6, 1907. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 6, of whom 5 passed and one failed. Eighteen reciprocal licenses were granted. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Cooper Med. Coll.	(1906)	90
Kansas City Med. Coll.*	(1895)	80
University Med. Coll., Kansas City	(1905)	89
Western Pennsylvania Med. Coll.	(1890)	75
University of Turin, Italy	(1904)	89

FAILED.

Laval University, Quebec	(1906)	50

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
College of P. and S., Chicago (1898) Wisconsin;	(1904)	Minnesota
Bennett Coll. of Ecl. M. and S. (1901) Indiana;	(1902)	Iowa
Hering Med. Coll., Chicago	(1903)	Iowa
Fort Wayne College of Med.	(1884)	Indiana
Keokuk Med. Coll.	(1893)	Iowa
University of Iowa (1883) Iowa;	(1886)	Iowa
Kentucky School of Med.	(1879)	Indiana
Baltimore Med. Coll.	(1905)	Maryland
Washington University, St. Louis	(1906)	Missouri
University of Missouri	(1879)	Iowa
Missouri Med. Coll.	(1898)	Missouri
Barnes Med. Coll.	(1906)	Iowa
University of Michigan	(1884)	Michigan
Pulte Med. Coll.	(1885)	Indiana
Jefferson Med. Coll.	(1896)	Maryland

* In 1905 this college was absorbed by the Medical Department of the University of Kansas.

Washington January Report.—Dr. C. W. Sharples, secretary of the Medical Examining Board of Washington, reports the written examination held at Spokane, Jan. 2-4, 1907. The number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 75, and 70 for those having had 10 years' practice. The total number of candidates examined was 80, of whom 67 passed and 13 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Medical College of Alabama	(1901)	87
Denver and Gross Coll. of Med.	(1895) 70; (1906)	85
California Med. Coll	(1902)	78
Howard University, Washington, D. C	(1892)	71
College of P. & S., Atlanta	(1903)	86
Rush Med. Coll	(1903) 76; (1906)	90, 92
College of P. & S., Chicago	(1898) 79; (1903) 92; (1904)	75, 82, 88; (1906) 75.
Northwestern University	(1895) 74; (1904) 87; (1905) 85; (1906)	78.
Hahnemann Med. Coll., Chicago	(1900)	89
American Coll. of Med. & Surg., Chicago	(1906)	86
Physio-Medical College of Indiana	(1895)	73
Indiana Med. Coll	(1906)	85
University of Iowa	(1884)	76
Hospital Coll. of Med., Louisville	(1905)	81
Kentucky School of Med.	(1906)	75
Medical School of Maine	(1898) 75; (1903)	83
Harvard Med. School	(1904) 86, 87, 88; (1905) 83; (1906)	81, 86
Johns Hopkins Med. School	(1902) 79; (1904)	85
College of P. & S., Baltimore	(1893)	74
University of Michigan	(1905)	86, 89
University of Michigan, Homeo. Dept	(1903)	83, 87
Saginaw Valley Med. Coll	(1884)	76
University of Minnesota	(1895) 92; (1905) 81; (1906)	80, 84, 89
University of Buffalo	(1895)	89
Lincoln Med. Coll	(1897)	72
Barnes Med. Coll	(1893)	72
Willamette University	(1906)	76
University of Oregon	(1905)	79, 80
University of Pennsylvania	(1898) 76; (1901) 86; (1903)	87
Jefferson Med. Coll	(1887) 71; (1906)	82
Chattanooga Med. Coll	(1906)	80
Vanderbilt University	(1892)	79
Trinity Med. Coll., Ontario	(1888)	86
Toronto University, Ontario	(1900) 84; (1906)	81
McGill University, Quebec	(1901)	80
Queen's University, Ontario	(1896)	80
Okayama Med. Coll., Japan	(1905)	88
Saisei Med. Coll., Japan	(1896)	73

FAILED.

Rush Med. Coll	(1899) 72; (1903)	70
Northwestern University	(1900)	71
Louisville Med. Coll	(1906)	66
Hospital Coll. of Med., Louisville	(1901)	66
National Med. University, Chicago	(1904)	57
Harvard Med. School	(1885)*	
Minneapolis Coll. of P. & S.	(1904)	67
Barnes Med. Coll	(1906)	71
University Med. Coll., Kansas City	(1898)	71
St. Louis College of P. & S.	(1904)	46
Omaha Med. Coll	(1882)	65
Trinity Med. Coll., Ontario	(1903)	71

* Percentage not given.

The following questions were asked:

SURGERY.

1. Give the differential diagnosis between dislocation of the head of the femur and a fracture of the neck. Describe the treatment of the latter. 2. Give a summary of the treatment of fracture of the patella by the non-operative method. 3. Give the treatment of delayed union in ununited fracture. 4. Describe the different varieties of hernia and describe one operation for inguinal hernia. 5. Name the different varieties of aneurism and the method of treatment of aneurism in general. 6. Give the symptoms, diagnosis and treatment of intestinal obstruction. 7. Give the symptoms, diagnosis and treatment of chronic tuberculosis of the kidney. 8. Give the treatment of shock resulting from hemorrhage. 9. Give the contraindications for the employment of ether and chloroform. 10. Describe and give treatment of an infection under the palmar fascia.

PREVENTIVE MEDICINE AND MEDICAL JURISPRUDENCE.

1. Differentiate between idiocy and lunacy. 2. How would you determine that a full-term dead babe was born alive or still-born?

3. Give a detailed account for an examination of a body from the standpoint of the coroner in charge. 4. How do you determine hat an incised wound was inflicted by a blunt or a sharp instrument? 5. What constitutes expert testimony? 6. How long after ecovery would you keep in quarantine a case of (*a*) diphtheria, (*b*) scarlet fever, (*c*) smallpox? 7. Name the portals of entry of tubercular infection. 8. State the best means of disinfecting sputum. 9. Describe the difference between contagion and infection. 10. (*a*) What are the effects of breathing impure air? (*b*) How many cubic feet per person should be allowed in a room for continued occupancy and in a sleeping room?

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN.

1. How would you differentiate between chronic gastritis and carcinoma of the stomach? 2. Define constipation and give its causes, symptoms, effects and non-medicinal treatment. 3. What is vertigo and its different varieties? Give the diagnosis and treatment of one. 4. Give the etiology, symptoms and treatment of hydrothorax. 5. Give causes, symptoms, diagnosis and treatment of myxedema. 6. Describe an attack of angina pectoris. Give its etiology, diagnosis and prognosis. 7. What is asthma? Give its causes and symptoms. 8. Differentiate between hypertrophy and dilatation of the heart, and outline treatment for each. 9. What are the causes, symptoms and effects of adenoids? 10. Describe an attack of enterocolitis in a child. Give its etiology and dietetics. 11. What are the etiology and symptoms of alopecia areata? How is it distinguished from ringworm? 12. Describe an attack of pertussis. Give its etiology, pathology, complications and sequelæ. 13. What are the etiology, symptoms and treatment of stomatomycosis? 14. Contrast ordinary dairy milk with human milk, and give a brief description of the essentials for the production of pure dairy milk. 15. Give symptoms and course, with differentiation, prognosis and treatment of tubercular meningitis in a child.

OBSTETRICS AND DISEASES OF WOMEN.

1. Define presentation and position. Give three examples of each. Which of the latter is the most common? 2. Which is the greatest diameter of the female pelvis, also that of the fetal head? Give the mechanism of rotation of the latter during parturition in the first position. 3. At what time of gestation is the placenta formed? How would you treat an inevitable abortion subsequent to its formation? 4. In a difficult labor, on what would you base your decision as to whether Cesarean section or the application of forceps would be the proper procedure? 5. What is placenta prævia? Name the different attachments of the placenta in the same. Give the method of management. 6. Give the symptoms and diagnosis of ectopic gestation. 7. Give the common causes of subinvolution of the uterus and the treatment of each. 8. Define metrorrhagia. Name two of its most common causes prior to the menopause. What would you suspect should it occur subsequent to the same? How would you verify your suspicion? 9. Give your treatment of a recent attack of specific vaginitis. Name two of its most common sequelæ. 10. Give two indications for hysterectomy. Which do you prefer, vaginal or abdominal? State on what ground you would base your preference.

CHEMISTRY AND TOXICOLOGY.

1. What is an antidote to arsenic? What effect has arsenic on the gastrointestinal canal? What effect has it on the nervous system? In arsenic workers, what local condition may be found on the hands? 2. What is an antidote to carbolic acid? What combination is formed by its administration? How would you make a diagnosis of carbolic-acid poisoning before death? 3. Enumerate the symptoms of chronic lead poisoning and give the treatment. 4. Give the treatment of phosphorus poisoning. 5. What are the symptoms of nitrate of silver poisoning and what are the antidotes? 6. Complete the following formula: $Zn + H_2SO_4 = ?$ and $BaO_2 + 2HCl = ?$ 7. What is an atom and what is a molecule? 8. What are isomeric compounds? 9. Describe the method of detecting uric acid by HNO_3. 10. Describe in detail a method of the quantitative estimation of sugar in urine.

ANATOMY AND PHYSIOLOGY.

1. Name in order the branches of the arch of the aorta. 2. Give the origin, course and termination of the thoracic duct. 3. Describe the occipital bone and name the structures passing through the foramen magnum. 4. (*a*) What tendons form the inner hamstring? (*b*) The outer hamstring? 5. Describe a lumbar vertebra. In what points does it differ from a dorsal vertebra? 6. Describe the diaphragm. Mention the openings formed by it, and tell what structures pass through each. Give its nerve supply. 7. Describe the circle of Willis, and name the arteries forming it. 8. What are attachments of Poupart's ligament? How is it formed? Give its surgical significance. 9. How is the venous blood current maintained? What arteries carry venous blood? 10. Describe the normal heart sounds. Give causes which produce each. 11. Give the daily amount, composition and functions of the bile. 12. What part does saliva take in digestion? What is its ferment? Name and give the physiology of the nerve supply. 13. Name and give the function of the various glands of the small intestines. 14. Give the physiology of visual accommodation to light and distance. 15. What is the physiology of blood formation?

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

1. Describe a sebaceous gland. 2. Name the layers of the mucous membrane and give the locations where it is found. 3. Describe the cross section of an artery. 4. Describe the iris. 5. Describe a peptic ulcer of the stomach. 6. Give the pathology of the blood in pernicious anemia. 7. Name the chief differential points between carcinoma and sarcoma. 8. Describe a method for staining tubercle bacilli. 9. Describe methods of culture of the diphtheria bacillus. 10. What is the Widal reaction?

NERVOUS DISEASES AND DISEASES OF THE EYE AND EAR.

1. Give diagnosis and treatment of migraine. 2. What is tic douloureux? Outline treatment. 3. Mention etiology, symptoms and treatment of sciatica. 4. Describe a case of progressive bulbar paralysis. 5. Briefly describe a case of general paresis. 6. Define: hordeolum, chalazion, ectropion, entropion, ptosis, astigmatism and myopia. 7. Give symptoms and treatment of purulent conjunctivitis. 8. Give diagnosis and treatment of mastoiditis. 9. Describe and give treatment of pterygium. 10. Give the three most common causes of otitis media.

MATERIA MEDICA AND THERAPEUTICS.

1. Define narcotics, anesthetics and sedatives. Give an example of each. 2. Define diuretics and diaphoretics. Give three examples of each. 3. Give the therapy of phosphorus. 4. Give the physiologic action of opium and name its alkaloids. 5. Name the drugs you would exhibit in pneumonia, acute interstitial nephritis and rheumatism. 6. Mention three heart stimulants. Give the adult dose of each. 7. Write a prescription for acute bronchitis, chronic constipation and acute cystitis. 8. Classify the following drugs: Aconite, atropin, pilocarpin, ergot, elaterium and manganese. 9. Name four hypnotics and give the adult dose of each. Name four emetics and give the dose of each. 10. Define an alkaloid and give an example of the same. Define serum therapy. Mention three serums, the indications for their use and state the dose of each.

HOMEOPATHIC MATERIA MEDICA.

1. Give the general appearance of an apis patient. Give leading symptoms that would call your attention to the remedy. 2. Differentiate the uterine symptoms of pulsatilla, cimicifuga, gel., and magn. phos. 3. What symptoms would lead you to choose arnica as a remedy? 4. Give the keynote symptoms of phosphorus. 5. Differentiate the gastric symptoms of ipecac, nux vomica and lycopodium. 6. What remedies may be indicated in cholera infantum? Give indications for two of them. 7. Differentiate the stools of podophyllum, natrum phos., chamomilla, calc. carb., and pulsatilla. 8. Give throat symptoms of each of the following remedies: Causticum, iodin and spongia. 9. Name three remedies in uterine hemorrhage. Give indications for each. 10. Give indications for three different remedies useful in scarlet fever.

ECLECTIC MATERIA MEDICA AND THERAPEUTICS.

1. Give the indications and uses of (*a*) focynum and., (*b*) asalla hisp., (*c*) cactus grand, (*d*) passiflora inc., (*e*) ipecac. 2. What are antiseptics? Name five and give the indications for their use. 3. When would you use (*a*) phytolacca, (*b*) bryonia? 4. (*a*) Name three drugs that act on the heart. (*b*) Give the indication for the use of each. 5. Give the specific indications for (*a*) baptisia tinc., (*b*) sulphate of soda, (*c*) colocynth. 6. What are cathartics? In what pathologic condition would you use them? 7. Give the specific indications for pulsatilla, sycopus and quinia. 8. What remedy would you use in cholera infantum? In influenza? 9. Do you use poultices? Why? Give a hypothetical case in which you would use them. 10. Give the medicinal treatment for secondary syphilis.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and methods of treatment for the diseases seen especially in every-day practice. Contributions will be welcomed from our readers.]

Summer Diarrhea of Children.*

S. H. Dessau, *Medical Times*, recommends for the management of diarrhea in infants that rest be secured by keeping the child in bed or on the lap without tossing, rubbing the abdomen or disturbing it more than necessary. Cool or tepid baths should be given and the rule should be to give a diluted food or none at all in order to give the digestive organs a rest. Toast water, barley water, rice water or meal soup made by stirring a heaping tablespoonful of browned flour into a pint of a boiling mixture of equal parts of milk and water, are appropriate foods. Fresh, cool air and perfect cleanliness are essential.

The intestines should be unloaded by castor oil or calomel in from 1/10 to 1/20 gr. (0.006 to 0.003) doses given every half-hour. These doses may be continued at three or four hour intervals after the bowels have moved. In cases marked by high fever and toxic symptoms, intestinal irrigation with a salt solution, a teaspoonful to the pint, is useful. Fermentation should be checked, and for this the following antiseptics may be given: Bismuth salts, bichlorid of mercury in 1/100 grain (0.0006) doses, especially when the stools are of a dysenteric character, lactic acid when the stools are very green and excoriating, or buttermilk, which contains lactic acid, prepared by adding a teaspoonful of wheat flour to a pint of buttermilk and bringing to a boil, stirring constantly. Carbolic acid in doses of one fluidram (4.0) of a 1 per cent. watery solution will also be found most useful both as an antiferment and as a gastric sedative, although in exceptional cases it aggravates vomiting.

For the control of vomiting this author recommends ⅛ drop (0.005) doses of wine of ipecac repeated hourly, or 1/10 grain (0.006) of cocain hydrochlorate; this, however, must be given with care. For the collapse of true cholera infantum, he states that hypodermic injections of three drops of a 10 per cent. solution of chloral hydrate or three drops of ether will produce wonderful results. The following formula is traditionally famous in the same condition:

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*Doses are calculated for infants one year old.

R. Olei anisi			
Olei cajeputi			
Olei juniperi, āā	ʒiss	6	
Ætheris	ʒiv	16	
Misturæ sulphuricæ acidæ	ʒss	2	
Tincturæ cinnamomi	℥ii	60	

M. Sig.: One drop every fifteen minutes in sugar water.

Yeo, in "Clinical Therapeutics," recommends the following combination in acute diarrhea of infants and to check putrefactive changes in the intestine:

R. Hydrargyri biniodidi	gr. 1/50		0013

M. Dissolve in sufficient potassium iodid and add 1 grain (0.06) of chloral hydrate. Sig.: Give at one dose in a teaspoonful or two of dill water.

In the treatment of acute gastroenteritis of infants this author advises:

R. Creolini	gtt. iii		18
Syrupi althææ	fʒv	18	
Aquæ menthæ pip. ad	f℥iii	90	

M. Sig.: One teaspoonful every hour for young infants.

As a powder for infantile diarrhea he recommends the following:

R. Sodii bicarbonatis	gr. iv		26
Pulveris rhei	gr. iss		09
Pulveris aromatici	gr. i		06

M. Sig.: One such powder to be given twice daily.

When there are milk curds in the stools Yeo advises:

R. Pulveris guaranæ	gr. xv	1	
Pulveris ipecacuanhæ et opii	gr. ¾		04
Sacchari	gr. xlv	3	

M. et div. in pulv. x. Sig.: One powder to be given every two or three hours.

H. B. Sheffield, *New York Medical Journal*, states that it will usually be found that a bismuth and chalk mixture will do well in most cases in which astringents are indicated. The following is a pleasant combination:

R. Bismuth subnitrate			
Chalk mixture, of each	ʒiv	15	
Glycerin	fʒiii	12	
Syrup of acacia	fʒiv	15	
Peppermint water, sufficient quantity to make	f℥ii	60	

Krameria and tannic acid are best administered in enemas of starch and water. The various newer tannin preparations may be given by mouth with aromatic powder or peppermint sugar.

In fermentative conditions salol is a valuable drug. It may be given to children 1 year old in doses of from half to one grain (0.03-0.06).

In acute indigestion accompanied by colic the following is of service:

R. Sodii bicarbonatis	gr. ii		13
Olei ricini	fʒi	4	
Tincturæ opii camphoratæ	gtt. ii		13

M. Sig.: Give at one dose.

In such cases it is also advisable to wash out the lower bowel with warm water, and to apply a hot water bag to the abdomen.

Incompatibles.

LIBERATION OF IODIN.

When perchlorid of iron is combined with potassium iodid, such a mixture develops free iodin, the iron being reduced to the ferrous state. The amount of iron that may be liberated is liable to be dangerous. The *Pharmaceutical Journal* calls attention to the following prescription in which this reaction is complicated by a secondary one:

R. Ferri et quininæ citratis	ʒii	8	
Potassii iodidi	ʒiii	12	
Syrupi	fʒiv	15	
Aquæ q. s. ad	f℥iv	120	

The amount of acid in the solution of the double citrate is small and iodin is slowly liberated. Iodin in potassium iodid solution is a general precipitant of alkaloids and a nearly black precipitate of periodid of quinin will be produced. Addition of enough alkali to neutralize the solution of the scale sal before adding to the iodid will delay the reaction considerably.

Pruritus.

The following combination has been recommended for pruritus vulvæ:

R. Acidi borici			
Phenol (acidi carbolici), āā	gr. iii		19
Morphinæ hydrochlor	gr. i		06
Adipis lanæ q. s.	℥ii	60	

M. Ft. unguentum. Sig.: Apply locally.

Brocq recommends the following in pruritus:

	Parts.
R. Phenol (acidi carbolici)	1
Acidi salicylici	2
Acidi tartarici	3
Glyceriti amyli	60-100

Mix. To be applied externally.

J. J. Reid, in the *Medical Record*, states that he has found pilocarpin a valuable drug in pruritus vulva. He gives it in doses of one-quarter of a grain (0.016) when the itching manifests itself and does not repeat the dose till the itching returns. He states that it is well to begin with gr. ⅛ (0.008) as some patients are very susceptible to the drug. If necessary, he gives atropin gr. 1/120 (0.0005) in conjunction with the atropin to prevent sweating.

Shoemaker, "Text-Book of Materia Medica and Therapeutics," states that an ointment of aconitine, 2 per cent., is useful in this condition. Care must be taken, however, not to apply it on an abraded surface.

The same author recommends the following combinations:

R. Phenol (acidi carbolici)	fʒss	2	
Linimenti belladonnæ	f℥ii	60	
Glycerini			
Aquæ rosæ, āā	f℥iv	120	

M. Sig.: Apply locally.

R. Fluidextracti pilocarpi	f℥ss	15	
Spiritus ætheris nitrosi			
Spiritus juniperi, āā	f℥ii	60	
Syrupi acidi citrici q. s. ad	f℥vi	180	

M. Sig.: From half to one tablespoonful in water every two or three hours.

R. Infusi pilocarpi			
Infusi digitalis, āā	℥ii	60	

M. Sig.: Two teaspoonfuls every two or three hours.

Drueck, *Chicago Medical Recorder*, states that when the pruritus is due to proctitis, hemorrhoids, fissure, ulceration, fistula, prolapse or polypus, and the patient refuses surgical treatment, the following combination may give relief:

R. Hydrargyri chloridi mitis	gr. xxx	2	
Menthol	gr. x-xx		65-1.30
Petrolati	℥i	30	

Sig.: Apply after bowel movement, first bathing the surface carefully and mopping it dry.

Paralysis Agitans.

The following combination has been recommended to quiet tremor and to induce sleep in paralysis agitans:

R. Hyoscinæ hydrobromatis	gr. ss		03
Extracti cannabis indicæ	gr. xxiv	1	55

M. Div. in capsulas No. 100. Sig.: One or two capsules twice daily.

General Treatment of Hemorrhage.

The internal treatment of hemorrhage has hitherto been largely empirical and, indeed, demands so accurate a knowledge of the finer adjustments of the circulation that it is not possible, even for the expert pharmacologist, to formulate an entirely consistent theory or rule of practice. Both vasoconstrictors and vasodilators have been recommended and sometimes employed conjointly. It is quite improbable that styptic remedies can be conveyed through the blood in such a way as to control bleeding at distant points, yet sulphuric acid, gallic acid, and substances containing tannic acid are still confidently prescribed for hemorrhage from the uterus, kidneys, etc. In many hemorrhages, it is evident that the natural remedy is a lowered blood pressure which gives the opportunity for the formation of thrombi in the bleeding vessel. In such cases it is evident that vasoconstrictors should be given with great caution, if at all. It is uncertain, however, what the effect of certain remedies on the circulation in the lungs is, and it is believed by some that it is different from that on the peripheral blood vessels. G. W. Webster, in the *Chicago Medical Recorder*, gives the following scheme showing the agencies which affect the peripheral circulation:

- Blood pressure, peripheral factors
  - Raised by...
    - Vasoconstrictors
      - Adrenalin.
      - Digitalis.
      - Cold to the skin.
      - Ergot.
      - Strychnin.
    - Increase plasticity of the blood.
      - Calcium.
      - Gelatin.
      - Alcohol.
      - Chloroform.
      - Adrenalin.
      - Nitrogenous foods.
  - Lowered by
    - Vasodilators
      - Morphin.
      - Amyl nitrite.
      - Nitroglycerin.
      - Diuretics.
      - Chloral hydrate.
      - Nitrites.
      - Heat to skin.
      - Aconite.
      - Alcohol.
      - Cathartics.
    - Diminish plasticity of blood
      - Iodids.
      - Citric acid.
      - Fruits.
      - Salts of
        - Potassium.
        - Ammonium.
        - Sodium.
      - Thyroid extract.

Webster considers pulmonary hemorrhage under two heads:

1. Hemoptysis occurring in consequence of the high pressure occasioned in the pulmonary system by obstruction or regurgitation at the mitral valve. In this case pressure is high in the pulmonary system and low in the peripheral arteries. Webster says that the rational treatment is to get the blood out of the venous into the arterial side of the circulation where it belongs. The best remedies for this condition are absolute rest, mental and physical; morphin and digitalis.

2. Hemoptysis occurring in the course of pulmonary tuberculosis. In this case the viscosity of the blood is below normal, the heart is increased in frequency, its efficiency is impaired, and the blood pressure is low. The indications are: Absolute rest in order to lessen the frequency and violence of the respiratory movements, increase of the viscosity of the blood and, if possible, lowering of the blood pressure in the pulmonary circulation.

The patient should lie on the affected side, morphin should be given hypodermically, and 10 drops of chloroform administered in water. Later calcium, hydrastis and a meat diet may be resorted to in order to increase the viscosity of the blood. Finally gelatin may be given hypodermically or normal salt solution may be used in the same way.

Agents which contract the arterioles are contraindicated in these cases, and Hare of London has gone to the extreme of advocating amyl nitrite, which he claims, on the ground of the experimental work of Pic and Pettijean, will at the same time dilate the systemic capillaries and contract those of the pulmonary circulation. Aconite has been given for the purpose of reducing intrapulmonary blood pressure and is recommended by Thompson, who also highly commends the practice of constricting the limbs in succession so as to keep as much of the blood as possible in the systemic circulation. The aconite should be given in 3 minim doses (0.18) of the tincture.

Cerebral hemorrhage must be treated on the general principle of lowering blood pressure. This is best accomplished by the administration of nitroglycerin and amyl nitrite, pushed to the physiologic limit, always bearing in mind the evanescent character of their effects, which last only about ten minutes. As soon as the pressure is brought down by these quickly acting drugs and the hemorrhage has ceased, the lowered blood pressure may be maintained by administration of strong purgatives like croton oil and substances which diminish the viscosity of the blood, such as the iodids, citric acid, the warm bath, aconite, thyroid extract and chloral hydrate. Chloral is especially valuable as it lowers the blood pressure, relaxes vascular spasm and, generally, causes sleep. Calcium, ergot, adrenalin chlorid, digitalis, hydrastis, cold baths, iron and gallic acid are absolutely contraindicated.

Intestinal hemorrhage, especially that occurring in typhoid fever, should be treated on the same principles as those which govern our action in hemoptysis. The patient should be kept very quiet and stimulation should only be used when dangerous collapse appears to be present. Morphin is an effective remedy to secure quiet, but should not be continued so long as to induce toxemia from the absorption of the products of putrefaction of the retained blood. Adrenalin and other vasoconstrictors are contraindicated. Astringents are of doubtful service. Calcium salts and gelatin are the remedies chiefly to be recommended. Calcium may best be given in the form of calcium lactate, a salt which, unfortunately, is not official, except in the form of the syrup of lactophosphate of calcium. The calcium chlorid may be given.

℞. Calcii lactatis	ʒii	8
Aquæ		
Syrupi aurantii, āā	℥i	30

M. Sig.: Give a teaspoonful four times daily.

Headache.

Beverly Robinson, in the *Monthly Cyclopedia of Practical Medicine*, says that when we reach digestive disturbances, acute or chronic, we touch really the keynote of very many headaches. An error of diet, some special food, or merely a surfeit of too many foods, will give a headache, which 5 grains of blue mass, followed by a saline draught, will alone relieve effectually and rapidly. In neuropathic conditions he lays stress on neutralization and elimination through the digestive tract. Here, particularly, he advises a diet of sour milk and the moderate use, morning and night, of sulphate of soda.

Irritable Bladder.

The following has been advised in irritable bladder in neurasthenic subjects:

℞. Tincturæ belladonnæ		
Liquoris potassii hydoxidi, āā	ʒi	4
Potassii citratis	ʒii	8
Aquæ anisi	℥ii	60
Aquæ cinnamomi, q. s. ad	℥vi	180

M. Sig.: One tablespoonful every four hours.

Anorexia.

The following has been recommended in simple anorexia:

℞. Tincturæ nucis vomicæ	ʒiv	15
Ferri et quininæ citratis	ʒiii	12
Tincturæ gentianæ comp.	℥i	30
Vini xerici, q. s. ad	℥vi	180

M. Sig.: A teaspoonful in water before meals.

Medicolegal

Requirements in Labeling of Medicinal Preparations.

James Wilson, Secretary of Agriculture, states, in Food Inspection Decision No. 54, that the law is specific on the subject of declaring the amount of alcohol present in medicinal agents, as can readily be seen from the following language: "An article shall also be deemed misbranded . . . if the package fail to bear a statement on the label of the quantity or proportion of any alcohol . . . contained therein." No medicinal preparations are exempt, whether they are made according to formulæ given in the United States Pharmacopeia or National Formulary, or formulæ taken from any other source. The serial number, with or without the guarantee legend, does not exempt a preparation from this requirement. The law does not make any statement as to the amount of alcohol that may or may not be employed. It requires, however, that whatever amount be present shall be set forth on the label. The percentage of alcohol given on the label should be the percentage of absolute alcohol by volume contained in the finished product.

In Decision No. 55 it is stated that the names of drug products bearing any of the names of the ingredients enumerated in the act are construed as representing "preparations" within the meaning of the act; and if the same are clearly declared on the label, as required by regulations 17 and 30, it will not be necessary to give the actual amount of the primary drugs used or represented by such article. It is desirable, however, that the word or words used in the law shall constitute the first part of the name of the product. For example: "Opium, Tincture of;" "Cannabis Indica, Extract of," followed by the amount of tincture or extract used.

In Decision No. 56 it is said that the names to be employed in stating the quantity or proportion of the ingredients required by the act to appear on the label of all medicinal preparations containing same are:

First. Those used in the law for the articles enumerated; example, "alcohol," not "spiritus rectificatus."

Second. In the case of derivatives: (a) The name of the parent substance used in the act should constitute part of the name; example, "chloral acetone," not "trichlorethidene dimethyl ketone." (b) The trade name, accompanied in parentheses by the name of the parent substance; example, "dionin (morphin derivative)."

Third. Names of preparations containing the name of some ingredient used in the act. In such cases the name used in the act should constitute the first portion of the name of the preparation.

Fourth. Common names (such as laudanum, Dover's powder, etc.) of preparations containing an ingredient enumerated in the law, provided such name or names are accompanied in parentheses by some such phrase as "preparation of opium" or "opium preparation," followed by the number of minims or grains, as specified in the regulations; for instance, "laudanum (preparation of opium), 40 minims per ounce."

Decision No. 57 holds that if a package compounded according to a physician's prescription be shipped, sent or transported from any state or territory or the District of Columbia to another state or territory or the District of Columbia by a compounder, druggist, physician or their agents, by mail, express, freight or otherwise, the label on such package is required to bear the information called for by Congress. If, however, the patient himself, or a member of his household, or the physician himself carries such package across a state line, and such package is not subject to sale, it is held that such package need not be marked so as to conform with the law, because such a transaction is not considered one of interstate commerce.

The package may be marked so as to comply with the act by either stamp, pen and ink or typewriter, provided all such written matter is distinctly legible and on the principal label, as prescribed in regulation 17.

Expert Testimony Not Admitted to Prove Facts.

The Kansas City Court of Appeals says that the personal injury case of Thomas vs. Metropolitan Street Railway Company was brought to recover damages for injuries alleged to have been sustained Nov. 1, 1902, by the plaintiff being violently thrown to the ground by the sudden starting of a street car. She alleged that there was caused an acute displacement of the uterus and all of her pelvic and female organs were made sensitive and sore. The testimony also developed the fact that she received a similar injury in November, 1899, in alighting from one of the defendant's cars, for which she claimed and received damages, and that injury was referred to in the examination of witnesses in the trial of this case. Then a hypothetical question was propounded to a physician, asking whether, in his opinion, a condition described resulted from the shock of the accident of 1902. The defendant made specific objections to the competency of the question that it did not state the plaintiff's former injuries—the former falling of the womb. This leads the court to say that had there been any evidence to contradict the plaintiff's statement that she has recovered from such former injuries, the question should have included that matter also. It was true that in the opinion of medical experts it was improbable that she had entirely recovered, but that there must exist some latent effect of such former injury. Such expert evidence did not go to establish the fact that she had not entirely recovered, for the well-known reason that expert testimony is not admitted for the purpose of proving a fact. Such evidence is based on admitted facts. The question, however, was improper, as it called for a conclusion of the witness and not as to his opinion. His answer was that "we might suppose that it resulted from the shock." Both the question and answer were incompetent.

Commitment to Insane Asylum Not Defense to Crime.

The Supreme Court of California says the claim of counsel in the homicide case of People vs. Willard that on the subject of the insanity of the defendant the evidence was overwhelmingly in favor of it was without foundation. This claim seemed to be based on several orders of commitment to an insane asylum. But it did not follow at all because the defendant was so committed that the commitment was proof that he was insane to the extent that the law would exempt him from responsibility for his criminal acts.

That insanity may be available as a defense to a crime charged, it must appear that the defendant, when the act was committed, was so deranged and diseased mentally that he was not conscious of the wrongful nature of the act committed. If he has reasoning capacity sufficient to distinguish between right and wrong as to the particular act he is doing, knowledge and consciousness that what he is doing is wrong and criminal, and will subject him to punishment, he must be held responsible for his conduct. Although he may be laboring under partial insanity, as, for instance, suffering from some insane delusion or hallucination, still, if he understands the nature and character of his action and its consequences, if he has knowledge that it is wrong and criminal and that if he does the act he will do wrong, such partial insanity or the existence of such delusion or hallucination is not sufficient to relieve him from responsibility for his criminal act.

The jury was in no wise concluded by the report of the medical examiners that the defendant was insane, or by the opinion of the medical examiners as to the nature of his insanity, or by the judgment which declared him insane and ordered him committed to the asylum. The report of medical examiners, and the judgment and order of commitment being before it, were to be regarded by the jury only as evidence bearing on the question of insanity. These were to be considered by the jury, but what weight or credibility, if any, it should give them, was entirely a matter for the jury's determination.

Physicians' Defense Contract One of Insurance.

The Supreme Court of Minnesota holds, in the case of the Physicians' Defense Company vs. O'Brien, insurance commissioner, that a contract by which a corporation, in consideration of a stipulated amount, agrees to defend a physician against all suits for damages for malpractice at its own expense, not exceeding a fixed amount, but not to pay any judgment obtained against the physician, is a contract of insurance, and the corporation making such a contract is engaged in the business of insurance. The essential purpose of such a contract is not to render personal services but to indemnify against loss and damage resulting from the decrease of actions for malpractice.

It does not require the citation of authorities to show that an agreement to save the assured harmless from a part of a loss is as much a contract of insurance as an agreement to indemnify against an entire loss. A physician is subject to the ever-present peril of an action for malpractice. The defense of such an action, regardless of its merits, requires the expenditure of time and money. If the defense is successful, there is nevertheless a financial loss; if unsuccessful, the amount of the judgment is added to this initial loss. Under this contract the company does not agree to pay the judgment, but it does agree to defend the action at its own expense, and thus in substance indemnify the physician against the risk or peril of being called on to defend such an action. The consideration is paid annually. If no action is brought during the life of the contract, the company gains the amount of this compensation, which it received for subjecting itself to the risk of being called on to defend an action at its own expense.

The conclusion reached in Vredenburgh vs. Physicians' Defense Co., 125 Ill. App. ——, and State vs. Laylin, 73 Ohio St. 90, where it is held that this contract is a contract for services only, this court is not able to accept because those cases ignore the fact that a physician is subject to a risk of financial loss from the bringing of an action for malpractice entirely separate and distinct from the loss which results when he is required to pay a judgment.

Opinions in Answer to Hypothetical Questions.

The Supreme Court of Errors of Connecticut says, in re Anderson's Appeal, a will case, that the opinions of expert witnesses given in answer to hypothetical questions, can have little, if any, value, unless the material facts assumed in such questions are substantially true, and it is always proper for the court to so instruct the jury whenever there is conflicting evidence as to the truth of such assumed facts. Such opinion evidence does not, however, necessarily become wholly valueless because there is some variance between the facts assumd in the hypothetical question and the actual facts as proved. What weight should be given in such cases to the opinions of such expert witnesses is generally a question for the jury under proper instructions from the court. Gunter vs. State, 83 Ala. 96; Epps vs. State, 102 Ind. 539; Guetig vs. State, 66 Ind. 94; Hovey vs. Chase, 52 Me. 304; People vs. Benham, 160 N. Y. 445; Quinn vs. Higgins, 63 Wis. 664; State vs. Kelly, 77 Conn. 266-275.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

June 29.

1 Massage of Prostate and Stripping Seminal Vesicles. F. C. Valentine and T. M. Townsend, New York.
2 *A New Method of Identification Superseding Dactyloscopy. P. Prager, Vienna, Austria.
3 Diagnosis and Treatment of Gastric Ulcer. W. A. Dickey, Toledo, Ohio.
4 *Asthma. E. L. Smith, Chicago.
5 *Mental Symptoms in Nasal Affections. P. Fridenburg, New York.
6 *Experimental Effects of Tobacco on the Nervous System. L. P. Clark, New York.
7 *Diet in Pulmonary Tuberculosis. H. C. Clapp, Boston.

2. **Method of Identification Superseding Dactyloscopy.**—Prager claims that dactyloscopy is not to be depended on as a means of detecting criminals, because the impressions of the epidermis of the fingers may be changed by extraneous causes. On the other hand, the impressions of the upper and lower jaws are extremely reliable for purposes of identification. No two sets of jaws are in any way alike, and, furthermore, the dental arches are not alike. There is also little likelihood of the impressions being changed in any way, and they can be obtained even after the most serious accidents.

4. **Asthma.**—Smith is of the opinion that asthma is caused by a reflex irritation of the pneumogastric nerve which causes the muscular fibers of the bronchioles to contract. The cause of this irritation is swelling of the nasal mucous membrane, and pressure on asthmatogenous areas. The circular muscular fibers of the small bronchial tubes are well developed and are controlled by the pneumogastric nerve. That vasomotor disturbance is not the cause of asthma is shown by the fact that spasm of the blood vessels and turgescence of the bronchial mucosa do not cause asthma. Asthma is due to pressure on asthmatogenous areas in the small fossæ. These areas may be on the nasal septum, or rarely it may be due to closed empyema of the ethmoidal cells. Relieving pressure on these areas relieves the asthmatic symptoms. The usual exciting causes in the form of dust, etc., act by causing congestion of the mucosa; so does dampness, while cold, dry air relieves it. Iodin relieves it by lessening congestion, and vasodilators by equalizing the whole vascular system. Adrenalin has the same effect. Atropin diminishes the irritability of the pneumogastric nerve. Burning of niter paper reduces local vasoconstriction. Peptic disturbances and uric acid engorge the asthmatogenous areas. So all the facts tend to prove the author's theory.

5. **Mental Symptoms in Nasal Affections.**— Fridenberg ascribes as causes for the occurrence of mental symptoms in nasal affections mouth breathing and obstruction of the nares. Among these symptoms he classes headaches and dull pains in conjunction with sinus and nasal disease; motor disturbances, such as convulsive tic and epileptiform attacks.

6. **Effects of Tobacco on Nervous System.**—Clark claims that the poisonous effects of tobacco on the nervous system depend on nicotin, pyridin and a number of other alkaloids which have not yet been thoroughly studied. Experiments have been made on producing a tobacco that does not contain nicotin and this is not found to be so poisonous, while not so satisfactory to the smoker. The author sums up the results of experiments on animals as to the effects of tobacco on the nervous system thus: Tobacco is primarily a cardiovascular poison; its acute toxic effects on the neuromuscular apparatus are first, as an excitant and mild convulsant; second, a motor nerve depressant, and finally, as a paralysant of the central and peripheral nerves of the heart and lungs. Its chronic toxic effects are to produce congestion of the brain, spinal cord, and peripheral nerves, inducing a mild type of degenerative neuritis. The toxic coefficient is so variable as to make definite conclusions with reference to its effects on man hard to reach.

7. **Diet in Tuberculosis.**—Clapp agrees that diet is a most important factor in the treatment of tuberculosis. He says that the food must be palatable and well served and the amount must vary with the patient and his circumstances. The outdoor air will enable him to assimilate large amounts. Milk and eggs are the best foods to produce fats, which are most necessary to the patient. The author advocates three solid meals a day, with lunches between of milk and eggs, about three quarts of milk and six eggs a day being taken. Fresh meats are especially necessary for these patients, but a mixed diet is undoubtedly the best borne. Meat juice is valuable. Pastry, candy, fried foods and cabbage should be let alone. Alcohol is not advisable, but coffee, tea and chocolate may be taken moderately.

Boston Medical and Surgical Journal.

June 27.

8 *Transmissibility and Curability of Cancer. W. S. Bainbridge, New York.
9 *Acute Epiphyseal and Periosteal Infections in Infants and Children. J. S. Stone, Boston.
10 Diphtheria Due to Infected Milk. C. Harrington, Boston.
11 Cold Air in Incurable Tuberculosis. H. C. Clapp, Boston.

8. **Cancer.**—Bainbridge has given the transmissibility and curability of cancer considerable study. He believes that the contagiousness or infectiousness of cancer is far from proved; that the evidence adduced in favor of it is so incomplete and inconclusive that it need not occasion any alarm; that the danger of the accidental acquirement of cancer is far less than from typhoid fever, syphilis or tuberculosis; that in the care of cancer cases there is much more danger to the attendant of septic infection, of blood poisoning from pus organisms, than from any possible acquirement of cancer; that the communication of cancer from man to man is so rare, if it really occurs at all, that it can practically be disregarded; that in cancer, as in all other disease, attention to diet, exercise and proper hygienic surroundings is of the utmost importance; that cancer is local in its beginning; that, when accessible, it may, in its incipiency, be removed by radical operation so perfectly that the chances are overwhelmingly in favor of its nonrecurrence; that once it has advanced beyond the stage of cure, in many cases suffering may be palliated and life prolonged by surgical means; that while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest means of cure.

9. **Acute Epiphyseal and Periosteal Infections.**—Stone reports four cases to illustrate the varieties of lesions originating in the epiphyseal line, as follows: 1. Acute epiphysitis resulting in the sequestration of the epiphysis and incidental involvement of the joint. 2. Acute epiphysitis with perforation into the joint resulting in an acute articular abscess. 3. Acute epiphysitis with perforation outside the joint into the extra-articular tissues. An extra-articular juxta-epiphyseal

abscess. 4. Acute epiphysitis with extension beneath the periosteum—a dissecting periostitis.

New York Medical Journal.

June 29.

12 The Prenuptial Sanitary Guarantee. E. L. Keyes, New York.
13 *Departmental Influence in the Suppression of Social Disease. W. L. M. Coplin, Philadelphia.
14 Professional Secrecy and Obligatory Notification of Venereal Diseases. W. A. Purrington, New York.
15 Gastrointestinal Disturbances in Influenza. J. Kauffmann, New York.
16 Acute Edematous Eversion of the Ventricle of Morgagni. T. T. Reardon, Boston.
17 Radical Mastoid Operation. W. S. Bryant, New York.
18 Diagnosis and Treatment of Gastric Neuroses. J. D. Dunham, Columbus, Ohio.

13. **Suppression of Social Disease.**—Coplin does not endorse (1) the medical inspection of prostitutes, (2) the licensing of prostitutes, (3) the medical supervision of brothels, (4) the medical inspection of women contemplating marriage, or (5) the obligatory registration of all cases of venereal disease, but thinks that, judiciously administered, the following measures, in some form, might be given extended trial: 1. A more detailed supervision of the sale of alcohol, particularly to minors. 2. The suppression of the flauntingly conducted brothel. 3 The custodial care and treatment of those who knowingly propagate venereal disease. 4. Proper supervision of institutions for infants. 5. As a prerequisite to the marriage license, the medical inspection and certification of males. 6. A most exhaustive educational crusade directed toward both sexes, and especially parents.

St. Louis Medical Review.

June 22.

19 Case of Epilepsy. G. M. Gould, Philadelphia.
20 Sklagraphs of Urinary Calculi with History of Cases. R. D. Carman, St. Louis.

Lancet-Clinic, Cincinnati, Ohio.

June 29.

21 Summer Complaint. F. H. McMechan, Cincinnati.
22 Prevention and Treatment of Tuberculosis. H. M. Beaver, Ochiltree, Kan.
23 Counter Irritation. G. A. Person, Mt. Clemens, Mich.
24 Mosquitoes and Yellow Fever in New Orleans in 1905. Q. Kohnke, New Orleans, La.

Annals of Surgery, Philadelphia.

June.

25 *Plastic Resection of Mammary Gland. J. C. Warren, Boston.
26 *Gastric and Duodenal Ulcer. W. J. Mayo, Rochester, Minn.
27 *End Results in Benign Lesions of the Stomach Surgically Treated. J. C. Munro, Boston.
28 *Indirect Subperitoneal Drainage in Extraperitoneal Closure of Persistent Fecal Fistulas. R. C. Coffey, Portland, Ore.
29 *Lipoma of Intestine in Child. G. Chandler, Kingston, N. Y., and L. K. Baldauf, Albany, N. Y.
30 Malignant Type of Pseudomyxoma Peritonei Penetrating Spleen and Colon. M. W. Myer, Columbia, Mo.
31 *Primary Typhlitis Without Appendicitis. C. A. McWilliams, New York.
32 *Local Anesthesia in Inguinal Hernia Operations. J. A. Bodine, New York.
33 *Cysts of Suprarenal Glands. A. J. McCosh, New York.
34 *Toxic Nephritis. N. Jacobson, Syracuse, N. Y.
35 Diagnosis of Obscure Cases of Renal and Ureteral Calculus. A. T. Osgood, New York.
36 *Tuberculosis of Testicle. E. L. Keyes, Jr., New York.
37 Fracture of Greater Tuberosity of Humerus. W. W. Keen, Philadelphia.
38 Fracture of Anatomic Neck of Humerus. Id.
39 Partial Gastrectomy. C. H. Frazier, Philadelphia.

25. **Plastic Resection of Mammary Gland.**—Warren describes in detail the operation which he has performed 85 times without a single fatality. The advantages of the operation are said to be the slight risk or discomfort to the patient, a shortened period of convalescence, and the absence of any disfigurement.

26. **Gastric and Duodenal Ulcer.**—Mayo examines this subject from the standpoint of the operating room results, with a view of somewhat modifying the generally accepted opinions.

27. **Benign Lesions of Stomach Surgically Treated.**—Munro presents an analysis of 150 cases of benign stomach lesions. that came under his observation, in which the end result was noted. Eighty-seven of these cases showed gross ulcers in the stomach, in the duodenum, or in both. Four deaths were directly attributable to technical failures, and other deaths (number not stated) were independent of the operation itself, but consecutive to it. Munro says that the simpler the technic of the operation, and the nearer it follows anatomic lines, the better the result.

28. **Closure of Fecal Fistulas.**—The procedure advised by Coffey for the closure of fecal fistulas is based on the observation that in doing abdominal operations, in which virulent sepsis is encountered, if sufficient drainage is inserted into the cavity, and allowed to come out through the lower end of the wound, no matter how large the remainder of the wound may be, by using layer sutures it can be closed in the presence of the sepsis, with as full assurance of getting primary union as if it had been perfectly aseptic. The drainage takes place between the layers, thus protecting the sutures and closing the space as soon as the sepsis has been eliminated.

29. **Lipoma of Intestine.**—Chandler and Baldauf report a case of lipoma of the intestine, occurring in a child 13 months old, and causing symptoms of intestinal obstruction. The tumor was attached to the sigmoid flexure, opposite the mesenteric attachment, by a short pedicle, and it had rotated in such a way that the intestine was twisted twice. The tumor was removed by cutting the pedicle close to the intestinal wall. The child made an uneventful recovery.

31. **Primary Typhlitis Without Appendicitis.**—McWilliams points out that the prevalent surgical teaching that practically all acute inflammatory conditions in the right iliac fossa are due to appendicitis, may lead to grave errors in diagnosis. He reports one case in point, and reviews a considerable number of cases that have been reported by others. He believes that the following conclusions are justified:

1. Primary, acute and chronic typhlitis occurs independently of appendicitis, dysentery, tuberculosis, actinomycosis or cancer, and is idiopathic in origin or depends on coprostasis.
2. Primary typhlitis, the appendix being normal, may lead to perforation, with the formation of perityphlitic abscess or general peritonitis.
3. The symptoms of primary typhlitis are usually identical with those of appendicitis and the indications for operation are similar in the two conditions.
4. Primary typhlitis is rare in comparison with the frequency of appendicitis.
5. The differential diagnosis of inflammatory typhlitis from tuberculosis, cancer and actinomycosis may be impossible at operation, in which case a section of the cecum should be removed for microscopic examination.
6. The recurrence of symptoms after removal of the appendix may be due to attacks of typhlitis, the treatment for which consists in the regulation of the diet and the use of oil enemata, etc.
7. The danger of a primary typhlitis consists in the liability to the rupture of an ulcer and to the development of appendicitis.
8. Purgatives are contraindicated in inflammations of the right iliac fossa because of the danger of rupturing an ulcer in the cecum or appendix, or of breaking up the adhesions about an abscess.
9. The treatment of primary typhlitis consists in laparotomy, removal of the appendix, closure of any perforation if possible, invagination of any threatening perforation of the cecum, drainage of the right iliac fossa and the removal of a piece of the cecal wall for microscopic examination, if that be necessary to establish the diagnosis.

32. **Local Anesthesia in Hernia.**—Bodine claims that local anesthesia is entirely adequate for the radical cure of inguinal hernia, and that it is solely on anatomic grounds that the operation lends itself peculiarly to local anesthesia.

33. **Cysts of Suprarenal Gland.**—To four cases reported by other surgeons McCosh adds a personal case, in which the suprarenal gland was removed through a lumbar incision. With a trochar and canula nine pints of fluid were removed from the cyst.

34. **Surgical Toxic Nephritis.**—Jacobson reports three cases in which, after the removal of the causal condition, all evidence of renal disease disappeared. The first one was presumably a staphylococcic infection, in which the patient suffered from septic endocarditis as well as nephritis; the second was a case of intestinal obstruction without septic disturbance of any kind and in which in consequence of the complete arrest of intestinal function a very serious and all but fatal form of nephritis was awakened; in the third case there was complicating gallstone disease, a subacute pancreatitis, and in consequence of the disturbance of the secretory function of this gland a toxic condition was aroused, causing not only nephritis but also glycosuria.

36. **Tuberculosis of Testicle.**—As the result of a study of the histories of 100 patients suffering from tuberculosis of the testicle, Keyes arrives at the following conclusions:

1. Testicular tuberculosis is clinically never an isolated lesion. It is only one feature of a general genital tuberculosis, for
2. Sterility is frequent if not constant, at the time the first testis is invaded.

3. There is evidence at this time of inflammation of the internal genitals.
4. Relapses in the opposite testicle occurs within a few years, in eight or nine out of ten cases, and
5. Such relapse is in no wise postponed by early removal of the diseased testis.
6. Moreover, though suppuration seems often to result in permanent cure of the local process, and
7. Though a chronic focus several years old is likely never to suppurate, yet
8. In no case can one feel certain of a real cure unless the tubercular epididymitis has been removed.
9. The demoralizing effect of epididymectomy is not to be compared with that of castration.
10. Slight tuberculosis of the testis may be depended on to heal spontaneously after removal of the epididymis.
11. Hence epididymectomy is the radical operation of choice, unless there is hyperacute generalized epididymoorchitis, or unless the testis is destroyed by suppuration.
12. This operation has a beneficial effect on the general health and on tuberculosis of the internal genitals.
13. It should, therefore, be performed early in the disease. This in spite of the fact that:
14. Tuberculosis of the testis is often but an insignificant part of a generalized progressive tuberculosis, or:
15. Is for many years the only active lesion of the disease.
16. If the patient is sterile, it would probably be wise to remove both epididymes, even though only one side is diseased.

Journal of the Medical Society of New Jersey, Orange.

June.

40 Treatment of Albuminuria in Pregnancy. E. J. Ill, Newark.
41 *Operation for Vaginal Tears During Labor. S. Chandler, Philadelphia.
42 *The Fashion of Dieting. H. Vreeland, Jersey City.
43 Physical Diagnosis in Croupous Pneumonia. T. G. Ashton, Philadelphia.
44 *The Aseptic Conscience. J. W. Martindale, Camden.
45 *Treatment of Erysipelas. P. A. Potter, East Orange.
46 President's Address, Camden City (N. J.) Med. Soc. H. H. Sherk, Camden.

41. **Vaginal Tears.**—Chandler describes an operation for repair of vaginal tears, for which he claims the following advantages: 1. It makes a vaginal wall as near to the natural and normal wall as it is possible. 2. It removes all diseased or scar tissue. 3. It exposes the levator ani, or the urogenital trigonum muscle, which can be caught up and united. 4. It renders perineal operations more easily accomplished. 5. It prevents future relaxation of the vagina, because the various tissues are united to the tissues of the same class. 6. It does not leave a tissue that can be drawn apart as with the old operation. 7. It permits union between the rectum and the vagina, braces both, preventing constipation. The same may be said of the bladder, allowing such adhesions to form as existed originally. 8. It will, in many cases, relieve permanently constipation and bladder complications, while the other operations, because of their incompleteness, do so, if at all, only temporarily. 9. The field of the operation is always before the operator; there is, therefore, not so much danger of injuring the rectum, as in the snipping operations. 10. The scar produced is thin and strong. 11. The vagina after this operation is supported by some of the surrounding parts, and in return helps to support the surrounding parts.

42. **Fashion of Dieting.**—Vreeland speaks against the prevailing fashion of dieting, not as forced on those acutely ill, but as practiced by the ordinary individuals who are less healthy and less happy because of the notion of dieting. He believes that it is often harmful to suggest the avoidance of certain foods to nervous patients, and that it is the suggestion and not the food that is injurious. He says that desserts are not indigestible, except for the fact that they are usually eaten after the appetite has been satisfied by the so-called substantial food. Vreeland expresses strongly his conviction that dieting is a pernicious habit, and that physicians do wrong to advise and ambulatory patient or one who is not acutely ill to abstain from certain foods and to indulge in others.

44. **The Aseptic Conscience.**—Martindale discusses the necessity of cultivating what he terms the aseptic conscience, that is, to do everything possible to avoid infection, disinfecting and sterilizing instruments thoroughly and well.

45. **Treatment of Erysipelas.**—Potter describes the result of various treatments employed in 71 cases of erysipelas. In 37 of these cases he used a combination of camphor and chloral, one part of the latter to three of the former, with good results. The patients all recovered, and although the treatment did not appear to affect the course of the disease, the patients gained relief from the application. In 10 cases ichthyol collodion was used with equally good results. In 5 cases application of cold water yielded good results, while in 5 other cases no treatment at all was given, except a little calomel, and dilute hydrochloric acid; and the patients recovered just as quickly as did the others mentioned. In 3 cases every kind of treatment was tried, including the use of antistreptococcic serum, without avail. The patients died. Red light was tried in 3 cases. Potter says that in his opinion the treatment of erysipelas is expectant and that there is no specific for this disease.

Northwest Medicine, Seattle.

May.

47 Etiology and Symptomatology of Tuberculous Peritonitis. N. M. Baker, Spokane.
48 Differential Diagnosis and Prognosis of Tuberculous Peritonitis. S. V. R. Hooker, Seattle.
49 *Treatment of Tuberculous Peritonitis. A. R. Cunningham, Spokane.
50 *Localizing Method for Radiographic Examination of the Eye. H. Power, Spokane.

49. **Treatment of Tuberculous Peritonitis.**—Cunningham is of the opinion that all the very acute cases belong to the internist, but when medication and hygienic measures fail, the question of laparotomy should be considered.

50. **Radiographic Examination of Eye.**—Power describes a localizing method for foreign bodies in the eye, which he has used with a great deal of satisfaction. Very precise measurements can be made and the body located with great accuracy.

New Orleans Medical and Surgical Journal.

July.

51 The Venereal Peril and Public Apathy. A. Nelken, New Orleans.
52 Tuberculosis. W. J. Durel, Covington.
53 Treatment of Laryngeal Tuberculosis. H. Dupuy, New Orleans.
54 *Unusual Cases of Urethral Lesions. C. W. Allen, New Orleans.
55 *Trysin in Epithelioma of Larynx. H. Dupuy, New Orleans.

54. **Diseases of Urethra.**—In the first case reported by Allen the sequence of events was about as follows: Gonorrhea, indifferently treated, followed by a stricture, which was dilated with sounds. The patient then treated himself for a while, until it became impossible to introduce the sound, even with force. Then the man suffered from frequent micturition, priapism, then an occasional inability to micturate, with complete impotency. All this trouble was caused by a spasmodic contraction of the cut-off muscle, due to the stricture. The second case reported was very similar to the first.

55. **Trypsin in Laryngeal Epithelioma.**—Dupuy's patient was 59 years of age. The disease had existed about six months. The growth involved the anterior third of the right true and false vocal cords. The involved structures were excised, and the point of origin, the right ala, of the thyroid cartilage thoroughly curetted. One month later the growth recurred, on the opposite side, and although a laryngectomy was decided on, trypsin injections were first given. This treatment was continued until the patient had received 1,100 minims of trypsin, hypodermically, during a period of about five months, when the tumor was no longer visible. There has been no recurrence after two months.

American Journal of Urology, Boston.

May.

56 *Three Cases of Spermatocele. C. M. Whitney, Boston.
57 *Tuberculosis of Urinary Tract. E. Fuller, New York.
58 Pathologic Diagnosis of Tuberculosis of the Urinary Tract. E. E. Smith, New York.
59 Hematuria Due to Pathologic Conditions of Bladder. M. W. Ware, New York.
60 The Phyletic Factor in Vesical Carcinoma. W. T. Belfield, Chicago.

56. **Spermatocele.**—Whitney says that spermatoceles are rare, that they are usually of considerable size as they present themselves clinically, that they contain non-albuminous fluid with great numbers of spermatozoa, that their origin is not always the same, but in the main is that of retention cysts formed in various ways, either externally or internally, as regards the seminal tubules; that their diagnosis before tapping is not easy, but may be helped by ascertaining the position of the testis; and that finally, their treatment either by injection of irritating solutions or by operation is exceedingly simple and satisfactory.

57. Tuberculosis of Urinary Tract.—In cases of kidney tuberculosis in which radical surgery is advisable Fuller deems nephrectomy the only operation to be recommended. Nephrotomy, he says, is usually only of temporary benefit, since that operation, by not removing the infected area, is very apt secondarily to aid the tuberculous process, by stirring it to further activity; the tissue disturbances and the traumatism consequent to the operation acting as factors in the dissemination and aggravation of the disease.

Ohio State Medical Journal, Columbus.

June.

61 *Etiology of Appendicitis. G. Crile, Cleveland.
62 Retinoscopic Tests Under a Cycloplegic. W. McL. Ayres, Cincinnati.
63 *Physicians' Local Protective Association. E. D. Helfrich, Galion.
64 Medicine and Philosophy. C. M. Wanzer, Urbana.
65 *Choice of Anesthetics. S. J. Goodman, Columbus.
66 Tenosynovitis. C. M. Harpster, Toledo.
67 Suggestions for New Year. W. B. Hubbell, Elyria.
68 Cooperation of the Minister and Physician for the Welfare of the Community. R. A. Montgomery.
69 Modification of Lever of Redard for Application of Pressure in Scoliotic Rib Deformities. H. O. Feiss, Cleveland.

61. Observations on Appendicitis.—Crile analyzed 1,000 cases of appendicitis with reference to the etiology of this affection. He found that in a large percentage of cases there was a short mesoappendix, causing fixation of the proximal portion of the appendix and leaving the distal part free. This tended to cause the appendix to fold on itself and interfered with the circulation—in short, the result of an anatomic angulation. Then there is the retroperitoneal appendix, and the appendix in which there is no sharp demarcation between the end of the cecum and the beginning of the appendix. Appendiceal concretions play a small rôle and so, too, thrombosis of the artery of the appendix. Infection of the mucosa, inflammation of neighboring organs, traumatism, and some unusual gastronomic feat were noted as causes of appendicitis. In four cases the passage of a renal calculus operated as a cause, while in one case a gallstone was found in the appendix, although foreign bodies played almost the least important rôle of the various factors.

63. Physicians' Local Protective Association.—Helfrich advocates a uniform fee bill and condemns contract practice, urging that county societies take the necessary steps to promote the one and to prevent the other. He describes the organization of a physicians' protective association in his county medical society, whose purpose it is to abolish contract work, poor work, lodge work, cheap insurance work, and to protect physicians against the "dead-beat" people. This association has been unusually beneficial in that particular county.

65. Choice of Anesthetics.—Goodman condemns routine methods of anesthesia, because every case is a law unto itself, and no one anesthetic can be used universally, if the best interests of the patient are concerned. He thinks that ethyl bromid is the safest and best for short operations, and as a preliminary anesthetic. He claims that the scopolamin-morphin-ethyl-bromid ether scheme of anesthesia is the best so far advanced and is the one he would choose if he had to submit to an operation.

Cleveland Medical Journal.

June.

70 *Gangrene of Both Legs Following Pneumonia. H. J. Lee, Cleveland.
71 Malignant Tumors of Kidney. A. F. House, Cleveland.
72 Abdominal Section During Pregnancy for Ovarian (Dermoid) Tumor with Twisted Pedicle. H. Robb, Cleveland.
73 Analysis of 175 Consecutive, Unselected Abdominal Sections. R. E. Skeel, Cleveland.
74 Treatment of Gleet. C. G. Foote, Cleveland.

70. Gangrene of Legs Following Pneumonia.—The patient, a woman, whose case is reported by Lee, had a typical uncomplicated pneumonia, the crisis occurring on the eighth day. She became weak at the crisis, the heart was acutely dilated, the beat became irregular and the sound of the apex markedly rough. On the tenth day she had a severe pain in the knee and her toes and foot gradually became cold and painful. On the following day the same thing occurred in the left leg. There was no popliteal pulse, but the pulse was distinct in the femoral. On the fourteenth day there was a distinct bigeminal pulse. The line of demarcation became distinct, and both legs were amputated under spinal anesthesia. On the morning of the operation the patient developed a septic pneumonia. She eventually recovered.

St. Paul Medical Journal.

June.

75 Contraindications in Surgery. M. H. Richardson, Boston.
76 Psychoneuroses and Their Treatment. C. E. Riggs, St. Paul.
77 *Dementia Paralytica in a Child. C. R. Ball, St. Paul.
78 Nasal Sinus Disease and Its Surgical Relations. D. H. Lando, St. Paul.
79 Extrauterine Pregnancy. C. A. Wheaton, St. Paul.
80 The Institute Smell. C. J. Fox, Washington, D. C.

77. Dementia Paralytica in a Child.—Ball reports a case of dementia paralytica observed in a girl 16 years old. When one month old she developed a rash, which lasted at intervals over a period of two years. She has scars on her back, said to be due to abscesses; she had an ulcer of the cornea when 4 years old; has a saddleback nose and Hutchinsons' teeth. The general effect of the face is that of a little old woman. Her mother died of pneumonia, and her father of a mental affection whose course and symptoms suggested progressive paralysis. Up to the age of 10 the girl was bright, but then gradually her mentality gave way, until now her mind is a perfect blank. She can not talk, is unable to feed herself, and is absolutely indifferent to her surroundings. There is incontinence of urine and feces.

Annals of Otology, Rhinology and Laryngology, St. Louis

March.

81 Labyrinthine Suppuration Complicating Purulent Otitis Media. E. B. Dench, New York.
82 Clinical Value of Differential Blood Count in Acute Brain Disease and Acute Double Mastoiditis. W. P. Brandegee, New York.
83 Deformity of Nose from Lupus; Corrected by Subcutaneous Method. J. O. Roe, Rochester, N. Y.
84 *Trypsin Treatment of Malignant Disease Involving Left Tonsil, Base of Tongue, and Epiglottis. J. T. Campbell, Chicago.
85 Conservation of Hearing in Operations on Mastoid Region. W. S. Bryant, New York.
86 Routine Nasopharyngeal Examination in Preparatory School. J. A. Babbitt, Philadelphia.
87 Method of Forming Skin and Periosteal Flap in Tympano-Mastoid Exenteration. E. M. Holmes, Boston.
88 Faulty Methods of Brain Localization in Intracranial Lesions Complicating Aural Disease. S. M. Smith, Philadelphia.
89 Determination of Aural Acuity by Whisper Test. H. Zwaardemaker Utrecht, Netherlands. (Translated by C. Loeb, St. Louis.)
90 Case of Chronic Sinusitis Cured by Intranasal Treatment. J. P. Clark, Boston.
91 Papilloma of Nose; Case of Hyperosmia; Case of Panotitis Complicated by Empyema of Nasal Accessory Sinuses. T. J. Harris, New York.
92 Examination of Throat in Chronic Systemic Infections. J. L. Goodale, Boston.
93 Epithelioma of Ear. W. C. Braislin, Brooklyn.
94 Diagnosis and Treatment of Laryngeal Cancer. F. Semon, London, England.
95 Importance of Correcting Pathologic Conditions of Nose and Throat in Patients with Incipient Tuberculosis. W. S. Anderson, Detroit, Mich.
96 Complete Congenital Occlusion of Right Posterior Naris. L. D. Brose, Evansville, Ind.
97 Incorrect Nomenclature in Our Literature. H. Schwartze, Halle, A. S.
98 Submucous Resection of Nasal Septum. L. M. Hurd, New York.
99 Tonsillectomy by Electrocautery Dissection. E. Pynchon, Chicago.
100 Observations in 1,000 Adenoid Operations. F. B. Sprague, Providence, R. I.

84.—The report of this case was published in The Journal, Jan. 19, 1907, page 225.

Archives of Ophthalmology, New York.

May.

101 Epithelial Inclusion Cysts of Conjunctiva. E. L. Oatman, Brooklyn.
102 Keratitis Disciformis. O. Landman, Toledo, O.
103 Ocular Disturbances Due to Pressure on or Stretching of Cervico-dorsal Sympathetic. J. Dunn, Richmond, Va.
104 Case of Monocular Ophthalmoplegia Internal and External. O. Landman, Toledo.
105 Physiology and Pathology of the Lens. G. Freitag, Würzburg, Germany.
106 Paralysis of Fourth Cranial Nerve Due to Trauma. W. H. Snyder, Toledo.
107 Metastatic Carcinoma of Chorioid of Each Eye. J. Oeller, Erlangen, Germany.

Montreal Medical Journal.

May.

108 Fatal Perforating Gastric Ulcer. J. A. Hutchison, Montreal.
109 Report of Two Patients Operated on for Deformities Resulting from Tuberculous Disease of the Hip. A. M. Forbes, Montreal.

110 Five Cases of Cesarean Section. H. L. Reddy, Montreal.
111 Four Unusual Cases of Acute Mastoiditis. G. H. Mathewson, Montreal.
112 Sporadic Glandular Fever. G. G. Campbell.

Iowa Medical Journal, Des Moines.

May 15.

113 Evolution in Medicine. H. Bailey, Waterloo.
114 Dionin in Diseases of the Eye. L. W. Dean, Iowa City.
115 Fees for Life Insurance Examinations and Contract Practice. C. J. Plonske, Bancroft.
116 President's Address, O'Brien County (Iowa) M. S. H. Scott, Paullina.
117 Incomplete Laceration of the Perineum. F. A. Palmer, Morris, Ill.

Detroit Medical Journal.

May.

118 Medical Library of the University of Michigan. G. Dock, Ann Arbor.
119 Eight Cases of Extrauterine Pregnancy. R. R. Smith, Grand Rapids.
120 Theory of Opsonins and Bacterial Vaccines. E. M. Houghton, Detroit.

American Journal of Public Hygiene, Boston.

May.

121 Pasteurization of Milk. E. J. Lederle, New York.
122 Pasteurization of Milk for Public Sale. T. M. Rotch, Boston.

Southern California Practitioner, Los Angeles.

May.

123 Intestinal Flatulent Dyspepsia. P. Cohnheim, Berlin, Germany.
124 Autotoxemia a Causative Factor in Nervous Conditions. L. Doig, San Diego.
125 Care of the Parturient Woman. T. Coffey, Los Angeles.
126 Obligations of Theology to Medicine. H. Rice, Pomona.
127 Gastric Ulcer: Perforation and Hemorrhage. (Continued.) A. S. Lobingier, Los Angeles.
128 Operations on the Stomach. E. A. Bryant, Los Angeles.
129 Final Results of Operations on Stomach. W. W. Beckett, Los Angeles.

Ophthalmic Record, Chicago.

May.

130 Endothelioma of Orbital Tumor. C. A. Leenheer, Chicago.
131 Practical Trial Frame. N. M. Black, Milwaukee, Wis.
132 Case of Carcinoma of the Cornea. W. H. Dudley, Los Angeles.
133 Study in Atavistic Descent of Congenital Cataract Through Four Generations. E. Stieren, Pittsburg, Pa.

Ohio State Medical Journal, Columbus.

May.

134 *Practical Bacterial Therapy and Theory of Opsonins. A. P. Ohlmacher, Detroit.
135 Psycho-physical Parallelism. M. K. Isham, Cincinnati.
136 Progress of Neurologic Medicine. C. J. Aldrich, Cleveland.
137 Purulent Ophthalmia. C. Lukens, Toledo.
138 Pneumonia. R. R. Alwood, Montpelier.

134.—All the important points in this article were covered in the article by Dr. Ohlmacher which appeared in The Journal, Feb. 16, 1907, page 571.

Journal of the Kansas Medical Society, Columbus.

May.

139 Chronic Appendicitis. F. A. Carmichael, Goodland.
140 Guides to Diagnosis. P. J. Hendrickson, Columbus.
141 Obsessions, Phobias, Impulses. C. C. Goddard, Leavenworth.
142 Case of Pelvic Peritonitis. C. D. Blake, Ellis.
143 Ethics. J. H. Boswell, Baxter Springs.

Vermont Medical Monthly, Burlington.

May 15.

144 Relation of Rural Typhoid to Water Supplies. B. H. Stone, Burlington.
145 Experiments on Typhoid Bacillus in Water and Ice. J. M. Wheeler, Burlington.
146 Typhoid Outbreak in Mill River Valley. C. S. Caverly, Rutland.
147 Operations for Senile Cataract. J. H. Woodward, New York.

St. Louis Courier of Medicine.

May.

148 Paraffin; Its Value in Surgery. E. A. Babler, St. Louis.
149 Early Operation in Intracranial Injury. M. G. Gorin, St. Louis.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

June 15.

1 *Affections of Speech. W. H. Broadbent.
2 *Cerebrospinal Meningitis Treated by Lumbar Puncture and Vaccine. H. Mackenzie.
3 Circumcision as a Rite and as a Surgical Operation. J. Bland-Sutton.
4 Radical Cure of Urethral Strictures by Internal Urethrotomy. J. MacMunn.
5 *Congenital Hypotonia (Congenital Amyoplasia). C. Coombs.
6 *Opsonins in Treatment of Tuberculosis. J. E. Squire.
7 Value of Complete Vocal Rest in Laryngeal Tuberculosis. H. G. Felkin.
8 Myxedema and Exophthalmic Goiter. S. Gooding.
9 Phleboliths and Roentgen Rays. L. H. Harris.
10 Plugging the Posterior Nares. A. O. Ward.
11 Case of Complete Separation of Rectum from Anus. J. S. Martin.

1. **Affections of Speech.**—Broadbent reports the case of a boy, aged 14, of superior intelligence, who could not read aloud. He was remarkably alert intellectually, fond of reading, full of information, ready and apt in conversation, but could not read even short words, not because the matter was difficult or unfamiliar, but apparently as if he had to grasp its meaning and pass it through his mind for utterance. The boy ultimately gained the faculty of reading aloud fairly well, but with great effort, and when he read aloud the attention was so concentrated on the task that he did not understand what he read.

2. **Cerebrospinal Meningitis.**—Mackenzie considers lumbar puncture of great value in all forms of meningitis, and urges that it be resorted to as soon as the diagnosis is made, and repeated at short intervals, especially when there are signs of intracranial pressure. This was done in the case reported, but the patient also received injections of meningococcus vaccine, on five different occasions, the dose varying somewhat. The vaccine was prepared from organisms cultivated from the fluid withdrawn by lumbar puncture. The patient made an excellent recovery.

5. **Congenital Hypotonia.**—Coombs reports a case of this kind occurring in a young girl of 10. Within half an hour of her birth one hand was noticed to be peculiarly flabby and loose, but no other sign of weakness was apparent until she began to get about and learn to walk. Gradually there developed a general muscular laxity, except in the extrinsic high muscles and in the muscles of mastication. Her mental powers were normal. In fact, no weakness was demonstrable in any of the muscles supplied by the cranial nerves. There was an entire absence of contracture, which was thought to be due to the fact that the muscles, though small and hypoplastic, were not completely wanting. Apart from the condition of the muscles there was nothing of the nature of trophic change. Massage increased the muscular strength of the legs, but the hands did not respond to treatment.

6. **Specific Treatment of Tuberculosis.**—Squire believes that vaccination against tuberculosis is quite as justifiable and quite as useful as vaccination against smallpox. He is not sanguine as to the probability of curing pulmonary tuberculosis, by either direct or indirect immunization, but thinks it quite possible that prophylactic immunization might be accomplished.

The Lancet, London.

June 15.

12 Pelvic Inflammations in the Female. T. Wilson.
13 Experimental Researches on Specific Therapeutics. P. Ehrlich.
14 Treatment of Cardiac Dilatation. D. Duckworth.
15 *Causes and Surgical Treatment of Colitis. J. P. L. Mummery.
16 *Sacrococcygeal Teratoid Tumor with Formations of Metastases in Groin. S. Pringle.
17 Case in Which Glycosuria, Depending on Cholecystitis and Cholangitis, Disappeared After Drainage of Bile Ducts. C. W. M. Moullin.
18 *Gout. C. Mercier.
19 Case of Melena Neonatorum. A. R. Gunn.
20 Fatal Case of Melena Neonatorum. A. M. White.
21 Case of General Pneumococcal Infection, with Acute Necrosis of Bone. J. A. Coutts.
22 Case of Large Papilloma of Ovary. W. M. Robson and P. N. B. Odgers.

15. **Colitis.**—Mummery believes that colica mucosa has no claim to be described as a disease any more than has diarrhea or hematemesis, but that it is a symptom or condition, which may result from a number of different diseases of the colon of widely different characters. In 36 cases observed by him diarrhea was a prominent feature in the majority of cases, and in some it was most severe. Bleeding occurred in 22 cases; mucus was present in the stools in all the cases in sufficient quantities to draw the patient's attention to it. Intestinal sand was seen in 2 cases. It consisted of carbonates and phosphate of calcium and ammonia. Enterospasm was present

in one case. A definite inflammatory condition of the mucosa was found in 24 cases. Ulceration was present in 7 cases. Severe pruritus was present in 7 cases, and in 7 cases the colitis was due to a tumor of the bowel. In 4 cases there was a chronic hypertrophic catarrh associated with edema of the submucous tissue. Mummery does not think that the operation of ileosigmoidostomy is advisable except in a few exceptional cases.

16. **Sacrococcygeal Teratoid Tumor.**—Pringle's patient, a male, aged 57, first noticed the tumor when he was 22 years old. It was situated in the middle line some distance behind the anus. When he was 24 years old he noticed a small, hard lump in the right groin, and 13 years later another lump appeared just above this. The primary tumor measured 15 inches in length by 11 in width. It presented irregular lobulations, and the overlying skin was mottled blue in color in some parts and red and inflamed in others. The tumor appeared to be more or less fixed to the sacrum. There was increasing difficulty in defecation and micturition. Owing to the size of the primary tumor its removal was considered inadvisable. The glands in the right groin were removed. The patient died 14 months afterward. The original tumor weighed 2 pounds and 15 ounces, and on section had the appearance of a congenital cystic sarcoma. Pringle thinks that the tumor belongs to the class of monogerminal tumors. No bone, hair, teeth, etc., could be found.

18. **Gout.**—Mercier, himself the victim of gout, discourses on its origin. He believes that gout is due to uric acid, but not to mere excess, and that the combination of uric acid that produces gouty symptoms is not always the same. There are probably many urates, which agree in being noxious and in being more or less proof against separation by the kidney, but which differ in their pathologic effects. Mercier suggests as an explanation for the deposition of these urates in and around joint structures that the articular cartilages secrete a substance which has a predominate power of breaking down the combination of uric acid with its organic ally, and converting it into urate of soda. Hence, he thinks it is not unreasonable to assume that this action of the cartilage may be as conservative to the organism as a whole as the action of the blood cells in separating bacilli and consuming them.

Journal of Obstetrics and Gynecology of the British Empire, London.

June.

23 *Malignant Vaginal Polypus Secondary to Adrenal Tumor of Kidney. A. Doran.
24 Duration of Pregnancy and Relation Between Weight of Child and Duration of Gestation. J. C. H. Leicester.
25 *Abdominal Section in Puerperal Peritonitis. A. K. Gordon.
26 Case of Chorioepithelioma of Uterus with Lutein Cysts in Both Ovaries. G. F. Blacker.
27 Fibromyoma of Cervix Uteri. J. N. Stark.
28 Eclampsia and Nephrectomy. S. Sheill.

23. **Malignant Vaginal Polypus.**—Doran relates a case wherein malignant pedunculated tumor developed in the vagina of a woman aged 40. some of its lobes coming away from time to time, while one of three sessile adjacent growths showed pseudomelanosis of the adjacent vaginal mucosa. The tumor proved to be secondary to an adrenal adenoma of the kidney. Nephrectomy was performed, the patient surviving the operation for three months. After death metastatic deposits were detected in the liver and lung as well as in the vagina.

25. **Abdominal Section for Puerperal Peritonitis.**—Gordon reports 10 cases of puerperal peritonitis in which an abdominal section was done, with four fatalities. He is of the opinion that, as a rule, it is best not to flush or even sponge the peritoneal cavity, but to rely rather on free drainage at the most dependent part, with subsequent propping up of the patient in the sitting position, and the subcutaneous injection of saline solution, with or without antistreptococcic serum and adrenalin.

Australasian Medical Gazette, Sydney.

April 20.

29 President's Address Before New South Wales Branch of the British Medical Association. F. A. Pockley.
30 *Notes on Ninety Abdominal Operations. W. S. Byrne.
31 Perforated Duodenal Ulcer. R. H. Marten.
32 Id. C. E. Todd.
33 *Case of Sudden Death. E. L. Borthwick.
34 Latent Tuberculosis of Tonsils and Pharyngeal Adenoid Tissue. B. Tyrie.
35 Postgraduate Work in London and Paris. C. L. Handcock.
36 Case of Hemophilia Neonatorum. E. W. K. Scott.
37 Typical Case of Exophthalmic Goiter. W. J. Morton.

30. **Abdominal Operations.**—In the series of 90 operations reported by Byrne there were only three deaths, one following hysterectomy, another after gastroenterostomy and the third after an attempt had been made to close a deep fecal fistula, which caused a septic peritonitis. The operations done included 32 ventrosuspensions, 17 oöphorectomies, 16 hysterectomies, 2 gastroenterostomies, 7 appendectomies, 4 herniotomies and 2 operations for extrauterine gestation. Byrne never flushes out the abdominal cavity, using dry swabs to clear away any soiling, and seldom or never employs drains.

33. **Sudden Death.**—Borthwick reports a case of sudden death, with symptoms of strychnin poisoning, but careful examination of all the internal organs failed to show any test for strychnin. The cause of death could not be ascertained.

Indian Medical Gazette, Calcutta.

May.

38 Cultivation and Preservation of Calf Lymph. J. N. Cook.
39 *Treatment of Coloptosis. C. Lane.
40 Plea for More General Use of Desmarre's Eyelid Retractor in Cataract Extraction. H. Gidney.
41 *Arthritis in Dysentery. C. Brodribb.
42 Radical Cure of Hydrocele by Incision and Eversion of Sac. L. G. Fink.
43 Case of Traumatic Femoral Aneurism. E. O. Thurston.
44 Successful Ovariotomy. E. Balm.
45 Subcranial Hemorrhage. L. B. Scott.
46 Abdominal Pain in Pneumonia. M. F. Reaney.

39. **Treatment of Coloptosis.**—Lane passes two sutures through the external longitudinal band of the ascending colon and attaches this to the peritoneum of the abdominal wall, as high as possible. Stout silk is used for this purpose.

41. **Arthritis in Dysentery.**—Brodribb reports a typical case of hydrops articuli of both knee joints, following an attack of dysentery.

Dublin Journal of Medical Science.

June.

47 Our Debt to Ireland in the Study of the Circulation. G. A. Gibson.
48 Early Diagnosis of Perforated Gastric Ulcer. W. G. Harnett.
49 Disease of Infants. C. H. McComas.

Annales d l'Institut Pasteur, Paris.

50 (XXI, No. 4, pp. 241-320.) *Serum Treatment of Bacillary Dysentery. (Sérothérapie dans le traitement de la dys. bac.) Vaillard and C. Dopter.
51 *Hematozoa of Birds. (Hématozoaires d'Oiseaux.) E. Sergent.
52 Experimental Glanders in Guinea-Pig. (Morve exp.) M. Nicolle.
53 Infection by Spirillum of Tick Fever. (Spirille de la Tick-fever.) Levaditi and Manouélian.
54 *Action of Wine on Typhoid Bacillus. (Action du vin sur le bac. d'Eberth.) J. Sabrazès and A. Marcandier.

50. **Serum Treatment of Dysentery.**—This communication has already been summarized, page 1905 of the last volume. It reports that the serum from horses immunized to the dysentery bacillus has proved in 243 cases of dysentery as effectual and reliable as diphtheria antitoxin in diphtheria. The effect is evident at once and the patients are the first to remark on the improvement in their condition. It is also effectual as a preventive, and Vaillard and Dopter affirm that its harmlessness justifies its free use, not only to relieve and cure the sick, but to arrest epidemics by curing the first cases and by preventive immunization of those exposed.

51. **Hematozoa of Birds.**—Sergent has made a number of interesting discoveries in relation to the blood parasites of various birds and their intermediate hosts. The *Stegomyia calopus*, as well as the culex, proved susceptible to infection from some of the bird parasites.

54. **Action of Wine on Typhoid Bacilli.**—In this communication from Bordeaux, a great wine-growing district, a number of experiments and tests are described which seem to prove that pure wine has considerable bactericidal power. It is stated that all the germs in the wine die in the closed bottle after a time, and typhoid bacilli among the first. Water added to wine reduces the bactericidal property of the wine, but if left long enough in contact, typhoid bacilli in the mixture are destroyed. Equal parts of pure white wine and a

contaminated water become sterile on standing six hours, while equal parts of red wine and water require twelve hours before complete destruction of typhoid bacilli in the water. The writers add that this might be found a means for purifying drinking water, rendering boiling, filtering, etc., unnecessary, while the bactericidal properties of bottled wine might be utilized in an emergency by surgeons or obstetricians.

Presse Médicale, Paris.

55 (XV. Nos. 28-29, pp. 225-240.) The Problems of a Pure Water Supply. (Eau potable.) E. A. Martel.
56 *Advantages of Abduction in Treatment of Fractures of Shaft of Humerus. (Advantages de la mise en abduction du bras, etc.) Savariaud.
57 *Medical Pedagogics. (Pédagogie méd.) L. Landouzy.
58 *Catheterization of Ureter Through the Opened Bladder. (Cathétérisme de l'uretère à travers la vessie ouverte.) F. Legueu.
59 *The Roentgen Ray and the Genital Glands. (Rayons X et glandes génitales.) P. Ancel and P. Bouin.

56. **Advantages of Holding the Arm in Abduction in Treating Fractures of the Humerus.**—The illustrations show the advantages of the technic. A band over the flexed elbow exerts traction on the arm outward and downward. This brings the lower stump into the same axis as the upper, and the dressings can be applied without distressing the patient, while the parts heal in perfect coaptation.

57. **Medical Pedagogics.**—Landouzy preaches anew that medicine is not a matter of understanding, but of listening, looking, feeling, every day of the year and the patients every year, all one's life, listening, looking at and palpating. This is the way to become a true physician, and the teaching of medicine should be by object lessons.

58. **Catheterization of the Ureter Through the Opened Bladder.**—Legueu sometimes finds it necessary to make an incision into a tuberculous bladder for the purpose of catheterizing the ureters to determine the condition of the kidneys. He occasionally encounters cases in which the state of the bladder renders accurate diagnosis otherwise impossible; after exhausting all diagnostic measures he is still in doubt as to whether the assumed kidney lesion exists or is unilateral. In such cases he makes a transverse incision in the bladder through an abdominal median incision. The anterior lower lip of the bladder wound is fastened to the skin over the pubic bone, while the rest of the bladder lip is fastened at eight or nine points to a special retractor which spreads in a semicircle more than half way around the opening into the bladder. It is thus held open over nearly its entire extent. None of these measures is required for a healthy bladder, but they are indispensable for examining the diseased bladder in certain severe cases. He then introduces into the meatus of the urethra a No. 22 sound, pushing it up into the bladder. The end is cut off when it emerges in the bladder. This much facilitates the passage of the two ureter catheters through the urethra into the bladder. With a small-grooved sound he then seeks for the mouth of the ureters and draws up the catheters. When the ureter catheters are in place, he seizes the occasion to inspect and treat the bladder lesions as indicated. The bladder is then sutured as after a stone operation. He has thus treated four patients, the results confirming the advantages of the technic. He was able to determine the existence of one sound kidney and by nephrectomy to restore the patients to comparative health. In one instance the kidneys were both found sound, the bladder lesions being the only trouble, and the ample access allowed enabled these lesions to be promptly cured.

59. **Roentgen Rays and Genital Glands.**—Ancel and Bouin review the evidence in regard to the local action of the Roentgen rays on ovaries and testicles. In the ovary, the external secretion and the internal secretion both suffer and disappear under the action of the rays. In the male, on the other hand, only the external secretion suffers, while the internal secretion is retained unimpaired. The power of procreation thus becomes lost in the male, but the sexual characteristics and appetites are retained, while in the female all the signs of total castration are observed.

Semaine Médicale, Paris.

60 (XXVII, No. 23, pp. 265-276.) Hypersecretion of Gastric Juice. (Gastromyxorrhée.) L. Cheinisse.
61 (No. 24, pp. 277-288.) *Post-typhoid Muscular Affections. (Myopathie consécutive à la fièvre typhoïde.) G. Guillain.
62 *Can a Pregnancy be Absorbed? (La grossesse peut-elle se résorber?) R. de Bovis.

61. **Post-Typhoid Muscular Affections.**—Guillain presents evidence to prove that a progressive atrophying myopathy is liable to occur after typhoid fever, and should rank with other remote complications of that disease, such as aoritis, myocarditis, kidney affections, chronic encephalitis and inflammation of the visceral passages—all organic affections which run a special clinical course, but yet are attributable primarily to the typhoid fever. The post-typhoid muscular affections may be of the nature of hypertrophy of the muscle consecutive to vascular lesions, actual angiomyopathies, developing during the acute stage of the disease, but not progressive, or they may assume the form of a progressive pseudohypertrophic or atrophic myopathy, commencing during convalescence and continuing a slowly progressive course. He describes a case of this latter type; the patient was a healthy man of 45, who after typhoid fever at 39, gradually developed amyotrophy, entailing finally complete inability to use the legs or arms. Guillain thinks that the muscular lesions resulting from infections and intoxications deserve more study. He is convinced that many cases of supposed polyneuritis are, in fact, more of a neuro-myositis, including in this term all forms of inflammation and degeneration of the muscle. Post-typhoid myocarditis has been better studied than other post-typhoid myopathies; there is reason to believe that a similar process may occur in other muscles.

62. **Can a Pregnancy be Absorbed?**—De Bovis discusses a case recently reported by Polano in which the uterus appeared to be at about the fourth month of a pregnancy when the abdomen was opened for removal of ovarian cysts. After the operation the uterus gradually resumed the non-gravid appearance, without expulsion of anything to suggest a pregnancy. Polano thinks that the appearance of pregnancy was simulated by a mole in the uterus, and that the mole was gradually absorbed after the operation. De Bovis argues that this need not have been the case, and that there is no reason for scouting the idea that ovum and membranes might be absorbed under certain conditions. This can occur in rabbits. After bilateral ovariotomy or thermocauterization of the corpora lutea, the entire pregnancy may vanish without abortion, when the operation is done at a sufficiently early stage. This and other facts observed in the clinic suggest the possibility that gestation may be interrupted and the products absorbed.

Archiv f. Gynäkologie, Berlin.

Last indexed, XLVIII, page 1821.

63 (LXXXI, No. 3, pp. 495-739.) *Anatomy and Clinical Importance of Nerve Plexuses in Female Pelvis. (Nervengeflechte im weiblichen Becken.) O. Roith.
64 *Angioma of Placenta. (Angiom der Placenta.) F. Kermauner.
65 *Subcutaneous Pubiotomy and Ultimate Outcome. (Hebotomie, 30 Fälle und "Dauererfolge.") Kannegiesser.
66 *Influence of Pubiotomy on Indications for Version and Extraction. (Beeinflussung der Indication zur Wendung und Extraction durch die Hebotomie.) Lichtenstein.
67 *Question of Justification of Artificial Premature Delivery. (Künstliche Frühgeburt.) G. Leopold and E. J. Konrad.
68 *Perforation of Viable and Dying Child. (Perforation des lebensfrischen und absterbenden Kindes, 1892-1906.) C. Meissner.
69 *Forceps in Treatment of Contracted Pelvis, to Save the Child. (Zange in der Ther. des engen Beckens zur Rettung des Kindes.) Leisewitz.
70 *Study of Cesarean Section Based on 229 Cases. (Sectio cesarea.) G. Leopold.
71 *Spontaneous Delivery with Contracted Pelvis. (Spont. Geburt bei engem Becken.) F. Weindler.
72 *Experiences with Contracted Pelvis in Respect to Saving Child. (Das klinische Jahr 1906, etc.) G. Leopold.

63. **Nerve Plexuses in Female Pelvis.**—Roith describes extensive personal anatomic research and draws a number of conclusions from his findings. Among them is his statement that resection even of considerable portions of a nerve plexus causes less disturbance than irritation of the plexus from cicatricial growth. The arrangement of the plexuses and sensory fibers in the pelvis seems to be peculiarly adapted to the physiologic processes. The evidence is all in favor of the possibility of reflex neuroses originating in the pelvic plexuses.

64. **Angioma of the Placenta.**—Kermauner describes a case. The tumor was found in the placenta from a primipara of

nineteen, a healthy young woman. He has compiled records of seventy-three other cases in the literature; the microscopic findings were approximately the same in all.

65-72. **Cesarean Section, Pubiotomy, etc., at Leopold's Gynecologic Clinic.**—Eight articles are devoted to the clinical experiences at the Dresden clinic with various obstetric operations, and the entire material is analyzed to learn the lessons which it teaches for the future. None of the patients died in the 51 pubiotomy operations, but there was morbidity in 67 per cent. of the first 21 cases and in 47 per cent. of the last series of 30 patients. However, with the exception of one woman with gonorrhea, all the patients were discharged in good health without interference with the gait. One child was born dead in the first series, but none in the second; the mortality was thus 2 per cent. Nineteen women in the first series were recently examined and only one complained of any disturbances—merely local pain during fast running. Six of the patients have passed through a second pregnancy since. The pelvis was not permanently enlarged in any instance. The outlook for the children, it is affirmed, has been much improved since the introduction of pubiotomy. It has reduced the frequency of the necessity for version without abolishing it altogether. Cases in which version and extraction used to be considered indispensable to save the child, on account of great disproportion between the size of the child and of the pelvis, now should be treated by pubiotomy. The general practitioner should learn the technic in order to be able to refer suitable cases to the hospital, or to operate himself, but, as a general thing, version and extraction remain as before valuable measures in general practice. All the instrumentation that is required for pubiotomy is a Döderlein hook, a pair of Gigli's wire saws and any ordinary table. A number of assistants are indispensable, a medical man to give the anesthetic, a second to protect the skin with sponges while the sawing is being done, two persons to hold the legs and to press the pelvis together, from the trochanters, after the bone is sawed, and an obstetric nurse to give the douches that may be necessary and to care for the child. Good asepsis should also be insured. Technical skill is also necessary as, besides the introducing of the needle and the sawing, the physician is liable to have a complicating laceration of the vagina with exposure of the stumps of the bones and even of the bladder. The fourth and most indispensable requisite for the operation is good obstetric training, for the technic is less difficult than the decision as to the indications for the operation. Women must be spared unnecessary pubiotomies. Cesarean section has been done 229 times in the clinic, and it is strictly emphasized that these two operations are much more serious for the mothers than induced delivery. Perforation was required in fifty-seven cases with living children and in 112 with children already succumbing. Too long expectant treatment, waiting for spontaneous delivery, compelled perforation in a number of cases. When there is considerable disproportion between the head and the pelvis of a primipara, but the head presents favorably and labor is vigorous, the case should be accepted as requiring pubiotomy if nothing has been gained by the end of six hours. If the head does not present favorably, Cesarean section is indicated. Experience has shown that when the posterior parietal bone presents, it does not yield to forceps, and perforation finally becomes necessary, as a rule. A woman with a contracted pelvis, especially if she has had difficulties in previous childbirths, if seen in time, should be referred to a clinic to determine the indications as to whether she should be delivered at the thirty-fifth week or be allowed to go to term. Leopold discusses the six deaths from Cesarean section for which he holds the clinic responsible. In one case one of the assistants omitted to put on rubber gloves; in another adhesions from a Cesarean section years before caused injury of the transverse colon, unnoticed at the time, as the uterus was drawn forward. In this case perforation should have been done, especially as gonococci were found in the secretion. In another case the uterus, with the ileum, was incarcerated in backward displacement. The expectant treatment in this case was a mistake; pubiotomy should have been done without delay. Existing gonorrheal infection is unfavorable or even disastrous for both pubiotomy and Cesarean section. This has been proved again and again by the experiences in the clinic until no further doubt can remain on this point.

Archiv f. klinische Chirurgie, Langenbeck's, Berlin.

Last indexed XLVIII, page 1464.

73 (LXXXI, Part 2, pp. 1-606.) *Chronic, Unilateral Interstitial and Hemorrhagic Nephritis. Recovery After Nephrectomy. (Nephritis.) O. v. Angerer.
74 Operative Treatment of Recent Irreducible Luxations and Fractures. (Frische Irreponible Lux. und Fract.) H. Schlange.
75 Combined Method of Removing Cancers of Rectum and Colon. (Combinierte Operationsmethode.) J. Rotter.
76 Surgery of Joints. (Gelenkchirurgie.) Fritz König.
77 Treatment of Fractures of the Leg. (Unterschenkelbrüche.) R. Morian.
78 *Appendicitis with Other Affections. (Perityphlitis in Combination mit anderen Erkrankungen.) de Ruyter.
79 Pathology and Treatment of Congenital Megacolon. (Hirschsprungsche Krankheit.) Roth.
80 Experiences with Military Surgery in German Southwest Africa. (Kriegschirurgische Erfahrungen.) Franz.
81 Indications in Case of Bullet Wounds of Skull During a Campaign (Schädelwunden.) W. v. Oettingen.
82 Treatment of Rupture of the Liver. (Leberrupturen.) R. v. Hippel.
83 Diagnosis of Tumors of the Upper Jaw. (Oberkiefergeschwülste.) H. Wolff.
84 Incision for Mammary Cancer. (Hautschnitt, etc.) W. v. Brunn.
85 Cysts of the Long Bones and Fibroid Osteitis in Their Etiologic Relations. (Cysten der langen Röhrenknochen und Osteomyelitis fibrosa.) P. Bockenheimer.
86 Tumor Formation in Aberrant Parotid Cells. (Tumorbildung in versprengten Parotiskeimen.) N. Guleke.
87 *Experimental Transplantation of Suprarenals. (Nebennierenverpflanzung.) H. Coenen.
88 Mechanism of Dislocation of Meniscus. (Meniscuslux.) E. Schultze.
89 *Value of Leucocyte Count in Acute Appendicitis. (Verwerthbarkeit der Leukocytenzählungen.) E. Sonnenburg.
90 Congenital Retroglenoid Dislocation of the Shoulder. (Schulterluxation.) F. v. Bramann.
91 Non-parasitic Cysts of Long Bones. (Nicht parasitären Cysten der langen Röhrenknöchen.) E. Lexer.
92 *Operations in Posterior Cranial Fossa. (Operationen der Tumoren am Kleinhirnbrückenwinkel, etc.) M. Borchardt.
93 *Surgery of the Kidneys. (Nierenchirurgie.) O. Rumpel.
94 *Diagnosis of Hour-glass Stomach. (Sanduhrmagen.) A. Schmitt.
95 General and Partial Disturbances in Growth of Mammals After Brief Roentgen Exposures. (Wachsthumsstörungen nach R. Bestrahlungen.) K. Försterling.
96 Supplementary Anus. (Anus duplex.) G. Friedel.
97 Coxa Vara. R. Grashey.
98 *Spinal Anesthesia. (Lumbalanästhesie.) Hauber.

73. **Nephrectomy for Hemorrhagic Nephritis.**—The patient whose case is described fell on the region of the right kidney when stepping out of a boat. After two years of health, the previously robust man of fifty-two exhibited symptoms of chronic interstitial and hemorrhagic nephritis in the much enlarged kidney of the side affected. No benefit was derived from systematic and prolonged medical measures, and von Angerer removed the diseased kidney with surprisingly favorable effect. The patient is now, six months later, in apparently perfect health and goes on hunting trips in the mountains. Decapsulation and nephrotomy were not attempted for fear of more dangerous hemorrhages and the possibility of recurrence of the trouble.

78. **Appendicitis in Combination with Other Affections.**—Five cases are related by de Ruyter in which the patients were operated on for assumed perforation of the appendix. In two the main trouble was a ruptured tubal pregnancy; the appendix was sound in one case and filled with pus in the other. In two other cases the appendix merely happened to be involved in an extensive cancerous growth. In the fifth case conditions were found apparently normal in the abdomen, although symptoms had indicated recurring appendicitis. Since the operation the patient, a nervous woman of twenty-seven, a housemaid, has been in good health. The case is reported as one of hysterical appendicitis.

87. **Transplantation of Suprarenals.**—All Coenen's attempts in this line gave negative results. Whether implanted whole or in pieces the transplanted suprarenals were always absorbed by the end of two months; nothing was left but a small mass of pigment in granulating cells.

89. **Leucocyte Count with Acute Appendicitis.**—Sonnenburg regards the leucocyte count as a valuable diagnostic measure in acute appendicitis, but not so much as a sign of suppuration as on account of its importance as indicating the reaction of

the organism and the kind of infection. A low figure indicates paralysis of the resisting powers from the action of toxins. The absolute figures of the blood count are not so important as the continued tracing; showing a tendency to rise or fall. It is possible that a rapid destruction of neutrophile leucocytes may occur, resulting from the sudden passage of large numbers of bacteria or of toxins into the circulation, manifested clinically by a chill. Sonnenburg's experience has always been that absorption of pure toxins reduces the number of leucocytes. The whole theory of immunity is based on the activity of the leucocytes, but the later conceptions ascribe less importance to the personal participation of the leucocytes in the struggle against invading bacteria than to the products generated by them, the antibodies, whether antibacterial or antitoxic.

92. **Operations in the Posterior Cranial Fossa.**—Borchardt's success in a few cases of lesions in the posterior cranial fossa under operative treatment has already been chronicled in these columns. He here reviews the history of operative intervention in this region and gives brief summaries of all the cases of which he has knowledge, a total of 152. In 14 cases of cyst, 13 of the patients recovered after removal of the cyst into sound tissue or mere evacuation of its contents. In 21 cases of tuberculoma of the cerebellum, 12 patients succumbed to the shock of the operation, and 3 died two months later from miliary or meningitic tuberculosis. Of the remaining 5, only 2 were alive after 9 months, but one of these is at work and the other seems likewise cured except for a concomitant coxitis. The results were better in the 101 cases of true tumors which he analyzes. In 60 instances the tumor was not found, and the 60 patients soon succumbed. In 15 cases great improvement and in 17 an actual cure were reported. In this last group the tumor was not found in 5 instances, but the relief from the operation amounted to an actual cure. Omitting these, there are still 12 cases in which the patients were completely cured by surgical intervention. In 19 cases of tumor in the cerebellar-pontine angle, 3 of the patients were cured by removal of the tumor. Borehardt describes his technic with illustrations. He removes the bone permanently, emphasizing the necessity for an exploratory incision of the cerebellum. Operating in two sittings instead of one, reduces the danger of shock. In one of his cases—a tumor in the medulla oblongata—the patient took the anesthetic so badly that respiration stopped with the first whiffs of chloroform and no operation was attempted beyond making a small opening in the bone. This relieved the pressure and enabled the operation to be performed without shock a few days later. In case of gumma, he would not operate until after mercury and iodid have been pushed. In cutaneous syphilis, sometimes apparently refractory lesions yield finally to a course of 4 or 5 inunctions a day with potassium iodid, kept up for about 6 weeks.

93. **Surgery of the Kidneys.**—This communication relates the experiences at von Bergmann's clinic during the last two or three years. Fourteen typical cases are described in detail. They show among other points the great services that cryoscopy of the urine and other functional tests can render under certain circumstances. Cases in which an ovarian cyst or other abdominal tumor simulated a kidney affection were cleared up by the lack of difference between the freezing point of the urine from the two kidneys. Another point emphasized by the experiences related is that the cystoscopic findings in regard to the orifices of the ureters are more frequent and more pronounced with tuberculosis than with any other kidney affection.

94. **Diagnosis of Hour-Glass Stomach.**—Schmitt has encountered hour-glass stomach in thirteen cases in which he was performing an operation on the stomach during the last five years. In three instances the hour-glass contraction occurred and vanished intermittently. If the contraction is near the pylorus, vomiting occurs toward the end of digestion, and a large quantity of stomach content is expelled at one gush. It will be noticed, however, that the ingredients of the food vomited are those which normally remain longest in the stomach, while those that are first digested have passed on into the intestines. In case the stenosis is near the cardia, the vomiting occurs earlier after eating, and a smaller amount is expelled. If the contraction is in the center of the stomach, vomiting generally occurs about two or three hours after eating, and small amounts are expelled at intervals. It was sometimes observed that the vomiting became irregular or ceased altogether while the nausea and pain persisted, and the patient felt worse than before. The food had been forced through the contraction, but the pyloric region was unable to pass it on or to force it back. The act of vomiting is accompanied with greater pain than under other conditions, as a rule. The pain on the whole resembles that of acute distension of the stomach with carbonic acid, and it does not subside after vomiting, but persists, intense and unmodified, sometimes for half an hour afterward. When the patients are placed on a restricted diet, the severity of the pains is lessened considerably, but with the return to more solid food, the pains again become severe. The most striking symptom, however, is with lavage of the stomach. After the fluid has been coming out clear for some time, suddenly old relics of food, sometimes in considerable amounts and more or less decomposed, appear in the rinsing fluid. This symptom may not be observed every time after lavage, but when it is encountered it differentiates hour-glass stomach. This assumption is further confirmed by the vanishing of water poured into the stomach. It can not be aspirated out again, but disappears. In one case pressure on the pyloric region caused a splashing or gurgling sound on auscultation of the cardial region, and vice versa, while pressure on the point of the contraction caused no sound on either side. Roentgen examination with bismuth always gave characteristic findings, but chemical tests were vague, and transillumination of the organ gave unreliable results. Schmitt regards gastroenterostomy as the standard operation for hour-glass stomach, preferring the posterior retrocolic technic with a short afferent loop. Adhesions must always be detached; mere dilatation of the contraction through an incision exposes to danger of recurrence.

98. **Spinal Anesthesia.**—Hauber's article closes this volume of the *Archiv*, which was dedicated to E. von Bergmann on the occasion of his seventieth birthday. The first part is from his friends and colleagues, the second from his former and present assistants, closing with four articles from former pupils. Fourteen large plates accompany the volume. Hauber relates satisfactory results from spinal anesthesia in 280 cases. He regards this mode of anesthesia as indicated in case of cardiac defect, arteriosclerosis, pulmonary affections, etc., also for extremely exhausted patients as after a serious accident or long occlusion of the bowels. It is likewise indicated for elderly persons, experience having shown that it is tolerated exceptionally well by them. Ideal results were observed with operations for hemorrhoids, hydrocele, rectal fistula and bladder stones. The results were satisfactory with amputations of the legs and with inguinal and femoral hernias. He adds that postoperative bronchitis or pneumonia never occurs with spinal anesthesia.

Berliner klinische Wochenschrift.

99 (XLIV, No. 17, pp. 509-552.) *To Hasten Determination of Tubercle Bacilli in Urine by Inoculation of Animals. (Nachweis des Tub.-Bac. durch den Tierversuch.) A. Bloch.
100 Practically Negative Influence of Cocoa on Assimilation of Nitrogen and Fat. (Beeinflusst Kakao die Ausnutzung von Stickstoffsubstanz und Fett der Nahrung?) V. Gerlach.
101 Improved Forceps. (Neuer Forceps.) N. J. A. F. Boerma.
102 Arsenic as Poison and Remedy. (Arsen.) T. A. Maass.
103 Refractometric Examination of Blood. (Blutuntersuchung.) Marcus.
104 *Absorption of Inflammatory Infiltrates in the Spermatic Ducts. (Samenleitende Organe.) E. R. W. Frank.
105 School Vacations. (Ferienfrage.) Margulies.
106 Conditions of Solubility of Uric Acid in Urine. (Lösungsbedingungen der Harnsäure im Harn.) Determeyer.
107 Physical Measures in Treatment of Diabetes (Physik. Heilmittel und Diabetes.) S. Munter.
108 Pale Spirochete for Diagnosis of Syphilis. (Nachweis der Sp. pall., etc.) R. Schuster.

99. **Rapid Determination of Tubercle Bacillus in Urine by Inoculation of Animals.**—The technic described by Bloch requires only from nine to eleven days for a decisive response to the test. He injected 1 c.c. of the suspicious urine into the right inguinal region of the guinea-pig and then took up

between his thumb and forefinger the inguinal fold of the animal, stroking it from within outward until he could feel the glands like little nodules between his fingers. He then crushed the glands between his fingers, thus inducing lesions which offered an exceptionally favorable soil for the growth of the bacteria in the fluid which had just been injected. In every instance in which the course of the cases confirmed the assumption of a tuberculous process, the injected glands swelled and masses of tubercle bacilli were found in them. His experiments were always conclusive, and he urges others to try the method as it will probably prove equally useful for differentiating tuberculous products of any kind, and it may be possible to shorten the time still more.

104. **Treatment of Inflammatory Infiltrates in Vas Deferens.**—Frank remarks that relics of inflammation in the spermatic ducts are discovered in from twenty-five to thirty per cent. of all male cadavers, and he cites statistics to prove that azoöspermia is more common than is generally believed and that obstruction of the vas deferens is the most frequent cause of the condition. He is now experimenting with a technic to restore by surgical measures the permeability of the vas. In case of acute inflammation of the epididymis he applies heat, using a flexible electric thermophore which fits over the suspensory, commencing with 40 C., and gradually increasing to the tolerance of the patient. He supplements this treatment with a course of brine baths as hot as they can be borne.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

109 (XXXIII, No. 19, pp. 745-784.) Treatment of Cutaneous Affections. (Hautkrankheiten.) M. Joseph.
110 *Acute Myeloid Leukemia. (Leukämie.) C. Ziegler and G. Jochmann.
111 *Investigation of Blood Pressure with Pal's Sphygmoscope. (Blutdruckuntersuchung.) A. Horner.
112 Post-influenzal Liver Abscess. (Leberabscess.) F. Karewski.
113 *Puerperal Dissecting Metritis. (Puerp. Metritis dissec.) Offergeld.
114 Ophthalmoplegic Migraine and Periodical Oculomotor Paralysis. (Ophth. Migräne und period. Oculomotoriuslähmung.) Paderstein.
115 Electricity of the Skin. (Hautelektrizität.) E. Harnack.

110. **Acute Myeloid Leukemia.**—A stable boy of fifteen had a septic staphylococcus hemorrhagic pericarditis, preceded by acute tonsillitis. Fourteen days after the first symptoms the blood was loaded with myeloid cells, and the clinical diagnosis of acute leukemia was confirmed by the microscopic findings in the spleen and bone marrow as well as in the blood. The lymphatic apparatus of the lymph glands and digestive tract was free from myeloid deposits, only the bronchial glands contained myeloid cells.

111. **Pal's Sphygmoscope for Study of Blood Pressure.**—The findings in regard to the blood pressure are read on a graduated scale on a horizontal capillary tube. Horner relates experiences with it in Pal's service at Vienna, and emphasizes the importance of the variations between the pulse tracings at different points. He found it an invariable law that considerable difference between the brachial and the digital blood pressure is always an index of some disturbance in the circulatory system. This difference vanishes as the condition improved under treatment.

113. **Puerperal Dissecting Metritis.**—Offergeld reports a severe case and adds that exact diagnosis is possible only with microscopic examination. Single muscle fibers and vessels and numerous cocci are found in the sheets of tissue expelled. It is remarkable that the majority of such patients are primiparæ. Perforation is the chief danger, and consequently direct irrigation and curetting of the uterus should be strictly avoided. The measures advised are vaginal antiseptic irrigation several times a day, supplemented by ergot internally to induce the uterus to contract and thus to hinder the penetration of the cocci into its walls. His patient recovered. Severe disturbances are always left by this affection which entail sterility. The entire lining of the uterus is sacrificed, and, at the best, only cicatricial tissue remains. In most cases menstruation is permanently abolished.

Münchener medizinische Wochenschrift.

116 (LIV, No. 17, pp. 817-864.) *Etiology of Rachitis. (Rachitis.) Esser.
117 Practical Importance of Reducing Power of Milk. (Reduktionsfähigkeit der Milch.) E. Brand.
118 Apparent Aërobic Growth of Anaërobic Bacteria. (Aerobe Wachstum anaerober Bakt.) H. Liefmann.
119 *Treatment of Femoral Hernia. (Kruralhernien.) J. Fabricius.
120 *Roentgen Treatment of Exophthalmic Goiter. (R.-Beh. der Basedowschen Krankheit.) R. Freund.
121 Ulcerative Membranous Laryngitis due to Vincent's Bacillus and Spirillum. (Lar. membrano-Ulcerosa fusibacillaris.) F. Reiche.
122 *Artificial Joint Ligaments of Silk. (Künstliche Gelenkbänder aus Seide.) F. Lange.
123 Blood Platelets as Producers of Alexins. (Blutplättchen als Alexinerzeuger.) D. Ottolenghi.
124 Determination of Viscosity of Blood. (Gerinnbarkeit des Blutes.) Schwab.
125 Canary Islands, Climate and Indications. (Teneriffa.) F. Peipers.

116. **Etiology of Rachitis.**—Esser ascribes the origin of rachitis to overfeeding of infants by breast or bottle. Experiments on animals have confirmed clinical experience to this effect. In both the children and animals there is increased production of leucocytes during overfeeding. The lymphoid cells and the young forms of the neutrophiles increase beyond measure, testifying to hyperleucocytosis resulting from abnormal functioning of the bone marrow. The insufficiency of the overworked bone marrow finally entails disturbances in the formation of bone, with rachitis as the outcome. Intercurrent infectious diseases only add another factor to those already at work. Prophylaxis is thus simple and easy, namely, by regulation of the diet to prevent overfeeding.

119. **Operative Treatment of Femoral Hernia.**—The principal feature of the technic described and illustrated is the suturing of Poupart's ligament to the inner margin of the horizontal ramus of the pubic bone. This obliterates the femoral canal and fastens the ligament to a firm support.

120. **Roentgen Treatment of Exophthalmic Goiter.**—Freund reviews the experiences of others in this line, citing nearly a dozen authors, and then reports five cases. The Roentgen treatment induced unmistakable benefit in all. The thyroid gland was reduced in size and as it subsided the nervous symptoms vanished with it and in two cases the systolic murmurs also. The patients all increased in weight. Two have been under observation for fifteen months without signs of recurrence. The Roentgen rays meet the causal indication by restoring normal conditions in the enlarged and morbidly secreting thyroid. They always exert a favorable influence on the nervous manifestations, while they are liable to affect favorably the heart murmurs, struma and exophthalmos. The soft, vascular tumors are the most readily influenced, and the prognosis is better the more recent the goiter. In one of his cases the patient was a young woman and the symptoms had first attracted attention about six months before. Little improvement was observed under medical treatment for a couple of months, and two Roentgen exposures were made with a week's interval, with a moderately soft tube, 20 cm. distant, the exposure lasting eight or ten minutes. The struma rapidly subsided and no murmur or tremor could then be detected. There were no ocular symptoms at any time. In another case three exposures were made in the course of a week. In another, four in less than three weeks.

122. **Artificial Silk Ligaments.**—Lange noticed that silk used to make artificial ligaments was liable to induce an abscess when sterilized by merely boiling in water. When boiled in a solution of bichlorid of mercury it induced an aseptic secretion. He has since obviated this by impregnating the silk with paraffin after boiling in the bichlorid solution. In the present article he expatiates on the advantages of the silk ligaments for paralyzed flail joints. He would restrict arthrodesis to patients over 20, who insist on it. Under other conditions he thinks that we have better means at our command. In using the silk it is important to allow sufficient time after removal of the dressings for the silk to become encased in connective tissue before the limb is used freely. It should be used enough to keep the silk ligaments stretched, but not enough to pull them out or to loosen them before they have their firm connective tissue supports. The connective tissue does not form until its formation is stimulated by gentle functional use of the silk ligaments. He describes several examples to illustrate these and other points.

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Address

NITROUS OXID AS AN ANESTHETIC IN MAJOR SURGERY.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON SURGERY AND ANATOMY AT THE FIFTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, JUNE, 1907.

ARTHUR DEAN BEVAN, M.D.

CHICAGO.

It is interesting to recall that the three anesthetics most generally employed were introduced within three years of each other. Horace Wells introduced nitrous oxid gas in 1844; Morton, ether in 1846, and Simpson, chloroform in 1847.

It is interesting to follow the histories of these three agents. Chloroform, the last discovered, the most powerful, the most dangerous of the three, soon became the favorite anesthetic and possibly remains so to-day with the majority of surgeons the world over. Ether, however, has always been the favorite of American surgeons, and with the more careful studies of anesthetic statistics showing its greater safety as compared to chloroform it is rapidly gaining a foothold in Great Britain and on the continent.

Nitrous oxid gas, the safest of the three, has until recently been left to the dentist and for minor operations, although years ago the feasibility of employing it for prolonged anesthesia was thoroughly demonstrated by Bert Andrews and others.

In the last eight or ten years nitrous oxid has been more extensively used by the general surgeon, especially, however, in the sequence of nitrous oxid and ether. In this, I believe, it has no very great value, except as it offers an agreeable anesthesia to the patient.

During the last three or four years I have been employing nitrous oxid and air as a general anesthetic in an increasing number of cases and I have been so much impressed with its value and the possibilities of its wide application that I have felt warranted in bringing this matter briefly before you for your consideration.

Roughly speaking, chloroform anesthesia has a mortality of 1 in 2,000; ether, 1 in 5,000, and nitrous oxid gas, 1 in 50,000. Gas is the most agreeable anesthetic to take. It is the most rapid anesthetic, taking usually about sixty seconds. It is seldom followed by nausea or vomiting, pneumonia or bronchitis or nephritis or secondary changes in the tissues. If properly administered with air, an anesthesia of a half-hour or an hour can be secured.

I began using it in cases where ether and chloroform were specially contraindicated, as in operations on the kidneys, in nephrotomy for anuria, abscess, etc. I then extended it to kidney-stone operations and nephrectomies. Finding how easy it is to maintain satisfactory anesthesia for long periods, I have gradually increased the range of its use until now I am employing gas in a large proportion of my general surgical cases.

It is the anesthetic of choice in reducing fractures and dislocations, in opening abscesses and felons, in breaking up adhesions in joints, in draining empyemas and lung abscess, in exploratory laparotomies, in gall-bladder work, removing stones and drainage in kidney work, nephrotomy, nephrectomy and nephrolithotomy; in bladder work, suprapubic cystotomy for stone and in suprapubic prostatectomy; in draining appendiceal abscesses, in colostomy, gastrostomy and enterostomy; in repair of typhoid perforation and of perforating gastric and duodenal ulcers; in hernia operations, especially for relief of strangulated hernia; in varicocele and in open operation for hydrocele; in castration; in amputations, except the largest joints, and in removing tumors, such as fatty tumors.

There are some operations in which it can not be very well employed, especially about the perineum, hemorrhoid operations, for instance; there being a great tendency for the patient to straighten the limbs out and interfere with the procedure. Operations where very complete relaxation of the muscles is desirable are not well suited to gas anesthesia.

Gas anesthesia has certain disadvantages. It is expensive; this, however, could be overcome in a large hospital by manufacturing the gas in an apparatus in the operating room, as is done in the offices of dentists who make a specialty of extracting teeth and employ large amounts of the agent. The apparatus is rather cumbersome to carry around in private operating and, still, this is not a matter of much moment, as two or three cylinders and a gas bag and mouthpiece can be carried easily in a small suitcase.

To one unaccustomed to the dark color of the patient's face and the dark blood in the wound, this method seems more dangerous than ether or chloroform anesthesia. The anesthesia is not as profound as that of ether or chloroform, and the occasional talking of the patient may be disconcerting to one not familiar with the method.

In spite of these disadvantages, the great safety of the anesthesia, the rapidity of its action, the comfort with which the patient can take it, the freedom from nausea, the almost immediate recovery from the anesthesia, the great freedom from lung or kidney complication and from extensive fatty degenerations of liver, kidneys and heart which may follow chloroform anesthesia and to a less degree ether anesthesia—all of these combine to make anesthesia by nitrous oxid gas and air the method of choice in a considerable proportion of our general surgical cases.

I desire to make a plea for an extensive, general trial of nitrous oxid gas by the members of this Section, and in this connection I wish to make a suggestion, that we appoint, as has been done by the British Medical Association and by the Germans, a committee on anesthetics, which will present to this Section a report of the studies and progress made each year in this important field of work. The chairman will entertain a motion that such a committee, say of three or five, be appointed and that Dr. Lund, the representative of this Section in the House of Delegates, ask for a sum not to exceed $500 for the coming year to forward this work.

Original Articles

LOCAL ANESTHESIA IN GENERAL SURGERY.*

JAMES F. MITCHELL, M.D.
WASHINGTON, D. C.

During the past few months, in a comparatively small radius, I have known of five deaths directly attributable to general anesthesia. In two instances chloroform was the anesthetizing agent, in two ether and in one somnoform. These represent a relatively small number of cases. If there were included those indirectly attributable to general anesthesia, through pneumonia, shock and renal complications, the proportion would surely be greater. It is probable that if all instances of death directly due to the anesthetic were known the rate would be much higher than that ordinarily given, that is, 1 in 1,000 for chloroform, 1 in 10,000 for ether, and 1 in 100,000 for nitrous oxid.

Were it possible to have in every hospital a skilled anesthetist whose duties consisted only in the administration of anesthetics, the question would be simpler and the danger would undoubtedly be lessened. For many reasons this is impossible in the majority of hospitals where the ever-changing resident staff necessitates the frequent training of a new anesthetist. It is under such circumstances that my own work is done, and it is under just such conditions that the great value of local anesthesia can be best appreciated.

Operations under local anesthesia naturally consume a greater amount of time, and so in busy clinics or crowded amphitheaters where rapid work is expected general narcosis is a necessity. In private practice the feeling of assurance, that at the close of the operation the danger of complications is lessened, more than repays one for the extra time consumed. While, as has been shown by Mikulicz, postoperative pneumonia may occur after local anesthesia, it must be exceedingly rare, and in my experience has not been once encountered. The danger of shock is lessened and urinary disturbances are infrequent. Haste is not essential and the lack of trained assistants not so keenly felt.

We owe to Halsted the introduction of local anesthesia in this country. After his work and that of Corning in 1884 and 1885 local methods, taken up for a time, fell into disrepute because of reported cases of poisoning due to the use of strong solutions of cocain. Reclus and Schleich did much to overcome this prejudice by the introduction of weaker solutions. In recent years, however, many improvements have been made in technic, chief of which are the injection of nerve trunks and the addition of adrenalin to solutions. Numerous substances are available, but none seems to satisfy all the conditions as well as cocain, and in an extensive experience in its use I have never seen any bad effects from it. It is a protoplasmic poison, forming with protoplasm an unstable compound which breaks down slowly, after which the tissues return to their previous condition and resume their normal function. Cocain which has exerted its anesthetic action and has entered into this combination can not be absorbed into the circulation, and, therefore, poisoning can be due only to absorption of an excess. The toxic dose of cocain varies with the concentration of the solution in which it is administered. Interruption of the blood stream is an absolute safeguard against poisoning, and the addition of adrenalin to solutions, as first recommended by Elsberg and Barker, has practically abolished all fear of cocain poisoning.

During the past year I have had tablets of cocain and adrenalin prepared according to the formula of Braun, which contain cocain hydrochlorid 0.05 gm. and adrenalin 0.00016 gm. These are sterilized by dry heat for an hour on three successive days and can then be preserved indefinitely. By dissolving a tablet in sterile physiologic salt solution a perfectly fresh and isotonic solution is obtained. Only two strengths are necessary, viz., a 1 per cent. solution for nerve blocking and a one-tenth of 1 per cent. solution for ordinary infiltration. I have found the skin anesthetic for the placing of sutures three hours after infiltration with the 1 to 1,000 solution. The two ordinary methods—infiltration and nerve blocking—are used to the greatest advantage in combination, or to both may be added a few whiffs of a general anesthetic to tide over important or painful stages of an operation. Not only is general anesthesia well borne under these conditions, but general narcosis is obtained with a very small amount of the anesthetizing agent.

That local anesthesia has never become popular in this country is probably due to the fact that it necessitates slower work and a greater expenditure of time. The surgeon is apt to look on the method as one which is mainly useful for minor surgical procedures, and does not feel inclined to waste time and trouble in carrying out extensive operations which can be accomplished with so much less effort under general anesthesia. Familiarity and experience tend to increase one's faith, a definite case is acquired by practice and the field of application steadily broadens. Success depends on experience and special training and on an intimate knowledge of sensory nerve distribution.

The operator must have the confidence of his patient and must work with patience and care, avoiding haste and using the utmost gentleness in the handling of tissues. Especially is this important in the early stages of an operation; for pain at this point causes, on the part of the patient, a loss of confidence which can not be recovered. No definite criterion can be laid down for the application of local anesthesia. In general it is available wherever the whole field of operation can be rendered anesthetic. Sensibility to pain varies much in individuals, and in children or hysterical persons little can ordinarily be accomplished, although I have operated successfully on a girl of 9 years for typhoid perforation, and in a boy of 7 have drained the gall bladder. In extensive dissections for malignant disease local methods are to be condemned.

In looking over the statistics of the hospital service during the last three years, I find a constantly increasing proportion of operations done under local anesthesia. In the service of January, February and March, 1907, 40 per cent. of all operations have been done with cocain alone, and an additional 12 per cent. with cocain assisted by a little chloroform or ether, making in all one-half performed with the aid of local anesthetics. These operations include amputation of limbs, wiring of fractures, excision of glands of neck and groin, excision of rib for empyema, trephining, osteotomy, thyroidectomy, excision of breast, excision of varicose veins of leg, perineal urethrotomy, suprapubic cystostomy, circumcision, excision of hemorrhoids and fistulæ, exploratory laparotomy, cholecystostomy, appendectomy, colostomy, suture of typhoid perforation, radical cure of hernia, varicocele and hydrocele and numerous minor procedures. Many of these have necessarily been in selected cases, but in certain operations local anesthesia has become the routine method, and repeated experiences have developed useful improvements in technic.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

A very extensive dissection of the neck is possible under local anesthesia by taking advantage of Crile's method of nerve blocking. For the excision of glandular areas in malignant conditions local anesthesia is not recommended; but we have on several occasions in very old and feeble individuals excised the submental and submaxillary glands without any difficulty. One complete excision of all the glands of the neck for tuberculosis was accomplished in a young colored girl. Through a small incision the cervical plexus was blocked at the posterior border of the sternomastoid muscle, giving an extensive area of skin anesthesia. The skin incision was then completed, the sternomastoid and omohyoid muscles divided and a complete dissection made with very little discomfort to the patient, the deeper tissues being injected as they were encountered.

Although the number of thyroid cases has been small (14 cases), I have never resorted to general anesthesia. The transverse collar incision has been used in all and the tissues injected as encountered. Recently I have found that, by extending the skin incision to the posterior border of the sternomastoid muscle and early in the operation blocking the cervical nerves as they emerge, the dragging pain in the neck caused by the delivery of the thyroid gland can be practically eliminated. These patients have all stood the operation well. There have been no after-effects and no fatalities.

In the wiring of fractures our experience has been confined to the clavicle, the olecranon process, the patella and the lower jaw. We have accomplished these without any difficulty. In several cases we have chiseled off osteophytes from the long bones, and in one instance have completed an exploration of the cranium with the trephine. The removal of a section of rib for drainage of the pleural cavity we have always done with cocain, except in very young children.

For the radical cure of inguinal and femoral hernias, Cushing's method is so satisfactory that we feel that general narcosis is never necessary, and with strangulation it is contraindicated. During the last four years we have used a general anesthetic but twice for this operation in adults, in both instances because the patient positively refused to consider the local method. During this time in a large series of cases it has never been found necessary in a single one to resort to the aid of even the smallest amount of a general anesthetic. A preliminary dose of morphin is given about half an hour before the operation and Cushing's technic is followed. An early injection about the neck of the sac and the inguinal ring avoids all pain during ligation and excision of the sac and handling of the cord and testicle. The size of the hernia matters little. The operation is usually completed without the slightest complaint and in several instances the patient has fallen to sleep during the course of the operation. We had previously thought that recurrent hernias demanded general narcosis, but recent experience has shown that by extending the incision a little higher and blocking the ilioinguinal and iliohypogastric nerves above the scar the operation can be carried out with as great ease as in ordinary cases.

In femoral hernias the incision is begun over the lower part of the inguinal canal, the fibers of the external oblique muscle are separated for a short distance and the nerves blocked. We have found by this method that the operation is practically painless. The oldest patient of this group on whom we have operated well illustrates the advantage of local anesthesia. A woman of 92 was seen on the eighth day of strangulation of a moderate sized femoral hernia. Without removing her from bed an incision was made as described above and a loop of gangrenous small intestine brought out on the abdomen. After a few hours this was opened and the bowel washed out. On the following morning, the patient's condition being remarkably improved, the gangrenous portion of the bowel was cut away and an end-to-end anastomosis done by means of a Murphy button. Her bowels moved naturally forty-eight hours later.

Small umbilical hernias are always done under local anesthesia, and in very large or postoperative hernias we have used with great success the combined cocain-chloroform method. Quite recently I was able to complete the cure of an enormous postoperative midline hernia containing large and small intestine and adherent omentum. The repair was done by the overlapping method. A 1 to 2,000 cocain solution was used until the sac was opened. During the separation of the adhesions and the return of the contents of the sac to the abdominal cavity whiffs of chloroform were given. The patient was never fully unconscious and was talking rationally during the closure of the wound. The operation lasted nearly three hours, during which time there was no variation in the pulse rate.

In all scrotal operations, the radical cure of hydrocele and varicocele, the field of operation can be so well anesthetized by nerve blocking through the high hernia incision that a general anesthetic is never considered. We have completed Whitehead operations without the slightest pain, and in all the lesser operations for hemorrhoids and simple fistulæ and fissures local anesthesia is our routine method.

It is in abdominal surgery that experience is of the greatest value in familiarizing one with the painful manipulations which are to be avoided—traction on the mesentery and disturbance of the parietal peritoneum. All of the abdominal wall incisions can be accomplished with ease, separation of the rectus fibers being the simplest. A satisfactory exploration can usually be made, and naturally those viscera in apposition with the parietes are most available for operation. Colostomy and simple enterostomy are always practicable. In typhoid perforation local anesthesia has been used in every instance (9 cases), and only in the first two was it necessary to resort to general anesthesia for the completion of the operation. In typhoidal cholecystitis I have walled off and drained the gall bladder successfully. I have been able to complete an appendectomy seven times, twice in the presence of an abscess, but local anesthesia is to be recommended only in selected cases with mild symptoms or when there are strong reasons for avoiding general narcosis.

The healing of wounds has been uniformly good. I have never seen sloughing of the skin and there have been no cases of suppuration, and Bodine's statement that the gentler handling of the tissues is responsible for these results offers the probable explanation.

A most interesting experience has been in the observation of the sensibility of various tissues; for a knowledge of the variations in sensibility is the keynote to success. In general our results have served to support the findings of Lennander and Braun. The skin being thoroughly anesthetized and the incision made, there is little sensation in the subcutaneous tissue and muscles as long as blood vessels, large nerve trunks and connective tissue bundles are avoided. Periosteum is exquisitely sensitive, but when it has been cocainized the bone beneath has no sensation. This we have well demonstrated on the skull in a case of trephining. An incision was made under cocain infiltration and the scalp retracted. The periosteum was exposed and an attempt at incising it caused great pain. It was injected with 1 per cent. cocain solution and reflected from the bone. A one-inch trephine opening was then made and the button lifted out. The patient felt no pain. The dura was incised without pain. The brain cortex was touched with gauze and with instruments and there was no sensation whatever. When seen in the ward half an hour after the operation, the man was sitting up in bed reading a newspaper.

The same insensibility to pain in bone has been noted in several cases of amputation, in the removal of osteophytes and wiring of fractures. In every instance after thorough cocainization of the periosteum, the actual manipulations of the bone itself have been unaccompanied by pain. The patients have stated that they could feel and hear the sawing, but it was as if a board were being sawn while resting upon some part of the body. The synovial membranes of joints have proved exquisitely sensitive.

In the abdomen numerous observations have corroborated the statements of Lennander: that the parietal peritoneum is sensitive, while the visceral peritoneum and the viscera, even in the presence of inflammation, are not. We have found time and again while operating under local anesthesia that, as long as the parietal peritoneum is not disturbed by actual contact or by traction with instruments or through the mesentery, there is no complaint of pain. On the other hand, the slightest touch to the parietal peritoneum brings forth a complaint, and in inflammatory conditions this sensibility seems to be increased. Manipulations of the viscera, causing tension on their mesentery and thus on the posterior parietal peritoneum, cause not only pain, but a sensation of nausea, and I have seen actual vomiting occur.

The point to which the pain is referred is interesting. Whereas clamping, crushing or burning across the appendix causes no sensation whatever, the pulling on its mesentery incidental to its ligation produces a sensation of nausea and causes the patient to complain of pain, not in the region of the appendix, but in the epigastrium, suggesting an explanation for the early pain of appendicitis so often noticed in this region. In the same way I have noticed in one instance that traction on the gall bladder caused a complaint of pain in the right shoulder, and in another case distension of a gall bladder with fluid through a fistula produced the same result. I have exposed the right lobe of the liver and opened an abscess in it with the Paquelin cautery without pain. In the case of the kidney also we have shown to our own satisfaction that there is no sensation in its substance. In order to exclude the possibility of drug interference with the sensibility of the viscera and the visceral peritoneum, I have recently carried through a few explorations of the abdomen, omitting the preliminary dose of morphin and the cocain, the abdominal incision being made by means of infiltration with physiologic salt solution. Two facts were demonstrated by these operations: first, the importance of cocain in however small proportion in the anesthetizing solution, and, second, the marked contrast between the sensibility of the parietal and the visceral peritoneum. The findings in these cases were exactly the same as when cocain was used. I append abstract of two of these cases.

Case 1.—Exploratory laparotomy for suspected carcinoma of stomach. No preliminary dose of morphin was given. The man was placed on the operating table and the field of operation prepared. With physiologic salt solution, a wheal was produced in the skin as in the ordinary procedure with cocain, except that the wheal was made much larger in order to produce greater tension. The skin was incised through this wheal. The production of the wheal caused no discomfort, but the incision elicited a complaint of pain, in striking contrast to an incision made under cocain infiltration. The anterior sheath of the right rectus muscle was opened and the muscle fibers separated. The posterior sheath and peritoneum were opened in a similar manner and a clamp placed on either edge of the parietal peritoneum. The patient complained bitterly at each step of the incision, and when the peritoneum was clamped cried out with pain. All manipulations were now discontinued for some time, allowing a rest, until the patient said he felt perfectly comfortable. The omentum was then picked up with a clamp, care being taken to avoid the parietal peritoneum. The omentum was clamped and then torn slightly till a bleeding point necessitated the placing of a ligature. In reply to questions the patient stated that there was no sensation. The transverse colon was seized with a clamp and pinched till a distinct imprint of the serrations was left on its surface. The patient said he felt nothing. A clamp was placed on the suspensory ligament of the liver; there was no sensation. The colon was held and its surface rubbed with gauze; there was no pain. Traction was made on the omentum and on the colon and the patient complained of pain. Traction on the suspensory ligament of the liver also caused pain. The parietal peritoneum was rubbed gently with gauze, the patient immediately tightening his abdominal muscles and crying out with pain.

Case 2.—Large irreducible right inguinal hernia in colored man. No preliminary dose of morphin was given. The skin was infiltrated with salt solution and an incision made extending somewhat below the external ring. The injection was made rapidly and as thoroughly as possible, producing a wheal much larger than that customary with cocain. The anesthesia produced was slight, the patient complaining as the incision was made. The sac was opened for a distance of several centimeters, the patient complaining as the peritoneum was cut. Small intestine presented and protruded into the wound. After a few minutes' rest, when the patient expressed himself as feeling perfectly comfortable and free from pain, the intestine was seized with a clamp, rubbbed with gauze and pricked with a needle. There was no pain, no sensation whatever. The intestine was gently lifted out of the sac without traction, was handled with instruments, with the fingers and with gauze without producing any sensation. When the intestine was further withdrawn so that the mesentery was stretched, the patient complained of a dragging pain and nausea. At this point the skin was injected with 1 to 1,000 cocain plus adrenalin and the incision prolonged upward. The external oblique muscle was divided and the ilioinguinal and iliohypogastric nerves injected with 1 per cent. solution of cocain. The operation was then continued. Just before closing the sac the appendix was inspected and its removal advised, to which the patient consented. The appendix was seized with a clamp and brought through the internal ring into the wound and its base exposed without any difficulty. Traction on the appendix caused the patient to complain of a dragging and nauseating pain which he referred to the region of the umbilicus. The mesentery of the appendix was ligated with fine silk and divided. The tightening of the ligature caused the pain described above. A cuff of the outer coats of the appendix was turned back about its base, and in reply to a question the patient stated he felt nothing. Care was taken during this procedure to avoid traction, the cecum lying in place at the internal ring. The base of the appendix was clamped, crushed and burned across with a cautery; there was no sensation during the procedures. A purse-string suture was placed about the base of the appendix in the cecum, turning in the stump of the appendix. There was no pain. The small intestines were again tested with negative findings as to sensibility. The edge of the sac was now clamped and drawn on, bringing forth a complaint of the same dragging and nauseating pain. The operation lasted in all two hours, and was completed without any further complaint. The pulse at the beginning was 60 and at the close of the operation was 60. The highest pulse rate was 70. This occurred when the skin incision was made under salt solution infiltration and during the division of the neck of the sac, and again during traction on the mesentery of the appendix.

PREPARED AND PREDIGESTED FOODS.*

GRAHAM LUSK.

NEW YORK CITY.

Economists tell us that in the struggle for existence a quarter of the income of a civilized family is paid out for lodging, a quarter for clothing and a half for food. The savage, who requires neither clothes nor modern lodging, expends his economic force in the capture of game and the raising of corn. In view of the physical well-being of savage races and of ignorant peoples throughout the world, it must at once be apparent that the normal instinct of appetite is a faithful guide for the nutritive requirement of mankind.

There will be no escape from the judgment, "By the sweat of thy brow shalt thou eat bread," until some one realizing the dream of Berthelot shall perfect a cheap process for the manufacture of veritable ambrosia from sawdust. Emil Fischer has been pictured in a cartoon as the master of a food factory located at a coal mine. Fischer, however, remarks that he who would eat his synthetically prepared sugars and peptones must, indeed, be a wealthy person.

Man is a machine developing mechanical energy and producing heat at the expense of the potential energy contained in fat, starch and proteid. A widespread error is that this requirement for energy is variable and may be largely reduced by diminishing the intake of food. Such a belief on the part of a healthy man is automatically corrected by his appetite, leading him to eat more bread for example. But where the individual is under the care of a physician, taking his food by the physician's orders, the food requirement of the body should be very clearly understood.

Two points stand out boldly in this connection. In the first place there must be sufficient proteid food ingested to protect the organism from proteid loss, and secondly there must be given a sufficient heat value in fats or carbohydrates to protect the body fat of the person and prevent emaciation. As regards the proteid requirement, it has been found by many investigators that the average fasting man eliminates 10 grams of nitrogen in his urine, which corresponds to a destruction of 62.5 grams of proteid or the equivalent of about 300 grams of meat per day.

After prolonged fasting with extreme emaciation the nitrogen in the urine may sink to 5 grams or half what it was at first. In the case of starvation, proteid metabolism furnishes about 15 per cent. of the total fuel required by the organism and the remaining 85 per cent. is obtained by burning the body's fat. If carbohydrates be introduced alone into the circulation of a man who previously has been fasting the proteid metabolism is considerably reduced. It has also been found that where a mixed diet rich in carbohydrates is given containing 60, 50, or even 25 grams of proteid, a loss of body proteid may be prevented. In other words, the nitrogen contained in the proteid ingested is exactly eliminated in the excreta without any draft on the body's own proteid store. Such a condition is known as nitrogen equilibrium.

I do not wish to be misunderstood as commending these possible minima of proteid ingestion as being the most desirable, but I am citing the work of Chittenden and others only to emphasize the minimum of proteid ingestion below which waste of body proteid ensues. I agree with Meltzer in the idea that such a minimum is below the "factor of safety."

Passing now to the second consideration, the fuel requirement of the organism, it has been found repeatedly that a fasting man at light work and weighing 70 kilograms produces 2,240 calories of heat or 32 calories per kilogram in twenty-four hours. This is the fasting man's requirement of energy. It may be otherwise stated as being that quantity of heat capable of raising 22.4 liters of ice cold water to the boiling point. If this person were fed on a mixed diet his requirement of energy would be raised from 32 to 35 calories per kilogram of body weight. It is, therefore, apparent that food only slightly increases heat production. If too much food be given it is retained in the body; if too little, the body substance is attacked to make up the requirement of energy. It must, however, be remembered by the physician that in the case of persons confined to their beds this requirement falls to 1,750 calories, or 25 calories per kilogram, since equable temperature and muscular rest reduce the amount of needed fuel.

Ignorance of the unremitting demands of the organism for a definite quantity of dynamic energy leads to great error. I have in mind a diabetic woman whose physician told her to take a "proteid diet" without telling her to take 200 grams of fat as well, and who as a result lost 105 pounds in three months.

As concrete examples of a ration covering the energy requirement of the normal organism it may be said that two pound loaves of bread contain 2,390 calories and 64.4 grams of proteid substances, while four quarts of milk yield about 2,400 calories and contain 140 grams of proteid. The bread costs 10, the milk 20 cents. It is evident that this quantity of fuel for the human machine is not to be compressed into insignificant pellets. The ration of dried meat called pemmican, and of half a pound and more of fat, represents the most concentrated arrangement of fuel value and is used by travelers in polar regions.

The mention of bread, or of milk, or of bread and milk, as a constant dietary arouses at once the feeling of personal distaste. Bread and milk are easily digestible and perfectly assimilable by any healthy person, but foods with a stronger flavor are usually sought for the maintenance of the body functions. Herein lies a harvest for the proprietors of any pleasant tasting substance which is sufficiently advertised. Among such substances are the "breakfast foods."

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Take, for example, "grape-nuts"—a malted preparation of the entire wheat grain—which contains a large amount of soluble carbohydrate. A pound and a half of "grape-nuts" yields 2,580 calories, contains 81.5 grams of proteid and proteid-like substances, and costs 21 cents. Here then is a product, a pound of which has nearly one and one-half times the nutritive value of a pound of bread and which costs only twice as much as bread for use in nutrition. The extra price is a price for flavor alone. The advertised statement that the system will absorb a greater amount of nourishment from a pound of grape-nuts than from ten pounds of bread is obviously a falsehood, and for any one to believe that grape-nuts is in any way more specifically adapted as a food for brain and nerve centers than is, for example, bread and milk, is preposterously foolish. Grape-nuts has been selected because it is at present the most widely advertised of the breakfast foods, but the same analysis holds true of all. For many years the name of Voit was used as guaranteeing the purity of "Liebig's meat extract," yet all Voit's publications showed that the whole value of this material was in its flavor.

As regards the fuel value of the various malt extracts one may copy the statement of Hutchison in his "Food and Dietetics" that a dessertspoonful has a fuel value of 60 calories, or less than the same measure of honey, which contains 75 calories. The sugar of honey is invert sugar and ready for immediate assimilation.

There are numerous fabrications in the form of biscuit or crackers, and these are often fortified by the addition of casein or gluten. In so far as these are pleasing to the taste they are helpful to the digestion. The question of their food value concerns the physician only in the case of diabetic patients. Such patients covet carbohydrates, and biscuit may be prepared containing 80 per cent. of gluten and only 10 per cent. of starch which may greatly comfort the sufferer. Diabetic foods have been analyzed recently by Winton of the Connecticut Agricultural Experiment Station, who shows that some of the widely used "diabetic flours" are scarcely different from ordinary flour and constitute base and contemptible frauds.

The value of cod liver oil lies not entirely in the fat which it contains, but in the presence of a large quantity of fatty acid. When the latter reaches the intestine it forms a soap with the alkali, and this soap produces an emulsion of any fat which may be present, thereby giving an immediate opportunity for the action of the digestive ferment steapsin.

All of the peptone preparations consist chiefly of albumoses. Voit has pointed out that these substances are likely to produce diarrhea, and Cohnheim states that it is undesirable to administer more than 30 grams of somatose daily to a man. Such a quantity contains about 18 grams of proteid matter.

Finally there is a class of predigested proteids which are sold in solution and are commended to the purchaser in doses of one-half to one tablespoonful. Characteristic of this group are liquid peptonoids and panopepton, of similar composition and both containing considerable alcohol. As regards these preparations, the physician must remember that a tablespoonful contains only a gram of proteid material. Also that a whole pint bottle contains about 25 grams of proteid and as much alcohol as in a quart bottle of claret. Assuming that the proteids contained in these preparations are of a physiologically valuable type, then at least a pint a day would be absolutely essential to prevent loss of body proteid. It is said that many patients have died of proteid starvation through the ill-advised administration of these preparations. It may well be that these liquid foods are sometimes helpful as flavor and stimulant, but their limitations should be fully recognized.

It seems that the physician should be rightly informed as regards the requirements of nutrition. It would be well to remember the ready digestibility of white of egg, of beef juice, of peptonized milk. The wonderful improvement in the nourishment of hand-fed children should stimulate to further research along this line. No doubt much help will come from the dilution and subsequent enrichment of milk with cream and milk-sugar and the study of its action on the organism in disease. The basis of nutrition, whether in childhood or in the adult, in sickness or in convalescence, requires the administration of the proper quantity of proteid and of energy containing fats and carbohydrates and the preparation of this food in a palatable form.

[For the discussion, see the department of Section Discussions in this issue.]

HOMOLOGOUS BACTERIA AS A VACCINE IN TUBERCULOSIS.*

PRELIMINARY REPORT.

ALBERT H. ALLEN, M.D.
First Assistant Resident Physician, Adirondack Cottage Sanitarium.
TRUDEAU, SARANAC LAKE, N. Y.

The object of this investigation was to obtain from sputum a standardized vaccine for tuberculosis. The product is called tubercle vaccine, since it resembles closely an emulsion of a tubercle.

PREPARATION OF SPUTUM.

1. Fresh sputum was carefully washed through six normal salt solutions.

2. The sputum was then thoroughly homogenized with an ordinary egg-beater for from ten to fifteen minutes.

3. An attempt was then made to separate the tubercle bacilli from the pus cells. Centrifugalizing, the whirling table, forced and simple filtering through many varieties of filter papers, through various cloths, sand, wool, cotton, glass wool, were tried with rather poor success. Thirteen layers of thin, closely-woven cloth with "threads drawn" and with the "drawn threads" parallel were used in the hope that the rods would pass more easily than the spherical cells through a filter with merely long narrow meshes. This made too coarse a filter. A fine sponge was allowed to take up the homogenized sputum. Specimens from the upper surface of the sponge showed no separation of the tubercle bacilli and leucocytes. With a rubber bulb on a glass tube, bubbles of sputum were blown and specimens taken of the thin delicate wall of the bubbles, but the cells and tubercle bacilli were still present in the same proportions. The least unsatisfactory method was to collect

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* This work was carried out under a grant by Mr. Nathan Strauss, New York.

the foam after homogenizing. This foam seemed to be freer of cells and at the same time richer in tubercle bacilli. Foam was liquefied quickly by placing it under an exhaust pump.

4. The emulsion thus obtained was concentrated by centrifugalizing.

5. This emulsion was now standardized by a modification of A. E. Wright's method. I was unable to stain the tubercle bacilli without partially destroying the red cells. So the smears were made, and four square areas (about 0.5 cm. square) were marked off with blue pencil, and before staining the red cells in ten fields in each square were counted. Then the smears were stained for tubercle bacilli (Gabbett's method) and the tubercle bacilli in ten fields in each of the squares counted. This method would seem almost as accurate as Wright's method with other bacteria. The most concentrated vaccine we have made so far counted 175,000,000 tubercle bacilli per c.c. To standardize for secondary organisms Wright's method was used, but these bacteria were few.

There seemed to be no way of comparing the vaccine with any of the tuberculins. Several emulsions of tubercle bacilli that were being used for inoculation in experiments on animals in the Saranac Laboratory showed counts smaller than 175,000,000.

6. The emulsion was sterilized by heating on two successive days for two hours at 60° C. and an antiseptic was added for preservation.

7. In order to preserve from heat the toxins and ferments present, a portion of the emulsion before sterilization was passed through a Berkefeld filter. It seems difficult to standardize this filtrate, which may be an important adjuvant to the vaccine. The filtrate is either to be added to the vaccine or injected separately at the same time.

PRELIMINARY TESTS.

1. To test the sterilization, on March 16, one healthy guinea-pig was injected with 1 c.c. of the 175,000,000 emulsion that had been heated two hours at 60 C. one day. Another healthy guinea-pig (half grown) received 0.5 c.c. of this emulsion, heated to the same temperature, on two successive days. After six weeks the autopsies showed in the first guinea-pig tubercle lesions, in the second guinea-pig none.

2. The injection of unaltered tubercle bacilli in considerable numbers into tuberculous animals usually produces ulcers at the site of injection. To test this point with tubercle vaccine, two supposedly tuberculous guinea-pigs were inoculated. No ulcers resulted, but autopsies at the end of six weeks showed no lesions except caseous glands near the site of injection in the guinea-pig receiving the vaccine heated only once.

3. The influence of opsonification on the immunizing power of bacteria is still an unsettled question. To see if the tubercle bacilli in tubercle vaccine were opsonified, tubercle vaccines sterilized and unsterilized were added to washed leucocytes, appropriate controls being made. No phagocytosis resulted. After adding serum, phagocytosis did occur. Only two such tests have been made so far.

It was proposed to study the action of the vaccine by various experiments on animals. Dr. Trudeau has suggested that, since one of its main advantages lies in its being homologous, animal tests will not be entirely fair. He suggested further that the homologous feature could be approximated by infecting the animals to be treated with the unsterilized vaccine to be used.

HISTORICAL DATA.

In 1638, an English professor, Dr. Robert Fludd, advised sputum injections as a cure for phthisis. Ten or fifteen years ago two homeopaths, Dr. Jaeger and Dr. Burnett,[1] an Englishman, began to use sputum inoculations. Burnett called his vaccine bacillinum, and thus describes its preparation:

> Take a portion of the lung of an individual who has died of genuine bacillary tuberculosis pulmonum, choosing a good-sized portion from the parietes of a cavity and its circumjacent tissue as herein will be found everything pertaining to the tuberculous process—bacilli débris, ptomains and tubercles in all stages (such was practically the origin of the matrix of my bacillinum) and prepared by trituration in spirit. In this way nothing is lost.

Bacillinum has had some place in homeopathic treatment ever since. The homeopathic preparations, because of their probable lack of standardization and because of their infinitesimal dilutions, can be ignored. In recent years some American physician has advocated sputum inoculations.

THEORETICAL ADVANTAGES OF TUBERCLE VACCINE.

Tubercle vaccine contains the constituents of the sputum. The bacteria are homologous and non-cultivated, and include probably representatives of all the bacteria concerned in the individual's lung lesions.

As to the chemistry, we learn from Hammarsten,[2] von Jaksch[3] and others that tuberculous sputum contains mucin, saliva, albumoses, peptones, glycogen, fats, ferments, inorganic matter: a great complexity, but this may be said of B.F. (*bouillon filtre*), O.T. (original tuberculin, Koch) and other tuberculins. Escherich found ferment in all sputa from extensive destruction of lung tissue. The rôle of this ferment in producing cavities and hemoptysis may be important. Flexner and Noguchi[4] showed that cobra venom, when injected, produced a cytolytic effect on the endothelium of capillaries and thus allowed hemorrhage. An anticytolysin which prevented the destruction of the endothelium was produced by treating animals with the venom. If the ferment in sputum is important, sputum inoculations should evoke an antiferment that should aid in the body's defense. Naturally there is some toxin in the sputum due to disintegrated bacilli.

HOMOLOGOUS BACTERIA.

A. E. Wright's success with his various vaccines seems to depend largely on the bacteria being homologous.

If into a lupus patient tubercle bacilli are injected from an outside source no lesion arises. If the patient's own tubercle bacilli are injected a lesion occurs. Deutsch demonstrated that a syphilitic can not be reinfected from without, but can be reinfected from his own lesion. "The excitant of lues appears to have acquired an immunity against the defensive mechanism of the body which is difficult to overcome" (Loewenstein[5]).

This vaccine avoids the great variety of tubercle bacilli and is restricted to the particular tubercle bacilli the body is fighting. Loewenstein thought that leucocytes acted differently toward tubercle bacilli of varied sources, avian, etc. Dembinski found in pigeons that phagocytes are not so capable against avian as they are against human tubercle bacilli. Loewenstein found that leucocytes freshly voided from a tuberculous bladder englobed strange, but not homologous tubercle bacilli. After treating this patient with Koch's new tuberculin for eight months these leucocytes did englobe the homologous tubercle bacilli *in vitro* and marked phagocytosis of tubercle bacilli was present in the urine. This occurrence was simultaneous with marked improvement clinically. This bladder case and the above facts concerning lupus and syphilis argue eloquently that bacteria growing in the body acquire a capacity to withstand the bactericidal powers of the body. That is, homologous bacteria differ in some way from "strange" bacteria. It would seem wise, therefore, to vaccinate with the exact bacterium which is causing the disease. The above mentioned bladder patient was treated with non-homologous bacteria and improved, but this does not preclude the idea that homologous bacteria would have been far more effective.

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[1] The New Cure of Consumption by Its Own Virus.

[2] A Text-Book of Physiologic Chemistry.

[3] Clinical Diagnosis.

[4] Production and Properties of Anti-Crotalus Venin, Jour. of Med. Research, xi, 2.

[5] Ueber das Verhalten der Elterzellen gegenuber den Tuberkelbazillen, Ztschr. f. Hyg. u. Inf., lv, 3.

Bier's treatment, besides giving fresh blood to the old focus, causes old toxins to be flushed out into the circulation as seen in the temperature which Bier's treatment produces. Tubercle vaccine would be like this, an autovaccination.

NON-CULTIVATED BACTERIA.

Are cultivated bacteria different from those growing in the body? Welch believed that bacteria growing in the body produce their own antibodies to oppose the complements, amboceptors, etc., of the organism. Bail's agressin theory considers the defensive power of the bacteria against the bactericidal powers of the organism. Bail demonstrated that typhoid bacteria grown in the peritoneal exudate of guinea-pigs wards off agglutination even by strong sera.

Loewenstein found that the tubercle bacilli from the urine in his bladder case before tuberculin treatment resisted phagocytosis by the urine leucocytes. After cultivation for two generations these bacilli lost this resisting power and acted like non-homologous tubercle bacilli.

Theobald Smith[6] believes that "tubercle bacilli as they come directly from some discharging focus are provided with some protecting, more or less inert subtance as an envelope."

The persistent efforts by many investigators to prepare a culture medium closely simulating body conditions show the wide belief that cultivated bacilli differ from non-cultivated. Liver, lung, brain, egg, media plus blood, media plus immune sera, etc., have been tried.

Denys and Leclef[7] found that streptococci are killed if planted in a serous exudate rich in leucocytes. If, however, the streptococci are injected intraperitoneally the extracellular cocci do grow in the peritoneum. Thus exudate is bactericidal *in vitro* but not *in vivo*.

The two striking examples of active immunity (smallpox and rabies) are obtained by injecting products immediately from the animal. Metchnikoff[8] says: "The vegetable micro-organisms frequently manifest most characteristic phenomena of acclimatization." He acclimated one of the lowest plants to an arsenical solution which at first was deadly. Sawtchenko found that anthrax bacilli could be accustomed to live in rat serum, although at first this serum was bactericidal. Danysz observed that the anthrax bacilli defend themselves by a thin sheath of mucus. Metchnikoff observed tubercle bacilli in giant cells with a series of sheaths which he believed the tubercle bacilli manufactured for protection. So micro-organisms acquire characteristics dependent on their media. Thus is emphasized the advantage of not using bacteria that have grown on artificial media when the patient is fighting an old enemy that has learned to meet all the body's attacks.

PUS CELLS.

The pus cells in tubercle vaccine are probably not without value. Peter Patterson[9] treated local and lung tuberculosis with the caseous matter from tuberculous abscesses. He believed the substances inimical to tubercle bacilli were in the solids. Others have done this work on animals.

The leucocytes in the tubercle vaccine disintegrate by the fourth or fifth day, even although the vaccine is kept in the ice box. If the disintegrated leucocytes are incapable of provoking the formation of a leucocytolysin, my attempts to separate the pus cells from the vaccine were probably unnecessary.

MIXED INFECTION.

Tubercle vaccine is at times a double bacterio-vaccine. The secondary organisms when present may be presumed to come from the lungs on account of the washing. Thus the patient is treated with the peculiar organisms which are causing the lesions, and these organisms are unaltered except by moderate heat.

I wish to express my sincere thanks to Mr. Nathan Straus of New York, through whose generosity this research was made possible; to Doctors Trudeau, Baldwin and Brown for their great helpfulness in this work, and to Mr. E. J. Farren, my laboratory assistant, for his intelligent and energetic aid.

THE CAUSE OF INFANTILE ATROPHY

DEDUCED FROM A STUDY OF SECRETIN IN NORMAL AND ATROPHIC INFANTS.*

A. H. WENTWORTH, M.D.
Assistant Physician to the Children's Hospital and to the Infants' Hospital.
BOSTON.

The etiology of infantile atrophy has long been one of the most mooted questions in pediatrics. A large number of theories have been advanced, but none of them has been widely accepted. Metabolism investigations[1] have shown the loss of nitrogen and fat; but the mere registration of these facts gives us no clue as to the causes which lie beneath these phenomena. The theory of acid intoxication advanced by Czerny and Keller[2] has not been generally accepted. Even if we grant that atrophic infants are in a state of acidosis, it remains to be proved that the acidosis is primary and not secondary

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[6] The Parasitism of the Tubercle Bacillus and Its Bearing on Infection and Immunity, THE JOURNAL A. M. A., April 28, 1906, 1247.

[7] (Cited by Bordet): Ann. de l'Inst. Pasteur, 1897, xi.

[8] L'Immunite.

[9] Some Observations on the Effect of Sterile Caseous Matter in the Treatment of Tuberculous Disease, Lancet, Aug. 25, 1906, clxxi, 4330.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

*From the Laboratory of Biological Chemistry of the Harvard Medical School. The expenses of this research were defrayed in part by a grant from the Proctor Fund for the Study of Chronic Diseases.

[1] Wentworth (A. H.): THE JOURNAL A. M. A., Aug. 26, 1905; Sept. 9, 1905.

[2] Jahrb. f. kinderh., 1897, xliv, xlv; 1898, xlvi.

to the inanition, which, as is now believed, may produce metabolism conditions like those observed in acidosis. The theory that intermediary metabolism is disturbed is an assumption which does not tell us the fundamental cause, nor the location, nor the nature of the disease. Anatomic studies are interesting, but as is so often the case in purely morphologic research leave us in the lurch when we attempt to use them to explain disturbance of function.

Of the anatomic studies, Bloch's[3] are particularly interesting. In a study of serial sections of the stomach and intestines of three atrophic infants, he found no evidence of intestinal atrophy. The only abnormality to which he attached importance was the condition of Paneth's cells, cells discovered by Paneth in 1888 in Lieberkühn's ducts. Under normal conditions the presence of certain granules in the protoplasm of these cells is accepted as evidence that these cells are functioning. In these cases of atrophy examined by Bloch the granules in Paneth's cells were, for the most part, absent. There was no appearance of degeneration in the cells themselves, and Bloch concluded that these cells were not functioning. He regarded this condition of Paneth's cells as a causative factor in the production of infantile atrophy.

Without questioning these findings of Bloch, I do not believe that it is safe to draw any conclusions whatever as to disturbance of function solely from such purely histologic findings as these. Moreover, although I have no desire to discredit the work of Bloch, I can not believe that the thickness of the intestinal wall is normal in cases of atrophy. Any one who compares the thickness of the intestinal walls of well-nourished and of atrophic infants must admit that the latter are much thinner and have a smooth mucosa, while the former are much thicker and have a mucosa covered with transverse ridges, valvulæ conniventes. They are especially prominent in the upper portion.

The thin and smooth appearance of the small intestines in atrophic infants has been attributed to chronic dilatation without much evidence. A large proportion of these cases never present any sign of chronic dilatation either clinically or postmortem. The fact that Bloch found the intestinal epithelia to be intact and to take stains normally does not preclude the possibility that the various components of the intestinal wall may be reduced in bulk. It may well be that the condition of the intestines is merely a sign of the general marasmus. Certainly clinical experience has demonstrated that atrophic infants that have not gained in weight for weeks or months are able to gain very rapidly within a few days after receiving suitable food, and ultimately present all the appearances of fat and normal babies.

We have here physiologic evidence from clinical observation which is at variance with the assumption of any serious anatomic change. The fact that atrophic infants when put on a suitable diet mend at once is hard to reconcile with the presence of any severe anatomic lesion involving the greater part of the intestines. The fact that they do often mend so suddenly points either to a wide "factor of safety"[4] or to a functional rather than to an anatomic disturbance. This investigation was undertaken from this point of view, and in its course I undertook to investigate certain of the functions of the intestines in normal and atrophic infants.

The researches of Bayliss and Starling[5] and of Pawlow and his school have in recent years materially advanced our knowledge of the physiology of the gastrointestinal tract. They have particularly brought out the interdependence of the functions of the different parts of the tract. Thus Bayliss and Starling have shown that there exists in the superficial layer of the mucosa of the upper part of the small intestines of mammals a substance which they called prosecretin and which is converted by the action of the hydrochloric acid of the gastric juice into a substance called by them secretin. The latter is not secreted into the lumen of the intestines, but finds its way into the blood, by which it is carried to the pancreas and to some extent to the liver. It stimulates these organs to secrete. The chemical nature of secretin is not known, but inasmuch as it withstands boiling it probably is not a ferment. It seems to be common to all vertebrates and does not seem to be specific, for the secretin of one species is capable of activating the pancreas of another.

An appreciation of the above facts suggested to me a possible explanation of the cause of infantile atrophy, viz., a defective correlation of the several digestive organs, stomach, intestines, pancreas and liver. This hypothesis led me to undertake the experiments which are described in this paper.

The observations were made on cats, and ether was used as an anesthetic. A tracheal canula was rapidly introduced and etherization was continued through this canula.

The external jugular vein was dissected out, clamped above and below and a canula introduced and tied in. I made use of an obturator, one end of which was held in the mouth and the other inserted into the canula. This permitted me the use of both hands to tie the canula into the vein and enabled me to do without an assistant. The vein was usually tied off above and the clamp permitted to remain below to prevent blood from entering and clotting in the canula.

A canula was introduced into the pancreatic duct. For the first two or three observations the duct was dissected out and a canula tied into it. For the next two or three observations the intestine was opened and the canula was introduced into the opening of the common duct (Rachford's method). Both of these methods have serious objections for comparative work. The pressure under which the pancreatic juice is secreted is very low, especially when secretory activity is not good. A very slight obstruction will prevent the pancreatic juice from flowing into the canula. To avoid such a possibility it is necessary to be able to manipulate the canula freely, to withdraw clean and reinsert it and to try the effect of different positions of the canula within the duct. This can not be done when the canula is tied in. The objection to Rachford's method for my work is that the canula does not reach to the pancreatic gland and is in the common duct. There is chance for obstruction along the course of the duct from external pressure, etc.

A modification of Heidenhain's method was used after these initial experiments. The duct was cut transversely without dissecting it out. If in doubt whether the fluid is bile or pancreatic juice, bile is bitter; there is not much difference in color oftentimes. If the duct can not be found, open the intestine and trace duct from nipple downwards with canula. The canula was introduced down into the gland itself and was not tied in. It is advisable to use a canula with a relatively long tip so that it will reach the gland. It was possible in this way to withdraw the canula and reinsert it with the loss of only a few seconds of time. In addition the canula could be manipulated in various ways to increase the flow. It was found that in some positions of the canula the flow was better than in others. This favorable position was always sought for each time that the canula was introduced. This was the only way in which results could be obtained that were comparable. The capacity of this canula was 0.25 c.c.

In the early observations the pancreatic canula was allowed to remain until it filled with juice or until there was no further rise of fluid in the canula. In the latter case the contents were not removed at once but a period of time was permitted for the secretion to continue. It was soon discovered that if the contents were removed at once as soon as the juice ceased to rise in the canula the fluid would rise again, either to this point or lower. In this way a more accurate estimate could be formed of the degree of activation produced by a given injection. This procedure was constantly repeated until no further rise occurred. Undoubtedly a better showing could have been made in these early experiments if this fact had been appreciated.

The secretin was prepared in accordance with the directions given by Bayliss and Starling. The scrapings were made from the upper three feet of small intestines, ground with sand and a little hydrochloric acid, 0.4 per cent. strength. A measured quantity of hydrochloric acid (0.4 per cent.) was then added. This was allowed to stand for a few minutes, boiled over a free flame, neutralized while boiling to the point of alkalinity with a 10 per cent. solution of sodium hydroxid, and brought back to a distinctly acid reaction with acetic acid. The entire contents of the evaporating dish were then transferred to a clean cloth and as much of the fluid squeezed out as possible. This was then filtered and was ready for use. In about half of the observations the scrapings from the intestines were ground up with sand, moistened with absolute alcohol, then washed thoroughly with cold absolute alcohol. This alcohol was filtered off and fresh absolute alcohol added and boiled for several minutes. This alcohol was filtered off and the residue dried. The dried residue was then treated with 0.4 per cent. hydrochloric acid as above. It is stated by Bayliss and Starling that substances are present in the mucus membrane of the intestines which cause a lowering of the blood pressure and an inhibition of the secretory functions of the pancreas. These substances are soluble in boiling alcohol. Prosecretin is not soluble in strong alcohol.

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[3] Jahrb. f. kinder., 1904, lix.

[4] Meltzer (S. J.): The Journal A. M. A., Feb. 23, 1907.

[5] Journal of Physiology, vol. xxviii, 1902.

This dried preparation can be kept indefinitely if properly protected from oxidizing agents. It was found that freezing did not affect the activity of secretin preparations, and in this way I was able to preserve solutions for as long as two weeks in a few instances. As a rule, however, I did not attempt to preserve solutions for more than a week. In the first three or four observations the secretin was injected into the jugular vein from a syringe. After this it was always introduced by a burette; 10 c.c. were used as a rule. The injections of human secretin were always followed by control injections of cat secretin. This is absolutely essential in order to obtain reliable results. In this way any inhibition in the secretory function of the pancreas can be detected. In atrophic infants not more than one-half as much acid was used to prepare the secretin as compared with cat secretin, because there was so much less material scraped off. From 30 to 40 c.c. was used; in cats from 70 to 80 c.c.

A rule which I adopted toward the last was to kill the cat and try another, if the reaction to cat's secretin was not good. In this way I saved valuable time and precious material. The synopsis of my results is given in the following table:

SUMMARY OF OBSERVATIONS.

Date.	Observations.	Number of Injections.	Latent Period.	Duration of Flow.	Amount of Flow.
1906 Dec. 24..	i. Atrophy.	1	....	Short.	½ canula.
		2	3 minutes.....	2 minutes....	1 canula.
		3	1 minute.......	Few seconds.	1 canula.
1907 Jan. 3....	ii. New-born.	1	No activation.		
		2	Very slight....	....	Tip of canula.
		3	No activation.		
Jan. 3....	iii. 3 weeks.	1	Slight activation.	....	1 canula.
Jan. 4....	iv. Atrophy.	1	Slight activation.	....	½ canula.
		2	Slight activation.	....	1 canula.
Jan. 5....	v. Same as iv.	1	Slight activation.	....	⅓ canula.
		2	Very slight activation.	....	Tip of canula.
		3	Slight activation.	....	1 canula.
		4	No activation.		
Jan. 9....	vi. Atrophy.	1	Slight activation.	....	½ canula.
Jan. 23...	vii. Atrophy.	1	No activation.	....	1/6 canula.
		2	Slight activation.	3 minutes....	1/6 canula.
Feb. 10...	viii. New-born.	1	No activation.		
Feb. 15...	ix. New-born, ½ mo.	1	Slight activation.		
		2	Slight activation.		
Feb. 26...	x. 2 years..	1	1 minute.......	6 minutes....	1¾ canula.
		2	1 minute.......	7 minutes....	3+ canula.
		3	1 minute.......	4 minutes....	1¾ canula.
Mar. 6 ...	xi. 11 mo ...	1	¾ minute......	12 minutes...	2 canula.
Mar. 8....	xii. Control of obs. xvii.	1	¾ minute......	12 minutes...	2 canula.
Mar. 13...	xiii. Premature, 3 weeks old.	1	4 minutes......	2½ minutes..	¼ canula.
Mar. 15...	xiv. 4 mo., normal.	1	¾ minute......	13 minutes...	4 1/6 canula.
		2	½ minute......	15 minutes..	5 2/5 canula.
		3	½ minute......	6 minutes....	2 6/7 canula.
		4	½ minute......	6 minutes....	1 3/7 canula.
Mar. 20...	xv. 10 mo....	1	½ minute......	4 minutes....	⅔ canula.
		2	1 minute.......	9 minutes....	½ canula.
		3	2½ minutes....	10 minutes...	1⅝ canula.
....	Premature, lived 4 mo.	1	1 minute.......	3½ minutes..	⅝ canula.
		2	No activation.		
May 2....	xvi. Atrophy.	1	Very slight. ...	4½ minutes..	Tips filled 3 times.
		2	Activation.....	5 minutes....	
May 3....	xvii. New-born.	1	No activation.		
May 9....	xviii. Control of obs. xvi.	1	Very slight activation.	....	1/9 canula and stopped.
....	Control of obs. xvii.	1	No activation.		
May 17...	xix. Normal infant, 4 mo.	1	½ minute......	9 minutes....	2 canula.
		2	½ minute......	11 minutes...	2⅔ canula.
		3	½ minute......	7 minutes....	1½ canula.
May 24...	xx. Atrophy.	1	¾ minute......	2 minutes....	¼ canula.
		2	1 minute.......	4 minutes....	2/5 canula.
		3	½ minute......	6½ minutes..	6/11 canula.

A study of the summary shows that the material obtained from the intestines of atrophic infants possessed little or no power to stimulate the flow of the cat's pancreatic juice, indicating either a marked diminution in the strength or in the quantity of secretin present, whereas the secretin from the intestines of well-nourished infants and children invariably produced activation of the cat's pancreas. Moreover, the preparations from the intestines of new-born infants also failed to activate. In analyzing these results it must be borne in mind that the total duration of activation is fully as important in estimating the degree of activation as the quantity of pancreatic juice secreted in a given interval of time. In many cases it seems to me the duration gives the more accurate estimate. It has been my experience that the duration is less likely to be affected by the experimental conditions, for a temporary retention of juice the result of a previous injection if suddenly discharged by some manipulation, would simulate a stimulation not really present.

In interpreting my results not only must we bear in mind the possible experimental sources of error, which I hope to discuss in greater detail in a longer publication, but also the fact that it is impossible to quantitate secretin. Secretin is not a ferment and, therefore, dilution weakens its effect. It is impossible to obtain the same quantity of prosecretin in each case. If one mucous membrane is very thin and another very thick the weight of a given quantity of intestinal scrapings would not be a reliable guide to the quantity of prosecretin in each, because the scrapings consist of both epithelium and underlying tissues, the epithelium or the tissue just beneath alone containing prosecretin. This introduces an error which thus far I have been unable to estimate. I have tried in some cases to compensate it by using for the scrapings from certain lengths of atrophic intestine half as much hydrochloric acid as for the same length of normal or cat intestines. I thus endeavored to obtain in these cases more concentrated solutions. I, therefore, feel warranted in saying that there is less secretin in the intestinal mucosa of an atrophic infant than in that of a normal one.

If now we regard my findings as an established fact, we have next to consider whether the diminution of secretin is primary or secondary to some other condition. It is possible that it is merely a symptom of inanition, and it is possible that it is secondary to some other disturbance of function higher up in the gastrointestinal tract, perhaps in the stomach. The possibility of the diminution of secretin being due to inanition I have not yet investigated; I am about to do so. However, it seems to me extremely unlikely, because suitable food evidently restores the functions suddenly and long before the general marasmus of the infant has been bettered. The possibility of its being secondary to disturbance of gastric function I have begun to investigate. Here I have been helped by recent work of the physiologists. Bayliss and Starling have shown that under normal conditions the activation of the pancreas is not entirely of nervous origin, as supposed by Pawlow. They have further shown that it is the hydrochloric acid of the stomach contents that causes the duodenum to produce secretin. It seemed, therefore, possible that the stomach of atrophic infants did not produce enough hydrochloric acid to stimulate the duodenum to produce an adequate quantity of secretin, and that infants that had adjusted themselves to cow's milk secreted enough hydrochloric acid in their gastric juice to produce the quantity of secretin needed normally to activate the pancreas.

I investigated, therefore, the hydrochloric acid content of the stomach contents of atrophic infants and compared them with the analyses of the stomach contents of normal infants. Because free hydrochloric acid is absent or present only late in digestion in normal infants, it is useless to test for it. Combined hydrochloric acid was determined according to Sjöquist.[6] I am aware that this method has been questioned on the ground that it gives too high results. Whether this criticism be justifiable or not is immaterial here, where only accurate relative results are necessary and where differences so great as to lie beyond any possible error of method only are significant. The gastric content was always obtained one and one-quarter hours after feeding. Free hydrochloric acid was tested for with Gunzburg's reagent. My results are embodied in the following table:

QUANTITATIVE ESTIMATION OF COMBINED HYDROCHLORIC ACID IN THE GASTRIC CONTENTS OF INFANTS.

ATROPHIC INFANTS.

Name.	Age, in Months.	Weight.			Food. Per cent. of.			Quantity.		Free HCl‡	Gms. of Combined HCl in 100 c.c. of Gastric Contents.
		Gms.	Lbs.	Ozs.	Fat.	Sugar.	Proteid.	Ounces.	No. of Feedings.		
A...	4.5	3690	8	2	3	6	1	4	8	0	.01
B...	3.5	2300	5	0	3	6	1	2.5	10	0	.016
C...	3.5	3410	7	8	3	6	1	2.5	10	0	.012
D..	9	3990	8	12	3	6	1	4.5	8	0	.02
E...	3.5	4030	8	14	3	6	1.25	4	8	0	.041
F..	3.5	4150	9	2	3	6	1	......	......	0	.07
G...	15	7550	16	10	*	....	....	8.5	5	0	.018
H..	15	6830	15	......	†	....	....	8	6	0	.01+

WELL NOURISHED INFANTS.

K..	7.75	6360	14	......	Milk.		....	6	6	0	.16
L..	8	6730	14	15	4	7	1.25	8	6	‖	.145
M..	6	5900	13	......	3.5	7	1.8	6	6	‖	.144
N..	8	6950	15	5	4	7	1.5	6	6	0	.165
O...	7	5540	11	3	4	7	1.25	5	8	0	.045
P..	5	6180	11	6.5	3.5	6	1.8	6	6	0	.015
R..	8	7350	16	3	4	7	1.26	6	7	0	.01+

E and F, although much under weight, were not typical cases of atrophy. Neither their previous history nor their appearance corresponded to atrophy.

* Milk, 7 oz.; oat jelly, 1.5 oz.

† Milk, 4 oz.; barley jelly, 4 oz.

‡ The reaction in the atrophic infants was faintly acid, in the well nourished infants acid.

‖ Faint reaction.

The table shows that in the case of the atrophic infants the results were very uniform, whereas the gastric contents from three out of seven of the well-nourished infants contained no more combined hydrochloric acid than that of the atrophic infants. All of the well-nourished infants were out-patients and were selected for their appearance without consulting their histories at the time. After the examination of the gastric contents showed these contradictory results I examined the histories and found that babies K, L, M and N, with normal amounts of hydrochloric acid in their gastric juice, gave no previous history of digestive disturbance, whereas babies O and P had both been atrophic infants up to within a few weeks of the time that their gastric contents were tested.

Baby O—When 5 weeks old weighed 4 pounds 10 ounces; when 9 weeks old weighed 4 pounds 10½ ounces; when 3 months old weighed 5 pounds; when 4 months old weighed 6 pounds 2 ounces. From this time she gained well and practically doubled her weight in three months. During the first four months there was a record of constant indigestion. The gastric contents were obtained when she was 7 months old. When she was 9 months old she only weighed 13 pounds, 7 ounces, so that at this time she was considerably under weight. Baby P also was atrophic until she was 3½ months old. At this time her weight was 8 pounds 3 ounces. She had been fed on many of the proprietary foods and on cow's milk mixtures. From 3½ months until 5 months she gained 3 pounds 3 ounces. The gastric contents were obtained when she was 5 months old. Six weeks later, when she was 6½ months old, she weighed 14 pounds, which was an additional gain of 2 pounds 10 ounces. Baby R had had scorbutus for the two weeks immediately preceding the time that the gastric contents were obtained. The symptoms were pain on handling and slightly elevated temperature. He had two lower incisor teeth and the gums were somewhat swollen and purple. The symptoms disappeared within five days from the time that he was given orange juice.

Several explanations can be advanced to explain the diminished amount of hydrochloric acid in these three cases. It is not improbable that in scorbutus the production of hydrochloric acid is diminished. In the case of the two infants that had previously been atrophic it is necessary to reconcile the evidence of impaired digestion as shown by the diminished amount of hydrochloric acid with the fact that at the time that the gastric contents were obtained they were apparently doing well and had made marked gains in weight and, therefore, presumably their digestive functions were not impaired at this time. It is possible that in their case the secretion of hydrochloric acid was delayed compared with the other infants. These explanations are unsupported by proof and are, therefore, of little value. Another criticism that can be made is that none of the well-nourished infants were under 5 months old, and perhaps normal infants for 3 months or under do not have as much hydrochloric acid in their gastric juice as these older ones had. A lack of time has prevented me thus far from controlling these observations. In order to be conclusive it will be necessary to make repeated examinations of the gastric contents from the same infant at different hours and to examine a much larger number of cases.

The secretion of hydrochloric acid is not the only function of the stomach. Pawlow has shown that the first gastric juice secreted, the "psychic" gastric juice, is poured out under the stimulus of hunger, food in the mouth, etc., but that the gastric juice secreted for two or three hours longer while digestion is going on must be explained on a different basis. After a meal the person or animal pays no further attention to food and forgets it, though the digestion continues. Edkins[7] discovered a gastric secretin produced by the pyloric end of the stomach during the remainder of digestion. The first gastric juice then is due to nervous action, the remainder to the action of a so-called hormone which is furnished by the first juice, and successive portions of the juice are secreted by the action of the products of gastric digestion, or hydrochloric acid, on the mucous membrane of the pyloric region. This secretin also finds its way into the blood and activates the stomach to continue the production of gastric juice. Whether this function also is disturbed in atrophy is a subject which I am investigating. The digestive functions as physiologists are showing are intimately interdependent. It is highly probable that if one of them be impaired the whole mechanism is thrown into confusion. My observations seem to show that in atrophy the interrelation between the stomach and the duodenum is impaired.

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[6] Zeitschr. für klin. Med., 1897, xxii.

[7] Jour. Physiol., xxiv.

What is the effective cause producing these conditions? Much of the work of physiologists outlined in the course of this paper shows that chemical stimuli are very important in the orderly regulation of the digestive functions.

Clinical observation teaches us that milk is a very highly specific food. Each species has its own characteristic milk and on this milk the young of the species thrive best. Cow's milk is adapted to the calf and not to the human infant. Young infants fortunately possess a certain amount of adaptability to abnormal conditions. The average infant can adjust itself to cow's milk if given a favorable chance. Experience shows that a large proportion of new-born infants that are fed shortly after birth on mixtures of cow's milk require from ten days to two or three weeks to adjust themselves before they digest well and make satisfactory gains. A certain number can not adjust themselves even when every precaution is taken, and a large number of those that might adjust themselves if handled properly in the beginning fail to do so because of mistakes in the quantity or strength of the food. These are the infants that become atrophic. The above clinical facts and the fact that such infants, in the limited number of cases thus far examined, do not possess the normal amount of hydrochloric acid, or the normal amount of secretin, lead me to believe that human milk contains something that is essential to the baby and that stimulates the functions of the digestive tract of the new-born without delay. When other kinds of nourishment are given this normal stimulation is imperfect and more or less delayed. When once established, however, the baby, as a rule, progresses satisfactorily.

The hypothesis as to the cause of infantile atrophy which, as the result of this research, I would propose may be briefly summarized as follows: The digestive functions of the very young infant are not activated because it does not receive the only food capable of adequately activating them, viz., human milk. This leads the stomach to secrete an inadequate gastric juice. The absence of an adequate gastric juice in turn does not stimulate the duodenum to form normal secretin. This defective secretin insufficiently stimulates the pancreatic secretion, and leads probably to as yet unstudied disturbances in the function of the gut lower down.

The question as to what renders the milk of each species specific in this way is a question that is now engaging my attention and which I hope to be able to answer in the near future. It is possible that it is due to hitherto overlooked specific substances or to certain hitherto disregarded factors in chemical composition.

OBSERVATION 1.[*]—Atrophic infant 7 months old; extreme emaciation; weight at time of death 2,870 grams (6¼ pounds). Postmortem three hours after death showed the usual appearances found in atrophic infants. Secretin prepared 3 hours after postmortem examination.

Dec. 24, 1906.—*First injection,* 6 c.c. atrophy secretin; slight activation; ½ canula. *Second injection,* 6 c.c. cat secretin; latent period 1½ min.; filled canula several times. (Cat died of ether asphyxiation.)

Dec. 25, 1906.—*First injection,* 6 c.c., at 5:13 p. m., cat secretin; latent period in 1¾ min.; filled canula in 1¼ min.; flowed several min. *Second injection,* 6 c.c., at 4:32 p. m., atrophy secretin; latent period 3 min.; almost filled canula in 2 min. and stopped. *Third injection,* 6 c.c. at 4:44 p. m., cat secretin; latent period 1 min.; filled canula in ½ min.; flow ceased in 8 min. *Fourth injection,* 6 c.c. at 5:04 p. m., atrophy secretin; latent period 1 min.; sudden rise and filled canula and stopped.

OBSERVATION 2.—Newborn infant; lived 15 hours; six hours before death received 2 drams of breast milk and 1 dram of water. Autopsy eight hours after death; death from hemorrhage into suprarenal capsule; fat, normal infant; weight not obtained. Secretin prepared five hours after postmortem examination.

Jan. 3, 1907.—*First injection,* 6 c.c. infant secretin; no activation. *Second injection,* 6 c.c. 10 minutes after first injection; infant secretin; filled tip of canula. *Third injection,* 6 c.c. infant secretin; no activation.

OBSERVATION 3.—Infant three weeks old; fed on modification of cow's milk; weight 3,544 grams (8 pounds). Postmortem twelve hours after death; death from erysipelas. Secretin prepared six hours after postmortem examination.

Jan. 3, 1907.—*First injection,* 6 c.c. infant secretin. *Second injection,* 6 c.c. infant secretin. *Third injection,* 6 c.c. infant secretin. As a result of the entire quantity injected the canula filled once. The gland tissue swelled up somewhat. Same cat used in Observations 2 and 3; 18 c.c. was practically the entire quantity of secretin that was prepared from the infant's intestines.

OBSERVATION 4.—Atrophic infant six months old; weight 2,900 grams (6 pounds, 6 ounces); extreme emaciation. In hospital for three and a half months; weight at time of death same as at entrance. During its stay in hospital it was fed on breast milk and a whey and cream mixture. Took about 30 ounces (1 liter) of food daily. The first four weeks it took 12 ounces daily and the remainder cream and whey mixture. For one week, 10 ounces of breast milk and the remaining time 5 or 6 ounces of breast milk daily. The first five weeks it lost 500 gm. The following five weeks it gained 500 grams. The next week it gained 190 grams, and in the last two weeks it lost 240 grams. Died suddenly without apparent cause. Temperature never above 99 F. Postmortem ten hours after death showed the usual appearances found in atrophic infants. Secretin prepared five hours after the postmortem examination.

Jan. 4, 1907.—*First injection,* 10 c.c. infant secretin; very slight activation; ½ canula. *Second injection,* 10 c.c. infant secretin; slight activation; 1 canula; the gland tissue swelled up somewhat. This cat had been used for another experiment and had been under ether for several hours, but appeared to be in good condition.

OBSERVATION 5.—This was a repetition of Observation 4, made on the following day. The same solution of secretin was used and the results were controlled with cat secretin.

Jan. 5, 1907.—*First injection,* 6 c.c. infant secretin; slight activation; 1/3 canula. *Second Injection,* 6 c.c. cat secretin; latent period 1½ minutes; canula overflowed three times. *Third injection,* 6 c.c. infant secretin; filled tip of canula. *Fourth injection,* 6 c.c. infant secretin; gradually almost filled the canula. *Fifth injection,* 6 c.c. cat secretin; slight activation. *Sixth injection,* 4 c.c. cat secretin; activation prompt and filled canula four times. *Seventh injection,* 6 c.c. infant secretin; no activation. *Eighth injection,* 6 c.c. cat secretin; activation prompt; filled canula three times.

OBSERVATION 6.—Atrophic infant 10½ months old; extreme degree of emaciation; weight at time of death 3,295 grams (7 pounds 4 ounces); said to have been breast fed for first five months, but no record obtained of his physical condition at the time. After this child was fed on modification of cow's milk for one month and then cow's milk and barley jelly for one month. Said to have had diarrhea for one month at the age of 6 months. Entered infants' hospital Oct. 1, 1906, 7 months old, weight 4,090 grams (9 pounds). Remained in hospital four weeks. Temperature normal most of the time. Re-admitted to hospital Dec. 20, 1906, and died 19 days later. All that we know of the duration of the atrophic condition is that at seven months he weighed 9 pounds. While in the hospital he suddenly developed gangrene of one foot. This was amputated. A week later there was vomiting and diarrhea, with some fever, which resulted in his death. His weight at entrance was 3,690 grams (8 pounds, 2 ounces), and at death was 3,295 grams (7 pounds, 4 ounces). Postmortem examination two hours after death showed the lesions of an old ileocolitis, presumably in September; old infarcts in kidney caused by hyalin thrombosis; partial intestinal obstruction at about the junction of the jejunum and ileum apparently fibrous tissue in the wall (congenital?). Moderate dilatation for about one foot above the partial obstruction; slight fibrinous exudation over dilated portion caused a partial volvulus. The partial acute obstruction probably accounted for the terminal symptoms of vomiting and fever. Nothing was found in the heart or larger vessels to account for the gangrene of the foot. Nothing else abnormal found.

Jan. 9, 1907.—Notes on this observation state that the results were unsatisfactory. The infant's secretin was controlled with cat secretin prepared in three strengths, viz., 1 to 9, 1 to 4, and full strength. The cat secretin did not activate as well as it should, and the notes state that the infant's secretin activated about as much as the cat secretin diluted 1 to 9, viz., about ½ canula of pancreatic juice. Ordinarily a 1 to 9 dilution of cat secretin would activate better than this. The reason for the diminished activation was not determined. Later observations lead me to believe that the infant secretin would not have activated any better even if the conditions had been favorable, but of course I can not prove this.

OBSERVATION 7.—Atrophic infant 7 weeks old; extreme emaciation. The infant was boarded out and the weight could not be obtained. Postmortem examination thirty-six hours after death showed nothing but the appearances usually found in atrophic infants. Secretin prepared three hours after postmortem examination.

Jan. 23, 1907.—*First injection,* 1:37 p. m., 10 c.c. infant secretin; no activation. *Second injection,* 1:52 p. m., 10 c.c. cat secretin; had been kept at room temperature for a week and had lost its power; no activation. *Third injection,* 2:20 p. m., 10 c.c. cat secretin (prepared from duodenum of cat that was undergoing experiment; latent period one-half min; 1 canula in 1¼ min.; 1 canula in 1¾ min.; 1 canula in 1½ min.; 1 canula in 2 min.; 1 canula in 4 min.; 1 canula in 3 min.; ½ canula in 3 min.; total of 6½ canulas in 16 min. *Fourth injection,* 2:42 p. m., 10 c.c. infant secretin; slight activation; 1/6 canula in 3 min. *Fifth injection,* 2:50 p. m., 5 c.c. cat secretin; latent period ½ min.; 1 canula in 1½ min.; 1 canula in 1½ min.; 1 canula in 2 min.; ½ canula in

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[*] There was a loss of a few seconds time and a small quantity of pancreatic juice each time that the canula was withdrawn and reinserted. The sum of the time on each chart, therefore, is not an accurate measure of the entire activation. It merely shows the rate of flow for a given interval of time. In most cases, however, it corresponds very nearly to the total activation.

1½ min.; ½ canula in 1½ min.; ½ canula in 1½ min.; ½ canula in 2½ min.; 1/3 canula in 5 min.; total of 5 1/3 canulas in 17 min.

Observation 8.—Feb. 10, 1907, new-born infant; only about one foot of the intestines was obtained. This was almost as thin as paper, so that very little material was obtained. *First injection,* 10 c.c. infant secretin; no activation. *Second injection,* 10 c.c. cat secretin; activation prompt. Degree not determined because so little infant secretin to compare it with.

Observation 9.—Infant 2½ months old; weight 4,010 grams (8¾ pounds); somewhat under weight, but not emaciated. Breast fed for first three weeks; weaned because he vomited. Put on various foods, but continued to vomit. Entered hospital with acute infection that proved fatal in four days. Postmortem one and a half hours after death showed broncho-pneumonia and septicemia and pyloric thickening. The small intestines of this infant were thicker than those of atrophic infants and the valvulæ conniventes showed as distinct transverse ridges instead of presenting the smooth appearance seen in atrophy.

First injection, 4:07 p. m., 10 c.c. cat secretin; latent period 1½ min.; ½ canula in ½ min.; ½ canula in ½ min.; ½ canula in ½ min.; ½ canula in ½ min.; ½ canula in 1 min. (After this flow diminished to 1/5 canula and stopped. This occurred several times. Duration of flow ten minutes). *Second injection,* 4:26 p. m., 10 c.c. infant secretin; slight activation; 1/3 canula in few seconds; 1/7 canula time not recorded; 1/6 canula, notes say this occurred several times. *Third injection,* 4:35 p. m., 2 or 3 c.c. remainder of infant secretin; slight activation; 1/7 or 1/8 canula four or five times. *Fourth injection,* 4:48 p. m., 10 c.c. cat secretin (same preparation); latent period 1 min.; ½ canula in ½ min.; ½ canula in 1 min.; ½ canula in ½ min.; 1/5 canula in 1 min.; 1/5 canula in 1½ min.; tips filled, flow lasted 8 min. This observation was not satisfactory. Neither one of two cats activated normally. In comparison with the reaction to cat secretin the reaction to infant secretin shows distinct activating power and without much doubt if the cats had responded well the infant's secretin would have done better.

Observation 10.—Child 2 years old; died in 36 hours of cerebrospinal meningitis. A well-nourished and otherwise healthy child. The intestines were quite different in appearance from those of an infant. The valvulæ conniventes were large and the mucous membrane was thick and velvety.

Feb. 26, 1907.—*First injection,* 3:27 p. m., 10 c.c. child secretin; latent period 1 min.; ½ canula in 1 min.; ½ canula in 1¼ min.; ½ canula in 1¾ min.; ¼ canula in 2 min.; not much pressure; flow not rapid. *Second injection,* 3:40 p. m., 10 c.c. child secretin (repeated above); latent period 1 min.; 1 canula in 1½ min.; 1 canula in 1¾ min.; 1/3 canula in ¾ min.; ½ canula in 1 min.; ¼ canula in 2 min. Activation would have been better if I had run half canulas instead of full ones at first. *Third injection,* 3:53 p. m., 10 c.c. cat secretin; latent period 1 min.; 1 canula in ½ min., then 1 canula in 1 min.; for seven successive times; then 1 canula in 1½ min.; 1 canula in 1½ min.; 1 canula in 1 min.; 1 canula in 1½ min.; 1/3 canula in 3 min.; 1/3 canula in 3 min.; giving a total of 12 2/3 canulas in 16 min. *Fourth injection,* 4:24 p.m., 10 c.c. child secretin; latent period 1 min.; ½ canula in 1½ min.: ¼ canula in 2½ min. *Fifth injection,* 4:35 p. m., 10 c.c. cat secretin (frozen preparation); latent period ½ min.; 1 canula in 1¼ min.; 1 canula in 1 min.; 1 canula in 1 min.; then 1 canula in 1¼ min. for four successive times; then 1 canula in 2 min.; ½ canula in 1 min.; ½ canula in 1 min.; 1/3 canula in 1 min, making a total of 9 1/3 canulas in 13¼ min.

Observation 11.—Infant 11 months old; died of general tuberculosis, but its nutrition was good. Postmortem examination four hours after death. Secretin was prepared from a goat and tested on the same cat.

March 6, 1907.—*First injection,* 12:37 p. m., 10 c.c. infant secretin (absolute alcohol preparation); latent period 1½ min.; could not introduce canula into duct on account of troublesome bleeding; 8 min. after latent period 1/3 canula in ½ min. *Second injection* 1:02 p. m., 10 c.c. goat secretin; activation prompt; 1 canula in ¾ minute. (Could not collect pancreatic juice in canula, although latter was in duct. The juice escaped around the canula. This is the only experience of this kind in the whole series of observations.)

Observation 12.—Repeated observations of 11 to control it. In addition I tested the secretin from a child 10 years of age, who died of cerebrospinal meningitis.

March 8, 1907.—*First injection,* 1:04 p. m., 10 c.c. 10-year-old child secretin; latent period 1 min. (Cat asphyxiated early in operation and had to be resuscitated. This inhibited flow of pancreatic juice. It would fill ¼ or 1/5 of canula and then stop rising. Flow stopped in 10 min. Cat had to be resuscitated again just before second injection). *Second injection,* 1:29 p. m., 10 c.c. 11-months-old infant secretin (same preparation as on March 6, frozen); latent period ¾ min.; ½ canula in ½ min.; then ¼ canula in ¾ min. for three successive times; 1/5 canula in ½ min.; 1/7 canula in 1½ min.; 1/7 canula in 1½ min.; 1/7 canula in 1 min. (after 8 min.); 1/7 canula (at end of 12 min.; activation): This gave a total of 2 canulas in 11 minutes. Total duration of flow 12 min. *Third injection,* 1:46 p. m., 10 c.c. goat secretin (same preparation as on March 6); latent period ½ min.; 1/3 canula in 1 min.; ¼ canula in ¾ min.; 1/5 canula in 1 min.; 1/7 canula in 1 min.; 1/7 canula in 1 min.; 1/5 canula at end of 10 min. (This cat did not respond well. Took ether badly, although the smallest quantity possible to keep it anesthetized was used. It was given plenty of air.)

Observation 13.—Premature infant; 3 weeks old: weight 1,309 gram. (2 pounds, 14 ounces); died of sepsis. Fed on breast milk last nine days. Postmortem made four hours after death.

March 13, 1907: *First injection,* 2:46 p. m., 5 c.c. cat secretin (absolute alcohol preparation); latent period ½ min.; 1 canula in ¾ min.; 1 canula in 1 min.: 1 canula in 1¼ min.; (canula not in duct); after 10 minutes' activation the rate of flow was: ½ canula in ½ min.; ½ canula in 1 min. (after 12 min.); duration of flow 18 min. *Second injection,* 3:09 p. m., 10 c.c. premature infant secretin: very slight activation. (At 3:12 the cat attempted to vomit; this has been found to inhibit secretory functions of pancreas.) At 3:13 p. m. 1/7 canula in 1 min.; 1/9 canula in 1½ min. *Third injection,* 3:32 p. m., 5c.c. cat secretin (same preparation as given at 2:46 p. m.; very slight activation after 3½ min., few drops. (No injections were given for half an hour in order to allow the pancreatic functions to become re-established. The cat was kept under ether during that time. I was unable to assign a reason for the attempt to vomit.) *Fourth injection,* 4:01 p. m., 5 c.c. cat secretin (same preparation as at 3:32); latent period in ½ min.; ½ canula in 1 minute; 1/3 canula in 1 min.; 1/7 canula in 1 min.; 1/6 canula in 1 min.; 1/6 canula in 1 min.; 1 canula in 1½ min. (at 4:08½); 1 canula in 1½ min (at 4:10); 1 canula in 1 min.; 1/3 canula in 1 min (at 4:15); 1 canula in 1 min. (at 4:16½); ¼ canula in 1 min (at 4:19); ¼ canula in 1 min (at 4:22). (Recovery of function is shown by the increased rate of flow after activation had become well established.)

Observation 14.—Infant 4 months old; well-nourished and normal looking infant; died from cerebral hemorrhage, probably traumatic. The infant was boarded out and the weight was not taken. Postmortem made fourteen hours after death. The intestines were much thicker than the intestines of atrophic infants. The valvulæ conniventes showed as prominent ridges in the upper portion of the intestine.

March 15, 1907.—*First injection,* 3:10 p. m., 10 c.c. infant secretin; latent period ¾ min.; (asphyxiation immediately after activation began, but was relieved in a few seconds), ½ canula at 3:14; 1/3 canula in 1 minute; ½ canula in 1 minute; 1 canula in 1½ min.; ½ canula in 1 min.; 1 canula in 1½ min.; 1/3 canula in 1 min.; making a total of 4 1/6 canulas in 10 min. (duration of flow 13 min.). *Second injection,* 3:26½ p. m., 10 c.c. infant secretin (repeated same preparation); latent period ½ min.; 1 canula in 1½ min.; ½ canula in ½ min.; ½ canula in 1 min.; ½ canula in 1 min.; 1 canula in 2 min.; ¾ canula in 1½ min.; ½ canula in ½ min.; ¼ canula in ½ min.; 1/5 canula in 2 min. (practically stopped); 1/5 canula in 2 min.; making a total of 5 2/5 canula in 12½ min. Total duration of flow 15 min.; *Third injection,* 3:50 p. m., 10 c.c. infant secretin (diluted 1 part secretin to 4 parts water); latent period ½ min.; 1 canula in 1 min.; 1 canula in 1½ min.; ½ canula in ¾ min.; ¼ canula in 1 min.; 1/7 canula in 1 min.; making a total of 2 6/7 canulæ in 5¼ min. Total duration of flow 6 min. *Fourth injection,* 4:05 p. m., 10 c.c. cat secretin (diluted with 4 parts water); latent period in ½ min.; 1 canula in 1 min.; 1 canula in 1 min.; 1 canula in 1¼ min.; ½ canula in ½ min.; 1/3 canula in ¾ min.; 1/3 canula in 1½ min.; 1/7 canula in 1, (practically stopped); 1/7 canula in 1; 1/3 canula in in min. (some juice had collected in gland); making a total of 4 5/6 canulas in 9 minutes. Total duration of flow 9 minutes. *Fifth injection,* 4:22 p. m., 10 c.c. infant secretin (diluted with 4 parts water); latent period, 1½ min.; ⅞ canula in 1¾ min.; 1/7 canula in ¾ min.; ¼ canula in 1 min.; ⅛ canula in 1 min.; making a total of 1 3/7 canulas in 4½ minutes. Total duration of flow, 6 minutes. *Sixth injection,* 4:32½ p. m., 10 c.c. cat secretin (diluted with 4 parts water); latent period ¾ min.; 1 canula in 1½ min.; 1 canula in 1½ min.; ¾ canula in 1½ min.; ¼ canula in 1 min.; 1/6 canula in 1 min.; 1/6 canula in 1 min.; making a total of 3 2/6 canulas in 7½ min. Total duration of flow 8 min.

Observation 15.—(a) Infant 10 months old; fat and large for her age; weighed over 20 pounds. Postmortem examination five hours after death showed hydrocephalus, spina bifida pyelonephritis, and scorbutus. (b) Infant, premature at 8 months, that lived to be 4 months old. Said to have weighed 1,818 grams (4 pounds) at birth and gained 1,136 grams (2½ pounds) in three months on breast milk and whey mixture. In the last month put out to board and did badly and died of a pneumococcus infection. Postmortem examination 24 hours after death showed meningitis and pleurisy. The body was not markedly emaciated, but was of small size. The small intestines presented the thin and smooth apearance that is characteristic of atrophy. The weight was not obtained at time of death. One month before death the infant weighed 2954 grams (6½ pounds).

March 20, 1907.—*First injection,* 2:37 p. m., 4 c.c. cat secretin; no activation. *Second injection,* 2:41 p. m., 9 c.c. cat secretin; latent period, ½ min.; 1/7 canula in 2 min.; 1/3 canula in 1½ min.; 1/7 canula in 1 min.; 1/7 canula in 1 min.; filled tip of canula repeatedly until 2:55 p. m. (Activation was inhibited by fright. The cat escaped from its basket and had to be caught. The effect of the fright and the gradual reinstatement of the pancreatic function can be traced in the subsequent injections.) *Third injection,* 3 p. m., 10 c.c. infant secretin (used in Observation 14 and was a good activator.) This preparation had been kept frozen; latent period ½ min.; 1/5 canula in 1 min.; 1/5 canula in 1 min.; ¼ canula in 1 min.; 1/7 canula in 1 min.; 1/7 canula in 1 min.; filled tip of canula several times. *Fourth injection,* 3:13 p. m., 10 c.c. Infant (a) 10 months old; latent period ½ min.; 1/5 canula in 1 min.; 1/5 canula in 1 min.; 1/7 canula in 1 min.; 1/7 canula in 1 min. making a total of 2/3 canula in 4 min. Activation lasted 4 min. and then filled tip of canula 4 times (equal to 2 drops). *Fifth injection,* 3:26 p. m., 10 c.c., in fant (a) repeated; latent period 1 min.; 1/5 canula in ½ min.; 1/7 canula in ¾ min.; 1/7 canula in ¾ min., making a total of ½ canula in 2 min. Total duration of flow 9 min. Cat stopped breathing at 3:30 p. m., and was resuscitated. Tip of canula filled three times up to 3:36 p. m. *Sixth injection,* 3:42 p. m., 10 c.c. cat secretin (same preparation as first and second injections); latent period ½ min.; 1 canula in 2½ min.; ¼ canula in ½ min.; ¼ canula in ½ min.; ½ canula in ¾ min.; ¼ canula in ½ min.; ¼ canula in ½ min.; ¼ canula in ½ min.; 1/5 canula in 1 min.; 1/5 canula in 1 min.; 1/5 canula in ¾ min.: 1/5 canula in 1 min.; 1/7 canula in 1 min.; 1/7 canula in 1 min.; making a total of almost 4 canulæ in 11½ min.; total duration of flow 15 min. This was one hour after first injection, which did not activate. This would have been a poor activation for cat secretin had the cat been normal. *Seventh injection,* 4:07½ p. m., 10 c.c., (b) premature infant, 4 months old; latent period 1 min.; ¼ canula in ½ min.; ¼ canula in ½ min.; 1/7 canula in 1 min., making about ⅝ canula in 2 min. Total duration of flow, 3½ min.; filled canula tip at 4:12 p. m. *Eighth injection,* 4:16 p. m., 10 c.c., infant (b) (repeated); no activation. *Ninth injection,* 4:23½ p. m., 8 c.c., infant (a) (repeated); latent period, 2½ min.; ¼ canula in 1 min.; ¼ canula in ½ min.: 1/7 canula in ¾ min.; then 1/7 canula in 1 min. for four successive times; 1/7 canula in 1½ min. (4:36); filled canula tip three times. This made a total of 1⅝ canulas in 8¾ min. This must be considered to be good activation because the cat was not activating well and it was the ninth injection.

Observation 16.—Extremely emaciated infant, 1 month old; fed on a modification of milk and never did well. Weight at birth, 2500 grams (5½ pounds); weight at autopsy, 1870 grams (4⅛ pounds). This infant was one of twins; the other infant was fed on the same mixture and treated in same way and was said to be doing well. Postmortem examination showed a terminal infection with streptococcus.

May 2, 1907.—*First injection,* 2:26½ p. m., 10 c.c. cat secretin (prepared at same time as the infant secretin); latent period, ½ min.; 1 canula in 1 min.; ¾ canula in 1 min.; ½ canula in ½ min.; ½ canula in ½ min.; ½ canula in ¾ min. twice successively, then ½ canula in 1 minute twice successively (2:36½); 1/3 canula in 1 min. twice successively; 1/5 canula in 1 min.; ¼ canula in 1 min. (2:41½); 1/5 canula in 1 min.; 1/6 canula in 1½ min.; 1/7 canula in 1 min.; 1/7 canula in 1½ min., making a total of 6+ canulas in 15½ minutes; total duration of flow, 19 minutes. *Second injection,* 2:54 p. m., 10 c.c. infant secretin; very slight activation (?); tip filled in 2 min.; tip filled in 1 min.; tip filled in 1½ min.; the tip contained 3 drops. *Third injection,* 3:03 p. m., 10 c.c. infant secretin (repeated); very slight activation; tip filled three times in five minutes. *Fourth injection,* 3:14 p. m., 10 c.c. cat secretin (repeated); activation in ½ min.; ¾ canula in 1 min.; ½ canula in ½ min.; ½ canula in ¾ min.; ½ canula in 1 min.; 1/3 canula in 1 min.; 1/3 canula in 1 min.; ½ canula in 1 min.; ½ canula in 1¼ min.; ¼ canula in 1 min.; 1/6 canula in 1 min. (3:27); ¼ canula in 1 min.; 1/6 canula in 1 min.; 1/9 canula in 1 min.; 1/9 canula in 1 min., making a total of about 4¾ canulas in 13½ min. Total duration of flow, 17½ min.

Observation 17.—Newborn infant, lived 24 hours, healthy, fat baby; weight not obtained (estimated at about 8 pounds); never fed; postmortem examination 12 hours after death; nothing detected except pulmonary atelectasis and edema. The small intestines were considerably thicker than those of an atrophic infant and more material could be scraped off. The valvulæ conniventes could be made out.

May 3, 1907.—*First injection,* 3 p. m., 5 c.c. cat secretin (same preparation that was used May 2); latent period 1 min.; ½ canula in ½ min.; ½ canula in ½ min.; ½ canula in ½ min.; ¼ canula in ½ min.; ¼ canula in ½ min.; ¼ canula in ½ min.; ¼ canula in ½ min. (3:06½); 1/9 canula in ½ min. (3:09); 1/9 canula in ½ min. (3:10); tips filled at 3:15, making a total of 2¾ canulas in 10 min. (This was one-half the usual quantity injected.) *Second injection,* 3:17 p. m., 10 c.c. infant secretin; no activation. *Third injection,* 3:25 p. m., 5 c.c. cat secretin; latent period ½ min.; ¼ canula in ½ min.; ¼ canula in ½ min.; 1/6 canula in 1 min. *Fourth injection,* 3:29½ p. m., 5 c.c. cat secretin; ¼ canula in ½ min.; 1/9 canula in 1 min.; tips filling at 3:40; (no apparent reason why cat stopped activating).

Observation 18.—This was a control of Observation 16, made on an infant 1 month old, and of Observation 17, made on a newborn infant 1 day old.

May 9, 1907.—*First injection,* 11:31½ a. m., 5 c.c. cat secretin (same preparation as was used to test the two infants on May 2 and May 3; frozen during this time); latent period ¾ min.; pancreatic juice flowed for 6 min. before I could collect the fluid; ¼ canula in 1 min. (at 11:38); ¼ canula in 1 min.; ¼ canula in 1 min.; 1/5 canula in 1½ min. (at 11:42); 1/7 canula in 1 min.; 1/7 canula in 1 min.; tips filled. Total duration of flow 13 min. on injection of 5 c.c. *Second injection,* 11:51 a. m., 10 c.c. infant 1 month old; Observation 16; preparation frozen during the 6 days; very slight activation; 1/9 canula and stopped. *Third injection,* 12 m., 10 c.c. new born; Observation 17; preparation frozen during the 6 days; no activation; tip of canula filled once. *Fourth injection,* 12:08½ p. m., 10 c.c. cat secretin (made at the same time as the newborn preparation May 3 and frozen); latent period 1 min.; ½ canula in ¾ min.; 1/3 canula in ½ min.; 1/3 canula in ½ min.; ¼ canula in ¾ min.; ½ canula in 1 min.; ½ canula in 1¼ min. (at 12:15); ¼ canula in ½ min.; ¼ canula in ¾ min.; ¼ canula in ¾ min.; ¼ canula in 1 min.; 1/5 canula in 1 min.; 1/5 canula in 1 min.; 1/7 canula in 1 min.; 1/6 canula in 1 min.; 1/7 canula in 1 min.; 1/7 canula in 1 min.; 1/10 canula in 1 min. (12:27½); 1/10 canula in 1 min. (12:29½); 1/5 canula in 2 min. (12:32½); making in all a total of 5 canulas in 18 min. Total duration of flow 24 min.

Observation 19.—Infant 4 months old; a normal appearing, fat baby, gained 1½ pounds in the last two weeks that it lived. Was fed on cow's milk 2/3 and water 1/3. Weight at time of death was 5,900 grams (13 pounds). It ate its last feeding as usual and appeared to be perfectly well. Some little time after eating it became deeply cyanotic and died shortly afterward. Postmortem examination 24 hours after death showed "status lymphaticus." The thymus weighed 25 grams. The wall of the small intestine was quite thick and valvulæ conniventes showed as prominent ridges in the upper portion.

May 17, 1907.—*First injection,* 2:33½ p. m., 5 c.c. cat secretin (freshly prepared from dried alcoholic preparation); latent period ½ min.; ½ canula in ½ min. for 4 successive times; ½ canula in 1 min.; ¼ canula in 1 min.; ¼ canula in 1 min.; 1/5 canula in 1 min.; 1/6 canula in 1 min.; ⅛ canula in 1 min.; 1/10 canula in 1 min.; making in all 3½ canulas in 9 min. Total duration of flow 10 min. on 5 c. *Second injection,* 2:38 p. m., 10 c.c. infant secretin (freshly prepared): latent period ½ min.; ½ canula in ½ min.; 1/3 canula in ¾ min.; ¼ canula in ¾ min.; 1/5 canula in 1 min.; ¼ canula in 1 min.; 1/5 canula in 1 min.; 1/7 canula in 1 min.; 1/10 canula in 1 min.; making in all almost 2 canulas in 7 min. Total duration of flow 9 min. *Third injection,* 2:49½ p. m., 10 c.c., infant secretin (repeated same preparation): latent period ½ min.; ½ canula in ¾ min.; ½ canula in ¾ min.; 1/3 canula in 1 min.; ¼ canula in 1 min.; ¼ canula in 1 min.; 1/5 canula in 1 min.; 1/6 canula in 1 min.; 1/6 canula in 1 min.; ⅛ canula in 1 min.; 1/9 canula in 1 min.; making in all about 2 2/3 canulas in 9½ min. Total duration of flow 11 min. *Fourth injection,* 3:04½ p. m., 10 c.c. cat secretin (repeated same preparation); latent period ½ min.; ¾ canula in 1 min.; ½ canula in ½ min.; ½ canula in ½ min.; 1/3 canula in ½ min.; 1/3 canula in ½ min.; ½ canula in ¾ min.; ½ canula in ¾ min.; 1/3 canula in ¾ min.; 1/3 canula in ¾ min.; 1/3 canula in ¾ min.; ¼ canula in ¾ min.: ¼ canula in ¾ min.; 1/5 canula in 1 min.; 1/5 canula in 1 min.; 1/7 canula in 1 min. (at 3:19½ p. m.); ⅛ canula in 1 min.; making in all 5¾ canulas in 12¼ min. Total duration of flow 15 min. *Fifth injection,* 3:36 p. m., 10 c.c. cat secretin (repeated same preparation); latent period ¾ min.; ¾ canula in 1 min.: 1/3 canula in ½ min.; 1/3 canula in ½ min.; ½ canula in ½ min.; ½ canula in ¾ min.; ½ canula in ¾ min.; ½ canula in 1 min.; 1/3 canula in 1 min.; ¼ canula in 1 min.; ¼ canula in 1 min.; 1/6 canula in 1 min. (at 3:48); 1/6 canula in 1 min.; 1/9 canula in 1 min.; making in all about 4 5/7 canulas in 11 min. Total duration of flow 13 min. The canula used in this observation held 1/5 c.c. The larger canula was used, but did not collect as well.

Observation 20.—Emaciated infant, 6¾ months old; weight, 4.450 grams (9¾ lbs.); said never to have gained satisfactorily. Had been fed on various proprietary foods. Later had cow's milk and water. During the last four or five weeks of its life it lost ground more rapidly. A postmortem examination was made 6 hours after death, and with the exception of the small intestines and a small calcified mass in one suprarenal, nothing was detected other than the usual appearances found in cases of infantile atrophy. The small intestines, however, were different from most cases of atrophy. Instead of the usual thin and smooth intestine, the small intestines of this infant were similar in appearance to those of a normal infant 4 or 5 months old. The valvulæ conniventes were prominent, the surface was velvety and the entire wall was considerably thicker than an atrophic infant's usually is. I have never before seen the small intestines from a case of infantile atrophy that presented these apearances. I obtained almost twice as much material from the same length of intestines as I have been able to obtain from other cases of atrophy.

May 24, 1907.—*First injection,* 11:21½ a. m., 10 c.c. infant secretin; latent period ¾ min.; ⅛ canula in ¾ min.; 1/10 canula in 1 min.; tip of canula filled. In all, about ¼ canula in 2 min. Total duration of flow 2 min. *Second injection,* 11:27½ a. m., 10 c.c. cat secretin; latent period in ½ min.; ½ canula in ¾ min. three successive times, then 1/3 canula in 1 min. three successive times; ¼ canula in 1 min.; ¼ canula in ¾ min.; ¼ canula in 1 min.; ¼ canula in 1 min.; 1/6 canula in 1 min. (at 11:40); ⅛ canula in 1 min.; 1/10 canula in 1 min.; making in all 3 9/10 canulas in 12 min. Total duration of flow 14 min. *Third injection,* 11:47 a. m., 10 c.c. infant secretin; latent period 1 min.; 1/6 canula in 1 min.; ⅛ canula in 1 min.; tip of canula filled in 1 min.; 1/10 canula in 1 min.; a total of 2/5 canula in 4 min. Total duration of flow 4 min. *Fourth injection,* 11:56 a. m., 10 c.c. cat secretin; latent period ½ min.: ½ canula in 1¼ min.; ½ canula in 1 min.; ½ canula in ¾ min. three successive times; ½ canula in 1 min.; 1/3 canula in 1 min. twice successively; ½ canula in ¾ min.; 1/3 canula in 1 min.; ¼ canula in 1 min.; 1/6 canula in 1 min. twice successively; 1/10 canula in 1 min. three successive times; making a total of 5 1/3 canulas in 15¼ min. Total duration of flow 17 min. Temporary slight inhibition at the beginning. Possibly due to the ether. Shown by the rate of flow during the first three minutes. *Fifth injection,* 12:18½ p. m., 10 c.c. infant secretin: latent period ½ min.; 1/6 canula in ¾ min.; tip of canula in 1 min.; 1/10 canula in 1 min. three successive times; tip of canula in 1 min.; 1/12 canula in 1 min.; making in all 6/11 canulas in 6¾ min. Total duration of flow 6¾ min.: The tip of a canula is equivalent to 2 drops of fluid. The duration is of more importance in this case as indication of activation than the quantity of juice secreted. *Sixth injection,* 12:34 p. m., 10 c.c., cat secretin; latent period ½ min.; ½ canula in ¾ min.; ¾ canula in 1 min.; ½ canula in ½ min.; ½ canula in 1 min. twice successively; 1/3 canula in 1 min. twice successively; ¼ canula in 1 min. three times successively; ¼ canula in ¾ min.; 1/5 canula in 1 min. twice successively; 1/6 canula in 1 min. (at 12:48): 1/6 canula in 1 min.; making in all 5 1/7 canulas in 14 min. Total duration of flow 15 min. This cat reacted fairly well to cat secretin. The duration was good enough and the flow was steady, but in general it was slower than the average and required more manipulation of the canula, as if the intra-glandular pressure were not strong as usual.

I wish to thank Dr. S. B. Wolbach and Dr. A. R. Robertson, of the pathologic department of Harvard Medical School, for their kindness in placing material at my disposal.

[For the discussion, see the department of Section Discussions in this issue.]

YEAST CELLS AS A PROBABLE CAUSE OF ULCERATIVE KERATITIS.

PRELIMINARY REPORT.*

GEORGE F. KEIPER, M.D.
AND
SEVERANCE BURRAGE, S.B.
LAFAYETTE, IND.

It has long been admitted that flat yeast cells may be recognized as the cause of disease elsewhere in the living body. In 1900 Stoewar and Lundsgaard reported finding yeast cells in corneal abscesses. The following case, with its bacteriologic findings, is submitted in the hope that others may be stimulated to make similar observations.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Patient.—On Oct. 8, 1906, Mr. J. R. S. was referred to Dr. Keiper by Dr. C. B. Kern, because of ulceration of the right cornea. He was an employé of a company which makes box board out of straw.

Examination.—Examination showed a spot of ulceration on the right cornea in the upper outer quadrant, of about 2 mm. diameter and circular in outline. The spot was white and raised slightly above the corneal surface. Its duration was one week. The iris was inflamed, the cornea hazy and the vision reduced to 20/c.

Bacteriologic Examination.—The ulceration was scraped with a sterile platinum loop, and the exudate transferred carefully and immediately to a culture tube of Loeffler's blood serum and incubated. At the end of two days, a sufficient growth being manifest, it was examined by Dr. A. E. Allder, the associate of Dr. Keiper, and by Dr. Keiper himself. Several slides were prepared, methylene blue being the stain used. These all showed some rather large cells, resembling yeast cells, together with what appeared to be micrococci and diplococci. The culture was also examined in the hanging drop.

Treatment.—This consisted in scraping out the whitish mass which revealed a deep ulcer of the cornea. In the depths of this calomel was applied daily until healing took place. At home the patient instilled a 1 per cent. solution of atropin every three hours and every hour bathed the eye in water as hot as the back of the hand would stand, using the eyeglass. In ten days the ulcer had healed, leaving a scar.

The culture was submitted to Professor Severance Burrage, of Purdue University, who, with his advanced class in bacteriology, since has been diligent in trying to determine and to identify the organisms present, and he submits the following report:

PRELIMINARY NOTES ON MICRO-ORGANISMS FROM ABSCESS IN CORNEA.

A culture made in blood serum directly from the abscess in the cornea gave evidence of the presence of at least three different species of organisms, one giving a pinkish, another of yellowish, and a third of a whitish transparent growth. A microscopic examination of a stained preparation from this culture showed also at least three kinds of organisms. One was a micrococcus, another a diplococcus, and a third round cells, sufficiently large to cause one to suspect them to be yeast cells. Subsequent investigation proved this to be the case.

Description of Forms.—(1) The yellowish growth, when separated turned out to be a sarcina, in all probability *Sarcina lutea*, showing many of the characteristics of that organism. (2) The pink form was a small bacillus, non-motile, non-liquefying, and producing the pink color only after eight or ten days. This bacillus has rounded ends and measures about 1.5 microns in length and .65 microns in width. No spore formation was observed. I have been unable to identify this organism, up to this time. (3) A diplococcus producing a white growth on culture was also separated. The coccus varied from 1 to 1.5 microns in diameter, was distinctly aërobic and did not liquefy gelatin. It produced a white growth on potato. (4) The yeast gave the greatest difficulty in separating into pure culture. The cells varied greatly in size, so much so in almost every case as to make one doubt the purity of the cultures. The measurements showed variations from 2.5 to 6 microns in the normal shapes, and many of the elongated forms measured as much as 15 microns in length. From its microscopic as well as other characteristics, it is without doubt some form of blastomycetes.

Inoculation Experiments.—A number of inoculations on the eyes of guinea-pigs were carried out, and in every case in which a culture containing the blastomycetes was used, whether in mixed or pure cultures, there was evidence of ulceration in the cornea of the eye inoculated. The evidence of such ulceration was determined first by the use of the fluorescin test, and second by the formation of cicatricial tissue evident to the naked eye. Thus far none of the blastomycetes has been separated from any of the inoculated eyes, but the experiments are still in progress, with the prospect of interesting results.

DISCUSSION.

Dr. Flavel B. Tiffany, Kansas City, said that he had been able to find little literature on the subject and that he had had but little practical experience with yeast cells as a cause of ulcerations of the cornea. There are divers forms of ulcerations of the cornea. There are well-marked stages of each form. Many of the corneal affections are expressions of systemic diseases and take their etiology in specific germs peculiar to the state of the system. Many of the forms of ulcerations of the cornea are due to tubercular bacillus and to a low vitality of the general health. Nearly all cases of phlyctenular keratitis are in scrofulous subjects. Many cases evidently take their etiology in malaria, many to the effect of alcoholism. It is evident that no one form of microbe is responsible for all or any great part. The staphylococcus is frequently found in the affected cornea. In the dendritic form of ulcers there is a special bacillus. In some cases are found the aspergillus, in others the pneumococcus, in others the streptococcus, and in not a few the gonococcus, the latter being the most frequent. The conjunctival sac is swarming with myriads of bacteria, and in certain conditions some are liable to affect the cornea, especially if it is devitalized by trauma, such as trichiasis, distichiasis, trachoma, local or systemic disease, but neither clinical observation nor microscopic examinatians show that any one organism is wholly or even largely responsible for suppurative inflammation, ulcerations or abscess of the cornea.

Ulcerations of the cornea are always a terminal stage of some inflammatory disease of that structure, unless it be that of trauma, resulting in its molecular death. In all corneal ulcerations the pathology is much the same. These ulcerations may arise without any obvious cause, but are usually traceable to injuries, impaired nutrition, infection, or extension from adjacent inflammations. Diphtheria bacillus, tubercle bacillus, aspergillus and the infectious fevers such as smallpox, scarlet fever, measles, typhoid fever, typhus, pyemia, etc., may induce ulceration of the cornea. Serpiginous ulcers with hypopion are usually due to the pneumococci. Other forms are more frequently caused by staphylococci and streptococci.

Locality has much to do with the form of germ that provokes these inflammations. People in a malarial locality are more susceptible to germ infection, especially the different yeast germs, as aspergilla and saccharomyces. As Dr. Keiper goes on with his experimental investigations more light may be expected on this interesting subject.

OCULAR NEURASTHENIA.*

HIRAM WOODS, M.D.

BALTIMORE.

For several years I have been greatly interested in studying the relations of remote nervous conditions to eye work or ocular disease. My attention was, I believe, first centered on the subject by a number of cases of chorioiditis in young persons where syphilis, rheumatism and tuberculosis were excluded.[1] Other physical troubles were present, which I have since come to believe causes of uveal inflammation.

Five years ago a young girl who suffered from asthenopia, which I could not relieve, and who had certain accommodative symptoms which one would unhesitatingly attribute to hysteria, developed a small area of exudative chorioiditis. In short, there had apparently been a series of symptoms of an "irritative" type, if I may use the term, ending in objective inflammation. This child recovered from the chorioiditis, but certain intestinal derangements persisted; and with them an inability to do much eye work. Of course the latter was put to the credit of the former chorioiditis. Two years ago these abdominal symptoms took on a close enough resemblance to appendicitis to justify exploratory incision. Chronic appendicitis was found, an adherent appendix removed, and for two years there has been no complaint of eye fatigue. The total refraction error is H., 0. 75; all latent. Yet, during the stage which I have termed "irritative," the manifest error was oblique astigmatism, sometimes minus, again plus, while the near-point and far-point of accommodation approached each other, and the range of A. was reduced to two D. or less. Convex lenses restored normal near-point, concave normal far-point. Neither gave relief. Tests under mydriasis from atropin or hyoscyamin gave variable results and yielded only the transient therapeutic benefit, common from enforced rest.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Proc. A. M. A., 1896.

Were those annoying eye symptoms hysterical, or were they, as indicated by disappearance after abdominal operation, due to this remote condition? If the latter, then a field of investigation is opened in a puzzling class of patients, and if we are physicians as well as oculists we must enter it. It is, then, from the standpoint of remote causes that I want to discuss certain stubborn eye symptoms. I have defined the patients as ocular neurasthenics, using the word neurasthenia in its derivative sense—weak nerves—and regarding the ocular state as one of extreme susceptibility to outside irritation. The nature of the irritation I do not pretend to define; whether reflex, and limited to nerve action, or through the vascular system. The word "irritation" itself is unsatisfactory, but I know of none better.

What, in general, are the ocular symptoms these cases present? Chiefly, early fatigue in eye work. When search is made for ocular cause, sometimes refraction error is found, and then, with fatigue, there may be symptoms characteristic of this error. For instance, astigmatism is associated with frontal headache; but cylindrical glasses do not increase working ability. Hypermetropia is attended with fading of print, but no help is obtained from correction. Muscular imbalance may, with fatigue, present ocular tension pains. But the muscular imbalance itself varies, and prisms, either worn or used for exercise, are worse than useless. What the patient seeks is increased working ability. He will willingly put up with the pain, and as a matter of fact does so, for these unfortunates do not belong to the indolent classes. Business men, school teachers, students, boys and girls who are bright and want to work, persons with responsibilities and full willingness to meet them, are the ones who come for relief. After repeated failure by optical correction, one is tempted to diagnose hysteria. Yet there are no such symptoms as crises, stigmata, anesthesias, etc. Nor is there amblyopia, contraction of fields or reversal of colors. The only ocular symptom I have noted which can be called typical of hysteria, is in the accommodation. The approach of the near and far points to each other, especially shortening of the far point is seen; yet, as in the case related, subsequent history takes from this an hysterical explanation.

If we are satisfied with this diagnosis, simply because correction of refraction error, muscular or accommodative abnormality fails to relieve, we not only show our own lack of thoroughness, but our patient is in a worse plight than before: for every therapeutic failure increases subjective tendencies. We are dealing with a class of patients who are either inherently neurasthenic or are made so by some temporarily exciting cause. For some reason the eye, in its functional activity, is the receiving end of the neurasthenic tendency. Successful therapeusis must take into consideration four factors: 1, the mental state of the neurasthenic; 2, remote physiologic lesions, psychical, emotional, social and industrial environments which can produce neurasthenia; 3, such lesions, physiologic functions and environments which experience shows can cause ocular lesion or affect ocular function; and, 4, the ocular conditions which can give neurasthenia an eyeward tendency.

THE NEURASTHENIC MENTAL STATE.

In dealing with it from the oculists' standpoint, it has seemed to me that, possibly without knowing it, the neurasthenic conceals the very thing we want. No matter how frank he or she may seem, regardless of the fulness or volubility of description, there is always something held back.

My friend, Dr. L. F. Barker, of the Johns Hopkins Hospital, has published[2] an interesting and instructive paper on "The Psychic Treatment of Some of the Functional Neuroses." He lays stress on what he terms "avowal." By it he means getting the patient willing to tell everything. Until we have accomplished this nothing can be done. Two or three examples will illustrate.

A boy at college could work only a few minutes, and correction of refraction error did not help. He attributed his troubles to a kick on the forehead in a hazing spree during his freshman year. After two years of worry on my part I sought his university advisor and found a few old conditions hanging over the youngster, and his senior work handicapped by fear that he would not graduate. I told him, when he proposed a week's rest in the country, to tackle those old conditions and get them out of the way. His mortification at my knowing this and abuse of the man he thought had told me—the wrong man, by the way—were wonderful; but he did it, and got well.

For eight years I tried to keep up with the vagaries of astigmatism and accommodation in a lady of social position and cultivation. She had, I thought, told me everything, until I learned from a gynecologist that she had a fibroid which she declined to have removed, but which often caused excessive hemorrhage. Her reason for not telling me and other oculists she had consulted was that she thought "it had nothing to do with the eyes."

A medical student, unable to work, with a refraction error of half diopter hyperopia, and a muscular balance, varying from orthophoria to five or six degrees of hyperphoria, accidentally admitted the antikamnia habit. He had taken the drug for relief of pain due to intestinal putrefaction; indicanuria was present.

A physician with half a dozen pairs of glasses from an equal number of oculists or opticians, all of them directed to removing accommodative strain, while his real error was a low astigmatism against the rule, was harrassed by fear of Bright's disease. Primarily, oversight of the real eye trouble and treatment of a symptom were responsible for failure to relieve. This failure produced the mental state which kept the man neurasthenic, and correction of astigmatism, without "avowal" on his part of the mental dread, would have done no good. Such cases take time and demand no little tact; often the family physician or some friend is essential. Still, if cure is our object the remote cause must be found.

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[2] Internat. Clin., Philadelphia, January, 1907.

PHYSICAL AND PSYCHICAL CAUSES OF GENERAL NEURASTHENIA.

For present purposes, it will suffice to consider these under the third division, viz., physiologic function, and remote lesion or constitutional disease, which we know can both cause neurasthenia, and affect the eye, functionally or organically; also, the psychic state, which shows itself in ocular function chiefly because this function has so great a share in the individual's activities.

In a not inconsiderable experience I have thought that many cases of eye fatigue, associated to a greater or less degree with symptoms of so-called hysteria, were eventually traced to the existence of syphilis, hereditary or acquired. Sometimes the fact was unknown to the patient, and there was no obvious reason to suspect it. Again, it was concealed. Ametropia, to which symptoms were attributed, was either a coincidence or at most only an exciting ocular cause. The question of importance is this: Is it possible for syphilis to keep up an ocular irritation, simulating the symptom-complex of ametropia, before objective lesion is seen, or even without producing such lesion? Tabetic pains before ataxic symptoms, occasional hypersensibility of the pupil before tabetic rigidity, seem to point that way. A few years ago a lady of forty was treated in vain for headaches and eye fatigue by correction of refraction error and accommodative insufficiency. The rest treatment for hysteria was followed for months. She never seemed very ill and all of us thought the diagnosis of hysteria ample explanation of her condition. Finally she developed double optic neuroretinitis and then, with attention turned toward a cause for this, history of syphilis in the husband was found. Though a medical man, he had kept this information to himself, as well as a transient dermatitis from which his wife had suffered. Indeed, he was sure the whole infection in himself had been cured and the sole manifestation in his wife he had not attributed to the correct cause.

A lady, 35, married to her second husband, presented the tension pains characteristic of heterophoria. Only hyperopic astigmatism with the rule and of low grade was found. Its correction did no good. Hysteria was again a satisfactory diagnosis to oculist and physician, till one evening at a concert she developed abducens paralysis. Then a history of syphilis, contracted in her first marriage, was obtained. The reasons for her concealing it were obvious.

I have tried in vain to relieve the fatigue symptoms of children by correcting ametropia, and later interstitial keratitis has shown why I failed. Diagnosis under such conditions may sometimes be impossible, and "hysteria" may perforce be our diagnosis till events show us the contrary, but this need not always be the case, and watchfulness for other causes of eye fatigue than coexistent ametropia will sometimes be rewarded.

A second remote condition often associated with eye fatigue is gastrointestinal derangement. Under the terms intestinal putrefaction, autointoxication, etc., we have of late years been studying a new series of causes in eye inflammations. de Schweinitz presented the subject to this Section at Boston last year in his usual able way. He showed here, as he and others have elsewhere, that we must recognize these gastrointestinal derangements as causes of uveal inflammation. The uveal tract, again, is active in eye function, and the question arises, can autointoxication, or whatever it is which produces inflammation, cause ocular irritation, leading to early fatigue, and bring about those accommodative phenomena which we are accustomed to call "hysterical?" The case narrated in the beginning is the only one I have met where definite uveal inflammation followed what seemed to be irritative symptoms, but I have seen numerous cases of ocular fatigue and hysterical accommodation associated with intestinal putrefaction, indicanuria, etc. Some have shown improvement in eye work after treatment directed to the intestinal condition. Another class of cases is made up of patients with symptoms leading eventually to operation for appendicitis. I have followed the surgical history of many of them and learned that the conditions found were catarrhal appendicitis, adherent appendix, etc. In these, decided improvement in eye function followed operation. It is difficult to connect ocular function with this remote irritation. The path may be that of general neurasthenia, circumstances which are unknown, making the eye specially sensitive. Whatever the explanation, the cause of ocular sensitiveness seemed to have been removed by abdominal operation. On the other hand, I have observed, as I believe all of us have, cases of eye fatigue *after extensive* abdominal or pelvic surgery. Surgeons do not hesitate to blame postoperative neuroses on adhesions; what I want to set forth, and what I think is a promising field of study, is that either through autointoxication or nerve irritation there is a close relation between abdominal lesions and eye function. Recognition of the fact is important, for many of these cases are susceptible of diagnosis and cure.

MENSTRUATION AND OCULAR NEUROSIS.

Another condition which demands attention in connection with ocular neuroses is the menstrual function. There are three points of view from which the relation of this function to the eye may be studied.

1. Uveal inflammation during the establishment of menstruation. Soelberg Wells and others called attention to this years ago, and it is sufficiently common to require no comment.

2. Exudative chorioiditis in young women with dysmenorrhea, scanty, excessive or irregular menstruation.

3. Ocular fatigue with normal menstruation.

The question of etiology between menstrual anomalies and ocular inflammation at once suggests some common cause for both troubles. What is known as "chlorosis," to which the menstrual anomaly is usually traced, means, so far as I can see, anemia, malnutrition or the intestinal manifestations of putrefaction; in a word, conditions which modern study has pointed out as causes of eye inflammation. It is of little consequence from the ocular point of view whether the menstrual derangement is primary or secondary to one of the conditions mentioned. Do irritative eye conditions, without visible inflammatory changes, occur with these remote conditions? I am sure they do; and when adequate explanation for ocular fatigue is not found in ametropia, or when fatigue persists in spite of its correction (especially if "hysterical" accommodation be present) our duty is to make judicious inquiry into the possibility of remote irritation. Failure to do so means that the patient loses confidence from our non-success, goes elsewhere, probably to have a similar experience, and gradually drops into a grave form of neurasthenia. I have seen a few cases of unexplained eye fatigue which seemed to originate in use of the eyes during menstruation, and comfort was obtained by refraining from eye work at such time.

PSYCHICAL CAUSES OF OCULAR DEFECTS.

So far I have spoken only of physical conditions found in association with fatigue and with, so-called, hysterical eye defects. They are easy of recognition, if one thinks of them, and can usually be managed. Social, industrial and kindred causes of general neurasthenia sometimes seem to expend their force on the eyes. These causes take hold of the personal life of the individual and are hard to unearth. They are, I think, more common in business men, and women who have business responsibilities, than in other classes. A single illustrative case will suffice. A man with family, bookkeeper in a large department store, at age of forty, went to an optician because he found that after a day's work he had headache. An oblique astigmatism was incorrectly neutralized by cylinders. Metamorphosia resulted, and the optician's oculist were consulted. Convex "pasters" were added to the cylinders and for several months this combination added to the pain already started by twenty years of grind over books, only twice laid aside for a week's vacation. Fear of serious eye disease practically paralyzed this man's usefulness. It would seem that such a case should be clear to anybody, but it was not. I am sure there are grades of industrial nerve exhaustion which often go unappreciated. What is ordinary work for one is overwork for another. Conditions philosophically accepted by one fill another with dread. These cases usually present in manner, mode of expression or history, something which indicates that there is other trouble than coexistent refraction or accommodative error. Only fatigue symptoms are voluntarily given, the rest must be found out. The patient often insists that the eyes must be the cause of inability to sustain eye work. Such insistance, coupled with inadequate eye explanation, should lead to search for remote cause. A few direct questions will sometimes bring out essential facts, while again an open confession on our part that there is not enough eye trouble to account for the symptoms and that patient investigation will be needed may bring us a full "avowal" at a later consultation. This state of mind in the laity is not unnatural and we are partly responsible for it. Our teaching of the importance of ametropia as a cause of almost everything in the way of a neurosis—with some truth in all the claims—has simply been carried too far by the public. It is the business of the examining optician to whom these busy men and women often go first to encourage this mental state, and they do it fully. Our business is to recognize other causes as influencing ocular function; to get the patient to regard us as eye physicians, not merely eye examiners, and make him content to leave the case with us as physicians. We should not abandon him to ignorant choice of some other specialty, which he will make as he interprets his own vague and changing symptoms. Many persons whom we term "rounders" and who literally dump on us a whole satchel full of glasses, varying within a half diopter of each other, become so by insufficient diagnosis from the first man who sees them.

There are certain objective changes in ocular structures which I believe direct a neurasthenic tendency eyewards. They exist, too, without symptoms; at least without any of which the patient takes cognizance. On the other hand, neurasthenics not only find them out, but they center nerve weakness on eye functions. Such things are follicular conjunctivitis, scaly blepharitis, chronic conjunctival hyperemia, sometimes due to nasal trouble, etc. Treatment of such a lesion is useful; but if the physical, mental, emotional or industrial causes of the neurasthenia can be found, proper therapensis becomes possible most of the time; without such information we are treating only exciting causes.

I purposely omit the general neurasthenic who is sent us by physicians to determine the possibility of ocular origin. This class is large, and when ametropia or heterophoria exists correction is most beneficial. But these patients must have treatment directed to the general condition. Such patients as I have been trying to present may easily become neurasthenics of graver form, and the responsibility for the outcome rests on the broadness of view and thoroughness of diagnosis on the part of the oculist to whom they apply for relief in the initial stage.

Treatment of these cases means, of course, discovery of the underlying cause. Correction of refraction error and muscular imbalance, provided the latter can be definitely enough determined to justify correction, are assumed. There is one therapeutic mistake we are apt to make, namely, "coddling" such eyes by rest. Now and then, as in cases of overwork or threatened general breakdown, rest and change are essential, but as a rule the patient is encouraged and the mental attitude improved if some eye work is allowed. The personal equation must be studied. While ocular neurasthenics may work in spite of discomforts, others have not the will power to do so, or are held back by fear of injuring their eyes. I think this mental state is especially common among well-to-do persons with little real responsibility. This is just what they need; neither rest nor travel gives it.

In the paper to which allusion has been made Dr. Barker gives "persuasion" and "suggestion" as two therapeutic measures available against general neurasthenia. The former, he argues, appeals to a higher cerebral center than the latter. In "suggestion" the patient is dominated by a superior will. By "persuasion" we gain his active co-operation. A certain class of ocular neurasthenics are successfully treated by making them convince themselves of the harmlessness and insignificence of their symptoms by persuading them to work in spite of pain. Fixing the time for eye work a little short of the fatigue point and gradually increasing it, the patient learns that he can work without injury. This is the first gain, and the rest often takes care of itself.

SUMMARY.

Fatigue symptoms, unrelieved by refraction correction, and often associated with the so-called hysterical accommodation, may be due to special susceptibility of the eyes to outside irritation, either physical or psychical. These cases may be classified as ocular neurasthenics, though they seldom, at least in the stage when they come under the oculist's care, present symptoms of general neurasthenia. They occur usually among industrious people. It is easy to dismiss them with a diagnosis of hysteria, but more thorough search for cause or subsequent development reveals an underlying condition capable of producing an objective ocular lesion, but at the time producing symptoms which, for want of a better term, must be termed "irritative." Among these causes are unsuspected syphilis, intestinal disorders, hemic and nutritive troubles, pelvic anomalies and functional and psychic influences. The symptoms which should lead the examiner to look for such remote conditions are absence of ocular explanation for the symptoms or persistence of the latter, after ocular abnormalities have been corrected; "hysterical accommodation," varying refractive state. There are certain ocular troubles which usually cause little or no annoyance but which may direct a neurasthenic tendency eyeward. Relief of these somewhat lessens susceptibility, but only discovery of the underlying cause, with its medicinal or surgical treatment, cures. The aid of workers in other medical fields is often essential to correct diagnosis. Diagnosis of ocular hysteria, with its unsatisfactory treatment, is justifiable only after careful search for remote causes has given negative results.

It may not be amiss, finally, to state what seems to me adequate search for ocular cause of fatigue symptoms; in other words, to express my own idea of what constitutes thorough refraction work, and the time when the refractionist can feel that he has done all possible along that line. This seems essential because the need for search for remote causes is based on failure of ametropic correction to relieve, and there seems lack of accord in the profession as to how this work should be done.

1. The manifest refraction state should be determined by subjective tests, with range of accommodation and muscular balance. Should the latter be faulty its sthenic or asthenic quality should be determined. Comparison of this with the subjective refractive condition gives us an idea of the conditions under which the patient is working with fatigue symptoms. This comparison often affords an explanation, impossible if the two factors are studied separately.

2. Determination of objective refraction under complete cycloplegia, unless the age of the patient contraindicates the use of a mydriatic.

3. This should correspond with the objective findings, and when it does not the reason will usually be found in unaccountably incomplete cycloplegia.

4. Subjective tests after the ciliary muscle has regained its activity. Accommodative range and muscular balance are often different from the states found during the fatigue period, and are essential guides in determining what proportion of a total error should be corrected. These principles are well recognized, but I incline to the opinion that, especially in the use of a cycloplegic, and determination of accommodation and muscular balance after the ciliary muscle has regained activity, they are often neglected.

842 Park Ave.

[For the discussion, see the department of Section Discussions in this issue.]

The Fear of Being Buried Alive.—A German newspaper recently gave a detailed account of the apparent death of a woman who later gave signs of life as she was being put in the coffin. The *Hygienische Blätter* states that a local physician investigated the case and found that a woman, subject to spasms, had fallen unconscious and her little children ran into the street screaming, "Mother is dead!" When the woman appeared on the streets a few days later some one wrote up the case as a revival from apparent death. The editorial urges on the press the duty of refraining from publishing items of this kind that will add to the widespread fear of being buried alive, unless the items can be authoritatively verified.

A PROTEST AGAINST THE EMPLOYMENT OF PARAFFIN INJECTIONS NEAR THE EYES

OR THE USE OF SOLID PARAFFIN IN THE CAPSULE OF TENON AFTER ENUCLEATION, WITH REPORT OF TWO CASES OF INJURY.*

A. E. DAVIS, A.M., M.D.
Professor of Diseases of the Eye, New York Post-Graduate Medical School and Hospital. President New York Ophthalmological Society.
NEW YORK CITY.

The following cases are put on record to call attention to the fact that paraffin injections near the eye, or a solid mass of paraffin placed within the capsule of Tenon itself, after enucleation, are not without danger. Dr. F. Gregory Connell[1] well says:

> The attempts at improvement which terminate unsatisfactorily are of even more import than are the cases which result favorably. The temptation is to report the successful operations and to postpone indefinitely a report of those cases which had an unfavorable outcome, in this way giving to one searching for a verdict on the method a biased conception as to the results one may reasonably anticipate. The satisfactory results are sufficient in themselves. The failures demand further attention and investigation, both from the operator and the profession at large in an attempt to discover the cause of the fault and to place it at the door of the method or of the one who employs the method.

In the two cases reported by me, the nature of the accident in the first case is similar in character to that already reported in a number of instances; that is, escape of paraffin into the tissues of the upper lid as a result of a paraffin injection at the root of the nose. The accident in the other case, however, is unique, so far as I am able to discover from a rather careful examination of the literature on the subject. In this case, a solid ball of paraffin had been placed within Tenon's capsule after enucleation for injury of the eyeball; in other words, the Frost or modified Mules operation was performed. The result was that a solid mass of paraffin escaped from the posterior part of Tenon's capsule into the apex of the orbit, pressed on the optic nerve and caused marked sympathetic irritation in the fellow eye.

Following is a detailed report of the two cases:

Case 1.—Mrs. B. W., aged 35, was sent to me June 14, 1906, by a nose and throat specialist of this city, on account of a marked ptosis of the right upper lid, which had persisted for two years.

History.—This ptosis was the result of a single injection of paraffin, melting point 100° F., at the base of the nose, to correct a saddle-backed deformity of that organ. A swelling in the right upper lid appeared immediately after the injection of paraffin into the dorsum of the nose and was followed by a marked inflammatory reaction of the right upper eyelid which kept the eye closed for six weeks. After subsidence of the active inflammation the upper lid remained drooped 3.5 to 4 millimeters, and was in that condition when the patient came under my observation.

Examination.—A flattened lump could be felt under the skin of the upper lid and the fold of skin just above the lid, extending entirely across the lid laterally from the nose to the outer canthus. Several yellowish spots, from 3 to 4 millimeters in diameter dotting this flattened tumor, could be seen through the skin of the upper lid. The skin was firmly fixed to the tumor and had become hardened, or undergone the degeneration known as keratosis. The motility of the eye was unimpaired and the vision was 20/15, with a normal fundus. The left eye and eyelid were normal in every respect, with vision 20/15. There was also a lump on the forehead just above the root of the nose, about one-half inch in diameter, which was the result of the original paraffin injection into the nose. This had remained about the same size for two years.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] The Journal A. M. A., Sept. 19, 1903, p. 697.

Treatment.—June 26, 1906, under cocain anesthesia a horizontal incision one inch long was made at the upper margin of the upper lid and a mass of connective and fibrous tissue, together with particles of the paraffin were dissected away. Around the particles of paraffin was a straw-colored fluid, and it was this fluid that gave rise to the yellowish spots seen in the tumor through the skin of the upper lid. The wound was closed with five or six silk sutures and healed by first intention. The ptosis was completely relieved and the patient was most pleased with the result.

The macroscopic appearance of the tissue was similar to that described by Dr. M. L. Heidingsfeld, as were also the microscopic findings.[2] Dr. E. L. Oatman of this city made the microscopic examination of the tissue removed. In Dr. Heidingsfeld's two cases the paraffin had been injected into the cheeks by quack doctors to beautify the patient; in one about three years and in the other about two years before coming under his observation. A complete histologic report of the nature of the tissue removed from his cases, illustrated with excellent photomicrographic plates, is given by Dr. Heidingsfeld in his interesting and instructive paper. Of his conclusions as to the changes of paraffin prosthesis I shall have occasion to speak later.

Case 2.—H. R., aged 7, was brought to me by his aunt, June 28, 1906, with the following history.

History.—One year ago his right eye was injured by a piece of percussion cap entering it. Ten days after the injury, because of symptoms somewhat resembling lockjaw, it was thought best to enucleate the eye; this was done by a New York oculist, and a solid ball of paraffin, melting point 120° F., (49° C.), was placed in the capsule of Tenon, the straight muscles sewed over it and also the capsule of Tenon and conjunctiva by means of the usual purse-string suture. A shell was placed over the stump a few weeks later and all went well until about six or eight weeks before the patient came under my care, when the artificial eye began gradually to squint inward toward the nose. After the convergence of the artificial eye, the left eye began to pain, to become reddened, and to run water; headaches also supervened after using the eye.

Examination.—When first seen by me the right, or prosthetic eye converged 35 degrees. When the shell was removed the stump was found much shrunken, but on palpation deep into the orbit with the finger a hard lump could be felt at the temporal side of the apex of the orbit, which evidently was the mass of paraffin which had escaped from the capsule of Tenon. The left eye had marked circumcorneal injection, there was decided lachrymation, and the eye was very sensitive to light, requiring a shade to be worn, and the patient complained of frontal headache.

Treatment.—On July 2, 1906, under a general anesthetic, an incision was made through the right shrunken capsule of Tenon, but not a particle of paraffin remained inside of it. The incision was then continued to the apex of the orbit to the hardened mass and a solid lump of paraffin, 20x14x8 millimeters, almond shaped, was removed with forceps, and also a small fragment of paraffin, 7x5x3 millimeters. The orbit was dressed and the patient was discharged after having been under observation one week. The very pronounced sympathetic irritation in the left eye was speedily relieved after the removal of the mass of paraffin from the apex of the orbit. The paraffin was not disorganized or disintegrated in the least, but was in solid mass without invasion of any kind of cells.

Accidents similar to the one which occurred in Case 1, that is, extrusion of paraffin into the tissues of the eyelids have been reported by a number of observers, and extrusion of paraffin from the sclera and the capsule of Tenon anteriorly, following Mules and Frost operations, when paraffin was used to form the artificial stump, have been reported in several instances. But extrusion of paraffin into the apex of the orbit from the capsule of Tenon, until now, has not been reported, so far as I am able to discover. In this respect, therefore, Case 2 is unique. The cause of this peculiar accident in Case 2 was due, in my opinion, to faulty technic on the part of the operator, the capsule of Tenon in all probability being punctured posteriorly and to the temporal side at the time of the operation. After a few months the solid mass of paraffin escaped through this opening into the apex of the orbit, pressed on the optic nerve and finally produced marked sympathetic irritation, which undoubtedly, had it not been removed, would have resulted in a true sympathetic inflammation of the fellow eye.

Ramsey,[3] in a report of a series of thirty-four cases (twenty-two at one time and twelve later), in which paraffin at 40° C. was injected into the capsule of Tenon after enucleation, had four failures from the paraffin extruding anteriorly. A more serious complication resulted in one case. He says:

> Once sympathetic inflammation followed enucleation and injection; but I do not think that any blame can be attached to the paraffin. The case was one of septic wound of the eyeball, in which, after enucleation, the optic nerve was found to be acutely inflamed. Strict antiseptic precautions were taken at the time of the operation and the socket healed up in a perfectly satisfactory manner. Nevertheless, the amount of sepsis was a contraindication, and apart altogether from the question of sympathetic disturbance, I would not use paraffin again under similiar circumstances.

In this latter conclusion Ramsey is entirely correct, in my opinion. But I would go further and say that neither paraffin nor any other solid substance should be confined in the sclera or Tenon's capsule for the purpose of forming an artificial stump when septic conditions are present. First, because such operations usually fail from the severe inflammatory reaction and later extrusion of the solid body, and, second, sympathetic inflammation may follow as in the case reported by Ramsey.

Oatman,[4] Alter,[5] Sucker,[6] Spratt[7] and others who have used paraffin (especially paraffin with high melting point, 60° C. or higher) consider it, when used in a solid ball within the capsule of Tenon, the very best substance yet tried to form an artificial stump after enucleation of the eye. They claim (1) that it is non-irritating, (2) that it is least likely to be extrudated, (3) that the wound heals voluntarily if part of the substance should be extrudated (Oatman), (4) that the material is cheap and can be easily sterilized and made into the proper sized balls for insertion, (5) that there is no danger from breakage, (6) that the paraffin ball soon adapts itself to the shape of the cavity and is held in place by connective tissue growth into it.

As to paraffin being non-irritating, it is interesting to cite in this connection a paper by Dr. Robert Kirk,[8] entitled "Paraffin Cancer." Dr. Kirk reports several cases of epitheliomata occurring in workmen employed in refining solid paraffin in the mineral oil districts, while the shale miners and retort men employed in the same oil regions were free from such growths. In regard to those who work in refining paraffin having a tendency to epitheliomata he says:

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[2] Jour. of Cut. Dis., Nov. 19, 1906, p. 513.

[3] Lancet, Jan. 31, 1903; Ophthalmic Rev., London, July, 1903.

[4] Medical Rec., 1903, lxiii, p. 372.

[5] Ophthalmic Rec., March, 1903.

[6] Ann. of Ophthal., January, 1903.

[7] Arch. Ophth., 1905, xxxiv, No. 2.

[8] British Med. Jour., 1903, ii, p. 1528.

This held in particular some thirty years ago when the men came in contact with the paraffin. Superheated steam is now employed for refining the paraffin and as a result the men are not attacked with the growths that they formerly were. Formerly the men worked with bare arms and as a result many ulcers formed on the arms, most of them non-malignant, but a considerable proportion became malignant and exhibited all the characteristics, both macroscopically and microscopically, of epitheliomata. Early excision gave always satisfactory results; but one case which was neglected resulted fatally. One patient, aged 71, had three such tumors removed successfully.

Dr. Kirk concludes: "These tumors were all epitheliomata, and the conclusion one must come to is that long-continued irritation certainly does predispose to the production of malignant disease."

The keratosis of the skin produced by the injection of paraffin beneath the skin and the pathologic changes which result therefrom bear a strong suggestion of malignancy, which certainly lends some degree of probability to Dr. Kirk's conclusions, and also that paraffin may act as such irritant. The conclusions of Dr. Heidingsfeld[2] in the paper already cited are significant in this connection, to wit:

> The changes of paraffin prosthesis indicate that the paraffin is slowly removed and gradually replaced by fibro-connective tissue. Its removal is effected by phagocytosis, by means of successive invasion of inflammatory leucocytes and their successive degenerations. The prosthesis acts as a foreign body by its mere presence, and becomes promptly encapsulated with newly formed fibro-connective tissue. It stimulates the surrounding tissue to proliferation and adenomatous changes resembling those of early malignancy. The segregations of the encapsulated paraffin in rounded cavities give the conditions a characteristic Swiss cheese-like appearance, and the successive degenerations of invading phagocytes, corresponding with the duration of the process and the size of the encapsulated paraffin, are areas of flattened non-enucleated cells, giant cells, and fibro-connective tissue. These areas are separated by an areola of fibro-connective tissue, which gives to the whole prosthetic area an alveolar-like structure. Its analogy to tuberculosis is marked. The paraffin, like the bacilli, acts as a foreign body, incites a leucocytic invasion, which undergoes degeneration and caseation. This in turn excites another invasion with the formation of a large number of giant cells from the agglutination of the cell bodies and the preservation of the nuclei. The final goal of each is a complete fibrosis. The disappearance of the paraffin by oxidation or by its movement in solid form along lymph channels is improbable and not confirmed by histologic or physiologic facts. The histologic appearances also fail to furnish any special reason for the crystalline character of the paraffin favoring leucocytic invasion.

The dangers of embolism from injections of paraffin have already been pointed out by other writers, and I merely cite some of the cases reported to call attention again to this phase of the question. As a result of paraffin injections to correct nasal deformities, instances of embolism of the central retinal arteries or thrombosis of the ophthalmic vein with loss of vision have been reported. Leiser was the first to report a case of this nature.[9] The blindness in this case was supposed to be due to a thrombus of the ophthalmic vein rather than to an embolism of the central retinal artery. Following an injection of paraffin into the nose the patient suddenly became unconscious, but was revived by artificial respiration and by injecting stimulants. On recovering consciousness the patient noticed that he was blind in the left eye. The paraffin in this instance is supposed to have entered the ophthalmic vein through the *vena dorsalis nasi.*

Hurd and Holden[10] report a carefully observed case of embolism of the central retinal artery, the eye being observed twenty-five minutes after the injection of the paraffin for the correction of a saddle-backed deformity of the nose. In this case, as in the one reported by Leiser, the accident happened at the third injection of paraffin. A mixture of paraffin (130° F.) and ointment of white vaselin, having together a melting point of 110° F., of semi-fluid consistency, was injected by Dr. Hurd. Immediately after the injection the patient rubbed his right eye and remarked that he could not see with it. A little later ecchymosis appeared about the tip of the nose, indicating that a vein had been punctured. On examination by Dr. Holden twenty-five minutes after the injection the right pupil was large and did not respond to light, and, while there were subjective symptoms of objects, there was no objective perception of light. The ophthalmoscopic examination showed the retinal veins normal, but the main inferior branch of the central artery of the retina and its branches were empty and collapsed. The main superior branch contained some blood, but when gentle pressure was made on the eyeball the blood column was broken up and the blood flowed backward into the central artery. Treatment consisted in stimulating the circulation with digitalis, dilating the peripheral vessels by inhalations of nitrate of amyl and deep massage of the eyeball. After two hours of such treatment the retina was entirely bloodless, due to the deep massage of the eyeball, but the embolism was not dislodged. The margins of the disc were slightly blurred and the retina near the large blood vessels was hazy. Three hours later blood had returned to the retinal veins and in broken columns to the superior artery. The usual cherry-red spot was present at the macula. Vision was not restored.

Just how the embolism was conveyed to the central retinal artery in this case the authors are unable to explain.

> Dr. Evan Evans who kindly made a physical examination of the patient, suggested the possibility of there being a persistent foramen ovale between the two auricles through which the solid body entering the veins might pass from the right to the left auricle and, avoiding the pulmonary circulation give rise to a crossed or paradoxical embolism, so-called, somewhere in the general arterial circulation. Since communication of considerable size between the auricles is not infrequently found at autopsies this explanation seems possible.

Injections of paraffin into other parts of the body have resulted in pulmonary embolism. Pfannenstiel[11] reports such a case in which he had injected a large amount of paraffin (113° F.) around the neck of the bladder to relieve incontinence of urine. Coughing, vomiting, chill, rapid respiration with cyanosis and dyspnea developed after the patient left the hospital; fortunately the patient recovered. Pfannenstiel is of the opinion that pulmonary embolism was responsible for these symptoms as a result of the injection of paraffin. According to Kummel, cited by Hurd and Holden, fatal cases of pulmonary embolism have been observed as a result of paraffin injections.

Sloughing of the tissues due to the injection of too much paraffin, or to the injection of paraffin into scar tissue, are other complications of a less serious nature which have been reported.

Taking into consideration the fact that sight may be destroyed, and that life itself may be sacrificed from the injection of paraffin into the tissues to correct slight deformities, or to make the patient more comfortable, it seems to me worth while to call attention again to such dangers. Certainly all mishaps from the use of paraffin injections should be reported that the technic may be improved or the method abandoned if it proves unsatisfactory or too dangerous.

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[9] Vereinsbeilage der deutschen med. Wochschr., April 3, 1902.

[10] Medical Rec., July 11, 1903.

[11] Centrbl. für Gyn., 1901, ii, p. 33.

[FOR THE DISCUSSION, SEE THE DEPARTMENT OF SECTION DISCUSSIONS IN THIS ISSUE.]

PREMIUMS PAID TO EXPERIENCE.*

[A critical study of 5,000 consecutive cases seen in private practice with a tabulation of the different ocular diseases which have been under observation, an analysis of some of the results obtained by treatment, and a résumé of the knowledge and experience gained in certain lines of ophthalmic practice.]

BY FREDERICK T. ROGERS, M.D.

ASSISTED BY GEORGE W. VAN BENSCHOTEN, M.D.

PROVIDENCE, R. I.

In twenty-five years of active work in the practice of medicine there has accumulated a vast storehouse of experience, from which may be drawn guidance in the problems of our life, as well as knowledge which prevents the repetition of mistakes and acts as an incentive to better effort.

Several years ago, actuated by curiosity to learn how many of my patients with diseased conditions of the posterior section of the eye received any marked benefit from treatment, I began this record; the opportunity to present to this Section the results of personal observation prompted me to complete the series of cases and, with the valued assistance of Dr. George W. Van Benschoten, to offer the results of our labor.

It is my aim to state, as briefly as possible, some of the lessons I have learned, not to pose as author or teacher, neither to magnify my successes nor to belittle my failures, but, with the greatest respect for the opinions of others, to offer a paper based solely on my own experience. Pardon is asked for the necessary frequent introduction of the ego.

The cases selected are consecutive, but are taken from records of different years extending from 1890 to 1907, and they are classified according to the predominant pathologic condition, in general assumed to be the one for which the patient sought advice.

TABULATION OF CASES.

Anomalies of:	
Refraction	3,188
Extrinsic muscles	157
Diseases of:	
The lids	176
The conjunctiva	387
The cornea	349
The lens	150
The lachrymal apparatus	66
The sclera	20
The iris	116
The chorioid	53
The retina	97
The optic nerve	55
The globe	40
Glaucoma	39
Amblyopia	27
Sundry diseases and conditions	80
	5,000

RELATIVE IMPORTANCE OF REFRACTION.

The most impressive fact of this study is the relatively large number of cases of refraction. Of my patients 67 per cent. have sought or needed correction for ametropia, and there is no reason to believe that my experience is exceptional.

It would seem that the pathologic conditions which occupy nearly three-fourths of our time should receive adequate discussion in our scientific meetings and that current literature should show the importance of this branch of our work, but as a matter of fact the number of papers on this topic which have been presented to this Section during the last five years is but 20 in a total number of 165, and of 621 original communications in ophthalmology during the year 1906 but 58 were on this subject, and of 21 articles on eyestrain 16 were by one author. If we knew all that there is to know about refraction, or if the action of the extrinsic ocular muscles could be definitely stated under all conditions, then this plea would fail of significance, but however much I disagree with some of the statements of my friend, Dr. Gould, I wish heartily to endorse what he has said regarding the importance of accurate mensuration of refractive errors and to decry the neglect on the part of the profession to give anything like adequate attention to this part of our work.

It is true that many of us at times do very bad work; were it otherwise those cases of hyperopes wearing concave lenses, of undiscovered and uncorrected astigmatism, of cylinders placed at improper axes, of unrelieved asthenopia which come to us from reputable men, and the same cases which escape our attention and go to the other man, would not occur so frequently. There is a true refractive correction for every ametropic eye and—within certain small limits—this should be discovered and measured by every man in the same way. This diversity of results accounts for a second fact impressed on us in a general view of these cases, and that is that the length of time that the average patient is under our observation is very short. Two or three consultations and the patient is gone, if relieved, to return in some years with an increasing presbyopia or an idea that his glasses need changing; if unrelieved, to go the rounds of the profession seeking the relief that we vainly tried to give.

When we *know* about refraction our patients will cling to us long enough for us to remember their names without recourse to our records, and will be in reality patients instead of customers.

ERRORS OF REFRACTION.

In correcting errors of refraction the desideratum has been the comfort of the patient and the relief of asthenopia with the maximum degree of vision and not the absolute correction of every deviation from the emmetropic eye and this allows for the hyperope at times a full correction, at others a partial one, a recognition of the fact that the axis of an astigmatism for close work is not always the same as for distant vision, a varying limit of presbyopic correction and the avoidance of any hard and fast rule, it should insure as complete and exact knowledge of the ametropia as possible but allows a prescription varied to meet the habit or idiosyncrasy of the patient.

REASONS WHY INCORRECT RESULTS ARE OBTAINED.

There are three reasons which explain why different results may be obtained in the same patient by equally competent observers.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

1. *The Personal Equation of the Examiner.*—There is nothing more likely to cause failure than hurry. We can not do good work and do too much. The estimation of refraction is a painstaking task, and it is the salvation of the young man that he can afford the necessary time to discover what we in our haste overlook, and his practice grows accordingly till he in turn also gets too busy for accurate work, when it passes to another. When I do not readily work out the problem under consideration I have learned to stop and to try again another day. It is better to impress your patient with your desire to be thorough than with your ability to do quick work.

2. *The Personal Equation of the Patient.*—In estimating the visual acuity it is essential that we learn and record the maximum degree of vision; the ordinary methods of examination are faulty in this respect, because the average patient does not understand that this is what we desire. Placed before the ordinary types he is asked to read the lowest line that he can, as the element of time precludes our asking him to read all the letters on the card, but in nine cases out of ten he reads a line or two above that which represents his maximum vision and it is only by repeated questions and trials that we finally gain the desired result. If our record is made without this protracted effort it is erroneous and subsequent tests will show a discrepancy.

I have for several years used the Monoyer card with the metric system. This is so arranged that I can illuminate each line at will, and I always start with a line that I think the patient can not read and in turn bring before his vision the larger letters till he reads them correctly. There is just as good reason for this as there is—in the measurement of the prism strength of the ocular muscles—to start with the stronger prisms first, and this Section has already stamped that method with its approval.

3. *An Appreciation of the Actual Need of the Patient.*—It is an every-day experience for all of us to have patients say that they are unable to wear the glasses which have been prescribed for them by some other oculist, and it is my frequent experience to find that this is due to a failure to ascertain for what purpose the glasses are to be used. The patient may be a weaver with a near point 20 to 30 inches from the eye, a seamstress with a working distance of 18 to 20 inches or a die sinker or engraver working at a distance of only 8 or 10 inches; in such a case to give a presbyopic correction estimated for the ordinary reading distance insures failure. Musicians, typesetters, linographers, etc., require glasses different from those appropriate for students, professional and business men of the same age.

A knowledge of the general condition of the patient, his power of accommodation for each eye, his ability to use it for prolonged effort, a consideration of the nervous tone present and the possible tendency of the patient to complain of trivial symptoms, as well as the existence of that form of neurasthenia which magnifies every ocular symptom and seeks for relief from every possible pain and ache by spectacles, are factors to be considered quite as much as the mechanical measurement of the ametropia.

CYCLOPLEGICS.

In my experience the use of a cycloplegic has become a necessity and no method is alike so accurate in results and so comfortable to the patient as the gelatin discs devised by Dr. Wood. I have measured the hyperopia in fifty young persons under homatropin and later under atropin, and the maximum latent hypermetropia developed under atropin over that shown with the weaker drug was in one case 2.5 D., in two cases 2.0 D., in four 1.0 D., and in all the rest varying amounts from 0.25 D. to 0.75 D. Between the method of using the discs and the frequent instillation of an aqueous solution there is not enough difference in results to pay for the annoyance it causes the patient and the time it occupies. I have used homatropin in over 20,000 cases in private and hospital practice and I have seen glaucoma follow its use but once, and I have always felt that the symptoms first presented were those of an oncoming attack of this disease which I mistook for asthenopia.

EFFECT OF A CHALAZION ON VISION.

In the literature on the subject I have not seen the fact mentioned that the presence of a chalazion sometimes causes a marked diminution of vision and a decided change in the axis of any existing astigmatism. In this series I have seen two cases which show this to be true. Both were patients who had been under observation for a number of years, and in each I knew the exact refractive error and more than once have I seen the vision fall from normal to 0.4, although improved by a change in the axis, yet in 24 hours after the removal of the retention cyst again become normal under the original correction.

FOGGED VISION.

I have been much interested in Dr. Dixon's theory of "fogged vision," and in a score of intractable neurasthenics I have followed the plan of keeping the vision a little below normal by overcorrecting the manifest hypermetropia, but I have failed utterly to gain the beneficial results claimed by the author, although I admit the value of the method in estimating the amount of latent error. The asthenopic symptoms have, as a rule, been rather increased and the constant feeling of effort which is engendered is not conducive to the comfort of the patient and comfort is what we seek.

VALUE OF REPORTS OF CASES.

It is a source of wonder to me how certain men can get results from the correction of ametropia which others with the same methods can not obtain, and I believe that many cases are reported as relieved when they have merely passed from observation and they are assumed to have been cured. Even if pains are taken to write to the patient and inquire as to the present condition, the answers are not always reliable. I have addressed such letters to several hundreds of patients and have flattered myself that my results were eminently satisfactory, only to learn afterward that a dislike to hurt my feelings has prompted many of them to report themselves as cured when they were even then under treatment elsewhere for the same condition.

In a recent article on migraine in the *Ophthalmic Record* the relief by proper glasses is so extraordinarily uniform that I believe the replies are not to be relied on and the force of any conclusion is necessarily weakened.

CHOREA AND EPILEPSY.

Two cases of chorea and one of epilepsy were referred to me in this series of cases for examination, and in none were found that error of refraction or muscular trouble which is so frequent in the reported cases of those who assume that such errors are a factor in the etiology of functional nervous diseases. Some years ago, at the request of the late Dr. Keene, I examined a large number of these cases in the state institutions at Cranston, R. I., and I have records of over a hundred choreic and epileptic patients in private practice. I have done tenotomies, as well as graduated tenotomies, and in but two cases have I seen improvement enough to warrant the assumption of any therapeutic value in the operation. I have under my care two epileptics who have been reported as cured by tenotomies, but the condition is quite as bad as before the cure.

LATERAL SPINAL CURVATURE AND OBLIQUE ASTIGMATISM.

Two cases have been seen which bear out Dr. Gould's statements of the effect of oblique astigmatism on spinal curvature.

Case 1.—Oct. 7, 1901, H. H., aged 17, American school girl, complained of pain through eyes and head extending down the back and aggravated by study. Some months previously her physician had noticed a lateral curvature of the spine and an attempt had been made to correct this deformity by the daily use of calisthenics. She was wearing glasses given her by an optician, O. D. + 0.50 C. 90° — O. S. + 0.75 C. 90°, and with them got 0.7 vision, but there was noted at once a tendency to tilt the head to one side when using them. Under a mydriatic the vision was as follows: R. V. = 0.1 + 1.75 (+) 0.50 C. 75° = 1.0; L. V. = 0.2 + 1.25 (+) 1.0 C. 100° = 1.0. She was ordered O. D. + 1.0 (+) 0.50 C. 75°; O. S. + 0.50 (+) 1.0 C. 100°, for constant wear.

April 19, 1902. The patient had improved greatly; the asthenopia was gone and the spinal defect was not noticeable. The gymnastic exercise had, however, been continued and the beneficial result was attributed to this alone.

Case 2.—May 31, 1902, Mrs. H. F., aged 36, had poor vision. When reading had a sensation as if the right eye were being pushed forward, with pain extending to neck and shoulders, and there was a desire to turn the head to the right; she was a neurasthenic; had recently had an ovariotomy performed and was just from Dansville Sanitarium, where she had been treated for spinal curvature. R. V. = 0.7 under a mydriatic = 0.1 + 2.50 (+) 0.50 C. 45° = 0.8; L. V. = 0.5 under a mydriatic = 0.1 + 1.50 (+) 1.75 C. 165° = 0.9. I ordered + 2.0 (+) 0.50 C. 45°; + 1.0 (+) 1.75 C. 165°, for constant wear.

Feb. 3, 1905. There had been no complaint of spinal trouble since wearing glasses and the asthenopic symptoms were entirely relieved; she was still neurasthenic and had recently had an operation for floating kidney, but the lateral curvature was not present, although when the glasses were laid aside she assumed the same position noted in 1902, and there was soon felt the discomfort referred to one eye.

FULL CORRECTION IN MYOPIA.

I have had an opportunity in this series of cases to watch five cases of "school myopia" for periods of over ten years. In four of them full correction, the occasional use of atropin during vacations, attention to hygienic rules and an increase in the strength of the lenses as the myopia increased, at least twice a year, so affected the myopia that the yearly increase was in a constantly diminishing ratio. In each it resulted in a condition of moderate myopia which has been stationary for some years. In one case the increase in myopia was at the rate of one-half diopter every six months for nearly two years. Four years then elapsed without attention and the myopia during that time increased nearly seven diopters and in the three following years to 12 D., since which time it has remained stationary. My experience in these troublesome cases has been uniform, and I am a firm believer in the full correction.

CONVERGENT STRABISMUS.

There have been 70 cases of convergent squint, and of these I have been able to follow 60 cases long enough to note the ultimate result of treatment. In some of them (8) the age of the patient precluded an accurate test of vision, and reliance was placed entirely on retinoscopy in estimating the refraction and the existence of an amblyopia could only be surmised. I have attempted to classify them as follows:

Patients.	Success.	Partial Success.	Failure.
In which there was amblyopia and the vision of the squinting eye was not improved to more than 0.1....	..	2	8
In which the vision of the amblyopic eye was materially improved by glasses	4	5	5
In which the vision with correcting lenses was nearly equal in each eye. In most cases alternating squint	12	5	6
Tested by retinoscopy only.........	1	2	5
Tenotomy or advancement	5	..	..
	—	—	—
	22	14	24

Some of the 24 unsuccessful cases ultimately came to operation, but, with one exception, the original tenotomy was done for the cosmetic effect alone. In the successful cases the correcting lenses were worn for some years, and the fact that when they were removed the squint returned was not considered a reason for calling the case unsuccessful. The treatment was, 1, as nearly a full correction as possible; 2, the frequent use of atropin; 3, the occlusion of the fixing eye for definite and regular periods, and, 4, the cultivation of the fusion sense by systematic exercises. Experience has taught me that there are two classes of cases where persistence in non-surgical measures will effect a cure:

1. Those cases in which the vision of the amblyopic eye is materially improved by lenses.

2. Those in which the vision of each eye is nearly equal, and in all cases where there is absolutely no effect on the convergence from the prolonged use of atropin, I do not hesitate to advise an operation, always with a plain statement of the possible subsequent deviation. That this deduction is fairly correct is proved from a study of one hundred other cases occurring in the practice of Dr. Van Benschoten and in my own.

In no case where the amblyopic eye remained unimproved was there a successful result; while in the cases of alternating squint there was almost uniform correction of the deformity, and in the second class of the table 40 per cent. were successful and 30 per cent. partially so. There were 26 cases of paralysis of one or more of the extrinsic muscles which are not included in this table.

DISEASES OF THE LIDS.

Lupus.—Two cases of lupus of the eyelid have been under observation. In one the Roentgen ray was used, resulting in an extensive burn with great deformity and in no way affecting the ultimate result. In the other the "Finsen ray," so called, was used for thirty-two sittings. At first this treatment seemed to lessen the induration and heal the ulcerated surfaces, but the effect, if real, was but transitory and the disease steadily progressed. The remarkable results attained by Finsen can not, in my opinion, be duplicated by the man who has at his disposal only the commercial lamps to be obtained in this country which utilize but a moderate voltage. One case, not included in this series, has been under observation and without using either of these methods of treatment has remained quiescent and has not proceeded to the ulcerative stage.

DISEASES OF THE CONJUNCTIVA.

I regret that in these cases I am unable to give the bacteriologic findings in a sufficient number to make them of greater value, but I have used the silver salts often enough to warrant me in expressing a decided opinion on their relative value. There is, to my mind, no remedy which equals silver nitrate, no remedy that can be relied on in critical cases like this old-fashioned drug which has, in a measure, been superseded by newer synthetic compounds. Protargol I have discontinued because I have had marked argyrosis in several cases. Argyrol in 20 per cent. to 50 per cent. solution, if used frequently, has great value, but it is merely an adjuvant to the nitrate, and in a somewhat extensive hospital practice I have not been able to agree with Dr. Standish regarding its efficiency.

In 23 cases of ophthalmia neonatorum, in this series, 6 eyes were lost before I saw them; 3 were treated with argyrol alone, with corneal ulceration in 2; protargol was used in the treatment of 2, with no corneal affections, and 15 were treated with a solution of argentic nitrate, with one resulting scar.

The law compelling midwives to report all cases of inflamed eyes in the newborn has been on the statute books of Rhode Island for more than twelve years. There has been in that time no arrest or prosecution for violation of the law, but the publicity gained by its enactment has, nevertheless, been of great value, for the frequency of cases of ophthalmia has certainly been lessened by a half in the last decade.

DIONIN IN TRACHOMA AND PANNUS.

The remarkable and almost uniform improvement, which has followed the use of dionin and cupric sulphate in trachoma with pannus, is one of the few positive results I have attained with any of the newer drugs.

The various operations of curettage, grattage and scarification have been tried only to be abandoned, while reliance has been placed on the topical application of copper sulphate. Since the advent of dionin I have used it in the powder form, followed in a few minutes by the copper salt, with the result that the pain is lessened and the subsequent discomfort diminished and the cornea has cleared in a way I have never before experienced in my treatment of these cases. Either one used alone has not the effect of the two combined. Dr. Van Benschoten has in his cases used dionin with a solution of mercuric bichlorid, and with the same success, so it is possible that I have ascribed too much to the cupric sulphate, but it is the combination apparently which is efficacious.

DISEASES OF THE CORNEA.

Edema of the cornea is a rare condition and is not even mentioned in many text-books. I have read of but one case in medical literature, and I have seen the following: An infant, two days after instrumental delivery and still showing across the lids and forehead the imprint of the blades of the forceps, presented a slight haziness of the cornea which rapidly increased till the whole anterior chamber was of a milky, white color. When first seen by me it had the appearance of an anterior dislocation of an opaque lens into the chamber. There was no reflex, no increased tension, no ciliary injection, and I was unable to see the iris in any portion. I considered the case to be one of traumatic dislocation, and it was a week later that beginning absorption of the cloud showed that there had been an infiltrate into the stroma of the cornea which cleared exactly as the infantile lens is sometimes absorbed after a discission, allowing me to see the exudate between the limiting membranes of the cornea, the entirely normal and active iris and clear pupil. In two months the cornea was quite transparent.

CORNEAL ULCERATION.

In the treatment of ulcers of the cornea, the usual methods prevailed and with the usual number of maculæ. One drug, however, once exploited but now forgotten by many, has proved of such service in all suppurative forms of keratitis that I have continued its use for fifteen years. Pyoktanin (yellow), although, according to bacteriologists, of weak germicidal activity, in my hands has been of great service. In one-half to 1 per cent. solutions, so dropped into the eye that it trickles slowly over the cornea, it has prevented the loss of tissue which insures a leukomatous condition, has relieved pain and hastened the healing process. In two cases of infection following extraction, this was my main reliance and the fortunate healing with a clear cornea was ascribed to its virtues. In sclerosing keratitis, its use with atropin and dionin has taught me that we can almost promise the patient a complete recovery in from two to three months. In these cases I do not deny the superior value of dionin, but in this series I have seen eleven cases of this disease, and where the three drugs were used the duration of the disease was lessened by some weeks. In maculæ of the cornea of recent origin the use of subconjunctival injections of a physiologic saline solution and powdered dionin yielded in a few cases brilliant results.

DISEASES OF THE SCLERA.

One of the most troublesome diseases I have been called on to treat is scleritis, for without a definite knowledge of its etiology our treatment is necessarily symptomatic. Eleven of the standard text-boooks agree on rheumatism as a cause; five mention gout, five scrofula, six ascribe the disease to syphilis and a like number to the irritation produced by light, wind and dust, while four say that menstrual disorders are a factor. In 16 cases of well-marked migratory scleritis I have been able to get a history of rheumatism in all but one; of syphilis not at all; in most of them there has been a general disturbance of health in greater or less degree, but, aside from the rheumatic or gouty diathesis, no uniform etiologic factor. A recent statement that a large proportion of patients suffering from scleritis show a distinct reaction to the tuberculin test may be of future value, but I have not had my attention called to the possibility of tuberculosis by any other presenting symptoms.

The treatment has been at all times devoted to the lithemic state, in spite of the claims that there is no such condition, and the local use of either atropin or pilocarpin. There seems to be no way of telling which drug will prove most efficacious save by trial. The protracted course of the disease and its frequent recurrence indicates the necessity for more careful study and consideration on our part. In a small proportion of the cases, pilocarpin proved an effectual remedy, but in over half of them a secondary iritis necessitated the use of atropin before the conclusion of the attack. Argyrol was used in several without effect. Ice and heat were alike inefficient. Adrenalin was of service only in temporarily blanching the parts and subcutaneous injections of pilocarpin muriate did not have material effect.

DISEASES OF THE RETINA.

Seventy-one cases of retinal disease came under my observation in this series and are classified as follows:

Hemorrhagic retinitis	11 cases.
Albuminuric retinitis	30 cases.
Albuminuric retinitis of pregnancy	3 cases.
Diabetic retinitis	6 cases.
Specific retinitis	2 cases.
Retinitis pigmentosa	5 cases.
Neuro-retinitis	4 cases.
Chorio-retinitis	3 cases.
Embolism of central artery	2 cases.
Unclassified	3 cases.
	71 cases.

Under hemorrhagic retinitis are grouped those cases of retinal apoplexy which, when first seen, did not necessarily present evidence of an active inflammatory process, but in my experience the diminution of vision has been quite as great in one as in the other. They were associated with arteriosclerosis, cardiac disease, leucocythemia, anemia and gout and in all the treatment was directed to the existing general condition with the exhibition of atropin, mercuric bichlorid or potassium iodid and the avoidance of irritation by light or use of the eyes. There were 4 cases of complete recovery without scotomata and three cases of improvement; four remained absolutely unchanged. Of the 30 cases of albuminuric retinitis the subsequent history of 20 is known. Death occurred in all but one, and of these,

10 lived less than 3 months.
6 lived less than 6 months.
1 lived less than 12 months.
2 lived more than 2 years.
1 is living after 5 years.

In 16 of these cases the existence of a nephritis was not recognized or suspected till the ophthalmoscopic findings called attention to the condition, and in all the treatment was relegated to the family physician. This probable length of life is entirely corroborated by a study of a much larger number of cases which I have previously reported. Seventy per cent. of these patients die within a few months. In the retinitis of pregnancy there was recovery in two, no improvement in one. In one case of retinitis, possibly specific, there was complete recovery, but with these exceptions there was no improvement in the condition or visual acuity in any of the cases I have seen. The apparent improvement of vision seen in some cases is, in my experience, apt to be due to faulty and inaccurate mensuration; reports by different observers of the visual acuity are not credible. The following case is unique in my experience:

Case 3.—E. G., aged 38, American, bank clerk, was first seen Jan. 23, 1903, when the vision was R. V. = 0.1 — 1.0 (—) 0.25 C. 180° = 1.0; L. V. = 0.1 — 1.25 = 1.0. Patient had specific disease of two years' duration and was under active treatment at the time. Two weeks previously a dentist, in killing a nerve, had broken a broach in the canal of the right upper canine tooth and had been obliged to extract the tooth after a fortnight owing to pain and inflammation. During the interval there had been a blurring of his vision in the right eye, which, however, lasted but a few hours, and at the first examination the vision with a correction for myopia was normal. Four days later there was an active serous retinitis with numerous hemorrhagic splashes over the entire upper half of the retina and the vision was reduced to the ability to count fingers at a few feet. More active specific medication was instituted, but the edema of the retina increased till there was an exudate springing from the retina at the macular region which extended into the vitreous and was freely movable, waving back and forth with each motion of the globe. February 17 the patient was seen by Dr. Hasket Derby of Boston, who gave as his opinion that it was either a metastatic condition from the trouble in the jaw or a reflex disturbance, he did not believe that it was specific in its origin. Mercurials and the iodids were continued, but without any effect and in June, 1903, the vision was but slightly improved, and there were numerous white atrophic patches where the hemorrhages had occurred and a slaty colored exudate nearly covering the site of the inflammation. There was no external evidence of inflammation, and the patient was allowed to return to work. Feb. 4, 1904, the vision was 2/50 and the same ophthalmoscopic picture presented. He was not seen again till April 21, 1906, when to my surprise I found that the vision had improved with — 1.25 to normal. The retina still presented the gray appearance, and there was visible the distinct white line of an obliterated artery, a branch of the superior temporal. The exudate into the vitreous was entirely absorbed. The vision has remained normal.

I have seen one other case where the placing of a crown on a canine tooth was followed by a hemorrhagic retinitis. In the absence of any other probable cause, the crown was removed and the root extracted. In the nerve canal was found a bit of steel one-eighth of an inch in length and a pus cavity was evacuated by the extraction. The hemorrhagic condition in the retina subsided in a month, with, however, no improvement in vision. These two cases tend to show a causal relation between the teeth and the retinal circulation which is not usually recognized in the text-books.

There were 13 cases of detachment of the retina and 9 were of recent origin. In the treatment I utilized, 1, rest in the recumbent position and pressure bandages; 2, pilocarpin as a collyrium and by subcutaneous injection; 3, scleral puncture; 4, subconjunctival injections of physiologic saline solution, and, 5, intraocular injection. In but one case was there a return of the retina to its normal position which was permanent and that was when a Graefe's knife had been passed through the sclera and retina at its most dependent portion. The resulting exudate has held the retina in position for more than twelve years.

EMBOLISM OF THE CENTRAL ARTERY.

In one case of embolism of the central artery, vision was restored.

Case 4.—H. W., aged 55, American, one morning while dressing he placed his foot in a chair to lace the shoe and at that instant lost the sight of the right eye. I saw him a half hour later with the typical appearance of embolism and with the first temporal branch of the ascending artery collapsed and empty. Vision was *nil*. He was immediately placed in bed and an injection of pilocarpin given, repeated in twelve hours with a most profuse ptyalism and diaphoresis. Deep massage was instituted and kept up at intervals of a few hours. On the second day the ophthalmoscopic picture was the same, but while examining the fundus I saw the vessel fill with blood and a pink flush extend like a wave over the whitened area. There was immediate improvement in vision which some weeks later was nearly normal, a slight scotoma being the only trace of the accident. I ascribe the recovery of vision in this case to the fact that active treatment was instituted within a few hours after the accident.

With the exception of this case and possibly the specific retinitis reported above, I have not found any drug or any procedure which has materially influenced the condition. When the patient gets well he does so in spite of the treatment and not because of it, and the therapeutics of retinal disease is resolved into attention to the general condition—rest under atropin and avoidance of all irritation. As a rule, the patient does just as well if you tell him what is the matter and allow him to go his way as when active medication is instituted.

CONCLUSION.

In this series of 5,000 cases there have occurred many of great interest to me and from which I have learned useful lessons, yet I am not warranted in inflicting them on you, and I beg you will believe that what I have stated is not all that I have learned by experience. Indeed as the years go by I find that I rely more and more on the knowledge thus acquired in treating the commoner and often quite as troublesome diseases and depend on the current literature for the rarer conditions, even though to do so tends to keep a man in a narrower rut.

We can not all be teachers or pose as authorities, and I have little patience with the desire of many to acquire priority in the report of a case or the design of an instrument. Many of us are content to do, as best we may, the work which comes to us, availing ourselves of every proffered aid and seeking to increase the efficiency of our armamentarium and to eliminate the possibility of recurring mistakes. It is to these that I venture to plead for a more careful consideration of the commoner diseases that we are called on to treat rather than the devotion of time and energy to such cases as occur but once or twice in a lifetime. The field is wide and the last word has not been said in any of the topics I have mentioned.

[For the discussion, see the department of Section Discussions in this issue.]

OBSERVATIONS ON PEMPHIGUS.*

JOSEPH ZEISLER, M.D.
Professor of Dermatology in Northwestern University.
CHICAGO.

American dermatology has just cause for satisfaction in contemplating the present status of the pemphigus question, at least from a morphologic point of view. It is no longer necessary to mention dermatitis herpetiformis with an air of apology. Not only the French, under the leadership of Brocq, recognize in what they often term Duhring's disease, a clean-cut clinical entity; the English, German, Italian and practically all European dermatologists use that diagnosis continually; and even the Vienna school, obstinate until recently, has of late receded from its position to some extent. The keynote of this whole question is not one of nomenclature nor of classification. Too much printer's ink, I fear, has been wasted in this respect in the past twenty years. The advantage of narrowing down the conception of pemphigus to proper limits and using the term only in reference to more or less serious bullous affections with well-known clinical features and decursus, and separating from it that benign, pruriginous, chronic, relapsing, polymorphous dermatitis in which bullæ appear occasionally, but not necessarily always, lies largely in the fact that the way has now been paved for practical etiologic investigations and for therapeutic advances by international cooperation. As long as one observer has as an object for his histologic, bacteriologic and hematologic studies a true case of malignant pemphigus, while another has been working on a benign case of dermatitis herpetiformis, contradictions and misunderstanding and general confusion must arise. A study of the literature of the past twenty years shows this in many instances; and one can not overcome a peculiar feeling of disappointment in comparing the enormous mass of papers and monographs devoted to pemphigus with its meager practical results. To illustrate, I might mention the reports of the Vienna Dermatologic Society, in which during the past twelve or fifteen years more than a hundred cases of so-called pemphigus have been demonstrated and discussed. Not a single word about etiology, not the feeblest therapeutic suggestion. Nothing but morphology, quibbling about diagnosis, continuous attacks against Duhring's views. And in this connection a doubt may be fairly expressed whether the imposing array of four hundred or more personally observed cases of pemphigus of which Kaposi could boast could pass muster under modern critical review. Or take Neumann's pemphigus vegetans, which most of us have long ago accepted as a distinct variety of pemphigus. Unna devotes his mighty pen to a fight for his new name, erythema bullosum vegetans. Then comes Tommasoli, who would rather call it condylomatosis pemphigoides maligna. And then still comes Hallopeau with his pyodermite vegetante. *Cui bono?*

A great deal of earnest labor has been devoted to the histology of the pemphigus bulla in recent times. Among the noteworthy workers in this line may be mentioned Luithlen, Kromayer, Jarisch, Kreibich, Grouven, Leredde and others. But there is far from unanimity in their findings as to the seat of the bullæ. The old view of Auspitz, who saw in a sudden disintegration of the prickle cell layer the chief pathologic process, and therefore called it an acantholysis, finds few subscribers now. According to the investigators mentioned above, the formation of the bulla varies in different cases, so that at times the most superficial strata only of the epidermis are elevated; in others the bleb is formed by the separation of the whole epidermis from the chorium, and in others again it forms within the rete layers. No real light is thrown by these researches on the essential nature of the disease. This applies also to the otherwise interesting experiments of Weidenfeld, who succeeded in artificially producing large blebs on dead infantile skin under hydrostatic pressure.

The hope that modern bacteriologic methods might show in the contents of the bullæ some pathogenic organism has, as yet, not been fulfilled. Peculiar diplococci have repeatedly been demonstrated by Demme, Claessen, Bullock, Welch, Dachnhardt and many others in cases of acute infectious pemphigus, but not in true chronic pemphigus. What other organisms have occasionally been cultivated from the bullous fluid in typical cases of pemphigus are far from characteristic or pathognomonic. Nor has chemical analysis given definite results, and it would be useless to reiterate here the various findings in this respect. Some authors (Luithlen and Kromayer) have claimed a special dissolving or disintegrating effect of the bullous fluid on the surrounding epidermis in explanation of the peculiar phenomenon in pemphigus foliaceus, but this has been denied again by Jarisch and others.

In regard to the etiology, we find that the neurotic theory is still favored by many authors, though postmortem examinations have only very occasionally shown any morbid condition in either brain, spinal cord or peripheral nerves. Du Mesnil de Rochemont, in an able paper, after reviewing the various theories, describes five cases fully to prove their neurotic origin. Functional neuroses, hysteria, prick with a thorn are given as the causes. Such isolated cases as Kirchner's observation of pemphigus following the suppression of perspiration, or Guth's after exposure to intense solar heat, throw little light on the etiology of pemphigus in general. The same may be said about the theory of the osteomyelogenic origin of the disease, as is apparently demonstrated in the case of Pelagetti, who found great numbers of large mononuclear leucocytes in the bone marrow.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Metabolic disturbances have been claimed since olden times, but the most careful urinary examinations have only occasionally shown an abnormal composition. Rather unique is Boeri's observation of peptonuria which accompanied the various bullous outbreaks in his case, disappearing in the intervals. Leredde urges the hematogenic origin of pemphigus, claiming that peculiar toxins are formed in the spinal cord and from there disseminated into the blood. Examination of the blood itself, however, while occasionally showing an increase in eosinophile cells, has as yet not helped the elucidation of that obscure problem. Grouven makes the startling proposition to consider as true pemphigus only such cases whose etiology is entirely unknown. Very suggestive is the explanation of Tommasoli and Sormani, who attribute chronic pemphigus to the effect of leucomains and the acute forms to microbic influences. This leads me to the consideration of an etiologic factor which seems to me to have a more than casual meaning, and for which I shall offer some observations of my own. I refer to the influence of organic animal poisons. Literature gives us a number of instances of this sort. In studying a case of acute pemphigus, Pernet has collated 16 cases of that variety, 8 of which occurred in butchers, while a few of the other patients had been handling animal products of some kind. Lassar has observed a case of pemphigus after poisoning by game. Herxheimer, in a study of pemphigus vegetans, cites 3 cases, one of whom was a fishermaster, another a cattle dealer, in whom the diagnosis first made was foot and mouth disease (mundsaeuche). Morley and Ransome report a case of bullous eruption in a butcher. Fabry's case occurred in a milk dealer. Sandby reports a case of acute pemphigus in a butcher, following a cut. Baerman reports from Neisser's clinic a case of general bullous eruption in a butcher. There were repeated attacks. The bullous fluid was sometimes auto-inoculable, and the author considers his case as a chronic streptococcus infection.

Of special interest is Bowen's report of a case of acute infectious pemphigus in a butcher occurring during an epizootic of foot and mouth disease. He discusses fully the possibility of the identity of the two diseases, and furthermore parallels his case with the bullous eruptions following vaccination, of which Boston has had an epidemic at the same time when such an epizootic existed.

To these observations, which are probably only a small portion of all the reported cases, I can add two of my own; one a true chronic pemphigus, the other a pemphigoid bullous eruption.

Case 1.—Dec. 3, 1903, I was asked by Dr. McGaughey, of Chicago, to see, in consultation, a patient whom he had treated for some time. On entering the patient's flat, I was struck by that odor peculiar to butcher shops, and soon learned that the husband was engaged in that trade. Mrs. S., a rather frail, tall woman of about 38 years of age, had suffered from bullous eruptions for several years. I found large, well-developed, tense bullæ with clear contents on an otherwise pale skin, situated mostly on hands and feet, but disseminated also on arms and legs and a few on the face and the trunk. The diagnosis offered no difficulties. The treatment consisted in the internal administration of arsenic, gentle opening of the bullæ, local antiseptic and astringent baths and washes. The patient remained under my observation for several years, and was shown to the Chicago Dermatological Society, particularly on account of a rather uncommon epiphenomenon, which, however, has been described by the elder Hebra and since by several authors as a somewhat characteristic sequence after the healing of the pemphigus blebs. I refer to the formation of multiple, milium-like, epithelial horn cysts, which in my case showed abundantly on the legs, hands and arms.

According to recent information, the patient is now fairly comfortable, but suffers from occasional outbreaks. The case may be considered as a rather benign form. The etiologic connection with the husband's occupation seems to be at least plausible.

Case 2.—March 9, 1907, I was visited at my office by Mr. M., aged 27, occupation a butcher for ten years. He stated that for six years he had had each spring, with almost periodical regularity, acute eruptions of bullæ on his hands and feet, which usually lasted for about a month, and had caused him considerable suffering and inconvenience. He had never transmitted his trouble to any other member of his family. His general health had always been good, except that within a few weeks he had had his appendix removed. The present attack had come on within a few days.

I found his hands and feet literally covered with large, tense bullæ, just barely reaching over the wrists and ankles, respectively. The rest of the body was not affected. There was no fever present nor any other systemic complication. My diagnosis was erythema bullosum pemphigoides. Under simple treatment the patient recovered within a few days, and at my suggestion decided to abandon his occupation as a butcher.

I have no explanation to offer for the periodicity of the attacks in this case. Their causal connection with the handling of raw meat seems to me very highly probable.

I am citing this case without any desire to force it under the head of pemphigus, but merely to present another instance of the production of large bullous lesions anatomically and clinically identical with those of true pemphigus due—at least very probably due—to exposure to animal poisons of some kind.

Far from trying to give to my observations or those mentioned before any more weight than they may deserve, I believe we have here a large group of cases of bullous eruptive disorders, some of them of the acute, infectious, malignant type, others of a more benign acute form, yet others of the typical chronic form, all belonging together through a common etiologic factor. And one need not indulge in fanciful speculation to appreciate that probably many other cases, not necessarily in butchers, milk dealers and the like, do originate from meat poisoning or some kind of animal toxins.

In preparing this paper I have carefully looked through my records for the past ten years, and found therein notes of 14 cases of pemphigus. I believe it would be of little value to encumber this brief report by a statistical or detailed clinical account of all those cases. Some of them proved mild and tractable; in others all my efforts to stem the fatal progress of the disease were in vain. One case, however, I may be permitted to briefly report on account of the peculiarity in its development and the rather favorable outcome after the presence of the features of true foliaceus pemphigus for some time.

Case 3.—Mrs. I. N., 43 years old, of Evanston, Ill., visited me June 5, 1903, at my office, on account of a generalized eruption on the body, which I diagnosed as herpes tonsurans maculosus, as known to the Vienna school, and differing, in my opinion, from pityriasis rosea, with which, I believe, I am fairly familiar, though many writers consider the two to be identical. In other words, I had before me a parasitary eruption, due to the trichophyton fungus, which, from the statements of the patient, was probably acquired by infection from her own dog. Under energetic antiparasitary treatment the lesions disappeared within about ten or twelve days, but there gradually developed, at first, isolated and by and by more widely disseminated, large, bullous lesions. Such a development of pemphigus from an antecedent generalized eruption of some other clinical type has occasionally been recorded by other writers.

Without going into unnecessary details, I may state that within the next six weeks almost the whole surface of the body became involved, including the face and hairy scalp. Imperceptibly the type of the whole clinical picture had changed from that of pemphigus vulgaris to the clinical form of pemphigus foliaceus. There was little tendency toward the restoration of the epidermis. Instead, large areas of the surface were covered with crumbling, heaped-up masses of dry epidermis, desiccated serum and detritus. The chest and back particularly showed the familiar picture of superficial transversal rhagades between streaks of exfoliated epidermis. To give a full account of the aspect presented, I might simply copy the description of that terrible disease from any good treatise. There were occasional spells of apparent improvement followed by set backs, and at all times one could observe that peculiar phenomenon described by Nikolsky, namely, the easy detachment of the seemingly sound-looking epidermis on the slightest friction of the skin. Beyond a slight conjunctivitis and some irritation of the nostrils, the mucous membranes remained intact, which seemed to me an encouraging feature. There was usually some elevation of temperature, disturbed sleep and, as a matter of course, considerable general discomfort. But no vital organ seemed to suffer. After the persistence of the severe symptoms for a period of one and one-half years there gradually commenced a slight improvement, the skin in some places remained firm, the face cleared up, and fewer and fewer superficial bullæ were formed. About three and a half years after the onset of the disease, during the past winter, the patient was able to visit me for the first time at my office. I have recently learned from the patient's sister that she is very comfortable, going to theaters and enjoying life, and evidently not much in need of further services by me.

My treatment of the case was, of course, varied. Internally I commenced with arsenic in small and frequently repeated and gradually increasing and then again decreasing doses. This was kept up for many months. Several such courses were carried out. Quinin was given at some times systematically, but did not seem to do so well. General tonics containing iron and strychnia, also cod liver oil with phosphorus, were given for long periods. The diet was arranged on most liberal grounds. Nothing which the patient really cared for was ever forbidden; even wine was allowed, and, in fact, the patient insisted on rather liberal quantities of claret and rum to insure sleep. Locally, protracted baths were given for a long time until the patient seemed to tire of them. Soothing lotions and mild salves were given in many varieties, according to the indications furnished by the condition of the skin. Of local applications the greatest benefit seemed to be derived from painting at first small territories and then the whole affected surface with a 10 per cent. solution of ichthyol.

How long the present favorable condition in this case may last remains to be seen. But in view of the sad, practically fatal prognosis of all these cases, I am glad to be able to report this somewhat unusual good result.

[For the discussion, see the department of Section Discussions in this issue.]

Diagnosis of Abscess in Liver.—Axisa writes from Alexandria to the *Centbl. f. innere Med.* No. 13, 1907, to call attention to the constant increase of ammonia in the urine in case of an abscess in the liver. It may increase to form from 9 to 24 per cent. of the total nitrogen in the urine, with simultaneous reduction of the proportion of urea and alimentary levulosuria. He thinks that the constant finding of this combination justifies exploratory laparotomy in dubious cases.

THE SALICYLATES IN THE TREATMENT OF LICHEN PLANUS.

SOME UNUSUAL FORMS OF THIS AFFECTION.*

M. B. HARTZELL, M.D.
Associate in Dermatology, University of Pennsylvania; Dermatologist to the Philadelphia Hospital.
PHILADELPHIA.

Perhaps the most generally useful internal remedy in the treatment of lichen planus is arsenic, which, when associated with appropriate local applications, in most cases produces improvement within a reasonable time and eventually a cure. In a not inconsiderable minority, however, arsenic fails to exert a favorable influence on the disease, or may even aggravate it and materially increase the patient's discomfort. In these cases I have recently employed with more or less success the various salicylates, which, so far as I know, have not yet found a place in the text-books as approved remedies in this disease, although a closely related drug—salicin—has been recommended by Crocker. Although the number of cases in which I have used them is yet small, the relief afforded in some instances was so immediate and decided that I have thought it worth while to call attention to these remedies with the hope that they may receive a more extended trial.

Case 1.—*Patient.*—Mr. S., aged 46, a hard-worked clerk in a large manufacturing establishment, came under observation early in October of last year, with a most extensive lichen planus.

History.—The eruption which was of one month's duration, was at first limited to the abdomen and forearms, but rapidly spread until it involved every region but the face and was attended by severe itching.

Treatment.—At first arsenic was given in moderate doses, but the eruption continued to spread, and the itching was not at all relieved. After two weeks of ineffective treatment with arsenic he was given salicylate of soda, which was followed by immediate relief of the severe pruritus and a check in the spread of the eruption. At the end of another two weeks it was noted that new lesions had ceased to appear and that there was no longer any itching. After another week or two of the salicylate treatment it was stopped and the arsenic was again taken up; but the return to the arsenic was soon followed by a return of the itching and the appearance of new lesions. The resumption of the salicylates, sometimes salol, sometimes lithium salicylate or sodium salicylate, was followed by speedy improvement, which continued to complete recovery.

Case 2.—*History.*—Mrs. L., aged 43, had a lichen of three or four months' duration, which, although moderate in extent, being limited to the wrists and legs, was intensely itchy, giving the patient rest neither night nor day, so that she was in an extremely nervous and overwrought condition. The skin, too, was unusually sensitive, every local application seeming to increase the irritation.

Treatment.—Arsenic was given, in one form or another, for a period of six weeks and various washes were applied for the relief of the itching, but without any real improvement. About this time the patient began to complain of rheumatic pains in the knees, for which she was given fifteen-grain doses of salol four times a day, and immediately the lichen began to improve, having almost disappeared at the end of two weeks of this treatment. The salol was now stopped and the arsenic tried again; this change in the treatment was followed immediately by an increase in the itching, which again became well nigh intolerable. Sodium salicylate was now substituted for the arsenic, with immediate relief, and this drug was continued until the complete disappearance of the disease. The relief of the itching in this case was most striking.

Case 3.—*History.*—Mrs. S., aged 55, was referred to me by her family physician for the treatment of a lichen planus on the buttocks and the inner and posterior surfaces of the thighs. The disease had already lasted eighteen months, and the treatment which she had had, which included, among other things, the Roentgen ray, gave her little or no relief.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Treatment.—For a time she was given arsenic, but this had to be used cautiously, since she bore it badly, experiencing gastric distress even from small doses. She improved, however, slowly but steadily under this treatment combined with the application of an ointment of phenol and mercuric chlorid. After a time she began to complain of pain in the larger joints, and the arsenic was stopped, salol being given instead. The improvement in the lichen was quite as decided while taking this drug as under the arsenical treatment, but not more so. Under the alternate use of the salicylates and arsenic this patient made a complete recovery, but the beneficial effects of the salicylates were less striking than in the cases already related.

Case 4.—*History.*—A man was recently under observation in the University Hospital, in whom the eruption was unusually extensive, being almost universal and accompanied by almost intolerable itching.

Treatment.—Salicylate of soda was given in 15-grain doses four times a day. Under this treatment there was prompt improvement in the eruption, the papules flattening down and growing paler, and the itching, too, was considerably diminished, although it still continued an annoying symptom. As the pruritus still continued after a week's use of the sodium salicylate, the patient was given arsenic, under which the improvement, at least so far as the itching was concerned, was more decided. In this case the salicylate seemed to be distinctly less useful than the arsenic, although not without favorable effect.

It goes without saying that an experience based on so small a number of cases is inconclusive, but it would seem that the salicylates are of distinct service in a certain proportion of cases of lichen planus, especially in the relief of itching, which is sometimes a most distressing and stubborn symptom; and it would further appear that they are likely to be of most use when arsenic has failed, or, as occasionally happens, has actually increased the patient's discomfort. Their real value, however, can only be determined satisfactorily by employing them in a large number of cases.

SOME UNUSUAL FORMS OF LICHEN PLANUS.

Lichen planus may be regarded as the type of a papular disease, the eruption being, as a rule, remarkably uniform in appearance and distributed on various parts of the body without any special arrangement. In exceptional cases, however, there may be a more or less marked departure from the usual type, both in the character of the lesions and, more especially, in their arrangement. Instead of the ordinary diffuse eruption there may be an arrangement in circles and segments of circles with no appearance of discrete papules. In a case observed some years ago the eruption consisted entirely of a few scattered, brownish-red, slightly scaly rings and crescents situated on the legs, the whole looking much like a syphilide. This patient had been under my care seven years before for an extensive lichen of the ordinary diffuse type.

Instead of rings the eruption may appear as slightly elevated discs with or without depressed centers, as in the case of a woman observed in the skin dispensary of the University Hospital some years ago. In this patient there were a number of violaceous, slightly scaly discs situated on the flexor surface of the forearms, while on the backs of the hands, the extensor surface of the forearms and tops of the feet the eruption presented the usual appearance.

In rare instances the disease exhibits a band or ribbon-like distribution, sometimes following more or less closely the course of some nerve tract; I have seen two striking examples of this form. The first was in the person of a negro man, 56 years old, in whom a broad band of closely aggregated lichen papules began on the left buttock and extended down the posterior surface of the thigh and outer side of the leg to the ankle, following with considerable accuracy the course of the sciatic nerve.

In the second case, the patient being a woman 43 years old, there was a broad, serpentine, verrucose band which, beginning on the inner surface of the right thigh just above the knee, extended over the anterior surface of the leg to the ankle. In this patient there was also an abundance of lichen papules on the flexor surface of the forearms, but in this locality the disease presented no unusual appearance.

Perhaps one of the most interesting, and at the same time one of the rarest of the aberrant forms of lichen planus, is that in which, along with the usual flat-topped, angular papules characteristic of the disease, there are a greater or less number of variously sized blebs. Only a small number of cases of this kind have been reported, the most remarkable being one observed by Kaposi, in which the number and size of the blebs was so great as to obscure for a time the lichen eruption. In the first case reported in that portion of this paper dealing with the use of the salicylates, this complication was present in a moderate degree. As has already been stated, the patient was an overworked clerk, with a most extensive and intensely pruritic eruption; from the very beginning, according to the statement of the patient, small blebs were observed from time to time scattered about on various parts of the trunk and lower extremities. They were about the size of a split pea, never very numerous at any one time, without any special distribution or arrangement, and ruptured spontaneously soon after they made their appearance.

In endeavoring to explain this departure from the ordinary type of the disease, it has been maintained by some that the blebs were no essential part of the eruption, but were due to arsenic, which is so generally employed in its treatment, a drug which, as is well known in exceptional cases, produces cutaneous lesions of various kinds. In the foregoing case, however, this etiologic factor could be excluded at once, since this drug had not been employed during the first month of the disease, while the blebs were present from the very beginning; and other observers have recorded similar cases. In an analysis of the literature of bullous lichen planus, Whitfield collected the reports of 17 cases in which bullæ were present, and in nine of these he found that no arsenic had been taken. It is possible that, in some cases at least, the blebs are the result of traumatism inflicted on the skin by the patient in scratching.

[For the discussion, see the department of Section Discussions in this issue.]

Diseases of the Nasopharynx in Infancy.—J. L. Morse, in the *Providence Medical Journal*, states that although the symptoms of retropharyngeal abscess are usually so characteristic they are very frequently misinterpreted. If the obstruction is high up, they are most often mistaken for those of a simple pharyngitis or rhinitis, although diphtheritic paralysis is sometimes suspected. If the obstruction is low down, they are often ascribed to laryngitis, either catarrhal or diphtheritic. In cases in which the signs of bronchitis are marked the primary condition of the throat is often entirely overlooked and a diagnosis of bronchitis or bronchopneumonia is made.

A CASE OF BENIGN MELANOSIS.*

J. CLARK STEWART, M.D.
Professor of Principles of Surgery, Medical Department, University of Minnesota.
MINNEAPOLIS.

Melanin occurs normally in man and the animals in the chorioid, hair and skin, also in some animals in specialized organs, as the ink bags of the cuttle fish. It occurs as the coloring matter of pigmented sarcoma in man and animals, and also in the latter as the result of certain parasites.

Its origin seems still in doubt, but most authorities agree that it is not a direct derivative from blood pigment, but the product formed by the metabolic activity of specialized cells. It is composed of nitrogen, hydrogen and carbon in the proportions of nitrogen one part to five of each of the others, with sulphur varying up to 10 per cent. and iron present sometimes in small amounts.

Melanuria is clinically of two distinct types: First, one in which the urine is black or very dark colored when passed and contains melanin by chemical tests; second, one in which the urine is not abnormal in color when passed, but on standing and oxidization becomes black or dark colored. Melanotic urine occurs under several well-known conditions: First, in cases of general melanosis arising from the dissemination of melanosarcoma; second, in cases of alkaptonuria, in which aromatic substances are excreted with the urine which by oxidization cause a dark color after standing; third, in ochronosis, in which with melanotic staining of certain cartilages there is sometimes associated melanotic urine.

Melanotic milk and sweat are only, I believe, reported in cases of general melanosis from sarcoma, and such pigmentation of these discharges argues for very extensive dissemination.

In animals certain cases of general melanosis have been described, not due to sarcoma, but thought to be due to parasites, but no such cases have been recorded in the human being. Consequently a case of melanosis combining melanotic abdominal tumors with pigmentation of urine, milk and sweat must prove of especial interest when its benignancy is established by the survival and good health of the patient after fifteen years. Such a case I am fortunate enough to be able to report, and, after having a careful research made through medical literature with entirely negative results, it would seem to be unique. The case is reported through the courtesy of Drs. Beard and Abbott, whose patient the woman was.

History.—M. B., female, aged 49, of a nervous type, regular in menstruation, gave a history of repeated attacks in girlhood of pelvic pain, also extreme chronic constipation, hemorrhoids and occasional hemorrhoidal hemorrhages. She was married in 1886. In 1888 she consulted Dr. Beard because of nonconception. At that time a bimanual examination revealed a globular, smooth, cystic tumor in the right pelvis about the size of a medium orange, somewhat sensitive to pressure; the uterine cervix was crowded toward the left. She then consulted Drs. Abbott and A. J. Stone. The former advised operation; the latter galvanism to the tumor. A course of the latter treatment was adopted for three months between menstrual periods. The tumor decreased in size. After the third month of treatment conception occurred in May or June, 1889. Pregnancy was uneventful and parturition was normal. She was delivered of a healthy baby in February, 1890. Examination two weeks later showed shrinkage of cyst with induration of tissue around it.

Later History.—In 1892 the patient consulted Dr. Beard for a sense of pain, burning and pressure in the right pelvis. Examination showed that the tumor had reassumed its globular form and had increased in size to that of a large orange; it was extremely tender to pressure and sagged downward. Drs. Abbott and Stone were called in consultation and operation was advised by both.

Operation.—Dr. Abbott operated April 1, 1892. An abdominal section discovered extensive adhesions whose separation revealed over all peritoneal surfaces, both free and adherent, innumerable and perfectly black tumor masses, varying in size from a small pea to a split almond. Further separation of adhesions showed primary growth to be a parovarian cyst, of size reported, smooth surface and intensely black color. The surgeons decided not to proceed with operation, giving probable diagnosis of multiple melanotic sarcoma. Two or three small growths were removed for microscopic examination.

Postoperative.—Recovery from operation was uneventful, except that on the third day the breasts swelled and became tender, and on the fourth day discharged spontaneously and by expression large quantities of ink-black fluid; this discharge continued for several days. The urine became melanotic in color, and treatment with concentrated hydrochloric acid threw down a dark granular pigment. Hemorrhoidal discharges of extremely dark blood, loaded with pigmented cells occurred for several days. Recovery was progressive.

Pathologic Report.—Two black, rounded tumors were handed me for diagnosis. These were about three-sixteenths of an inch in diameter and covered for three-fourths of their surface by glossy peritoneum. On section, the eye noted that each consisted of a dense fibrous walled cyst, containing a solid dark brown, uniformly stained material. Microscopic sections showed a fibrous cyst wall covered in part by normal peritoneum, containing an amorphous brown material which showed no cells and took no differential stains. Except for color and absence of staining reaction, it looked like an area of coagulation necrosis, in that there were hints of cellular structure in a few areas, but no stainable cells. The pigmentation was diffuse and not in decided granules, as in melanosarcoma, and there was no hesitation in negating the clinical diagnosis of melanosarcoma. I also examined the pigmented milk, and found a curious condition. The milk appeared normal as to elements, but both cells and fluid were stained a dark brown. There was absolutely no granular pigment present in any of the cells studied.

The urine at this time was black when it was passed, but contained very little sediment. As noted in the history above, concentrated hydrochloric acid threw down a heavy black precipitate in the absence of albumin and sugar. I did not see the pigmented rectal discharges, but the cells containing pigment granules were undoubtedly leucocytes.

Subsequent History.—In 1893 the patient consulted Dr. Beard as to the advisability of risking a second pregnancy. Her general health was much improved, and the previous prohibition of pregnancy was removed. The patient did not conceive. Early in 1894, galvanism was used to the primary growth with diminution of size and replacement of the again displaced uterus. Treatment was continued two months. At the third month conception occurred. Pregnancy was again uneventful; parturition was easy in January, 1895. On the third day black fluid reappeared in the breasts, gradually losing pigmentation and being replaced by entirely normal milk. Urine coincidently became melanotic and pigmented hemorrhoidal discharges of blood reappeared. Since 1895 the patient has continuously improved in health and gained in weight; constipation has improved; hemorrhoidal discharges occurred occasionally until lately. Menses were regular until the last six months, when irregularity has suggested coming of the climacteric.

Examination, March 20, 1907: This showed a globular tumor of the size of a small orange still present in the right broad ligament. It lies higher than formerly. There is very little tenderness save at one point of maximum dependence. Nervous symptoms are much ameliorated; nutrition is good. The abdominal walls are somewhat fatty; there is no intra-abdominal distension or tenderness. No other abnormal condition is present. It is nineteen years since discovery of the tumor and fifteen years since attempted operation. Urine at this time is normal; no alkaptonuria. Blood is normal in every way.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

The only probable explanation of the clinical and pathologic findings in this remarkable case would seem to be that the original cyst was either a dermoid with great overproduction of dermal pigment, or that a parovarian cyst, contrary to the ordinary experience, became the seat of repeated hemorrhages and so filled with changed blood pigment. Against this latter explanation stands the fact that the pigment in the urine was apparently melanin and not changed blood pigment. Later it must be supposed that the cyst, possibly as the result of galvanic treatment, ruptured and its contents being spread about over the peritoneum, implantation took place, with later encapsulation of such implanted masses by inflammatory adhesions forming the small peritoneal cysts discovered at the laparotomy. The subsequent pigmentation of milk, sweat and urine may be explained by the traumatic effect, or possibly changed pressure relations, following the abdominal section and the labor respectively. That the case is not one of delayed fatality in melanosarcoma, cases of which have been reported as existing for at least ten years before the fatal outcome, is proved by the structure of the examined tumors and the pigmented milk.

It is to be regretted that more complete chemical examination was not made of the urine and milk, but enough seems to have been done to show in the urine at least that the coloring matter was melanin.

This case is recorded simply as a remarkable simulation of the clinical features of melanosarcoma without malignancy.

PERSONAL SURGICAL ERRORS.*

ARCHIBALD MAC LAREN, M.D.
ST. PAUL, MINN.

We learn more from one mistake than we do from a long series of successful operations. We do not like to tell our errors, we would much prefer to forget them, but if we cover them up younger or less experienced men, who perhaps look to us for instruction, may be led into making the same mistake, or by minimizing the dangers of some operative procedure may unintentionally delude their patients into believing that a certain operation is less dangerous than they otherwise would.

The laity, and perhaps even some medical men, who have not had considerable experience in abdominal surgery, can hardly realize the ever present danger of leaving foreign bodies in the peritoneal cavity. I believe, considering the number of laparotomies now performed all over the world, that this accident is to-day much less frequent than it was twenty years ago, for nearly every text-book on abdominal surgery now mentions the danger of the accident and gives rules for preventing the leaving of foreign bodies in the abdominal cavity. But if one is under the impression that such accidents are now a thing of the past, let him inquire of the hospital internes of to-day, and he will probably find, as I have done, that most of them know of unreported cases.

The journals have all had articles by well-known men giving advice in this matter. Probably the best-known of these and the widest quoted abroad is by Nengebauer of Warsaw, who, when called as a witness for his friends, Kosinsi and Solman, of Warsaw, when they were sued for leaving a foreign body in the peritoneal cavity, and when judgment was rendered against them, collected and reported 101 cases in 1899 and again in January, 1904, added 87 further cases.

August Schacheimer[1] of Lonisville collected 155 cases, most if not all reported in either the first or second of Nengebauer's list. Nengebauer found forceps more deadly than gauze, almost one-half of the patients dying either from their presence or from the operation for their removal. Lilienthal's suggestion[2] never to put any sponge entirely within the peritoneal cavity, but to leave at least one-half on the outside, is a good one, although necessitating a somewhat larger opening. Mickulicz's method of attaching a large glass bead to the tape is also useful, but I doubt whether any of these methods are as good as the present five or ten-yard gauze sponge, which is now used by every one, I suppose, for abdominal tamponade, and which it would be practically impossible to overlook. The use of long-handled hemostatic compression or artery forceps materially lessens the danger of overlooking one in the abdomen, and consequently they should always be used in preference to small hemostats. The man who always operates in a private hospital with the same assistants and nurses is more fortunate than those of us who have to do our work in semi-public institutions with the changing of internes and nurses, all of whom have to be trained to look out for gauze, instruments, etc. As Bull says, the counting of sponges and instruments fixes the attention of the surgeon in an unfortunate way on these articles and does not always accomplish the desired object.

When I was an interne in the New York Woman's Hospital I assisted at two postmortem examinations where a seasponge had been left following laparotomy by two eminent operators, both patients dying in a few days with acute septic peritonitis. Eleven years ago I wrote a paper on this subject, which was published in the *Annals of Surgery*. At that time I found seventeen reported cases, ten being of seasponges, all but one of the patients dying of septic peritonitis, one case where the sponge was nearly sterile forming a localized abscess from which the sponge was later removed and the patient recovered.

About fifteen years ago steam sterilized gauze took the place of the seasponge and the mortality of these cases was immediately very much lessened. The peritoneum, reinforced by the omentum, developed a heretofore unknown property of forcing these undesirable tenants into the intestine and so expelling them under favorable circumstances. In the paper already mentioned I reported seven cases with one death. Two of the cases were relieved several months after the operation by the passage of a strip of gauze from the rectum, in one case eight inches, in the other one foot in length. In a third case a later laparotomy demonstrated a piece of iodoform gauze fifteen inches in length in the small intestine, necessitating resection of five inches of intestine, with recovery. My own two cases, already reported, were as follows:

Case 1.—*Ovariotomy and Ventro-suspensions:* Gauze sponge left in peritoneal cavity; expelled by the rectum ten days later; recovery. This patient was obstinately constipated after the operation; her temperature reaching 101 F. during the next ten days; on the tenth day the obstipation was relieved and the patient passed a large fecal movement streaked with blood, containing a small piece of sponging gauze about six inches square. As no gauze had been introduced into the rectum during or preceding the operation, it must have been accidentally left in the peritoneal cavity during the operation, and later expelled into the bowel. Later I again opened the abdomen of this patient to determine the cause of the continued pelvic pain. I found a very dense adhesion one inch in length between the back of the uterus and the ileum, not far from the ileocecal junction. This adhesion was separated without opening the intestine, as the remaining ovary was found to contain a large cyst, it was removed. Since this last operation she has entirely recovered.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

1. Anns. Surg., 1901.
2. Med. Record, October, 1902.

Case 2.—*Hysterectomy:* Immediate recovery; later persistent pelvic pain and irritation, with formation of tumor in right loin at end of two years; operation revealed tumor composed of artery forceps embedded in ulcerated intestine, inclosed in a wrap of omentum; intestinal suture; recovery. This patient was operated on at St. Joseph's Hospital, St. Paul, in 1893. I was assisted by Drs. Robert Wheaton and John Rogers, of St. Paul. Supravaginal amputation was performed for the removal of a multinodular fibroid uterus. The patient promptly recovered, and left the hospital in less than four weeks, but she was never quite well. She suffered some irritation of the bladder and frequently had a temperature of about 100 F. A number of bimanual palpations of the pelvis failed to reveal the cause of her suffering until early in September of 1895, when a hard mass was found high up in the right loin, lying immediately over the right kidney. Two years after the first operation I made a second laparotomy on Mrs. S. at St. Joseph's Hospital, assisted by Dr. Danner of this city. After opening the peritoneal cavity, I first reached the appendix, which felt as though it contained a stick; passing the fingers a little higher I could easily map out the foreign body and felt the handle of a pair of artery forceps which lay entirely within the intestinal canal; the head of the forceps lay in the canal of the cecum, the middle of the shank, for a half inch above and below the lock, lay within a coil of ileum, while the point lay entirely in the distal end of the appendix. And over the entire inflammatory mass lay the closely adherent omentum. The cecum was opened and the forceps removed, the adherent coils of the intestines were separated, and the intestinal openings were sutured with catgut. The appendix was amputated and the patient made an uninterrupted recovery and is now perfectly well.

In the past eleven years, or since the paper already mentioned was published, there have been two other cases as follows:

Case 3.—*Vaginal Section for Pelvic Suppuration:* Gauze strip left in wound. This case was operated on at St. Joseph's Hospital some five years ago; one of the vaginal arteries bled considerably and strips of iodoform gauze were used to control the hemorrhage. In about one hour she commenced to bleed so profusely that Dr. Ritchie, my partner, removed the packing and repacked. During the afternoon a second hemorrhage occurred, and, as neither Dr. Ritchie or myself could be reached, the house surgeon repacked; after this she went on to perfect recovery. Two months later, and after she had gone home, on account of a very offensive vaginal discharge, she examined herself and pulled out a twelve-inch strip of iodoform gauze. On the advice of my attorney I paid her handsomely for this piece of gauze rather than stand suit, although she admitted that she was perfectly well and did not consider that I was personally at fault.

In the last 1,000 laparotomies there has been one other case.

Case 4.—*Hysterectomy:* Tape sponge left in cavity; death on third day. This woman had a large multinodular fibroid uterus choking the pelvis and causing excessive bleeding. A supravaginal amputation of the uterus was done; the usual precautions of counting the sponges and instruments showed all returned, but at the postmortem on the fourth day after the operation a tape sponge twelve inches square, an eight-inch tape rolled into a ball, was found under the liver. No other cause of death was discovered.

Before leaving this subject I would like to report part of a conversation which I had recently with Dr. Maurice Richardson, in which he said that he had on several occasions operated on the patients of other surgeons and had removed forgotten foreign bodies, and that, to the best of his knowledge, these people never were told what had been the cause of the local inflammation or abscess which had needed further surgical care. We all know that this excellent rule is not always followed by surgeons of equal standing, as it should be whenever possible.

In the northwest we have always been very fond of using catgut for all sorts of suture and ligature material. Many years before it was as universally used in the east as it now is we were following Boeckman with his method of dry sterilization and using plain catgut even for intestinal suture in very many cases. When Dawbarn of New York first described his purse-string method of dealing with the stump of the amputated appendix I accepted it and have continued to use it ever since, at first using only a single strand of catgut. After having used this method successfully in several hundred cases I had, about four years ago, a sudden death on the third day; the postmortem showed that the purse-string had given way and that the bowel contents had escaped into the peritoneal cavity and caused the patient's death. I then commenced to use linen thread; many of these patients, however, complained so bitterly of pain in the region of the stump for several months that I later made use of two separate catgut sutures, the outer strand hardened either with formalin or chromic acid. After adopting this method there was one death in 379 consecutive operations or removals of appendix either in chronic or relapsing cases or in laparotomies for other conditions where it seemed best to remove the appendix. This woman suddenly developed, on the sixth day after her laparotomy, a right-sided paralysis. She died on the tenth day from cerebral apoplexy. Postmortem showed abdomen normal, stump of appendix perfectly healed.

Case 380 was that of a patient on whom I did a simple myomectomy for the removal of a subperitoneal fibroid the size of a baseball, and also of a small dermoid tumor of right ovary containing skin, hair and teeth, and removed a chronic appendix. The woman died on the fifth day; postmortem showed septic peritonitis from intestinal perforation at site of appendiceal stump.

Several of my surgical friends have suggested the possibility of perforation, but I have felt that the method I was using was different from any of the others and was consequently perfectly safe. I have not hesitated to teach this method as the best one that I know of. I, therefore, take this method of notifying any one who may have heard me that I was wrong, and warning them that the danger of using any form of catgut alone for intestinal suture is very considerable. It seems hardly necessary to state that since February I have changed my method of dealing with the stump of the appendix. I now use first a fine catgut purse-string and over this the same sort of suture of fine silk or linen.

350 St. Peter Street.

How Can the Physician Study the Workman at His Work?—Eisner (*Münch. med. Wochschr.*) discussed this before the Berlin Society for Social Medicine. The German laws regulating indemnities in accident insurance have rendered important for the physician all questions affecting the loss of the earning capacity from accidents while at work. Eisner says that photographs of workmen at work in different trades, with special regard to the muscles used, the positions assumed, the bad habits in this respect, and other details, would prove invaluable for physicians when called on to certify as to the impairment of the earning capacity from traumatism.

MODERN VIEWS ON THE PHYSIOLOGY AND PATHOLOGY OF ACCOMMODATION.*

PROF. CARL HESS.
WÜRZBURG, GERMANY.

In bringing before you some modern views on accommodation I hope to be able to satisfy both those who are interested in theoretical investigations and those who prefer the discussion of more practical questions. Few problems stand in such an intimate connection both with theoretical and with practical ophthalmology, and in the last twenty years there has been much discussion on points of great importance. It is on these points that I wish to speak.

Since Thomas Young, more than a hundred years ago, first proved that accommodation must be caused by changes in the shape of the lens, and since Cramer and Helmholtz have shown us that these changes may be seen and measured by studying the Purkinje reflex images, two theories have been put forward to explain how these changes in the size of the lens might be brought about. Helmholtz believed that contraction of the ciliary muscle produces a slackening of the zonula, at least a transitory one, and that in consequence of this slackening the surfaces of the lens, especially the anterior one, become more convex. On the other hand, it has been repeatedly asserted that this increase of convexity is produced, not by slackening, but by tightening of the zonula. This theory, first put forward in 1858 and 1885 by Mannhardt and by Schön, has been supported in the last years by the careful experiments of Tscherning.

We shall see that questions which at the first glance seem to be merely practical, as, for instance, the treatment of presbyopia, of myopia, of glaucoma, etc., must be greatly influenced by the views which we hold on the mechanism of accommodation. I have, therefore, been endeavoring for a long time to invent new methods and discover facts that might enable us to come to a decision between the two hypotheses. First, I showed by experiment that when the ciliary muscle is contracted to the maximum in the normal eye the lens is displaced downward by gravity for about 0.5 mm., and whenever the eye makes the slightest movement the lens is seen to be tremulous behind the iris. It is not very difficult to see these phenomena in eyes affected with cataract. I was able to show them to some of our American colleagues who attended my clinic.

The best method of demonstration is, first, to dilate the pupil with homatropin and then to instill one or two drops of eserin. I found that if this is done the eserin acts much more quickly on the ciliary muscle than on the sphincter pupillæ, and in consequence the complete slackening of the suspensory ligament can be studied easily while the pupil is still dilated.

It is important to show that such a relaxation is to be found not only in old people with cataractous eyes, but equally in young eyes; the experiment can be made with equal success in children with lamellar cataract.

I propose this method because in cataractous eyes it is particularly easy to demonstrate the phenomena, but with a little experience it is easy to see the tremulous lens in completely healthy eyes; for this it is best to study the reflex images (Purkinje's images) of the lens. It can easily be seen that by any movement of the eye that these images are tremulous as long as the eye is accommodated, and they can be seen displaced downward by gravity.

These methods are especially suitable for demonstration. A more precise method, and one which allows an exact measurement of the amount of displacement is the entoptic: If a diaphragm with a little orifice is brought about 12 mm. before the cornea the pupil is seen entoptically as a bright circle of diffusion and in it the little normal spots and opacities of the lens. If an effort of accommodation is made there is seen, first, the pupil getting smaller and the spots remaining in place, but if the contraction of the ciliary muscle increases suddenly there is seen the little spots displaced upward and returning downward with the relaxing of accommodation. This displacement is equally directed upward if the head is bent downward on to the right or the left shoulder. But no displacement is seen if the head is bent forward so that the iris lies in a horizontal plane.

Most interesting results are to be obtained if there is instilled a larger quantity of eserin so that the ciliary muscle is contracted to the maximum. Now, no displacement can be seen of the lens by *voluntary* accommodation efforts, but if the head is bent from the right to the left shoulder the lens is seen much more displaced than formerly with voluntary accommodation. I found the amount of displacement to be, under these conditions, almost one millimeter.

What may we conclude from these experiments? They irrefutably demonstrate for the first time the accommodative slackening of the zonula. Tscherning believed these facts to be incompatible with his tightening theory; he supposed that not the whole lens was displaced downward, but only the intralental substance, the capsule of the lens being slackened by tightening of the zonula. But I was able to refute this hypothesis by the following experiments: First, there can be seen in eyes with capsular opacities that the latter are displaced downward and made tremulous by accommodation. Second, I was able to show that, even in completely normal eyes, the anterior epithelium can, by special arrangements, be seen as a fine shagreen, and this film also is displaced downward with accommodation. Further, it is anatomically impossible that the lens fibers should be displaced without their capsule.

Recently the opinion has been put forward by Grossmann and by von Pflug that in accommodation the spherical posterior part of the lens is transformed into a posterior lenticonus. These results were obtained by the freezing method; eyes treated with eserin or nicotin and others treated with atropin were frozen by liquid carbon dioxid. When I read these papers it seemed to me very unlikely that these results could be correct; one of my assistants, Dr. Fischer, repeated the experiments of von Pflug on pigeons, with liquefied air, and he found that the freezing method is not at all suitable for the purpose. From the form of the frozen lens we can not draw any conclusion as to the shape of the living one. Therefore, I am of the opinion that the freezing method is quite valueless for the elucidation of the accommodation question.

I have repeatedly heard from one of our most distinguished American colleagues that of all Tscherning's experiments the most important, and the one which seems directly to contradict my views, is the following: Tscherning has shown that in the eyes of cows tightening of the zonula produces an increase of convexity. Against this view three things are to be said. First, the lens of the cow is very different from human lens and the accommodative power of these animals is relatively extremely small. Second, if by tightening of the zonula in cows' eyes the lens convexity can be increased, it still would not hold good for the human eye. Third—and this is the most important point—I was able to show in the eyes of new-born children, and of monkeys in which I had carefully removed the cornea and iris, that the images of the anterior lens surface increased by tightening of the zonula and diminished by slackening. So my results in human lenses are here in direct contradiction to those of Tscherning in cows' lenses.

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My experiments show irrefutably that increase of lens convexity is caused by relaxation of the zonula, and—what is still more important—that even in children's eyes the ciliary muscle can be contracted much more than is necessary for the maximum convexity of the lens, that is, for accommodation to the punctum proximum; but we shall return to this question.

First, however, you will doubtless wish to hear something about the changes in the topography of the ciliary muscle and the ciliary body during accommodation. Here also there is considerable conflict of views.

Schön and Tscherning suppose that by contraction of the ciliary muscle the ciliary body is displaced backward toward the center of the vitreous, in this way increasing the tension of the zonula. But it is not difficult to show, with simple methods, that such a supposition is erroneous. In the case of patients with iridectomy the ciliary processes will often be found behind the coloboma near the equator of the lens. Instil escrin and after 10-15 minutes the processes can be seen advancing toward the cornea and lying quite clearly before the equator of the lens close to its anterior surface. This may be seen very readily in a case of lamellar cataract with iridectomy.

The following fact is equally interesting: I have often seen little tent-like elevations in the atropined eye near the equator of the lens at its anterior surface; if sufficient magnifying power is used it can be seen that these elevations are caused by the traction of zonular fibers at the lens surface. After instillation of eserin these elevations disappear more or less completely and the equator of the lens is seen to have taken a much more regular form. So there can be seen directly traction of the zonula in the non-accommodating eye and its slackening by contraction of the muscle.

Let us now look at some of the consequences which these facts must have on our views of accommodation. It had been generally admitted, even by the upholders of the slackening theory, that this slackening was suddenly compensated by an increased convexity of the lens, and Helmholtz himself believed that lens, zonula and chorioid form a completely closed capsule, entirely filled by the vitreous, and that the pressure of the liquid caused the tension of these parts.

We see from my experiments that this part of the Helmholtz theory must be abandoned. Indeed, we find complete slackening of the zonula and tremulous lens in the perfectly healthy eye. A normal amount of accommodation is possible in eyes in which the pressure of vitreous is eliminated by a hole in the chorioid and sclerotic.

A second fact shown by our experiments is this, that intraocular pressure must always be the same in the anterior and the posterior part of the normal eye; many authors believed, and still believe to-day, that pressure increases during accommodation in the posterior part of the eye and diminishes in the anterior part. This view can no longer be held after we have found accommodative slackening of the zonula and a tremulous lens.

And now we come to a point of great importance in the question of the causes and treatment of myopia. We all agree, I think, as to the ill effect of too close and sustained use of the eyes on the progress of myopia, and that this ill effect is caused by increased intraocular pressure. But when we come to consider the causes of this increased pressure we at once meet with a great discrepancy of views. Many authorities believe that this increased pressure is caused by accommodation. It was, therefore, necessary to find out whether such an accommodative increase of pressure actually takes place. Sufficiently exact measuring of the intraocular pressure in the vitreous with the manometer is scarcely possible without severe lesions of the eye, but measurement of the pressure in the anterior chamber is relatively easy. And as we now know by my experiments that here the pressure is always equal to that in the vitreous, it is possible to study experimentally the influence of accommodation on the intraocular pressure. I have made a number of such experiments (together with Dr. Heine), and I was able to show that even the maximum accommodation by electric stimulation of the ciliary ganglion or the ciliary muscle has not the slightest effect on intraocular pressure. Our apparatus was so susceptible that it showed the changes of intraocular pressure produced by the pulsation of the blood vessels most exactly.

These experiments must be made on eyes whose accommodative power approaches that of human eyes. It was, therefore, necessary to study the amount of accommodation in animals. We found that almost all the mammals on which we experimented accommodate only in a small degree (1 to 4 diopters), monkeys alone showing an accommodative power approaching that of human.

As to cats, Grossmann has lately arrived at other results than ours; he has found a very considerable accommodation, and believes this to be produced by an accommodative posterior lenticonus. Grossmann's experiments have been repeated in my laboratory, but we could not confirm them. We found in several young cats only a very small range of accommodation, exactly as we had found it before.

In birds we found the amount of accommodation very high (12 to 14 diopters and more), and the mechanism is here approximately the same as in the human eye. In none of these animals could we find any accommodative increase of intraocular pressure, while the least contraction of the external eye muscles increased this pressure considerably.

These experiments show that the supposed influence of accommodation on intraocular pressure must no longer be considered as a cause of the progression in myopia. The consequence is that there is no longer any reason to object to the prescription of fully correcting glasses; on the contrary, these glasses may have a good effect on the progress of myopia, inasmuch as the patient wearing such glasses is able to read and write at a considerable distance and without appreciable convergence. The ill effects of the latter is evident from our experiments.

I am glad to say that the results, to which I have been led entirely by physiologic experiment, are in full accordance with the views which are held by so many physicians of this country, and which are mostly based on practical experience. With us in Europe there are still a good many ophthalmologists who are opposed to full correction of myopia, cheifly in consequence of erroneous views which they hold on accommodation.

I think the experiences I have reported are, in the struggle against myopia, of decisive importance; it can not be too firmly insisted on that up to the present time there has no fact come to light which could even make it probable that full correction could do the slightest damage to the myopic eye. But a long experience of thousands of cases has shown us that the wearing of weak or even of no glasses is powerless to protect the eye from progressive myopia and all its dangers.

Allow me to insist on another point of practical interest. If the views which uphold the theory of accommodative tightening of the zonula and increase of intraocular pressure by accommodation were correct, eyes disposed to glaucoma ought to avoid any accommodation, for this would be most dangerous for them. And, indeed, even the most distinguished ophthalmologists prescribe for such patients strong convex glasses in order to avoid, as much as possible, accommodation. Now, in studying these questions I have found no way of explaining the ill effect of accommodation on glaucoma, and I never have seen a case in which such an influence was even likely. And what is more, is it not strange that in glaucoma on the one hand, avoidance of accommodation is insisted on, while on the other hand escrin is continually prescribed, which produces a powerful spasm of accommodation? Since I pointed out this striking contradiction careful observers have remarked that, in eyes with incipient glaucoma, strong accommodation is able to interrupt the glaucomatous attack or, at least, give a decided relief. I think that the views set forth here may be valuable in prophylaxis and therapy of incipient glaucoma.

Another important question is the following: It has been generally supposed that the more the contraction of the ciliary muscle increases, the nearer the punctum proximum approaches the eye. The maximum of lens convexity has been supposed to occur only as the result of the maximum contraction of the ciliary muscle.

This is evidently not correct. When the muscle contracts the lens changes its shape to a certain degree only, a degree which depends on the patient's age. I call this point the "true" punctum proximum, and the corresponding range of accommodation the manifest range. When the lens has attained the maximum convexity possible at a certain age, and if then the muscle contracts still more the lens may be displaced downward by gravity, but does not further change its shape. The true punctum proximum remains at the same point, but with the increased contraction of the muscle there is associated a contraction of the pupil which allows us, if we use the usual methods of determination of the punctum proximum, to bring a little nearer to the eye the object which is to be seen distinctly. So we find another proximum, which has been generally believed to be a consequence of increased lens curvature, but I have been able to show that the convexity is the same in both cases. Let us call this second point the "apparent near point."

In the same way the apparent proximum is brought nearer the eye by eserin, but the lens convexity remains the same as in the case of simple accommodation. Any patient can contract his ciliary muscle much more than is necessary for the maximum convexity of lens. Let us call this the "latent range of accommodation."

Now, it can easily be seen that the older the patient is the more his latent range of accommodation increases, and at the age of 65 to 70 years the whole muscle contraction is latent, but the muscle may be as strong and energetic as in youth. Here again we are in contradiction with generally held views. Often has it been asserted that in old people the muscle might become atrophied by inactivity. On the other hand, it has been supposed that in the case of old patients a greater contraction of the muscle would have to take place in order to increase the lens convexity than would be required to produce the same effect in youth. Both views are erroneous.

The same contraction of the muscle may, at different periods of life, give exactly the same increase of lens convexity, and the association between convergence and accommodation being a congenital one and remaining practically unaltered during the whole life, the muscle does not become inactive and can, therefore, not become atrophied by inactivity.

Some practical consequences of this are the following: In a young patient of from 10 to 15 years a slight paresis of the ciliary muscle may be detected by the displacement of the punctum proximum to a greater distance, but a much higher degree of paresis of the muscle is not to be discovered in a patient of from 40 to 50 years if the paresis is smaller than the latent range of accommodation.

According to the views generally held, especially those of Schön and Tscherning, any paresis of the ciliary muscle should produce a displacement of proximum to a greater distance, and, indeed, one sometimes reads in scientific papers that patients of 40 or 50 years of age are supposed to have normal accommodation and a normal ciliary muscle when their proximum is found at the normal distance. Nevertheless, such patients may have a high degree of paresis. We may say that a paresis of the ciliary muscle is not to be found by objective methods before the paresis has become larger than the latent range of accommodation.

This law is important, for instance, if we want to study the physiologic action of drugs on the ciliary muscle. For example, different opinions have been put forward as to the influence of cocain on the ciliary muscle: the fact is that at the age of from 35 to 40 years we find little or no effect on the true proximum, but its removal from the eye is evident in younger men, and the younger they are the more evident it is and the more quickly it occurs. So, studying to-day on my own eye, by determination of the proximum, the effect of cocain, I find the drug without influence on its position, but studying its effect by the entoptic method which I have described above I find that after cocain there is no displacement of the lens by gravity, even in maximum accommodative effort; this shows that cocain acts on my ciliary muscle. We have then in these entoptic methods a most delicate means for studying the action of drugs on the ciliary muscle. But this method, it is evident, is only to be employed by experienced investigators and can not be used on the average patient. It is, therefore, important to know that up to date we have no means at all of finding out whether the ciliary muscle of a patient of 60 years is normal or completely paralyzed.

Let me now say a few words on the so-called "spasm of accommodation." For a long time such spasms were believed to be very common among children and to have a certain importance in the development of myopia. In Germany some authors have written that in schools 10 per cent. to 20 per cent. of the children show this spasm, and these men have believed it could pass into true myopia. It is difficult to see how this could be possible, since we know that such a spasm, if it exists, can have no influence on intraocular pressure.

I have studied many thousand children carefully, but never have found a case of spasm of accommodation. As a rule the diagnosis of spasm is made when children require a stronger glass for seeing at a distance than that which has been determined by the ophthalmoscope. But this can not prove the presence of a spasm of accommodation. The ophthalmoscopic or even the retinoscopic determination of refraction can never, with perfect exactness, give us the true refraction at the fovea of an eye. This determination of refraction is still sometimes made on eyes with dilated pupils. But here the optic conditions are so different from the normal that it is impossible to come to a conclusion as to the normal refraction of a patient's eye. The refraction of the peripheric parts of cornea and lens may differ from the central ones, the degree of astigmatism may be another one, etc.

I have often found, and other physicians have stated similar facts, that children by the first examination with glasses seemed to be myopic, requiring glasses of from 2 to 3 diopters. But further examination shows that an equal power of vision resulted from the use of plain glasses, sometimes the frame alone, without glasses being sufficient to cause the myopia to disappear. I think it would be a mistake to call such cases spasm of accommodation. Some authorities believe this to be hysterical, and if we find such a spasm in patients with other characteristic symptoms of hysteria we may allow ourselves to call the spasm "hysterical," but if the patient seems completely healthy—and this is the rule—we ought not to call this phenomenon a hysterical one. I should most like to compare such a phenomenon with other more common ones in children, which are either simple inability or so-called "associated movements." This inability to see at a distance would then be of the same order as the movements of the tongue or faulty movements of the fingers which we often see in children when they begin to write.

The view we take of this question is important for the prescription of glasses: As soon as oculists generally admit that there is no accommodative spasm in beginning myopia we may hope no longer to meet with instillations of atropin continued for weeks or months as a treatment of incipient myopia, as still sometimes happens to-day.

Often we find our patients afraid to wear convex glasses for presbyopia, believing it necessary to exercise the eye. Such an opinion might be reasonable if the views of Tscherning and of Schön were right, but they are incompatible with what we know by our experiments about accommodation. No amount of exercise can have any effect on the maximum of lens convexity.

We still sometimes meet with the opinion that the range of accommodation in hypermetropic eyes is larger than in emmetropic ones and in myopic eyes smaller, because in the hypermetropic eye the muscle contracts more, is more "in training" than in the myopic one, and that people who read much have for the same reason a larger range of accommodation than country people. Such views also are erroneous. If they were correct it would have to be supposed that the lens in hypermetropic eyes and in the eyes of people who read much is smoother than the lens in myopic eyes and in those of country people. In fact, the range of normal accommodation is independent both of refraction and occupation and only influenced by the age of the patient. This fact is often forgotten in prescription of glasses for myopia.

I think that these statements are of importance in discussing the question of the so-called "eye-strain." An "eye-strain" caused by the ciliary muscle can occur in hypermetropic patients, but not in old emmetropic eyes; we must not forget that increased contraction of the muscle in emmetropic persons of from 40 to 50 years is of no use for reading and that, therefore, they do not contract their ciliary muscle so as to have any trouble by it.

Up to the present time, it has been generally admitted that, in youth, the index of the lens cortex is much smaller than the index of the nucleus and that this index increases slowly and continually from cortex to nucleus, so that the index curve might be represented by a parabola (Matthiessen). I believe this opinion to be incorrect. The increase of index from cortex to nucleus is not a continuous one, but there is from the age of 20 to 25 years always a most marked and sudden increase at the limit of the nucleus, and the difference between the index of cortex and nucleus increases with the age of the patient. These facts I was able to prove, having discovered that we find in the lens not only the well-known cortex or Purkinje reflex images, but from the age of about 25 years always a further two, which may be called the "nucleus images." The luminosity of these images increases with increasing age; often in absolutely normal lenses they are at the age of 40 or 50 as bright as the Purkinje images.

This statement shows that refraction of light in the human lens is still much more complicated than had up to the present been supposed. In fact, we have in the lens not two refracting surfaces, but four, and the influence of the nucleus surface increases continually with the age.

Another interesting consequence of this fact is the following: Donders supposed that senile hypermetropia might be explained by increase of the cortex index of the lens in advanced age, while he believed the nucleus index to increase much less, so that the lens became more homogeneous. Our experiments show that this theory can not be sustained, that, on the contrary, the difference between cortex and nucleus index is greater in age than in youth. I believe that the convexity of the lens surface diminishes in the old, and that this is the cause of senile hypermetropia. Further investigations are necessary for clearing up these questions.

Another interesting question is whether the range of accommodation is always the same in both eyes or if we are able to correct anisometropia by accommodating with one eye more than with the other. As you know, a lot of experiments have been published to show that such an unequal accommodation is possible. Evidently it would suit us very well if we could do so, and in prescribing glasses for anisometropia it is very important to know whether we can accommodate unequally or not. I have made many investigations on the subject, partly with special apparatus which allows a most exact determination. But never, either in artificial or in natural anisometropia, was I able to find the slightest difference in the range of accommodation of the two eyes. Even in a completely blind eye accommodation is the same as in the normal eye (of the same person), as Zimmermann has shown.

The following question has, perhaps, a still more practical importance: Is it possible, by contracting only certain parts of the ciliary muscle, to produce an astigmatism of the lens so as to eliminate by this means an opposite astigmatism of the cornea? You know that a great many oculists believe in such a possibility and suppose that this "astigmatic accommodation" may be the cause of different diseases of the eye, as blepharitis, glaucoma, cataract and others. The fact that such views are held necessitates a most careful investigation of the question. This I have made by several different methods and have never found a single fact which would make such an astigmatic accommodation probable. None of the astigmatic patients whom I have studied showed the least sign of partial contraction of their ciliary muscle.

Most observers who have studied the question suppose that astigmatic patients always accommodate in such a manner as to bring the object into the anterior or the posterior focal line, and this should be the case even when the object appears here less distinctly than it would if the eye accommodated on another point of the interfocal space. Now, I have tried to find out at which point of this space the object is seen most distinctly. I took photographs of different print types with an astigmatic apparatus. I found that the photographs were least indistinct about the middle between the anterior and posterior focal lines.

Although the conditions in the human astigmatic eye are more complicated than in the apparatus, we may, nevertheless, say that most probably the astigmatic eye, as a rule, sees best when it accommodates in such a way that not a so-called focal line, but a spot which is approximately in the middle between both focal lines, is brought on to the retina. In any case I do not know of any observation that would make the possibility of astigmatic accommodation for correcting corneal astigmatism probable. So when we prescribe glasses we no longer need to regard this hypothesis.

It is needless to say that I speak here only of voluntary partial contraction of the muscle; whether there exists an involuntary partial spasm of the muscle is not as yet known. If you instil a drop of atropin or escrin so as to bring it only to the inferior part of the cornea the drug by diffusion comes more quickly to the inferior half of the muscle than to the superior half, and this may produce for a few minutes an astigmatism of the lens, but such a fact has no clinical interest at all for our question.

The new facts in the accommodation which we have pointed out here bear on the question of relative accommodation and the association between accommodation and convergence. These are rather complicated, and it would be rather tedious for you were I to discuss here the whole subject. Let me give you a short outline of the plan which I have followed in these investigations.

Since the days of Donders it has generally been admitted that the so-called curves of relative accommodation are in all their points determined by physiologic relations between the range of convergence and the range of ciliary muscle contraction. But this is not possible, since these curves are produced in their different parts by completely different factors. I was able to show by measurement that both the relative proximums and the relative remotums lie in the manifest accommodation space on two straight lines, which are parallel to the so-called convergence lines, and that they are limited by a horizontal line, which we may call the "near point abscissa."

It had been supposed that accommodation to the punctum proximum necessitates always a maximum contraction of the ciliary muscle. If this were true it would be necessary that the relations between convergence and accommodation should change continually with advancing age. And we should up to the most advanced age be compelled to associate an always increasing innervation of the ciliary muscle with the same convergence innervation. But at the age of from 60 to 70 we should be obliged either to contract our ciliary muscle *ad maximum* with the slightest convergence and without any practical effect, or we must suppose that, late in life, we should again have to learn to converge without any or with very small ciliary muscle contractions. Both suppositions are most improbable.

According to these views, which were partly those of Donders, in the years of incipient presbyopia we ought to behave like hypermetropic patients, we ought to have accommodative asthenopia and convergent strabismus. According to my views, the relations between accommodation and convergence remain the same during life; the diagrams I find for relative accommodation are quite different from those which have been generally adopted, but the diagrams of Donders may be easily explained by the conditions under which he made his measurement.

I will now leave these rather complicated questions and try to review the most interesting facts with regard to comparative physiology of accommodation. In the mammalian eye we find everywhere the same mechanism: slackening of the zonula by contraction of the muscle. As to the range of accommodation, we have seen that only in monkeys it is similar to that of man; all other mammals which we investigated had only a very small range of accommodation even in youth, and we find this not only in our domesticated animals, but equally in wolves, for instance.

It is a most interesting fact that Rabl has recently come to corresponding results by means of anatomic investigation. The disposition of the cortical lens fibers in man and monkeys is a rather irregular one, just as it is to be expected in a substance, which must be able to change its shape very quickly and easily. In all other mammalian lenses the radial lamellæ of the lens show a much more regular disposition of fibers, corresponding to the relatively slight accommodative changes in such lenses. This is a most remarkable agreement between the results of physiologic observation and of anatomic conditions.

In birds the accommodation is produced equally by contraction of the ciliary muscle and slackening of the zonula. The range of accommodation is here similar to that in man. Regarding the necessity of accommodation in different animals: As to birds, it is evident that a high range of accommodation is necessary for them, for the grains which form their food are very small and must be picked up with the beak. Grossmann, in his studies on cats' accommodation, said that cats must have a high range of accommodation, too, but I think this is not necessary; when the cat catches a mouse it does not require much accommodation in order to see its prey, nor is it necessary that it should be seen quite distinctly. Moreover, the cat catches the mouse with its claws; therefore, I do not think that our results as to the small amount of accommodation in cats are in contradiction with the biologic conditions.

Theoretically, accommodation seems possible in the following ways:

1. Change in the convexity of the cornea. It is still unknown whether, practically, such an accommodation

takes place or not; perhaps it exists in birds' eyes; at least we find here the most interesting fact, that by ciliary muscle contraction the inner lamellæ of the cornea are displaced toward the anterior lamellæ.

2. Change of position of the retina. Formerly, even for the human eye, this mechanism was admitted, and of late years some oculists have asserted that the so-called accommodation in aphakic eyes was to be explained by a slight displacement of the retina backwards. But this aphakic accommodation is, no doubt, only an apparent one; by careful observation we can show that the aphakic eye lacks any accommodative change. Whether in animals an accommodation is possible by change of the axis is not yet quite certain; it may perhaps be possible in cephalopods' eyes; here we find the sclerotic extremely thin and changing its position on the slightest pressure.

3. A third possibility of accommodation is the displacement of the lens forward or backward without or with change of its convexity. This interesting mechanism is to be found in fishes' eyes (Beer). The eyes of fishes show, when at rest, myopic refraction of from 5 to 6 diopters; they have a negative accommodation, that is, for the distance, and this is performed by approaching the lens to the retina; the lens itself does not change its shape.

This movement of the lens is produced by a band-like muscle, "campanula Halleri," which stretches from the inferior part of the lens to the retina, the upper part of the lens being fixed to the sclerotic. By contraction of the muscle the eye can become approximately emmetropic.

A most interesting peculiarity is this: The movement of the lens is not directed straight backward, but backward and a little to one side, so that the image of an object is displaced sideways from the original position on the retina.

The fish's eye is thus seen to be wonderfully adapted to its task; as a rule the fish has to see near objects and is only exceptionally called on to see to far distances; it never becomes presbyopic, and by the lateral movement of the lens the fish is enabled to follow an enemy's movement without moving the eye.

In cephalopods' eyes a similar mechanism takes place, yet here we have no campanula, but a ciliary body very similar to that of mammalians; its contraction draws the lens backward, so that here also we have normally a negative accommodation at a distance.

The mechanism of lens displacement, without change of convexity, is also to be found among reptiles; some of them seem to have a very slight range of accommodation, others, as for instance, the turtle, a larger one. Here a most remarkable positive accommodation takes place by advancement of the lens, which is in part produced by an increase of pressure in the vitreous, so that the lens is pushed forward through the pupil; it is very easy to observe this wonderful phenomenon in enucleated turtle eyes.

The interesting details on the comparative physiology of accommodation are inexhaustible. I wanted to show the different ways by which Nature has realized the problem of adapting the eye to different distances. As to human accommodation, I hope I have shown that many important questions, which at the first glance seem to be merely practical, are in intimate connection with physiologic science and can be elucidated by physiologic experiment. Any progress in our practical work should be preceded by scientific investigation.

EXPERIMENTAL PATHOLOGY AND SURGICAL TREATMENT OF ERYSIPELAS.*

ERNEST LAPLACE, M.D., LL.D.
Professor of Surgery, Medico-Chirurgical College.
PHILADELPHIA.

Since the discovery of the staphylococcus as a cause of suppuration and the streptococcus as the cause of erysipelas these organisms were found in many other conditions, and hence have long since lost their position as the cause of suppuration and of erysipelas only.

The streptococcus is found in septicemia and as a complication of diphtheria and other affections; while the staphylococcus is found in furuncles, carbuncles and all abscesses of a subacute nature.

When a wound is infected in these days of antiseptic precautions, pus abounds at first with staphylococci alone. In pre-antiseptic days, when pus was considered an almost desirable condition, when wounds were uncleansed, an erythema corresponding to erysipelas soon developed, accompanied by the clinical manifestations characteristic of this disease. It was evident that what seemed to be an ordinary infection could, when neglected, transform itself gradually into a more marked and virulent form, to be followed by general septicemia. At present these complications are not allowed to manifest themselves owing to prompt antiseptic cleansing.

The phenomenon, however, was apparent that if wounds were not cleansed the infection, which seemed moderate at first, would become more and more aggravated, apparently erythematous erysipelas or violent phlegmonous erysipelas, resulting in gangrenous cellulitis or hospital gangrene. Especially was this the case if the infection took place in the superficial lymphatics where phagocytes are not so plentiful as in the deeper or cellular lymphatics, and where the opsonins could not so readily help in the process of destruction.

Clinical experience has proven this point. If, however, the infection be locked up in the subcutaneous tissues, then an abscess, which may be strictly circumscribed at first, becomes more and more virulent in appearance. These clinical phenomena led me to experiment with the staphylococcus and streptococcus under various conditions to see whether or not it was possible to alter the virulence of these apparently dissimilar organisms so as, in a measure, to explain the clinical phenomena.

The following experiments were carried out by me in the bacteriologic laboratory of the Medico-Chirurgical College. The streptococcus was isolated from a virulent case of septicemia, which proved fatal in eight days' illness. It gave the typical growth on gelatin and agar.

Tubes containing 10 c.c. of bouillon were inoculated with virulent streptococcus, one tube being kept neutral. To a series of eight were added a 1 per cent. solution of bicarbonate of soda in minims of 2, 4, 6, 8, 16, 32, 64 and 100 respectively; likewise to the same number of minims was added a solution of hydrochloric acid, 1 to 1,000. This whole series of acid, neutral and alkaline media were then placed in an incubator at 44 degrees C. The result of this experiment showed a plentiful growth of streptococci in the neutral tube. The streptococci also grew in the series of acid tubes seemingly well, but losing the chain-like arrangement and partaking more and more of the staphylococcic or grape-like arrangement, until they seemed typically staphylococcic in the tube containing 100 minims.

When a gelatin culture was made from the tube containing

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

100 minims of the acidulated solution, the growth produced appeared typically as an ordinary *Staphylococcus albus*, the appearance of the original streptococcus having been altered in the acidulating process.

On the other hand, throughout the whole series of alkaline tubes, the organisms grew, retaining their typical streptococcic appearance. The alkaline group retained the toxic conditions, while the acid group seemed gradually to lose it. It became evident to me, therefore, that in the presence of a streptococcic infection an acid antiseptic medium would more readily diminish the virulence of the streptococcus, and would tend to restrain the development, and gradually destroy it, than a neutral or alkaline antiseptic solution.

In 1887[1] I published an article which demonstrated, for the first time, that the coagulating power of the bichlorid of mercury solution, when coming in contact with the blood, would disappear by acidifying this solution. In this way the original antiseptic power of bichlorid of mercury would not only be retained in presence of albuminous substances, such as blood, but also be greatly enhanced. This was done by the addition of 5 parts of hydrochloric acid to a solution of bichlorid of mercury, 1 to 1,000. I also at that time, for practical purposes, embodied the same idea in the shape of an acid sublimate tablet by which solutions could readily be prepared; that is, a combination of tartaric acid with bichlorid of mercury, which is now used extensively.

The experiments thus produced seem to fulfill all the expectations claimed for them in making the bichlorid of mercury solutions more reliable than ever before.

I have treated erysipelas by local applications of acid, bichlorid of mercury, ice-cold solutions. I did not suspect at that time the additional fact that acid medium, as demonstrated by the experiment just related above, would have the added property of so altering the soil as to mitigate at once the virulence of the streptococcus.

The virulence of an attack of erysipelas depends not only on the virulence of the infecting streptococcus, but also on the propitious quality of the patient's soil—the more alkaline the medium the more rapid and more virulent the development of erysipelas.

The opsonic index in cases of erysipelas is not always the same, and depends largely on the relative alkalinity of the patient's serum. A clinical fact of great interest has been the lack of immunity which erysipelas affords after an attack; on the contrary, an attack of erysipelas leaves the patient more susceptible to future attacks, showing that the opsonins of erysipelas are either very scanty or else disappear from the system for some unknown reason.

Perhaps the most important light thrown by Pasteur on infection was the fact that a micro-organism would be increased and decreased in virulence under different surroundings, giving pathologic manifestations of very different intensity.

The truth of this discovery is especially manifest in the fact that, while suppurative foci do occur now and then in operative cases, they are seldom or never found in the hospital clinic as was frequently the case in pre-antiseptic days.

When the suppurative process was started, it was rather favored in its development than checked on the supposition that pus consisted of the foul humor of the body finding its exit through the wound. The retention of pus locally in the foul surroundings allowed the organisms to rise in virulence and gradually to assume a degree that would result in symptoms of erysipelas. When a patient was contaminated from a wound in which the organisms had reached such a violent stage, erysipelas would start from the outset. This occurrence is rare now, because of the care with which infected wounds are sterilized from the first.

If, however, the infection has already taken place, the phagocytic action of the blood must be increased by the administration of heart tonics, such as strychnin, digitalis and tincture of the chlorid of iron. Local, acid, ice-cold solution, according to my formula mentioned above, affords the best antiseptic action for this purpose; it should, however, be made to gain direct access to the infected structures. Since the infection exists in the lymphatic vessels, it is proper to make scarifications of the skin according to Esmarch—especially for two or three inches beyond the infected area—so as to lay open the lymphatic vessels. The venous capillary hemorrhage that ensues allows the vast numbers of infected streptococci to escape, while the ice-cold solution of bichlorid of mercury applied to the lymphatic vessels comes in direct contact with the streptococci in their course of absorption.

Should the nose or some delicate part of the face be infected, the scarifications can be replaced by copious acupuncture. A compress is kept to the parts constantly wet with the solution. Cold, as here applied, is made the medium which contributes to the destruction of the streptococcus. Should the case become complicated by a deeper infection involving the cellular tissue, an incision should be made over the affected area for thorough drainage and for the further sterilizing of the wound. I believe that all the indications are met directly in this manner.

The use of an acid, ice-cold bichlorid of mercury solution, as well as the scarification of the infected area, constitute the main points of advantage over the methods generally used.

In making the scarifications, the skin is stretched, and the lymphatic vessels and capillaries are distended; the weight of the blade only should be the pressure at the cutting edge. Sufficient force is thereby exerted to obtain the desired result; that is, an opening in the lymphatics. The skin being distended, owing to the attack of erysipelas, the scarifications do not amount to any more than a pin scratch.

My experience in a large number of cases both in hospital and private work has resulted in unfailing success by checking, from the first, the starting infection; for I believe that through the constitutional tonic treatment with the tincture of the chlorid of iron and the local antiseptic measures all the indications of this violent form of infection will be conquered.

From the above I conclude that:

1. Erysipelas varies in its form of attack according to the violence of the streptococcus at the time of the invasion.

2. The receptivity of the patient is also an important factor.

3. Acid media of themselves diminish the violence of the streptococcus.

4. Simple alkaline medium tends to increase the virulence.

5. Our antiseptics become more potent if the solution is acidulated.

6. Direct contact of antiseptic solution with the streptococci in the lymphatics can be obtained by gentle scarifications of the reddened area, and that the course of the organisms can be stopped if the scarifications are

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[1] Deutsch. med. Wochschr., No. 40, 1887.

made for an inch or two beyond the diseased surface, allowing the solution to arrest and destroy the organisms on their inward path.

DISCUSSION.

Dr. A. J. Ochsner, Chicago, thought Dr. Laplace's suggestions worthy of trial. If it is possible to change the virulence of the streptococcus regularly in this manner, the paper, he stated, marks a very important step in the progress of therapeutics and in our ability to manage this disease scientifically. The change from streptococcus to staphylococcus seems most remarkable. So far as the practical part of the paper is concerned, he would look on it with very much less enthusiasm than on the scientific observations which it contains. There is no doubt but that, in cases of erysipelas seen early, it is a simple matter to dispose of the infection. Dr. Ochsner called attention to the fact that about fifteen years ago the *Berliner klinische Wochenschrift* contained an article based on a very large number of observations made in one of the German prisons where erysipelas was endemic. The medical director of this prison discovered empirically that if these prisoners, at the very beginning of the attack of erysipelas, were at once treated by means of careful washings with strong alcohol, repeated at intervals of an hour, directed toward the point of infection instead of away from it, in order not to carry the infection further, he could regularly abort the disease. The number of cases observed in this prison was so large, and the description of the cases seemed so honest and reasonable that from that time Dr. Ochsner has used this treatment and he has found it reliable. Since that time recurrent cases of facial erysipelas that have come under his observation, and the observation of those who have worked with him, have invariably resulted in cutting short the attack when this mode of treatment was employed. Of course, he said, it is possible that the use of alcohol in this manner has an effect similar to that of the acid described in the paper. These observations, he thought, show either that these aborted streptococci will return to be virulent streptococci or that they remain indefinitely in the staphylococcic form. If there is any uniformity in this, it is certainly a most important observation. Of course it is known from clinical observation that there is a tremendous difference between erysipelas and erysipelas. There are cases of erysipelas that never amount to anything so far as their severity is concerned, although they may extend over the entire body. Other cases run a very severe course, and, he thought that the facts stated in this paper might be an explanation of the clinical observations with which we are all familiar.

Dr. Ernest Laplace, Philadelphia, said that the streptococcus, when cultivated in an acid medium at 104 F., seems gradually to diminish in virulence. Pasteur laid special stress on the varying virulence of germs under different circumstances. A notable example of this consists in what takes place in inflammation of the appendix, where the micro-organisms, being located within the cavity, gradually increase in virulence to the extent of causing gangrene, reminding one of the bygone days of surgery where lack of antiseptic precautions favored the development of hospital gangrene.

The Best Professor of Clinical Medicine in the World.—A breezy little article giving advice to a medical student in the *Gaz. Méd. Belge*, page 352, concludes with the remark that the best professor is the patient himself. "Besides what you can learn from him, all the rest is of trifling importance. He is the one you must listen to, for he will not deceive you nor brag of his own ideas and discoveries, and while you are listening devour him with your eyes. Try to get on the best terms with him. Go to him early in the morning. Be the first at the hospital; you can leave when you choose after every one else is there. In taking your vacation, plan to be in the hospital when the rest have gone on their vacations. In selecting teachers seek those who talk to the patients rather than about themselves at the bedside."

THE SUDDEN APPEARANCE OF APNEA IN THE COURSE OF TABES DORSALIS AND ARTERIAL SCLEROSIS.*

C. F. HOOVER, M.D.
CLEVELAND, OHIO.

The first patient, a young married woman 26 years old, had a syphilitic infection seven years ago. The past six months the patient has suffered from lancinating pains in the thighs and legs. She has also been annoyed with the feeling as though there was some substance interposed between the soles of her feet and her shoes. There have also occurred several attacks of nausea and vomiting, which, from her description, could very well have been gastric crises. Besides these attacks of nausea and vomiting there were no signs of vagus involvement.

Recently the thigh and leg pains grew so intense that morphin was required to allay the pain. The patient showed no disturbance of coordination. The pupils reacted sluggishly to light. The patellar and ankle reflexes were absent. The tactile sense and perception of temperature and of tuning-fork vibrations were unimpaired. There was, however, well pronounced hypoalgesia in the feet, legs and thighs, and the plantar surfaces of both feet exhibited a marked delay in transmission of the pain sense. The absence of patellar reflexes, the presence of hypoalgesia and delay in transmission of the sense of pain without trophic symptoms or any other signs, of multiple neuritis or syringomyelia, justified the diagnosis of tabes dorsalis. During the morning of the same day on which I examined her the patient was given ¼ grain of morphin hypodermically. About forty minutes after the injection of morphin the patient suddenly, and without the slightest sign of distress, ceased breathing and lapsed into a semicomatose state. The attending nurse used artificial respiration for about twenty minutes, when suddenly automatic respiration and consciousness were simultaneously resumed.

The patient had been given ¼ grain morphin hypodermically as I entered the house, and a few minutes after I had finished my examination there recurred the same symptoms seen in the morning. The patient became unconscious and ceased breathing. There was a slight cyanotic tinge to the skin of the whole body, the lips were pale and cyanotic. The pulse, which had been 80 up to the advent of apnea, now had a rate of 120. The radial artery widened its lumen. The diameter of the radial artery seemed to have increased threefold, but the maximum pressure was greatly diminished. At the same moment a pulsation in the dorsal veins of the hands was plainly visible. The pulsation was centripetal and strictly synchronous with the arterial pulse. The veins of the hands were dilated, but there were no signs of stasis from the right heart, either in enlargement of the heart's area of dulness to the right or dilatation of the jugular veins. In other words, the patient had vasomotor relaxation in the veins as well as in the arteries. The instant automatic respiration was resumed (after a lapse of about twenty minutes) all signs of vasomotor relaxation disappeared; the artery retracted to its original caliber. The veins retracted at the same instant to their usual size, the venous pulse disappeared and the pulse rate dropped from 120 to 80.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

All these changes in the vascular phenomena occurred instantly and with the return of consciousness and automatic respiration. We did not permit the patient to remain in the apneic state for a longer time than thirty seconds without employing artificial respiration. During the entire period of twenty minutes the apnea was unbroken by a single complete respiratory effort on the part of the patient. At the conclusion of a series of artificial respirations there would be a very slight indication of an inspiratory effort, but not sufficient at any one time to inflate the lungs. So during a lapse of twenty minutes the patient's sole respiration was artificial. There was a striking disproportion between the degree of cyanosis and respiratory disturbance. The slight cyanotic tinge to the skin seemed to be dependent on the vasomotor phenomena rather than on the apnea.

Another patient, a man 33 years old, who had a syphilitic infection eight years before, came recently under my observation. This patient had no ataxia, but he had unequal pupils which reacted sluggishly to light but more promptly to accommodation. The patellar and ankle reflexes were both absent, though he assured me the patellar reflexes were present only two weeks prior to the time he consulted me. This patient had a fracture of the internal malleolus of the left leg, crepitus could be elicited and, though the patient perceived the grating, it caused him no pain. The tuning-fork vibrations were clearly perceived over the whole body as well as over the fractured fragment. Perception of temperature was everywhere intact. The tactile sense also was normal. There was, however, a marked hypoalgesia over both thighs and legs and a marked delay in the transmission of pain over the hypoalgesic areas.

There was a clear history of gastric crises and intestinal crises accompanied by rectal hemorrhages; severe lancinating pains in the thighs and legs had persisted for three years, and there was hypotonia of the muscles of the thighs and legs. These symptoms were sufficient to convince me of the existence of tabes dorsalis.

The patient told me that a year ago he received a hypodermic injection of morphin (¼ gr.) for the relief of supposed sciatica. About thirty to forty minutes afterward he suddenly lapsed into unconsciousness and ceased breathing and for fifteen or twenty minutes artificial respiration was employed. When consciousness and automatic respiration returned he could remember nothing of what transpired, so his loss of consciousness was complete. A few weeks later morphin was again given him for the same purpose, but this time only ⅛ grain of the drug with 1/100 grain of atropin were used. Exactly the same events followed as after the former dose of ¼ grain. Apnea and loss of consciousness supervened about thirty minutes after the injection of morphin was given and lasted about fifteen minutes.

Both these patients on frequent occasions had received hypodermic injections of morphin on account of lancinating pains without the least untoward results. On account of the alarming signs which developed twice in each patient morphin was not again used for several months, but later injections of morphin were used without the development of any respiratory or circulatory symptoms.

Both these patients exhibited signs of profound hypoesthesia of the respiratory center at a time varying from thirty to forty-five minutes after the administration of morphin. This is the time which uniformly elapses between the administration of morphin and the maximum respiratory depression in animal experiments. Both the patients were in the preataxic state of tabes dorsalis. They were both in a period which marked the transition from symptoms of excitation to symptoms of depression. Both patients had suffered from involvement of the vagi as evidenced by gastric crises. Neither patient had any recurrent laryngeal symptoms.

There seems to have existed in these patients a certain depression of cellular response of the respiratory center, though insufficient to cause any symptoms. The added depressor effect of a small dose of morphin sufficed to cause hypoesthesia of the respiratory center and precipitated the attack of apnea. Though I witnessed only one of the four attacks mentioned, it seems reasonable to suppose the vasomotor symptoms described in one attack must have occurred in all, because in all the attacks there was loss of consciousness, and that depends on vasomotor and not on respiratory depression.

It seems certain death would have followed in each instance had not artificial respiration been employed by persons in attendance on these patients. We occasionally hear of death after the administration of small doses of morphin, and this experience suggested possibly there may be found in medical literature some fatalities which occurred in tabetic patients after administration of moderate doses of morphin.

Suppose one of these patients, suffering from what is believed to be sciatica (but in reality has the sciatic pains of an early tabes dorsalis) finds himself in a strange hotel and a physician is summoned who gives him a hypodermic injection of a quarter grain of morphin. In about fifteen minutes the acute pain is subdued and the patient is left alone. Should unconsciousness and apnea follow after the usual elapse of time I believe death would follow.

I was unable to find any such case reported in the Surgeon General's Library. All the reported cases of apnea or Cheyne-Stokes respiration following the use of morphin proved to be cases of cardiovascular disease, or patients who could not be said to have locomotor ataxia. With a single exception, in the literature on locomotor ataxia, the only respiratory symptoms described are the laryngeal crises. This exception is found in a case reported from Salpetrière in 1899 by Eggers.

This patient had tabes ten years. She was bedridden on account of paresis, muscular atrophy and ataxia. She had suffered many laryngeal, gastric and intestinal crises, so there was sufficient evidence of vagus involvement. This patient had a usual automatic respiratory rate of three to five to the minute. After eating a meal or drinking hot liquids the respiratory rate would rise to thirteen to the minute and then gradually lapse to three or five to the minute. If the patient would take about ten deep inspirations, there followed immediately a total suspension of automatic respiration for sixty seconds, then automatic respiration resumed at the rate of two a minute, and within a few minutes rose to the usual rate of three or five. In this patient there was no disturbance of consciousness during the periods of apnea, and no vasomotor symptoms are described.

To avoid stimulation of the vagi by sectioning, Gad and Marckwald devised the plan of freezing both vagi, in a dog, and in this manner procured a bradyapnea of three or four a minute.

We find under other conditions a behavior of the respiratory center very like the cases above described. The one example of apnea with which all physicians are familiar is apnea at birth. Here we have a hypoesthesia f the respiratory center caused by the manner in which ither the placental or umbilical cord circulation is ffected during parturition. A sudden interruption of he placental circulation or a sudden compression of the umbilical cord stimulates the respiratory center of the etus, and as a result the child is born asphyxiated from nhalation of the contents of the utero-vaginal tract. f the cord or placental circulation be very gradually obliterated for a protracted period, then exhaustion of he respiratory center follows and the child is born with apnea. Though generally automatic respiration is unnterrupted after once established, there are some cases n record in which lapses of automatic respiration occurred.

Morrow, of Montreal, reports the case of a child born apneic who, after the usual methods were employed for twenty minutes to stimulate respiration, breathed well. Several hours later apnea supervened and the child was cyanotic for half an hour; whether any automatic respirations occurred or not during this period is doubtful. Artificial respiration promptly restored automatic breathing. During the following twenty-four hours there were twelve attacks of apnea, but artificial respiration promptly restored the child. The child later proved to be perfectly healthy.

In Morrow's case we have an instance in which cellular response of the respiratory center had been modified during parturition. Unusually prolonged treatment was required at birth to establish automatic respiration. After respiration had been established for a period of several hours apnea suddenly developed without the least premonitory symptom and reappeared twelve times within the first twenty-four hours of extrauterine life. Thus we have another example of modification of the respiratory center without symptoms other than the sudden appearance of complete apnea. In this case there was neither organic disease nor drug intoxication. During parturition the respiratory center was depressed to a point which required treatment for twenty minutes before respiration could be established, but the tone of the respiratory center was insufficient to prevent recurrences of apnea.

Another case of tabes dorsalis recently came under my observation in whom sudden death occurred during an attack of apnea. The patient was a man, 37 years old, who gave a doubtful history of syphilitic infection in 1887. Four years later his wife had two miscarriages. Since 1903 the patient had suffered from lancinating pains in the thighs and legs and irritability of the bladder with occasional enuresis. The pupils were unequal and reacted sluggishly to light and to accommodation. The patellar and ankle reflexes were absent. All sensory perceptions with the exception of the perception of pain were normal. Hypoalgesia was confined to the feet, legs and thighs. On the plantar surfaces of both feet there was a marked delay in the transmission of pain. There was not the slightest impairment of coordination either in the upper or lower extremities. There was, however, hypotonia of the muscles of the thighs and legs.

A few weeks after I saw this patient he was seized with violent nausea and vomiting and epigastric pain. The patient was taken home and put to bed, suffering from a sense of profound exhaustion. He arrived at his home about 10 o'clock at night, and his family physician was summoned. The physician told me, during the time from 11 p. m. until 2 a. m., the patient had four attacks of apnea. Each period lasted a few minutes. About 2 a. m. the patient called to the doctor, who was in a neighboring room. By the time the doctor arrived at his bedside, respiration and heart beat had both ceased. No autopsy was made.

All these phenomena which I have described occurred in tabetic patients who were in the preataxic period and who could easily have been overlooked as cases of locomotor ataxia. In fact, one patient had been treated by diet and lavage for disease of the stomach, and one other was treated for disease of the prostate. In reality both patients were suffering from excitation symptoms of tabes.

In cardiovascular disease we see occasional lapses of respiratory activity which assume either Biot's or Cheyne-Stokes type of respiration. A man, 60 years old, with chronic aortitis, general arterial sclerosis, chronic interstitial nephritis and moderate hypertrophy and dilatation of the left ventricle, had for three months been suffering from nocturnal apnea, followed by prolonged apnea. For a year the patient had wakened frequently at night suffering from intense air-hunger; after breathing deeply for several minutes he would be able to go to sleep and rest for the remainder of the night. These attacks all came during the first hours of sleep. For three months he had been greatly distressed by complete suspension of respiration directly he fell asleep, and then awakened with intense air-hunger, which was relieved after a few minutes rapid deep breathing.

It was discovered he could avoid this period of intense air-hunger if he were awakened directly apnea commenced. So his wife would watch him as he fell asleep and waken him the instant respiration ceased. This plan enabled the patient to escape the period of air-hunger which always followed spontaneous wakenings. Very commonly he would have to be wakened as often as a dozen times before respiration would continue after falling asleep.

This patient presented the type of Biot's respiration, a modification of Cheyne-Stokes respiration in which apnea and hyperapnea alternate without the gradual increase and diminution in rate and depth of respiration which intervene between the periods of apnea in Cheyne-Stokes phenomenon. Owing to sclerosis of the basilar arteries with consequent impairment of blood supply to the medulla he suffered what may be termed intermittent claudication of his respiratory center. There was not the slightest sign of impairment in the gross hydraulics of his blood circulation so far as the right heart, pulmonary circulation, liver or the pendant parts were concerned. There were no signs of respiratory involvement during his wakening hours, but the instant the added factor of sleep ensued there was induced a sufficient anemia of the respiratory center to cause apnea, and automatic respiration was resumed only after the partial pressure of carbonic acid in the blood reached a point sufficient to arouse his depressed respiratory center to action. This train of events explains those cases of arterial sclerosis which waken with suffocation during the early hours of the night when sleep is most profound, and when examined during their attacks reveal no signs of pulmonary stasis, no emphysema or bronchial râles and no change in character or rate of the arterial pulse. It is not a dyspnea; it is a prolonged hyperapnea, and has for its basis circulatory changes in the medulla which are not insufficient to produce symptoms during the waking hours, but with the diminution of blood supply to the encephalon which comes with profound slumber a sufficient anemia of the medulla occurs to produce hypoesthesia of the respiratory center.

Here we have again (as in the tabetic patients) a sudden precipitation of apnea from a slight cause which is only a cumulative factor in betraying cellular changes in the respiratory center which are concealed until the sudden development of apnea.

All the cases of Cheyne-Stokes respiration which are produced in cardiovascular disease by the injection of small amounts of morphin occur in elderly people or patients with arterial disease. In all these patients we have the cumulative effect of morphin on a respiratory center already affected by an impaired blood supply. The patient above described recovered from his respiratory symptoms after taking nitroglycerin and caffein citrate, a further proof of the theory I have presented.

A man, 71 years old, had Biot's type of respiration, i. e., sharply alternating periods of apnea and hyperapnea. The periods of apnea lasted as long as sixty-seven seconds. There were clinical signs, of arterial sclerosis, high blood pressure, pulse of long duration, hypertrophy and dilatation of both the right and left ventricles of the heart, and renal infarcts. During the periods of prolonged apnea the patient talked irrationally and incoherently; during the periods of apnea there was profound slumber. This clinical picture had continued for nearly three weeks when nitroglycerin, 1/100 gr. every hour, and 5 gr. of caffein citrate every three hours were given. Though there was moderate edema of the legs, the improvement which followed the treatment could not be ascribed to increased renal elimination. Biot's respiration ceased and the mental symptoms all disappeared within a few hours. The patient died suddenly two days later with symptoms of embolus in the pulmonary artery.

I cite these cases because I believe in cardiovascular diseases we are too ready to assume all respiratory distress must be ascribed either to impairment in the pulmonary circulation or to diminished secretion of urine; when in reality we are dealing with an ischemia of the respiratory center, and the other factors are merely coincident to the respiratory phenomena and not their cause.

DISCUSSION.

Dr. Allen A. Jones, Buffalo, said that he had seen only one case of this sort, but this one case was sufficiently striking to make its impress on him for all time. A man of middle age, with tabes, who had been a morphin habitué for a number of years, took his usual quantity of morphin and smoked excessively during his stay in the hospital. One night the nurse reported that the man had stopped breathing and was dying. He was cyanotic but, under the influence of nitroglycerin hypodermically, he began to breathe again. Dr. Jones went to the hospital and for two hours that man went from one spell of apnea into another, but he finally recovered. During the attack he was given strychnia and camphor hypodermically. A few days afterward the man said he would stop his morphin and resort to an old remedy that he had gotten from answering an advertisement. One morning he was seized again with a "dying attack," and stopped breathing for three minutes. During this time he became very cyanotic, his pulse was small and frequent, but he responded to stimulation. He had several such attacks during the day and finally recovered. He is in better condition to-day than he was last year.

Dr. C. F. Hoover, Cleveland, Ohio, said that he thinks such occurrences are not uncommon, although he searched the literature and was unable to find a single case mentioned. He believed that if he had another such case of tabes with apnea, instead of resorting to artificial respiration, he would probably invert the patient to stimulate the respiratory centers. The same result will follow this procedure here as in tachycardia. A patient had a pulse of 240 to the minute for twenty-eight hours. He inverted her, heels up and head down. Tha was not sufficient, but when she took deep breaths it brough the pulse down to 120. Her condition was due to postoperative depression. The patients should be held inverted for tw minutes.

THE PROBABLE DEMONSTRATION OF THYROID SECRETION IN THE BLOOD IN EXOPHTHALMIC GOITER.

REID HUNT, M.D.
Chief of the Division of Pharmacology, Hygienic Laboratory, U. S. P. H. and M.-H. S., Member of the Council on Pharmacy and Chemistry of the American Medical Association.
WASHINGTON, D. C.

I showed in a former paper[1] that when small amounts of thyroid are fed for a few days to mice the latter acquire markedly increased resistance to acetonitrile.* Further studies have shown that this is an exceedingly delicate test for thyroid; as small an amount as one-tenth of a milligram (1/640 of a grain) of the official dried thyroid fed daily for a few days may enable a mouse to recover from double the dose of acetonitrile fatal to the controls. Thus it has been possible to detect as little as one milligram of thyroid. Dr. Seidell, of this laboratory, has found that forty or fifty times as much thyroid as the above is necessary to give a distinct test for iodin, especially when the thyroid is mixed with a large amount of other organic material; moreover, it is doubtful if it is possible to determine, by any chemical method at present known, whether iodin found in dry protein matter is present in the form of normal iodothyreoglobulin, whereas it is possible to distinguish sharply by the physiologic test between the iodized thyroid protein and artificially iodized proteins. Large amounts of other (non-toxic) substances do not interfere with the physiologic test; thus one milligram of the dried thyroid added to 40 gm. of cracker dust, or several grams of sugar or casein or blood was readily detected. Although I have found a few other substances which give this test, hundreds of times as much are required as of thyroid. (These results will be published shortly in a bulletin of the Hygienic Laboratory.)

It seemed probable that this test would throw light on the question whether there is an excess of thyroid secretion in the blood in exophthalmic goiter; at present the theory that there is a condition of hyperthyroidism in this disease rests entirely on clinical evidence, and this evidence is considered insufficient by many. Although I am able to report at present on but one case, it seems desirable, in view of the widespread interest in this disease, to record my results. Another reason for making this communication at present is the hope that it may lead physicians and pathologists to send me blood for further study.[2]

The blood on which the following tests were made was kindly sent to me by Dr. W. G. MacCallum, to whom I wish to express my thanks; it was obtained from an autopsy on a woman who had exophthalmic goiter and also bronchopneumonia, a pyosalpinx and general peritonitis. It is possible that these other diseases had an influence on the tests, although this does not seem probable, for the test is very characteristic of thyroid.

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*Acetonitrile is methyl cyanid (CH_3CN), a volatile liquid miscible with water. The name is given because it can be made to react with water to form acetic acid (CH_3COOH). In the system, however, this reaction appears not to occur, but by oxidation hydrocyanic acid is slowly liberated, by which poisonous effects are produced.

[1] Hunt: Journal of Biological Chemistry, 1905, i, 33.

[2] At least an ounce of the fresh blood is desirable; after the middle of September it could be sent direct to the Hygienic Laboratory, 25th and E Streets, N. W., Washington, D. C. It is very probable that the blood dried in thin layers at a temperature not exceeding 50 C. would answer equally well.

SERIES I.

In this series white mice were fed 1 c.c. of the blood, mixed with cracker dust, daily for nine to ten days, and then their resistance to acetonitrile compared with that of mice which had received similar food with the exception of the blood. The results were as follows:

A.—MICE RECEIVING THE EXOPHTHALMIC GOITER BLOOD.

. Mouse recovered from 0.43 mgr. acetonitrile per gm. body wt.
. Mouse recovered from 0.44 mgr. acetonitrile per gm. body wt.
. Mouse recovered from 0.45 mgr. acetonitrile per gm. body wt.
. Mouse died from 0.48 mgr. acetonitrile per gm. body wt.
. Mouse died from 0.55 mgr. acetonitrile per gm. body wt.

B.—CONTROLS.

. Mouse recovered from 0.26 mgr. acetonitrile per gm. body wt.
. Mouse recovered from 0.30 mgr. acetonitrile per gm. body wt.
. Mouse recovered from 0.31 mgr. acetonitrile per gm. body wt.
. Mouse died from 0.32 mgr. acetonitrile per gm. body wt.
. Mouse died from 0.33 mgr. acetonitrile per gm. body wt.

Thus it required about one and one-half times as much acetonitrile to kill the mice which had received the exophthalmic goiter blood as it did for the controls. These experiments are obviously open to the criticism that the effects of feeding exophthalmic goiter blood should be compared with those of feeding normal blood and not simply cracker dust, and I would not have attached much importance to the above results were it not for the following facts: Many previous experiments had shown that the feeding of the blood of normal and thyroidectomized sheep, of normal beeves, of normal guinea-pigs, as well as the blood of guinea-pigs which were pregnant, or had received injections of diphtheria toxin or antitoxin, also the serum of normal horses and of horses immunized with tetanus toxin did not produce a similar effect when compared with crackers. It was very desirable, however, to compare the effects of the blood from the case of Grave's disease with those of normal human blood; the latter was not available for the first series of experiments, but, through the kindness of Dr. Truman Abbe, I secured sufficient human blood for the following series:

SERIES II.

A.—MICE RECEIVING THE EXOPHTHALMIC GOITER BLOOD.

1. Mouse recovered from 0.44 mgr. acetonitrile per gm. body wt.
2. Mouse recovered from 0.55 mgr. acetonitrile per gm. body wt.
3. Mouse recovered from 0.65 mgr. acetonitrile per gm. body wt.
4. Mouse recovered from 0.70 mgr. acetonitrile per gm. body wt.
5. Mouse died from 0.75 mgr. acetonitrile per gm. body wt.

B.—MICE RECEIVING NORMAL BLOOD.

1. Mouse recovered from 0.35 mgr. acetonitrile per gm. body wt.
2. Mouse recovered from 0.37 mgr. acetonitrile per gm. body wt.
3. Mouse died from 0.38 mgr. acetonitrile per gm. body wt.
4. Mouse died from 0.39 mgr. acetonitrile per gm. body wt.
5. Mouse died from 0.40 mgr. acetonitrile per gm. body wt.

C.—MICE RECEIVING CRACKERS ALONE.

1. Mouse recovered from 0.32 mgr. acetonitrile per gm. body wt.
2. Mouse recovered from 0.37 mgr. acetonitrile per gm. body wt.
3. Mouse recovered from 0.38 mgr. acetonitrile per gm. body wt.
4. Mouse died from 0.39 mgr. acetonitrile per gm. body wt.
5. Mouse died from 0.40 mgr. acetonitrile per gm. body wt.
6. Mouse died from 0.40 mgr. acetonitrile per gm. body wt.

Thus it required nearly twice as much acetonitrile to kill the mice which had received the exophthalmic goiter blood as it did those which had received normal blood or simply crackers. The fact that the normal blood had no effect (when compared with crackers) shows that the results of the first series of experiments may also be accepted as evidence that the blood of exophthalmic goiter contains thyroid secretion.

It will be noticed that the fatal dose of the nitrile, both for the control mice and for the mice fed on blood, is larger in the second than in the first series. The two series of experiments were performed on different lots of mice and, as I have shown elsewhere,[3] different lots of mice frequently show such variations in resistance to this poison; this seems to depend largely on differences in age, but more differences in the food which the mice have received. The results with any one series of mice which are of about the same age and have been kept under identical conditions are remarkably uniform, as is evident from the above experiments and as I have observed in many other series.

The degree of protection to the nitrile produced by the exophthalmic goiter blood is about the same as that caused by the feeding of 0.05 to 0.1 mgr. of dried sheep thyroid; that is, 1 c.c. of this blood apparently contains about as much thyroid secretion as is represented by these amounts of thyroid.

It may be added that Dr. Seidell could obtain no evidence of iodin in 150 c.c. of this blood; but the iodin which would be contained in this amount of blood (as estimated by the physiologic tests) would not exceed 0.03 mgr., an amount too small to be ordinarily detected by chemical methods when mixed with a very large amount of protein.

I have further found that very large amounts of thyroid may be fed to guinea-pigs and yet thyroid could not be detected in the blood. This suggests the thought that perhaps there is not only an increased production of thyroid secretion in exophthalmic goiter, but also a diminished power on the part of the body to destroy the secretion; this may account for the small number of cases reported in which thyroid feeding has led to a condition strictly comparable to that of exophthalmic goiter.

It is believed that this line of investigation will throw light on several problems connected with the thyroid gland.

The above physiologic test is also being used to determine if certain of the "antithyroid Preparations"[4] neutralize or hasten the elimination of thyroid. Perhaps some experimental evidence can be obtained in this way as to the value of these preparations in the treatment of exophthalmic goiter; at present their use rests on somewhat unsatisfactory theoretical considerations and rather uncertain clinical results.[5]

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[3] Journal of Biologic Chemistry, i, 33; 1905; Bull. 33, of the Hygienic Laboratory, U. S. P. H. and M.-H. S., 1907.

[4] See New and Non-Official Remedies (A. M. A.), 2d edition, p. 15. 1907.

[5] The reaction is also being used to detect thyroid in certain secret "antifat" nostrums. From information obtained from physicians of large experience it seems that the use of thyroid (as such or in certain nostrums) by the laity for the treatment of obesity is accompanied by considerable danger. It is much to be desired that physicians will report cases of this kind coming under their observation.

Nature of Tetany.—Chvostek presents evidence to prove that tetany is the result of defective functioning of the parathyroid glands. The glands may be working apparently normally, but close to their functional limit, when some intercurrent factor, a sore throat, pregnancy, infectious process or the like may prove the last straw that breaks down the parathyroid functioning. He relates a number of examples of tetany occurring under various circumstances, in some cases coming on with menstruation each month, in others with an angina, etc., but the most conclusive testimony is the cases in which tetany regularly followed an injection of tuberculin. His study of the subject is published in the *Wien. klin. Wochschr.* for May 23, 1907, xx, page 625.

MYOPIA ASSOCIATED WITH OPACITIES OF THE CORNEA.*

WALTER L. PYLE, A.M., M.D.
PHILADELPHIA.

Although the association of myopia with opacities of the cornea, as well as with opacities of the crystalline and its envelopes, has been recognized for over a half century, little mention of this fact is found in modern ophthalmic literature. Among the authors of recent ophthalmic text-books in English, it is practically ignored.

The prevalence of corneal opacities in the cases of myopia studied in the older Continental schools and clinics is most striking to a modern American ophthalmologist. The statistics of Cohn[1] show a percentage of nearly 100 in school children. Among Arlt's[2] patients the association was found in 70 per cent. Additional published statistics are as follows: Chauvel,[3] 49.7 per cent.; Petersen,[4] 48 per cent., and Frenkel,[5] 38.5 per cent. Among other writers on this subject are Donders, Nicati,[6] Werth, Landolt,[7] Gelpke,[8] Roure,[9] Manguis,[10] Hess,[11] Fortin,[12] Garipuy,[13] de Lapersonne, and Widmark.[14]

Donders observed frequently the betterment of vision by concave lenses in cases of corneal opacity, but I can find no evidence to show that he recognized the production of a true axial myopia. The beneficent effect on vision was likely attributed to the increased accommodative effort and the consequent contraction of the pupil, diminishing the amount of diffuse illumination. However, Van Wyergarden,[15] a pupil of Donders, in 1854, records the case of a patient, blind since infancy in one eye with pronounced corneal opacities in the other, making it necessary for him to work at very close range, who gradually developed a high degree of myopia. He also mentions a man of 42, who improved his vision, dulled by corneal opacities, first by a stenopeic slit, and finally by concave lenses.

Arlt[2] discussed the rôle of central corneal and lenticular opacities in his celebrated Hand Book. Arlt had an especial interest in this subject, as his own brother suffered corneal opacities in a hyperopic eye, following smallpox in infancy. At the age of 13, this eye became myopic, gradually increasing in ametropia during his student life until it developed a myopia of 1/6. The other eye remained hyperopic.

Several of the early writers attributed the myopia to the increased curve of the diseased cornea. von Graefe[16] recognized the existence of a true axial myopia in these cases, and, in common with Arlt, advanced as a reason the closeness to the eye with which objects were held in order to increase the size of the retinal images, thus supplementing their want of clearness. The later statistics of Petersen and Fortin, showing a large percentage of double myopia in cases of unilateral opacities, seemed to further confirm the theory of excessive convergence as the chief etiologic factor in the myopogenesis. As will be seen later, the observations of H. Frenkel and Widmark point strongly to the accommodative strain as the cause of the myopia. These observers cite many instances of unilateral myopia with unilateral opacities.

In his magnificent and classical study of the examination of the eyes of 10,060 school children, Cohn[1] found 211 children with corneal opacities following the so-called scrofulous affections. Nearly all were myopic, and in 91 there was well-developed posterior staphyloma. Twelve were not refracted. The statistics relative to the other cases are as follows:

51 had myopia of from 1.0 to 1.5 D.
57 had myopia of from 1.75 to 2.25 D.
40 had myopia of from 2.5 to 3.0 D.
26 had myopia of from 3.25 to 4.0 D.
16 had myopia of from 5.0 to 6.0 D.
6 had myopia of 7.0 D.
3 had myopia of 9.0 D.

In 1879, Nicati[6] found among the school children of Marseilles 15.5 per cent. with myopia; and of these a large number showed corneal opacities, pronounced astigmatism and lesions of the ocular fundus, diminishing visual acuity. In 1884, Landolt[7] called attention to the frequency with which corneal opacities are found associated with myopia.

In 1887, Petersen[4] found in the records of the Ophthalmic Clinic of Kiel reports of 186 cases of myopia with corneal opacities. In 120 cases the corneal lesions were bilateral; in 66, unilateral. Of the bilateral cases 76 (63.4 per cent.) showed double myopia, in 28 cases higher than 6.0 D. There were 8 cases of malignant myopia, and in 50 cases there was posterior staphyloma. Bilateral emmetropia was noted in 8 cases (6.7 per cent.), and bilateral hyperopia in 16 cases (15 per cent.). In 66 cases of unilateral corneal opacities reported by Petersen, myopia was found in both eyes in 22 (32 per cent.). In 9 of Petersen's cases the myopia was found only in the sound eye and in 2 only in the affected eye. There was double emmetropia 3 times and double hyperopia 13 times. In 1892, Chauvel[3] contributed an important statistical study showing conclusively that, besides astigmatism of the cornea, opacities of this membrane have a marked influence on the production of myopia. Of 349 cases examined in military service the opacities had appeared:

Between infancy and 5 years, 131 times.
Between 5 and 10 years, 60 times.
Between 15 and 20 years, 33 times.
During military service, 94 times.

In comparison the statistics of Fortin show the début of the corneal lesions in 23 cases before 20 years and in 12 cases after this age.

In 1893, Manguis[10] reported 180 cases of unilateral myopia, in 27 of which there were corneal opacities in the myopic eye. He attributed the myopia to ciliary spasm arising from reflex irritation of the corneal inflammation rather than to the use of the eyes at very close range. In 1896, Roure[9] cites several instances in which concave lenses markedly improved the vision of persons with central corneal opacities not completely obscuring the whole pupillary area.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Untersuchungen der Augen von 10,060 Schulkindern, Leipzig, 1867, 156.

[2] Die Krankheiten der Augen, Prag, 1855, i, 260; iii, 217, 242.

[3] Etudes ophthalmologiques. Recueil d'ophthalmol., 1892, 586; 1893, 211.

[4] Ueber Hornhautflecke als Ursache der Myopia und Anisometropia, Kiel, 1887.

[5] Sur les Rapports de la Myopie avec les Taies de la Cornée, Annal. d'ocul., Paris, 1904, cxxxii, 174.

[6] Gaz. hebdom. de Méd. et Chir., 1879, 695.

[7] Arch. d'ophthal., 1884, 1.

[8] Die Augen d. Elementarschüler z. Karlsruhe, Tübingen, 1891.

[9] Myopie, Cataractes centrales et Leucomes centraux, Annal. d'ocul., Paris, 1896, cxiii, 393.

[10] Contribution à l'étude de la Myopie monolaterale. Thèse de Paris, 1893, 94.

[11] Handbuch d. g. Augenheilk., 1902, ii, 338.

[12] De la Myopie acquise dans l. Lesions cicatricelles de la Cornée, Paris, 1902

[13] Du Rapport d. Taies de la Cornée avec la Myopie, Toulouse, 1903.

[14] Contribution to the Etiology of Myopia, British Med. Jour., 1902, ii, 1345.

[15] Arch. f. ophthalmol., 1854, 251.

[16] Arch. f. ophthalmol., 1854, 298.

Inspired by de Lapersonne, Fortin,[12] in 1902, presented a most comprehensive statistical study of 54 cases, in 26 of which the opacities were bilateral. Of these 16 showed myopia in both eyes (62 per cent.). In 28 instances of unilateral opacities there were 17 cases of double myopia (60 per cent.). The myopia appeared only on the sound side twice, and on the affected side 4 times. There was a total of 83 per cent. of myopia in the 28 cases of unilateral opacities studied, in comparison with a total of 40 per cent. in the earlier statistics of Petersen. In the second edition of the Graefe-Saemisch Handbuch, Hess[11] discusses the manner in which corneal and stationary lenticular opacities cause myopia, attributing it to the necessary bringing of near objects close to the eyes.

From notes of 6,000 cases in private practice, Widmark[14] made a study of 100 cases of anisometropia in which there was either myopia in one eye only of at least 2.0 D., or myopia in both eyes but with a difference of 2.0 D. While the purpose of the paper is to refute the prominence formerly given to excessive convergence in myopogenesis and to give proper credit to anisometropia and corneal astigmatism as etiologic factors, it contains much data distinctly relevant to the discussion of the rôle of corneal opacities in this connection. Widmark contends that when corneal defects occur in both eyes they are predisposing causes to double myopia, not on account of the excessive convergence required, but because both eyes are strained in the effort of near vision. On the other hand, he affirms that when the cornea of but one eye is affected its fellow only becomes myopic, because it assumes all the strain of close work. He believes that the affected eye may become amblyopic, divergent or convergent, or may even be enucleated without in any way influencing the course of the myopia in its sound fellow. In support of this contention he cites several interesting illustrative cases, in 4 of which unilateral opacities caused myopia on the sound side only. This is confirmative of the belief shared by Arlt, Werth and Petersen, and which is disputed by the findings of Fortin and Frenkel and, in a measure, by the statistics that I offer. Widmark argues that the chief cause of myopia is seeing "in a limited sense"—the perception in the yellow spot and processes connected therewith at the posterior pole of the eye. Any extra effort at discerning close objects quickly following on each other—as, for instance, in reading and writing—may lead to hyperemia in the ocular fundus, which some writers assume as the predisposing cause of the characteristic myopic changes at the posterior pole. In addition the accumulation of fatigue products may also have a deleterious influence on the intraocular membranes, the continued hyperemia leading to softening of the tissues, which yield to the intraocular pressure. The practical lesson from these observations is the great necessity of facilitating the work of the retina and preventing ocular fatigue by correction of the astigmatism, anisometropia, etc., adequate illumination, properly printed books, etc. Other hygienic measures are relatively unimportant in controlling myopogenesis in school children.

By far the most exhaustive bibliographic and clinical study of this subject is that by H. Frenkel,[5] of Toulouse, supplemented by the ophthalmometric measurements of his associate, E. Garipuy.[13] The cases were selected from 1,350 ophthalmic patients. Among the patients with corneal opacities there were found:

10 men and 20 women with myopia.
4 men and 4 women with emmetropia.
4 men and 5 women with hyperopia.

Of 22 patients with bilateral corneal opacities there were 14 with double myopia (63.6 per cent.), proportionately identical with the findings of Petersen and Fortin. There was unilateral myopia twice, and in 3 cases in one eye determination of the refraction was impossible. Of the 22 cases there were 19 instances of myopia, either unilateral or bilateral (86.4 per cent.). In one case there was practical emmetropia and in two cases hyperopia. In the 25 cases of unilateral opacity Frenkel found a preponderance of myopia on the affected side 11 times. In 2 cases the myopia was on the sound side. To summarize, there were 13 cases of myopia, 5 cases of emmetropia, 2 cases of double hyperopia, 3 cases of hyperopia on the affected side, and 2 cases of hyperopia on the sound side.

Illustrative of the tendency to high myopia, Frenkel found myopia above 6.0 D. in 16 of the 78 patients with corneal opacities—a proportion of 20.5 per cent., as against 6.45 per cent. in all the cases of myopia (about 1,000) observed by Cohn among 15,490 patients from 1866 to 1886 (reported by Schlesinger[17]). This marked frequency of high myopia may be attributed to the greater liability to affection of the intraocular membranes of the posterior segment of the eyeball after serious disease of the anterior tunics—a fact established by the observations of Panas[18] and de Lapersonne. Frenkel also significantly mentions that he has found corrected visual acuity relatively better in the cases of hyperopia with corneal opacities than in those of myopia. It is considered justifiable to believe that certain lesions of the cornea and anterior segment of the eyeball have associated with them a disturbance at the posterior pole, which, by an ill-defined, but nevertheless real, process, results in a chorioretinitis which becomes a preponderating factor in the pathology of progressive myopia.

It has also been suggested in this connection that irritation of the ciliary body following corneal inflammation produces hypersecretion and disturbance of the equilibrium between the ocular membranes and intraocular tension, resulting in a veritable anterior staphyloma, such as is seen in some cases of congenital hydrophthalmos. Fortin claims to have observed several cases of myopia in which there was an exaggeration of the corneal curve resembling that of true keratoconus. The ophthalmometric measurements in Frenkel's cases, however, did not show any significant difference between the curve of the central corneal meridian in the myopic cases with corneal opacities and that of the cases of hyperopia or emmetropia with similar opacities.

A careful study of the relative literature, as well as personal observation, shows that in these cases the myopia may appear either in the sound or diseased eye, or in both eyes. Frenkel states that in the cases of unilateral opacity examined by him the myopia was most frequently unilateral, but not always in the affected eye. Moreover, in no instance of unilateral opacity with double myopia was the defect equal in the two eyes and imputable in both eyes to the corneal lesions. He believes that if the opacities of the affected eye do not markedly interfere with useful vision at close range this eye speedily becomes myopic. On the other hand, if the opacities greatly obscure vision, preventing satisfactory use of the affected eye, the myopia develops in the sound eye. He calls attention to the fact that, in addition to irregular astigmatism, corneal opacities produce a definitely measurable astigmatism, which averages 1.5 D. to 2.0 D., and which is a factor in the myopogenesis. This conclusion is the result of careful ophthalmometric measurements in cases of unilateral and bilateral corneal opacities with and without associated myopia.

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[17] Beitrage z. prak. Augenheilk., 1900, xlv, 127.

[18] Lecons de clinique ophthalmol. Recueilles par Castan, Paris, 1899, 157.

In 11 cases of high myopia, measurement of the anterior corneal curve showed an average astigmatism of 1.7 D. in the right eye and 1.6 D. in the left. In the cases of bilateral corneal opacities with myopia the average astigmatism in the right eye was 1.7 D.; in the left eye, 2.0 D. In the cases of unilateral opacity the average astigmatism in the affected eye was 1.6 D.; in the sound eye, 0.8 D. In the cases of opacities with emmetropia, the astigmatism was predominant in the eye with the opacities. In the cases with hyperopia, the average astigmatism in the affected eye was 1.3 D.; in the sound eye, 0.2 D.

I have selected from my private case records for the last ten years 28 instances of corneal opacities associated with myopia; of these, 13 were males and 15 females, ranging in age from 10 to 60 years. In 22 cases the opacities were unilateral, in 6 bilateral. In the examination of my records, no myopia of less than 2.0 D. has been considered, and all cases of suspected lenticular myopia have been rejected. No attempt has been made to show the relative frequency of corneal opacities in general ophthalmic practice, and the refractive condition of all patients with corneal opacities is not considered. It is evident that there would be a great discrepancy between the statistics of an American private ophthalmic practice and a Continental clinic. The object of the paper is solely to set forth the rôle of corneal opacities in myopogenesis and to present interesting collateral and relative data. Of the 22 unilateral cases of opacity the myopia was double in 12 and single in 10. The myopia developed only in the sound eye in 5 cases and only in the affected side in 5. Of the 6 cases of bilateral opacities, in 2 the myopia was unilateral. In one patient with congenital bilateral central posterior capsular cataracts, the myopia was unilateral and the corrected visual acuity was equal and almost normal in the two eyes. In one case of bilateral opacities the myopia was unilateral and in the eye with least opacity. In one case of double opacities, the myopia was bilateral and greatest in the eye with the best vision. Of the 16 cases of bilateral myopia there was a difference in the two eyes of more than 3 D. in 6 cases.

Unfortunately the opportunity to observe continuously the development of the myopia has been limited, but in two cases repeated examinations extending over a decade are of sufficient interest to warrant recording. In 1897 the patient, a girl of ten years, came to my office complaining of poor vision in the right eye, which was found to contain several punctate corneal opacities. There was a history of repeated attacks of "sore eyes" and the conjunctiva showed marked evidence of argyrosis. The refraction under atropin was:

R.—S. 2.00—C.1.00 ax. 180° = 6/12 V.
L.—S. 0.25—C. 0.37 ax. 30° = 6/5 V.

Within the next two years there were several slight attacks of phlyctenular conjunctivitis in the right eye which always yielded promptly to the ordinary treatment. In 1902 the patient complained of failing vision in the left eye. Under cycloplegia I found:

R.—S. 2.50—C. 1.00 ax. 180° = 6/7½.
L.—S. 2.00—C. 0.62 ax. 180° = 6/5.

The opacities gradually disappeared until the examination of the refraction under atropin in 1907 showed perfect visual acuity in both eyes, with the following refraction:

R.—S. 3.00—C. 1.25 ax. 180° = 6/5.
L.—S. 2.50—C. 0.50 ax. 180° = 6/5.

In this case, at first appearance, the myopia was distinctly unilateral and in the affected eye, but during the course of school work, notwithstanding repeated refractions and the rigid use of correcting lenses, an almost equal degree of myopia developed in the sound eye. Fortunately the corneal haze gradually disappeared in the right eye until the corrected visual acuity was ultimately practically as good as that of the left eye.

Another interesting case was in a boy of 10, who first consulted me nine years ago. There was a faint central corneal opacity in the left eye following a severe keratitis in early childhood. Retinoscopic and ophthalmometric measurements showed 1.75 D. of hyperopic astigmatism at the vertical axis. The opacity was sufficiently dense and the cornea irregular in curvature to prevent vision better than 6/100, even with the correcting cylindric lens. The sound right eye was myopic to the extent of 1.5 D., but with the correcting lens visual acuity was perfect. During the last nine years the myopia of the sound right eye has gradually increased to 4.0 D., with no diminution of corrected visual acuity. The opacity in the left cornea has gradually diminished, allowing an increase of corrected visual acuity to 6/30, without, however, any noticeable change in the refraction.

CONCLUSIONS.

1. Central corneal opacities are a much more frequent cause of myopia than would be inferred from an examination of general ophthalmic literature, particularly the English and American text-books and periodicals. According to recent reliable Continental statistics, in at least one-third of the cases in which they are present, central corneal opacities produce myopia, although this average is likely higher than that found in American ophthalmic practice.

2. The myopia is axial and not dependent on alteration of the corneal curve. Ophthalmometric examinations do not show any significant differences between the corneal curvature of myopic eyes with corneal opacities and similar eyes in which the refraction is emmetropic or hyperopic.

3. The mechanism of the production of the myopia is analogous to that of the common form following astigmatism, anisometropia, etc., with the added predisposing factor of weakened ocular tunics by previous inflammation.

4. The association of disturbance of the chorioid and retina of the posterior segment of the eyeball with inflammations of the anterior membranes is an important element in further reducing visual acuity in these cases. For a similar reason extensive fundus lesions are common, and the myopia is more likely to become progressive than ordinary.

5. Either unilateral or bilateral opacities may produce myopia, and the myopia produced may be unilateral or bilateral.

6. In the cases of unilateral opacity the myopia may be single or double. If in such cases the myopia is uni-

ateral it may appear either on the sound or the affected side, but no definite rule can be established in his connection. However, it is likely that when one ye is used almost exclusively for close vision it will ecome myopic first or to a greater extent than its felow.

7. In cases of bilateral corneal opacities the myopia s generally bilateral. When there is a marked differnce in the amount of defect in the two eyes the greatst myopia is often found in the eye with the least corected visual acuity. When the myopia is unilateral it ften occurs in the eye with the least opacity.

8. The cases of unilateral myopia are strongly suggestive of the importance of ciliary strain rather than xcessive convergence in myopogenesis.

9. In view of the strong possibility of resultant nyopia, all cases of corneal disease, particularly the hlyctenular affections of childhood, should receive rompt and continuous treatment, and prophylactic neasures should be rigidly followed to prevent recurences. After the subsidence of the inflammation energetic treatment should be adopted to clear up the opaciies.

10. Of greatest importance in the prevention of the subsequent myopia is careful and repeated refraction of oth eyes under artificial cycloplegia, employing both bjective and subjective methods, and the constant use f correcting lenses.

11. All errors in ocular, personal and domestic hygiene that encourage the development of myopia should e corrected, and the patient should be kept in the best hysical condition and most salutary environment.

Clinical Notes

THE GYMNASIUM IN THE CAMPAIGN AGAINST DISEASE.

THOMAS A. STOREY, M.D.
NEW YORK CITY.

The education of the masses in matters of personal and general hygiene gives the greatest promise of success in our modern campaign against disease. The category of preventable diseases is large and their prevention is generally easily possible under proper personal and general hygienic regulations. In fact, it is certain that a reasonable hygienic regimen imposed for a long period of time and imposed on all individuals in any given region will result in the eradication in that region of certain diseases that are now widely prevalent. It is with a full realization of this fact and of the uselessness of much of our present mortality that prophylactic medicine has of late years become so active. Our textbooks on medicine reiterate again and again the necessity for careful hygienic regulation in the prophylactic measures laid down for each disease. Physicians are advising their patients more and more concerning the relation of daily hygiene to health. Boards of health are vitally interested in the proper hygienic regulation of the conditions under their supervision, and these several influences are striving to secure the intelligent cooperation of the masses by teaching them the significance of hygiene. Societies are formed, literature is disseminated, lectures are given and stereopticon illustrative views are shown in public places in order to educate the people. Legislative enactment with an absolute control over a large number of disease-breeding conditions is bound to follow popular enlightenment. In this educative campaign, as has been noted, several forces are now active. More should and will be added. This article is written in order to point out another which I believe would be a powerful ally. Our higher institutions of learning exert a very strong and widespread influence in all matters in which they are concerned. The students in attendance are drawn from the four corners of the earth, and after several years of academic experience are scattered again to become active participants in all phases of life. If each student after leaving college would become an active element in the campaign against disease the educative work done in any given academic community would be efficiently and enormously multiplied. In the modern high school, college and university there is a department in which personal and general hygiene logically belongs. Physical instruction is nothing less than personal hygiene, and gymnasium work is applied hygiene. Nowhere in an academic community is there an easier opportunity to meet large numbers of students than in the gymnasium. Nowhere else is instruction in the simple laws of hygiene more logically placed. Nowhere else than on the gymnasium floor before a class of men do you find the "psychologic moment" for making appropriate statements that will be remembered. Five minutes before each drill—not a lecture—and in one year or two years enough will have been said and remembered to make the gymnasium a powerful force in the campaign against disease.

ESBACH'S ALBUMIN TEST COMPLICATED BY KREATININ.

W. J. CALVERT, M.D.
COLUMBIA, MO.

Incomplete precipitation of albumin in Esbach's test is mentioned. One reason for this partial precipitation was observed in a rapidly fatal case of typhoid. A small amount of albumin was constantly present which gave a small precipitate in the Esbach's tube, but the fluid in the tube remained cloudy for days. With the assistance of Dr. W. Koch, it was found that a very large amount of kreatinin was present. Kreatinin gives with picric acid, in an acid solution (as citric acid), a yellow precipitate which remains in suspension for a long period of time. Perhaps this reaction explains the incomplete precipitation in other cases.

A CASE OF ACUTE APPENDICITIS,

FOLLOWED BY EMBOLISM OR THROMBOSIS OF LEFT EXTERNAL ILIAC ARTERY, WITH DRY GANGRENE OF LEFT FOOT AND LEG.

RANDOLPH WINSLOW, A.M., M.D.
Professor of Surgery, University of Maryland.
BALTIMORE.

History.—Sept. 17, 1906, Mr. G., aged 57, a large, fat, previously active and supposedly healthy man, was attacked with pain in the abdomen. He went to his store on the morning of September 18, but was unable to remain the whole day, and I was summoned to see him in the evening. He was suffering considerable pain in the abdomen, which was rigid in the appendiceal region, with marked tenderness on pressure over appendix. There was fever and acceleration of pulse to a moderate degree. This man had enjoyed exceptionally good health, was not addicted to alcohol, but used tobacco to a moderate extent. He was a merchant and was able to live comfortably and without undue strain or exposure of any kind. His arteries were not sclerotic. Two years previously he had an attack of facial erysipelas of a severe type, from which he made a good recovery, and had had no sickness since that time.

September 19 the symptoms were about the same as on the previous day; the temperature was about 103 and pulse quickened but good. There was some distension of the abdomen, with pain, tenderness and rigidity of the right lower quadrant, evidently due to acute appendicitis. Blood count: Leucocytes 11,000. The urine contained many granular casts.

Treatment.—An ice bag was applied to the abdomen. No food was given by mouth and sufficient anodynes were given to relieve pain. Although there was no doubt in my mind that he was suffering with acute appendicitis, I refrained from operating on account of the condition of the urine, the patient's obesity, the previous attack of erysipelas, the low leucocyte count, and objections on the part of the patient and his wife.

Course of the Disease.—His symptoms rapidly subsided, and September 23, six days from the inception of the attack, he appeared convalescent. At 11 a. m. on that date he was free from pain, with diminished tenderness and rigidity, and felt very comfortable. Two hours later he was suddenly taken with pain in the left leg below the knee. The leg became numb, cold, white, and without appreciable pulsation in any accessible artery. No pulsation could be felt in the femoral or external iliac arteries. I do not remember having listened to the heart previous to this occurrence; afterward, however, I found a slight soft endocardial murmur, but there were absolutely no signs of any acute or serious heart complication. The foot became discolored, dark, cold, and of almost horny hardness, and this condition extended irregularly almost to the knee. Above the knee the skin continued warm. In a month an irregular line of demarcation had formed below the knee. The urine cleared up, the appendiceal symptoms disappeared, and the heart was performing its functions well. The patient was seen by the late Dr. I. E. Atkinson and by Dr. W. S. Thayer, and the condition of the left leg was recognized to be due either to an embolus, or to a thrombosis caused by a septic endarteritis of the left external iliac artery. He was removed to the University Hospital, where an amputation was done just above the knee, under ether anesthesia. The man made a good recovery, and has remained well until this time.

Among the complications of appendicitis, femoral phlebitis and thrombosis are not very rare and may occur on either the right or left side, or, as in a case recently under my care, on both sides, but I have not seen any account of a gangrene due to interruption of the arterial blood supply as a consequence of appendiceal disease. It is difficult to understand how a septic infection of the left external iliac artery could result from an appendicitis, apparently of mild type, and the question arises whether this gangrene was a consequence of the appendicitis or merely a coincidence. In the absence of any previous symptoms suggesting disturbance of the heart, and from the fact that there had been no cardiac distress before this attack, and has been none since, notwithstanding a slight endocardial bruit, I do not think it probable that an embolus large enough to block completely the external iliac artery could have been washed from the cardiac valves and lodged in this situation. I am of the opinion, therefore, that, from some cause, a point of least resistance was found in this artery and that organisms were conveyed by the blood stream to this point and there set up an endarteritis with thrombosis of this vessel, completely occluding its lumen.

The clinical symptoms, however, were strongly suggestive of an embolism, as they came on suddenly without any premonition. In some cases of typhoid fever endarteritis of the femoral vessels has been observed, and this condition may have had a similar pathology.

Was the gangrene in this case due to the appendicitis, or would it have occurred spontaneously? I do not know, but I believe that it was the result of the appendicitis. Would the early removal of the appendix have prevented the gangrene? This is possible, but I am glad it did not follow an operation, as it certainly would have been attributed to the operation rather than to the disease. It seems to me that the case is of sufficient interest to be put on record, and I shall be pleased to know of any similar cases that may have been observed.

A CASE OF SCARLATINA WITH COMPLICATIONS.

H. B. ROBERTS, M.D.
HIGHLAND PARK, ILL.

Scarlatinal arthritis, although a somewhat common complication is rarely so extensive as in the following case:

History.—June 24, 1906, I was called to see the patient, a girl, aged 15, well-developed and weighing about 125 pounds. She had a severe angina and headache with a temperature of 102 F., following a severe chill. The pulse was 118. The following morning her temperature was 101.3 F., pulse 114, and an exanthem was appearing on her chest. The tongue was typical of scarlet fever. For the first fifteen days the temperature varied between 102.6 F. and 105 F., after which it fell below 100 F., and gradually reached normal. On the fifth day albuminuria appeared and persisted during the period of high temperature. On the sixth day arthritis appeared, gradually involving all the joints, and disappeared by degrees. There was no suppuration, but there was an effusion in all the joints and the patient was unable to move the head owing to the severe pain such movement caused. From July 2 to July 10 the patient was delirious or in a state of coma at all times. The bowel movements and the voiding of urine were involuntary. The patient became deaf and was also troubled with amblyopia. Both these symptoms gradually disappeared.

Treatment.—The diet was milk until July 19, when eggnog was added, followed by chicken broth, mutton broth, etc. The temperature was reduced by sponging. Liquor potassii acetatis and spiritus etheris nitrosi were given as diuretics. For the relief of pain and action on the arthritis sodium bicarbonate and sodium salicylate—making a fresh solution of sodium salicylate—were administered internally. Externally the affected joints were wrapped in cotton after applying unguentum Credé. Later the patient was given tincture of chlorid of iron for the resulting anemia.

Result.—The patient was under observation until September 19, and at no time could I detect any heart lesion. I saw the patient July 2, 1907, and she appeared to be in the best of health, not being troubled with any sequelæ whatever.

RAPID RECOVERY FROM SYNCOPE.

HAROLD B. WOOD, M.D
PHILADELPHIA.

For overcomming cerebral anemia it is the common practice to lower the head, according to the accepted theory, to permit the blood to reach the brain without working against gravity. To do this the patient is made to lie supine. In fact, the unconsciousness and fall of a fainting person is a natural provision to bring about the same end. In the absence of medicinal restoratives the treatment of unconsciousness caused by mental excitement or emotion, slight pain, excessive heat or other nervous causes is deficient in that the end reaction, cerebral hyperemia, is usually not sufficiently sought.

In case of fainting from being in overcrowded rooms, from exciting surroundings, from slight concussion or other pain or discomfort, the most rapid relief comes from forcing the blood out of the abdomen, where it has largely collected. This is of more avail than to elevate or to compress the extremities, and should be practiced except where contraindicted by some abdominal condition. A patient found unconscious from an ordinary syncopal attack can be most rapidly resuscitated by laying him in supination with pressure on the abdomen by the hand or, better, by the flexed thighs. This much is commonly known, but the fact that better and more rapid results can be obtained by a slight variation does not seem to be known or the method adopted.

The patient should be made to sit on a chair or other high object and lean forward with as much flexion of the body as possible, even to bring the face between the knees. By this posture the head is brought to the level of the body, but what is of more importance, the flexed thighs pressing on the abdomen force the blood from the mesenteric vessels into the brain. If the patient cannot or will not voluntarily flex the body sufficiently he should be assisted by being pushed down and held in the position until long after all objectionable sensations have ceased. This leaning posture often gives instant relief or is a valuable prophylaxis for an oncoming syncopal attack. During minor operations where anesthetics are not employed, or during slight surgical dressings, by holding the patient in the flexed sitting position the pain, nausea, vertigo and discomfort may very largely be prevented. It is an especially valuable procedure for dispensary or office work, being convenient, rapid and effective.

5038 Pine Street.

THE USE OF THYROID EXTRACT IN HENOCH'S PURPURA.

J. WIRT ROBINSON, M.D.

MACKAY, IDAHO.

History.—David P., white, American, was brought to me July 6, 1906. The following history was obtained from his father: He had always been a healthy boy, and, with the exception of measles at the age of 5, he had no illness until the present illness. During February, 1906, the attack began. He was taken to a physician, who pronounced it eczema. His treatment did not help the child. He had pains in all the joints, but most marked in the knees. Attacks of pain in the abdomen, especially in the left hypogastrium. Vomiting had occurred twice. The bowels were somewhat constipated.

Examination.—This showed a well-nourished boy of fairly good size for his age. His eyes were clear and his tongue slightly coated. No abdominal tenderness, but slight tympanites. Temperature normal, pulse 80. There was an eruption, petechial in character, covering most of the legs and thighs, but most marked around the knees. There was a fairly well-marked edema of the legs, extending two inches above the knees. The knee joints were rather tender on pressure and manipulation. The urine was normal in every respect. Examination of the blood showed 60 per cent. hemoglobin. The cells were not counted, owing to lack of apparatus. As Rocky Mountain spotted fever was prevalent at that time and his symptoms much resembled those of that disease, I believed the eruption he had in February to be a different trouble and diagnosed the disease spotted fever.

Treatment.—I put him on the treatment that had given me good results in that disease, viz., sodium salicylate and a diuretic, usually potassium citrate. I might add here that the treatment by quinin and ferric chlorid advocated by some has never given good results in my hands. My experience coincides with that of Major C. F. Kiefer.[1] Later I used arsenic with the best results. This relieved the joint pains and the edema, but the eruption remained unchanged. July 13 I added arsenic in the form of Fowler's solution and the peptonate of iron, on account of the anemia present. Appropriate diet and general measures also were used. On July 25 I saw him again. He was much improved generally, but the eruption was just the same. It was then that I changed my mind as to the diagnosis. Following Osler's suggestion, the arsenic was pushed to the limit. On August 24 the eruption was still unchanged. A blood examination showed 70 per cent. of hemoglobin. Each future examination showed improvement, the last one made being 85 per cent. Various drugs recommended for purpura were faithfully tried, but to no avail. Even the calcium salts were of little or no value. Considering the effect on general metabolism, I decided to try thyroid extract. So one grain was given morning and evening. In two weeks the eruption was entirely gone. The dose was then reduced to once a day, and kept up one month longer, when it was discontinued. I did not see the case for six weeks, when he returned suffering from a relapse. A second trial of the extract again gave speedy relief. My advice to discontinue its use gradually was not followed and a second relapse followed. This also was soon controlled by the extract. The dose was then reduced to once a day, once in two days, and so on, with directions to increase again if there were any suggestion of any return of the eruption. At the last report there had been no further return.

Whether or not this is a case much out of the ordinary I am not prepared to say. There were none of the usual manifestations of deficient thyroid function. Nor could any abnormality be found in the gland itself. Although I neglected to estimate the time required for coagulation of the blood, yet I noticed that the punctures made for the blood examinations readily stopped bleeding.

Symptoms besides those mentioned that sometimes occur in Henoch's purpura were noticeable by their absence. No hemorrhages from the mucous membranes were present at any time during the attack. The eruption was petechial throughout, no suggestion of an erythema multiforme being present. The heart remained absolutely normal, not even a hemic murmur being present when the anemia was most marked.

Whether thyroid extract will prove to be a specific for all cases of Henoch's purpura or for other forms of purpura remains to be seen. But the remarkable results in this one case warrant a further trial. So far as I know, this is the first report of the use of thyroid extract in this class of disorders.[2]

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[1] The Journal A. M. A., April 6, 1907, 1154.

[2] Note.—July, 1907. Since this was written there has appeared the article by J. T. Rugh in Annals of Surgery, May, in which he used thyroid extract with success in a hemophilic knee joint.

Blood Examination for the Early Detection of Lead Poisoning.—Frey (*Deutsche medizinische Wochenschrift*, Feb. 7, 1907), finding that the presence of lead in the urine is not constant, suggests an examination of the blood in order to detect the red cells with basophile granules, described by Grawitz in 1899. These, it is true, are not pathognomonic of lead poisoning, since they are seen also in cancer, in pernicious anemia, and in certain septicemias. But in a mechanic free from these diseases, and handling the lead, the presence of these basophile granules becomes of great importance. The observations of Frey show that by examination of the blood we may find the first evidence of saturnine intoxication. The technic is simple. It is only necessary, after drying and fixing with absolute alcohol, to color the blood preparation with Loeffler's blue stain, in order to show, in a certain number of red corpuscles, the granules colored blue.—*New York Med. Jour.*, July 13, 1907.

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SATURDAY, JULY 20, 1907.

THE MOST IMPORTANT FACTOR IN INFANT MORTALITY.

We have reached the season when infant mortality is the most serious problem with which the physician has to deal. We hear much of milk and its dangers, of crowded tenements and long-continued heat, of uncleanly quarters and garbage accumulation, but there is one factor in modern infant mortality of which we shall hear comparatively little, and yet which is of greater importance than any or perhaps even than all of these. In spite of this it is the element whose effect on the problem can be more directly traced than any other. It is the one of all the factors which, instead of being on the decrease in influence, as are practically all of the others, owing to the ameliorating hygienic effect of modern science and the spread of modern methods of sanitation, is decidedly on the increase, and threatens in the near future to be, if possible, even more pernicious than it is at the present time. This is the failure of mothers to nurse their children. Some women, it must be at once admitted, are not physically capable of nursing their children, either because they are not capable of supplying sufficient nourishment of the proper kind to the infant, or because the drain on their own nutritional supply would be too great for their health. It is freely conceded, however, that most women can nurse their children, but do not.

There is no substitute for mother's milk. No modification of cow's milk, no matter how carefully or scientifically made, even approaches mother's milk for the healthy nutrition of infants. This is not alone true in general, but the truth becomes even more striking if special phases of the problem are considered. No two women give milk that is absolutely the same any more than their children are alike. The milk provided by Nature for each infant is, as a general rule, of the precise composition that is best suited for the particular nature of the child. This is not an absolute rule, but the exceptions to it only demonstrate that the rule surely exists. In the face of this, the statistics with regard to nursing mothers are little short of appalling. Censuses taken in Berlin every five years contain the report of the numbers of mothers who have been ascertained to nurse their own children. Of every thousand children born during the five years before 1890, 529 were nursed by their mothers. In the course of five years this number had decreased considerably, so that in 1895 only 446 children were maternally nursed. In 1900 there was a still further reduction and unfortunately in even greater proportion than for the preceding five years. Out of over five hundred there had been a reduction of 85 for a half decade ending in 1895, but out of 446 there had been a reduction of 114 in the five years before 1900. This is practically 25 per cent., while the ratio of reduction for the preceding five years had been only a little more than 16 per cent. The figures for 1905 are said to show an even greater decrease for the first five years of the twentieth century. This would mean that less than one among four mothers in Berlin, an average of less than one, now nurses her children.

German women are said to be more willing, as a rule, to nurse their children than those of most other nationalities. Of course, city women are much more ready to avoid this duty than are those who live in the country, but it is more than probable that the state of affairs found in Berlin is not worse than that which is developing at the present moment in our own large cities in this country. It is evident that, if the high death rate among so-called nursing children, that is, those who should be nursed, is to be reduced, the influence of this factor must be guarded against much more than it has been in the past. Physicians are probably more ready to find excuses for women for not nursing their children than was formerly the case, and this has had a widespread influence in strengthening the present fashion which proclaims it quite the thing for a woman not to nurse her own child. There would seem to be in this a serious duty of instruction as to maternal obligations, which the medical profession must take to heart, if the present unnatural tendency to give the infant over to the dangers of artificial feeding is not to be allowed to work even more harm in the future than it has in the past.

PRACTICAL SCIENTIFIC WORK.

The article in this week's issue by Dr. Reid Hunt, on the thyroid principle in the blood of exophthalmic goiter, forms a part of series of investigations by this indefatigable and successful experimenter, conducted under government auspices in the Hygienic Laboratory of the Public Health and Marine-Hospital Service. The work promises to be of unusual practical importance and Dr. Hunt and Surgeon-General Wyman deserve commendation for their efforts on behalf of scientific medicine. Let us hope that these investigations may be followed by others of like character and thus place our therapeutics on a firm basis of experimental knowledge.

Therapeutics can not rest on experiment alone; the conclusions from experiment must be confirmed by experience. Clinical experience is apt, however, to be wofully uncertain unless controlled by the exact tests formulated by experiment. We are familiar with the exactness and delicacy of chemical tests, but the work of

Hunt and others is proving that there are biologic tests that exceed in delicacy, while they rival in certainty the tests of the chemical laboratory and doubtless further experience will find ways of applying such tests to the living human body without doing harm.

The outcome of these experiments illustrates the practical possibilities of such a work. There is an unfortunate tendency to separate the scientific from the practical and to regard scientific work as lacking in practical value. Experience has shown, however, that scientific discoveries, which were at first deemed of theoretic interest only, become of great practical importance at a later stage in the progress of medicine. The first work on the action of acetonitrile may have seemed of no practical importance, as the drug is not used in medicine. The later work of Hunt on its antagonism by thyroid extract and on the relation of alcoholism to the tolerance of acetonitrile seemed to have largely a theoretic interest, but the present study has evident practical bearings. The ability to detect the thyroid secretion in the blood of patients with exophthalmic goiter promises to lead to a method of testing the value of the various agents proposed for the treatment of this disease and to provide a means of determining objectively the success of the treatment by showing the diminution of the causative agent in the blood.

It is unnecessary to dwell on the need for more such work in connection with the various problems of clinical medicine. A larger number of capable men are needed to attack these problems in an experimental way. Such men must be specialists and should be in close touch with the profession in general, that they may appreciate the relative importance of the problems they undertake to solve. In order to get such men the value of their work must be recognized and their efforts suitably rewarded. It is the duty of the practicing physician to keep himself informed regarding the progress of scientific work and to assist by furnishing specimens as is requested by Dr. Hunt. Further, the practical man who is well informed regarding the work that is being done may often assist by suggesting new phases and problems for investigation.

THE SPONTANEOUS HEALING OF CANCER.

At the meeting of the international conference for the investigation of cancer, in Heidelberg last year,[1] Czerny discussed, from his rich experience, the question of the healing or retrogression of cancers which have seemed to be inoperable. A hundred years ago the Society for the Investigation of Cancer, in London, propounded for consideration the question: Can cancer ever undergo a natural healing? At the present time it can scarcely be denied that the answer must be in the affirmative, in view of carefully reported cases in which cancers have disappeared after inadequate treatment or none at all; yet such cases are among the rarities of medical literature. Surely, if cancers do ever cease to grow, the reason for this cessation of malignant propensities should be the object of a most zealous search. Czerny recalls several instances in the literature in which persons with cancers too far advanced for complete removal have, to the surprise of all, improved greatly after palliative local procedures, and, in a few cases, have shown no recurrence of the growth and no development of metastases. He quotes, with evident approval, the statement of Lomar, that such a favorable outcome is much more likely to follow local treatment with the thermocautery or with chemical caustics than incomplete operations with the knife. Cases in which spontaneous healing has occurred without operative interference of any kind are much more rare, even, than these. Czerny recalls one case in which a patient with mammary carcinoma developed an erysipelatous infection in the wound of the second operation for recurrent growths, and who is now, twenty years later, free from all signs of the disease. He has also observed instances in which the microscope has shown that the line of incision for the removal of intestinal cancer has passed through cancerous tissue, and yet the patients have lived many years without recurrence of the growth. Among his cases of gastroenterostomy for inoperable cancer of the stomach have been many in which the growth decreased greatly in size after the operation, and an assistant was able to collect from the hospital records nine cases in which the patients have survived the operation over four years and are now in good health.

It is remarkable how differently operative interference affects malignant tumors. Often, especially with the slow-growing scirrhus cancer of the breast, it seems to fan a smoldering flame of malignancy into a fiery outburst of consuming growth; yet sometimes the operation seems to stimulate, not the cancer cells, but the protective mechanisms, whatever they may be, so that the retrogressive changes predominate over the proliferative, and the residue of the growth and its metastases disappear or remain quiescent for many years. Instructive cases have been observed in which persons have died from some unrelated affection several years after operation for cancer, and autopsy has revealed the presence in the internal organs and tissues of cancer nodules showing marked fibrotic changes with few visible cancer cells in the scar tissue. Evidently in these patients the metastases had formed before the operative removal of the primary growth, and after this event had lost their proliferative powers, and, gradually disintegrating, had been largely replaced by fibrous tissue. Undoubtedly such occurrences are not uncommon, both in patients showing unexpected recurrence several years after an apparently successful operation, and also in patients who have escaped recurrence, and in whom, therefore, the operator believes there could have been no deep metastasis at the time of operation.

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[1] Reported in the Ztschr. f. Krebsforschung, 1907, v, 27.

If we could explain the reason for this occasional loss of proliferative power in metastatic growths after removal of the primary cancer, we might acquire knowledge of great value to therapeutic progress. Lubarsch, in his address before the same convention,[2] recounts certain facts and theories that have a bearing on this problem. He recalls that Cohnheim found that pieces of fetal periosteum, injected into the veins, formed nodules of bone where they lodged in the pulmonary arteries; but, as these nodules soon underwent destruction, he concluded that the formation of metastases does not depend solely on peculiar properties of the cancer cells, but also on inhibition of the normal resorption processes. In carcinoma, Lubarsch believes, embolic tumor cells can not attain a foothold for growth unless poisonous substances are present in the blood stream which prevent the normal resorptive processes from destroying the cancer cells, and these poisonous substances come, presumably, from the primary growth. If Lubarsch's hypothesis is correct, it can be readily understood how, in some cases, removal of the primary growth could leave the metastases that have already formed in a condition under which they could not successfully resist the resorptive power of the surrounding tissues. Blumenthal[3] has found evidence that the autolytic enzymes of cancer cells differ from those of normal cells in being able to attack any sort of cell in the body, and that in advanced cancer these cancer enzymes exist free in the blood; possibly these are the agencies that Lubarsch believes prepare the soil for the successful growth of embolic cancer cells.

On the other hand, we can imagine that the checking of metastatic growths could result from a process of self-immunization. During the operative manipulation of the primary growth considerable quantities of cancerous material may be forced into the circulation, and the results might either be (1) a widespread dissemination of the disease, which is frequently observed, or (2) in case the resistance of the body were sufficient these cells would be destroyed, and in the process cause the formation of antibodies sufficient to enable the individual to overcome the secondary growths which had already obtained a foothold.

THE PHYSIOLOGIC STUDY OF MIGRAINE.

Migraine has been made the subject of much more therapeutic experimentation than of systematic study, and it is probably the lack of the latter that accounts for the usual inefficiency of the former. It seems highly probable that if a considerable number of patients with this distressing affliction were made the subject of thoroughgoing, detailed study for a considerable period of time our information on the subject might be of a less speculative character than it now is; yet up to the present few such studies have been made. There is, however, a recent example of such a systematic study that may serve as a model for others.[1] This report is valuable, not so much for the results obtained, for these were not such as to establish any definite conclusions concerning migraine, but rather for the very thorough and systematic study of the case in hand. The importance of the work does not lie in the fact that in this particular patient the attacks of migraine occurred especially near the periods of menstruation or at a time midway between these periods; that the metabolism was found to be normal, so far as present methods can show; that the blood pressure was high, especially during the attacks; that there was a heightened acuteness for pain sensation during the headache—all these observations merely apply to the particular patient who was the subject of this study and can not be used for generalization. But when we can work over similar reports to the number of a hundred or more we shall probably know something more concerning this condition than we now do, and not until then can we put our therapeutics on a satisfactory basis. There is plenty of material for such studies—what is needed are men equipped and prepared for the work who are enabled to use their time in this way.

THE FUTURE OF THE TROPICS.

What the comparatively new science of bacteriology has accomplished for mankind could never have been foreseen a few years back, and even now we probably have a very inadequate idea of its possibilities. The recently expressed opinion of Col. W. T. Gorgas, that within the next two or three centuries the tropical countries, which offer a much greater return for man's labor than do the temperate zones, will be settled by the white races, and that the centers of population and civilization be transferred to the equatorial regions, may not prove a strictly correct prophecy, but its possibility can not be denied, *a priori*, as once it would have been. The discovery of the malaria germ and of the transmission of it and of that of yellow fever by mosquitoes has abolished the principal drawbacks to the habitability of these regions by the white races to a very great extent, and opened for the use of civilized man large portions of the earth's surface that were formerly practically forbidden to him. The question, of course, still remains to be settled whether the white man can retain his physical stamina and energy through residence in the tropics for many generations, and whether the mere conquest of pathologic germs is all that is required. The productiveness of tropical regions is of itself a drawback. The average man works only from necessity, and what renders mere existence the easier does not necessarily tend to the higher development of the race. It was Sir Charles Dilke, we believe, who once called the banana the curse of the tropics, and held that where it abounded human progress and ambition disappeared. There is some truth in this, but it may not be an absolute truth. It is not, likely, however, that the tropics will be the leading centers of civilization in the future. The temperate zones, where the struggle for existence brings out the higher abilities of man, will always dominate, and it is not improbable that the tropics will be the recourse of the pervasive yellow races rather than of the white. There is every prospect that with our almost certain conquest of the pathologic conditions that exist in those regions their utility to mankind will be vastly increased and that higher civilizations than now occupy those lands will be developed. We may not be able to look on the tropics as a permanent home for the best of the ruling white races, even two or three centuries hence, but there is hardly any question but that they will be much more habitable and useful than they have been in the past.

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[2] Ztschr. f. Krebsforschung, 1907, v, 117.

[3] Same journal, p. 186.

[1] S. I. Franz: The Physiologic Study of a Case of Migraine, Amer. Jour. of Physiol., 1907, xix, pp. 14-38.

POLICE DIAGNOSES.

Only recently[1] we called attention to the increasing frequency in this country of mistaken diagnoses on the part of police officials in dealing with those individuals who are found in an unconscious condition on the streets. According to a recent report,[2] the same degree of carelessness obtains in Great Britain. In the case cited it appears that a highly respected and eminently temperate member of Parliament, to relieve gastralgic pains, took frequent doses of a proprietary anodyne mixture during the day. Toward evening, feeling faint, he took two small "whiskies and soda," which caused the rapid absorption of the anodyne drug. The result was that he came back to consciousness to find himself in a police cell entered as "drunk and incapable." The morals are not hard to find. That a layman should have access to a mixture containing such drugs as chloroform, hydrocyanic acid and cannabis indica is in itself to be deprecated, and that the police, basing their diagnosis on the odor of whisky on the breath, should fail to differentiate between acute alcoholism and drug poisoning is further evidence that greater discrimination is called for in the police treatment of "plain drunks."

FINAL ACTION BY THE AMERICAN MEDICAL ASSOCIATION ON THE INSURANCE QUESTION.

The action of the House of Delegates at Atlantic City on the insurance question was final, so far as the American Medical Association is concerned. The report of the Committee on Insurance was a very strong and able one. It gave the names of the leading companies which have always adhered to, or which have restored, the full five-dollar fee for examinations, and recited in detail the protracted efforts made for, and the failure to secure, similar action from the New York Life, Mutual and Equitable, the first named company leading the opposition to the profession always. The report fully exposes the fallacy of the claim of these companies that the reduction of fees was necessary on account of the recent legislation in New York, and points out that the Manhattan, one of the safest and best companies of that state, which has never been involved in any charges of mismanagement, finds no difficulty in paying the full fee under the same law. The report also makes it plain that while "these companies insist that they be left to deal with individual physicians and not with the profession as a whole," that "they themselves have practically agreed to stand together in maintaining the reduced, insufficient and, we believe, unjust, fee, and that these companies can and should continue to pay a minimum fee of five dollars for examinations." The report was adopted unanimously, and, in accordance with the recommendation of the committee, "the whole matter was referred to the state and county societies for such action as they may deem wise and proper." It was again urged, however, that the will of the majority be not made a test of membership, or professional recognition, kindness and moral suasion to be relied on instead. A large per cent. of the county societies, nearly all of them in some states, already have the matter fully in hand. In some counties the organization is not yet sufficiently complete for effective action, but in a large majority of them only good leadership and the same united action essential for every other phase of work is necessary to give an ultimate victory in this matter everywhere.

Medical News

ILLINOIS.

Sanatorium Enlarged.—A contract has been let for a building to accommodate 10 additional patients at the Edward Sanatorium, Naperville, bringing the capacity of the institution up to 25 patients.

Smallpox.—Smallpox is reported at Belvidere, Iroquois, Winslow, Mechanicsburg and Thomasboro. At Mechanicsburg no quarantine has apparently been enforced, and the smallpox patients have been mingling with others not affected with the disease.

Personal.—Dr. John F. Keefer has been elected president; Dr. Charles Parker, vice-president, and Dr. Stephen A. Allen, Rock Falls, secretary-treasurer, of the Sterling and Rock Falls Physicians' Club.——Dr. P. S. Weidman, Edwardsville, was found unconscious in his room July 9, and is still critically ill.——Dr. James M. G. Carter, Waukegan, has moved to Chicago.

Society Incorporated.—The Woman's Medical Society of the State of Illinois has been incorporated by Dr. Marion K. Bowles, Joliet, and Drs. Sara C. Buckley and Bertha Van Hoosen, Chicago. The purpose of the organization is to bring into communication the medical women of Illinois for the purpose of securing cooperation, promoting all objects of interest to women in medicine, and for increasing interest in, and the membership of, the Illinois State Medical Society.

State Gives Antitoxin.—The State Board of Health announces that the law providing for the free distribution of diphtheria antitoxin by the State Board of Health became effective July 1, but that on account of the delay in the details of purchase and manufacture the supplies will not be ready for distribution before October 1. Meanwhile physicians will be able to secure antitoxin from any of the agents of the board without cost to the poor, on obtaining an order from the supervisor or overseer, as required under the act of 1905.——Cerebrospinal meningitis has been added by the State Board of Health to the list of infectious diseases. Notification is required and public funerals of individuals dying from the disease are prohibited.

Chicago.

New Site for Hospital.—The Chicago Eye, Ear, Nose and Throat Hospital has completed the purchase of a site at 204 Washington Street, and will erect an eight-story building at a cost of from $125,000 to $150,000.

Free Clinic for Tuberculosis.—The Chicago Tuberculosis Institute has opened a free clinic for the diagnosis and treatment of tuberculosis at the Olivet House, 34 Vedder Street, which is open to patients Monday and Thursday at 10 a. m.

Smallpox in University of Chicago.—A summer student at Green Hall, one of the dormitories for women at the University of Chicago, was removed to the Isolation Hospital July 10 on account of smallpox, and the 60 students in that dormitory were vaccinated by officials of the health department.

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[1] The Journal A. M. A., June 8, 1907, 1948.
[2] London Letter, this issue, page 255.

Personal.—Dr. Channing W. Barrett has recently been appointed a member of the gynecologic staff of the Chicago Policlinic.——Dr. George W. Hall and family have returned after seven months in Europe.

Mortality of the Week.—During the week ended July 13, 483 deaths were reported, equivalent to an annual death rate of 11.95 per 1,000. The deaths numbered 27 more than for the previous week and 15 less than for the corresponding week of 1906. Pneumonia caused 57 deaths; consumption, 52; violence, including suicide, 42; heart diseases, 36; nephritis, 32, and acute intestinal diseases, 30. Of the deaths from communicable diseases, scarlet fever caused 13; diphtheria, 8; measles and typhoid fever, 5 each, and whooping cough, 3.

Hospital License Revoked.—The revocation of the license of the Irene How Sanatorium, is said to have been recommended by Health Commissioner Dr. William A. Evans, because the hospital has not complied with the ordinance which demands a room for the proper care of the dead, pending the removal of the bodies; or for the accommodation of patients with contagious or infectious diseases, and because no record has been kept of the deaths or of children taken for adoption, and because the physicians named as attending physicians are not in attendance at the institution.

IOWA.

Opposes Rummage Sales.—The Iowa State Board of Health says regarding rummage sales, "the possibilities of the spread of disease are alarming. Old clothes which have lain about the home for years are brought forth pregnant with every germ known to medical science, and handled by many different people."

Smallpox.—A member of an opera company, en route from New York City to Denver, was taken ill with smallpox and placed in Clinton Isolation Hospital.——Smallpox claimed 3 new cases in Union Township, near Algoona, last week, making 7 cases in all.——The auditor of Dubuque County made an estimate of the cost to the county of the recent smallpox scare. The expense up to the present time has been nearly $11,000, including cost of quarantine, maintenance of isolation hospital, and physicians' expenses.

Election.—The semi-annual meeting of the Iowa Union Medical Society closed at Iowa City July 10. The following officers were elected: President, Dr. John M. Ristine, Cedar Rapids; vice-presidents, Drs. Erie W. Brown, Marengo, and Samuel H. Watson, Blairstown; secretary, Dr. Alexander Crawford, Mount Vernon; treasurer, Dr. George P. Carpenter, Cedar Rapids, and censors, Drs. Hollis W. Bender, Cedar Rapids; John W. LaGrange, Marion, and Edwin Burd, Lisbon. The next meeting of the society will be held in Cedar Rapids in December next.

KENTUCKY.

Hospital Opened.—The Good Samaritan Hospital, Lexington, was formally opened to the public July 3. Addresses were made by the president of the board of trustees, Mr. Charles Kerr, a member of the hospital board and others.

Expert Testimony and the Bar Association.—At its meeting last week the Kentucky State Bar Association adopted the following preamble and resolution:

> Whereas, The abuses of expert testimony have grown to such proportions as to become a public reproach and often actually to pervert justice; and,
>
> Whereas, The rules of the present system or lack of system regulating such testimony are deserving of the most serious consideration in all the branches thereof; and,
>
> Whereas, The State Medical Association is qualified to give great assistance in consideration of the subject of medical expert testimony; now, therefore, be it
>
> *Resolved*, That this association create a committee to be composed of three members to be appointed by the president, whose duty it shall be to consider the subject of expert testimony in all branches; that said committee be instructed to confer with a like committee from the State Medical Association on medical expert testimony, and further instructed to report back to this association at its next annual meeting.

Commencements.—Kentucky University held its last commencement on June 30, not as Kentucky University, however, but as the Medical Department of the University of Louisville, the two colleges having consolidated, the graduates receiving a diploma from the University of Louisville. A class of about 95 was graduated. The valedictory was delivered by Thomas H. Shy, and C. F. Richards received the highest honor, with it going the appointment to the City Hospital.——The annual commencement exercises of the Kentucky School of Medicine were held on July 12, when a class of 64 was graduated. The valedictory address was delivered by Warren H. Willyard. Dr. Fouch W. Samuels delivered the doctorate address.——The commencements of the Louisvile Medical College and of the Hospital College of Medicine were held June 29 and 30, respectively.

Merger Abandoned.—The coalition or merger contemplated between the Hospital College of Medicine and the Louisville Medical College, which at one time seemed certain of accomplishment, has been interrupted and the attempt most likely permanently abandoned. One of the committee of the Hospital College of Medicine makes the following statement: The failure to effect the consolidation is a result of a difference of aims and views of the two faculties. The committee appointed by the Hospital College of Medicine, with plenary powers, believed that if such a combination was effected, it should be with a view to prosecuting a course of the highest attainable standard, which, of course, means the equipment of approved laboratories, the employment of capable teachers for every department and the conducting of a graded course of instruction after the requirements of the latest methods. Honest differences of opinion as to the manner in which these steps were to be carried out led the committee to realize that there was a lack of harmony which would not only prevent agreeable and satisfactory business relations, but defeat the very purposes of the enterprise. Without these could be secured the committee felt it would be better for the present, at least, to go on separately as before. The differences were not so much about any one question as regarding the general aim and scope of the curriculum; the prospect of trying differences of opinion without the hoped-for advance of standard led the committee to recommend to the faculty that the effort be given up. This was done unanimously and accordingly the negotiations were terminated.

MARYLAND.

Personal.—Dr. Samuel T. Earle has resigned as professor of physiology and rectal diseases in the Baltimore Medical College and will devote most of his time to medical authorship.——Dr. Gordon H. Claude has been elected mayor of Annapolis.——Dr. Frank H. Thompson, Annapolis, has been elected an alderman.——Dr. Howard A. Kelly, Baltimore, is at his hunting lodge in Canada for the summer.——Bartgis McGlone, Ph.D., has been elected professor of biology at St. John's College, Annapolis.——Dr. Edgar P. Sandrock, Baltimore, has been appointed assistant gynecologist at St. Agnes' Hospital, Baltimore.

MASSACHUSETTS.

Floating Hospital.—The Boston Floating Hospital has inaugurated its fifteenth summer season of humanitarian work among the sick and suffering babies. Dr. Robert W. Hastings, Brookline, continues as resident physician of the hospital.

Commencement Exercises.—At the twenty-seventh annual commencement exercises of the College of Physicians and Surgeons, Boston, held June 20, a class of twenty-six was graduated. The doctorate address was made by Rev. Dr. McElveen, and the degrees were conferred by the president, Joseph Bennett.

Harvard Alumni Meet.—At the annual meeting of the Harvard Medical Alumni Association in the administration building of the school on the Fenway, Boston, the following councilors were elected for a term of three years: Drs. James F. A. Adams, Pittsfield; John Collins Warren, Boston, and Elbridge C. Cutler, Boston.

Tufts Alumni Meeting.—At the annual meeting and election of the Tufts Medical College Alumni, Boston, Dr. Charles P. Thayer, formerly professor and now professor emeritus of anatomy, was the guest of honor and one of the speakers. A portrait of Dr. Thayer was exhibited at the meeting and will later be presented to the college. The following officers were elected: President, Dr. Wilfrid G. Grandison, Charlestown, Boston; vice-presidents, Drs. Mary E. Gill, Boston, and Leslie J. O'Brien; secretary, Dr. William J. Sheehan, South Boston; assistant secretary, Dr. Edith M. Brooks, Boston, and treasurer, Dr. William B. Keeler, Roxbury, Boston.

Personal.—Dr. H. W. Mitchell, of the medical staff of the Danvers Insane Hospital, has been appointed superintendent of the Eastern Maine Insane Hospital, Bangor.——Dr. Herbert C. Clapp, Boston, examining physician of the Massachusetts State Sanatorium since its opening nearly nine years ago, has retired under the new rules. A permanent resident executive medical man is now in charge of the sanatorium, and the visiting staff has been abolished.——Dr. Charles F. Caverly, Boston, sailed for London June 29.——Dr. J. J. Mahoney, of the staff of the Massachusetts State Sanatorium, Rutland, has been appointed physician at the Cragmoor Sanatorium, Colorado Springs, Colo.——Dr. James J McDevitt has been appointed medical inspector of the Boston Board of Health.——Dr. Ralph P. Kent, Attleboro, was seriously injured in a collision between his automobile and two loaded coal wagons June 25.——Dr. Edward O. Otis, Boston, has retired from the visiting staff of the Massachusetts State Sanatorium, Rutland.——Dr. George F. Jelly, Boston, has been appointed co-master with Judge Edgar Aldrich, Littleton, N. H., to determine the mental competency of Mrs. Mary Baker G. Eddy, and has accepted.

MINNESOTA.

Epidemic Diseases.—The diphtheria epidemic on the Biwabik Range has been stamped out and the authorities are in full control of the situation.——The chief clerk of the State Board of Health has returned from Parkers Prairie, where he found a large number of cases of scarlet fever.

Personal.—Dr. Justus Ohage, formerly health commissioner of St. Paul, has been given the order of the Red Eagle by the emperor of Germany.——Dr. J. H. Nichols, Minneapolis, was seriously injured in an automobile accident on Riverside Drive, between St. Paul and Minneapolis, July 7.

State Society Meeting.—The thirty-ninth annual meeting of the Minnesota State Medical Association will be held in Duluth August 13-15. The House of Delegates meets on August 12. The oration in surgery will be delivered by Dr. Thomas A. Davis, Chicago, and that on medicine by Dr. Charles L. Greene, St. Paul. The medical profession of Duluth has arranged a drive around the city August 13 and a steamer ride on Lake Superior on the evenings of August 13 and 14.

NEBRASKA.

Personal.—Dr. William H. Wilson, Table Rock, has been elected state health inspector, with headquarters at Lincoln.——Dr. Martin E. Floersch, Hartington, with his wife and mother, have returned from Vienna.

Medical Women's Club.—The Medical Women's Club of Lincoln was recently organized, with the following officers: President, Dr. Laura J. Brown; vice-president, Dr. Inez C. Philbrick, and secretary-treasurer, Dr. Mabel Dunn.

NEW JERSEY.

Sailed for Europe.—Dr. Carl Buttner, Orange, sailed for Europe July 2.——Dr. Henry C. Symmes sailed for London June 29.

Typhoid in Hospital.—Typhoid fever has broken out at the State Hospital for the Insane, Trenton, where six cases are reported.

Wins Suit.—Dr. Walter S. Washington, Newark, has won his suit against Ocean County for services rendered as expert in the trial of Dr. Frank Brouwer, Twins River. He was awarded judgment with interest.

Personal.—Dr. H. N. Wardle has succeeded Dr. Samuel B. English as resident physician at the Cooper Hospital, Camden.——Drs. Charles J. Kipp, Newark, and James S. Green, Elizabeth, have resigned as members of the board of managers of the State Sanatorium for Tuberculosis.——Dr. Henry H. Davis, Camden, has been selected as superintendent of the State Tuberculosis Sanatorium, Glengardner.——Dr. Victor Mravlag, Elizabeth, has received two letters, purporting to come from the "Black Hand," one demanding $500 and the other predicting the physician's death.

NEW YORK.

For New Hospitals.—The legislature has authorized a new site and buildings for the Randall's Island House of Refuge, a custodial asylum for epileptics, and an additional state hospital for the insane to be located near New York City. The plan of building this latter institution near Comstocks, Washington County, has been abandoned. The commission for chosing the site is to report to the legislature in 1908.

State Board of Charities.—The State Board of Charities has appointed Dr. Gertrude E. Hall, of Albany, almshouse inspector, at a salary of $1,200. The board adopted a resolution requesting the attorney general to take an appeal from the decision of Supreme Court Justice Pitts in the case against the Bellevue and allied hospitals of New York City. The board sought to compel these hospitals to submit their plans for building improvements for its approval, but the judge decided that they need not do so.

May Vital Statistics.—The May bulletin of the State Department of Health shows a rise in the total number of deaths from pulmonary tuberculosis from a five-year average of 1,217 to 1,302, which is attributable to the unseasonable weather. Of cities having more than 50,000 population, Yonkers shows the lowest annual death rate, 15 per thousand population, and Utica has the highest, 24.3. In cities of between 20,000 and 50,000 population, Jamestown has an annual death rate of 11.3 per 1,000. In cities under 20,000 Middletown leads with a death rate of 8.3 per 1,000. The highest annual birth rate was shown by Rome, 39.3 per 1,000, the lowest by Plattsburg, with 10.3 per thousand.

New York City.

Death Rate Lower.—The death rate in New York City is well below the mark for the corresponding period of 1906. During the week ended June 28, 1906, it was 17.11. This year the week ended June 28 had only a death rate of 16.60 per 1,000.

More Milk Inspectors.—The Department of Health has asked for $175,000 for the employment of one hundred additional milk inspectors and four more supervising inspectors until the end of the year. The milk supply of this city comes from between 30,000 and 40,000 farms in six states and from 600 to 700 creameries which gather the milk from the farms. Hence the need of a greater working force.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended July 6, 616 cases of measles, with 34 deaths; 326 cases of diphtheria, with 39 deaths; 312 cases of tuberculosis, with 136 deaths; 308 cases of scarlet fever, with 28 deaths; 38 cases of typhoid fever, with 7 deaths; 18 cases of whooping cough, with 8 deaths; 14 cases of cerebrospinal meningitis, with 11 deaths; 76 cases of varicella and 1 case of smallpox; a total of 1,709 cases and 263 deaths.

Personal.—Dr. Walter Bensel was appointed commissioner of street cleaning, vice Macdonough Craven, resigned. It is understood that Dr. Bensel will retain this position only three months, and that at the end of this time he will resume his duties as sanitary superintendent, Department of Health.——Dr. and Mrs. Sinclair Tousey sailed for Europe June 20; Dr. William T. Bull, Dr. and Mrs. W. A. Bell and Dr. and Mrs. David D. Stevens, July 10; Dr. and Mrs. Adolph Reich, July 11, and Drs. John S. Billings, Gordon R. Hall and E. Guernsey Rankin, July 13.

NORTH CAROLINA.

Milk and Meat Inspection.—The city board of health of Asheville has provided for a regular and systematic examination of all milk and meat offered for sale to the public.

Fire at Medical School.—The dissecting room of the Medical Department of the State University, Chapel Hill, was destroyed by fire June 22, causing a total loss with the exception of the preserving tank. The trustees will at once begin the erection of a larger and more commodious structure.

Personal.—Dr. Lois Boyd, Statesville, has been elected resident physician and instructor in physiology and hygiene at the Winthrop State Normal College of South Carolina, Rock Hill.——Dr. William S. Jordan, Raleigh, has been appointed resident physician to the Highsmith Hospital, Fayetteville.——Dr. George W. Graham, Charlotte, has returned after three months in Europe.——Dr. John R. Irvin, Charlotte, announces his retirement from general practice and his intention to devote himself to special work.

Society Meeting.—At the annual meeting of the Rowan County Medical Society, held in Salisbury July 8, the following officers were elected: President, Dr. J. Meigs Flippin, Salisbury; vice-president, Dr. H. L. Monk; secretary, Julius A. Caldwell, Jr., Salisbury; treasurer, Dr. Henry T. Trautham, Salisbury, and delegate to the state society, Dr. Robert V. Brawley, Salisbury.——The New Hanover County Medical Society, at its recent meeting, elected Dr. Joseph Akerman president; Dr. S. Everett Koonce, vice-president, and Dr. Charles T. Harper, secretary, all of Wilmington.

NORTH DAKOTA.

State Association Officers.—In the report of the annual meeting of the North Dakota State Medical Association, in The Journal, of July 6, an error was made. The list of officers elect should read: President, Dr. Charles McLachlin, New Rockford; vice-presidents, Drs. H. A. Beaudoux, Fargo; William H. M. Phillip, Hope, and John W. Sifton, Jamestown; secretary, Dr. Hezekiah J. Rowe, Casselton, and treasurer, Dr. John D. Taylor, Minot.

OHIO.

Akron Milk Commission Appointed.—A milk commission for Akron has been appointed by the Summit County Medical Society, consisting of Drs. Albert A. Kohler, Frank C. Reed, William Murdoch, Simon Morgenroth, Elizabeth M. Weaver and John H. Weber and Mr. C. B. Raymond.

Academy Joins Associated Organizations.—The Cincinnati Academy of Medicine has become a member of the Associated Organizations of Cincinnati, which comprises 50 separate organizations, with a total membership of over 15,000. Drs. Otto P. Geier, Simon P. Kramer and Samuel E. Allen will represent the academy.

Alumni Meeting.—The Miami Medical College Alumni Association on June 1 held the most successful meeting in its history, which was attended by more than 350 of the alumni. The following officers were elected: President, Dr. Arthur L. Knight, Madisonville; vice-presidents, Drs. Mark A. Brown, Cincinnati; M. H. Haynes, Joseph V. Longfellow, Urbana; John P. Dugan, Springfield, and Samuel E. Allen, Cincinnati; secretary-treasurer, Dr. Edwin M. Craig, Cincinnati, and executive committee, Drs. Arthur J. Markley, William C. Harris and Abram D. Stapleford, all of Cincinnati.

Epidemic Diseases.—Adams Mills has been quarantined because of the prevalence of diphtheria. It is reported that three children have died and 12 others are seriously ill.——St. Vincent's Hospital, Toledo, has been closed on account of the discovery of smallpox.——Smallpox is reported in Liberty Township, near Napoleon.——On account of a case of smallpox in the Toledo State Hospital for the Insane, 115 patients have been under quarantine for several days.——The smallpox epidemic in Lindenwald shows that during the course of the disease there were 22 cases and that all but one of the patients has entirely recovered.

Personal.—On the occasion of the eighty-second birthday anniversary of Dr. Benjamin B. Leonard, West Liberty, the medical societies of Champaign and Logan counties held a joint meeting and banquet and presented Dr. Leonard with a gold-headed cane.——Dr. Wade MacMillan, Cincinnati, has resigned as a member of the committee to locate the new State Hospital for Crippled and Deformed Children and Dr. W. D. Haines, Cincinnati, has been appointed in his place.——Dr. Jesse S. Wyler, after two years' study in Vienna, has returned to Cincinnati.——Dr. William D. Porter has been elected clinical professor of obstetrics in Miami Medical College, Cincinnati.

PENNSYLVANIA.

Anti-Spitting Crusade.—The enforcement of the anti-spitting ordinance of Pittsburg was begun June 26, and on the first day forty-six individuals were arrested, each of whom was fined $3.

Communicable Diseases.—Donora is reported to have an epidemic of scarlet fever.——There are said to be 14 cases of smallpox in Neshannock township, north of New Castle, and a strict quarantine has been established.

Medical Society Organized.—The Sharon, South Sharon and Sharpsville Medical Society has been organized with the following officers: President, Dr. Theodore C. Peterson; vice-president, Dr. George W. Kennedy; secretary, Dr. Charles I. Walker; treasurer, Dr. John W. Elliott; committee on constitution and by-laws, Drs. Samuel C. Johnson, William G. Berryhill and Andrew J. Mitchell.

Personal.—Mr. Wallace Hatch, Washington, has been selected as the executive secretary of the Pennsylvania Society for the Prevention of Tuberculosis. Mr. Hatch was formerly secretary of the Washington committees on prevention of consumption, improvement of housing conditions and summer outings.——Dr. Frederick Bushong, Lancaster, has been elected resident physician to the Pottstown Hospital, vice Dr. Raymond Bloss, Bethlehem.

Society Meeting.—The Northwestern Pennsylvania Medical Association, which comprises the physicians of six counties, held its fifth annual meeting at Cambridge Springs, June 25 and 26. Dr. Morris S. Guth, Warren, presided, and Dr. James Johnston, Bradford, was elected president; Drs. James B. Siggins, Oil City; George A. Reed, Erie, and William C. Brittain, Cochranton, were elected vice-presidents; Dr. Michael V. Ball, Warren, was elected secretary; Dr. Thomas Elliott, Sharon, assistant secretary, and Dr. Charles W. Schmehl, Warren, treasurer.

Appropriations for State Charities.—Governor Stuart approved the appropriations made by the Legislature for the following institutions on June 15:

Hospital for Indigent Insane, $2,500,000; Feeble Minded and Epileptic, Spring City, $643,500; Insane Hospital, Wernersville, $80,600; Insane Hospital, Allentown, $484,365; Insane Hospital, Harrisburg, $254,000; Insane Hospital, Norristown, $416,000; Tuberculosis, care and treatment, $670,000; Insane Hospital, Danville, $429,300; Insane Hospital, Warren, $267,500. Adrian, $26,000; Allegheny General, $200,000; Altoona, $45,000; Beaver Valley, $23,000; Bellefonte, $12,000; Christian Buhler, $17,000; Beaver, $15,000; Butler, $20,000; Bradford, $35,000; Simon H. Barnes, $5,000; Braddock, $35,000; Bradford County, $4,000; Charity, Pittsburg, $50,000; Columbia, Wilkinsburg, $30,000; Conemaugh Valley, Johnstown, $50,000; Corry, $15,000; Clearfield, $10,000; Washington City, $10,000; Canonsburg, $3,000; Carbondale, $20,000; Douglas Memorial, $15,000; Dubois, $6,000; Eye, Ear and Throat, Pittsburg, $35,000; Elk County, $24,000; Franklin, $15,000; General and Emergency, Pittsburg, $2,000; Greenville, $5,000; Grove City, $3,000; Poor Consumptives, Oil City, $5,000; Howard, $15,000; Hamet, Erie, $25,000; Johnstown City, $7,000; Kane, $12,000; Kittanning, $8,000; Latrobe, $4,000; McKeesport, $65,000; Monongahela, $15,000; Meadville, $15,000; Mercy, Pittsburg, $175,000; Mount Pleasant, $18,000; Markleton, $13,000; Miners', North Cambria, $8,000; Austin, $5,000; Oil City, $21,000; Ohio Valley, $25,000; Passavant, Pittsburg, $5,000; Oakburn Epileptic, $9,000; Sayre, $35,000; Sunbury, $15,000; Pittston, $25,000; Presbyterian, Pittsburg, $90,000; Pittsburg, for Children, $20,000; Coaldale, $150,000; Pittsburg Sanitarium, $15,000; Rosalia, Foundling, Pittsburg, $22,000; Bloomsburg, $3,000; St. Joseph's, Pittsburg, $15,000; St. Francis's, Pittsburg, $125,000; St. Vincent's, Erie, $15,000; St. John's, Allegheny, $35,000; Newcastle, $33,000; South Side, Pittsburg, $85,000; Spencer, $15,000; Bellevue, $3,000; Sewickley, $50,000; Carlisle, $4,500; Titusville, $10,000; Taylor, $9,500; Uniontown, $30,000; Western Pennsylvania, Pittsburg, $275,000; Warren, $15,000; Wilkesbarre, $45,000; West Side, Scranton, $20,000; Greensburg, $35,000; Washington, $14,000; Honesdale, $5,000; Wyoming Valley, $2,500; Waynesburg, $12,000; West Mountain Sanitarium, $5,000; Allentown Hospital; $25,000; Berwick Hospital, $2,000; Coatesville Hospital, $15,000; Chambersburg Hospital, $10,000; Columbia Hospital, $15,000; Charity, Montgomery County, $25,000; Chester County Hospital, $16,000; Chester Hospital, $24,000; Easton Hospital, $30,000; Consumptives, White Haven, $70,000; Good Samaritan, Lebanon, $15,000; Harrisburg Hospital, $35,000; Lock Haven Hospital, $15,000; Lancaster General, $30,000; Lewistown Hospital, $20,000; Mercy, Wilkesbarre, $40,000; Nanticoke Hospital, $10,000; Roaring Springs Hospital, $11,000; Pottsville Hospital, $45,000; Phoenixville Hospital, $30,000; Pottstown Hospital, $15,500; Reading Hospital, $25,000; St. Luke's, South Bethlehem, $30,000; St. Joseph's, Reading, $20,000; Shamokin Hospital, $30,000; Williamsport Hospital, $55,000; York Hospital, $20,000; Christian, York, $3,000.

Philadelphia.

Personal.—Dr. James P. Mann, for the past eleven years clinical professor of orthopedic surgery in the Medico-Chirurgical College and Hospital, has been appointed professor of orthopedic surgery in the institution.——Dr. and Mrs. Aloysius O. J. Kelly sailed for Europe July 13, and Dr. Warfield T. Longcope July 10.

Medico-Chirurgical College Has Optional Preliminary Year.—A statement from the secretary of the Medico-Chirurgical College says that the school has planned to offer a preliminary year devoted to physics, chemistry, biology and modern language, beginning this fall. While the course is optional, a special inducement is offered by the arrangement that for those entering during the session of 1907-8 the total fees for the five-year course will be the same as for those entering on the four-year course.

Appropriations for Philadelphia's Charities.—The governor approved the appropriations made by the legislature for the following institutions on June 15:

Institution for Blind, $93,500; Pennsylvania Institution for Deaf and Dumb, $276,800; Frankford Hospital, $50,000; Gynecean Hospital, $25,000; Garrettson Hospital, $30,000; German Hospital, $66,600 Oncologic Hospital, $20,000; Jefferson Hospital, $200,000; Jewish Hospital Association, $60,000; Kensington Hospital for Women, $15,000; Lying-in Charity Hospital, $18,000; Medico-Chirurgical Hospital, $200,000; Maternity Hospital, $6,000; Mount Sinai Hospital, $25,000; Orthopedic Hospital, $35,000; Philadelphia Polyclinic, $70,000; Rush Hospital, $50,000; Roosevelt Hospital, $4,000; St. Luke's Hospital, $35,000; St. Christopher's Hospital, $15,000; St. Joseph's Hospital, $35,000; St. Mary's Hospital, $20,000; St. Timothy's Hospital, $25,000; St. Vincent's Maternity, $5,000; St. Agnes's Hospital, $50,000; Samaritan Hospital, $50,000; Sanitarium Association, $2,500; Stetson Hospital, $5,000; University of Pennsylvania Hospital, $200,000; West Philadelphia Hospital for Women, $10,000; Will's Eye Hospital, $60,000; Women's Hospital, $40,000.

Health Report.—The number of deaths reported for the week ended July 6 aggregated 468, an increase of 62 over the number reported last week, and a decrease of 71 from the number reported in the corresponding week of last year. The prevailing hot weather caused an increase in the death rate this week, due chiefly to increased mortality among infants. The principal causes of death were as follows: Typhoid fever, 6; whooping-cough, 4; tuberculosis, 57; cancer, 25; alcoholism, 5; apoplexy, 13; endocarditis, 4; heart disease, 33; diseases of arteries, 7; acute respiratory diseases, 36; gastritis, 5; enteritis, 54; hernia, 4; cirrhosis of liver, 6; appendicitis, 11; acute nephritis, 10; Bright's disease, 49; premature birth, 11; congenital debility, 16; old age, 5; drowning, 5; injuries, 11, and marasmus, 7. There were 123 cases of contagious disease reported, with 8 deaths, as compared with 132 cases and 18 deaths during the preceding week.

TEXAS.

Personal.—Dr. William H. Anderson, El Paso, is reported to be critically ill after an operation for appendicitis in a hospital at Albuquerque, N. M.

Fire Damage.—A fire at Mineral Wells, June 30, destroyed e Mineral Wells Sanitarium, with a loss of $18,000, two-hirds of which is covered by insurance.

Exclusion of Consumptives.—It is announced that the state ealth officer will, in a short time, order state quarantine gainst consumptives in the advanced stage of the disease. he reason for this action is apparently because of the defeat f the tuberculosis sanatorium bill last winter in the legislaure, which passed the house, but was defeated in the senate.

Commencement.—At the annual commencement exercises of he University of Texas, Medical Department, Galveston, May 1, degrees were conferred on a class of 27. The exercises were onducted by Dr. W. S. Carter, dean of the faculty. The docorate address was delivered by Dr. Marvin L. Graves and the egrees were conferred by the president of the university, avid F. Houston.

Society Meetings.—At the fifth semi-annual meeting of the l Paso-Big Springs District Medical Society, held at Midland une 18, a resolution was adopted endorsing the action taken y several county societies that no life insurance examination hould be made for a fee of less than $5 and urging other local ocieties to take similar action.——At a meeting of the Wiliamson County Medical Society, held in Georgetown June 19, resolution was passed that the society call the attention of ll druggists in the county to the new medical law which went nto effect July 12, and which provides against all counter rescribing, and that druggists so offending will be prosecuted.

UTAH.

Contagious Diseases.—There are now 12 cases of smallpox n the Isolation Hospital, Salt Lake City, all of relatively mild type.——Twenty cases of scarlet fever are reported from Bingham.

District Medical Society Meeting.—The summer meeting of the Third Councilor District Medical Society will be held at Richfield, August 13 to 14. In addition to the scientific program, arrangements are being made to form fishing and camping excursions, with a view to visiting one or more of the southern lakes of Utah or the Grand Canyon of the Colorado. At the second session addresses will be given by Dr. Harry D. Niles, Salt Lake City, president of the Utah State Medical Association; by members of the state medical council and by Dr. Leslie W. Snow, president of the Salt Lake County Medical Society.

VERMONT.

Communicable Diseases.—Smallpox in mild form is reported to have broken out at Northfield Falls.——The State Health Department has suspended services in the schools and churches of Essex Junction because of the presence of diphtheria.

School for Health Officers.—The ninth annual school of instruction for health officers of Vermont was held July 17 to 20 at Burlington, with more than 100 officers from different towns in the state in attendance. The opening address was delivered by Dr. Charles S. Caverly, Rutland, president of the state board of health. The state laboratory of hygiene was open throughout the meeting to the visiting health officers.

Society Meetings.—At the annual meeting of the Franklin County Medical Society, held in Saint Albans, the following officers were elected: President, Dr. Fred S. Hutchinson, Enosburg Falls; vice-president, Dr. A. Lincoln Cross, Swanton; secretary-treasurer, Dr. Edwin A. Hyatt, St. Albans, and delegates to the state society, Drs. Edmund J. Melville, Saint Albans; Eber L. Washburn, East Berkshire, and E. Merriman Brown, Sheldon.

WEST VIRGINIA.

Smallpox.—Smallpox was recently discovered in the Wood County jail, Parkersburg. All the prisoners were vaccinated and the patient was removed to the county isolation hospital.

Personal.—Dr. Joseph I. Warder, Weston, was thrown from his buggy recently, fracturing three ribs.——Dr. C. W. Hudson has received his commission as health officer of Parkersburg.——Dr. Rudolph M. Rau, Wheeling, who has been ill in Hot Springs, Ark., is reported to be convalescent.——Dr. Samuel L. Jepson, Wheeling, was recently given the honorary degree of doctor of science by the Western University of Pennsylvania, Pittsburg.——Dr. J. B. Johnston, professor of zoology in the University of West Virginia, has resigned to accept the position of assistant professor of anatomy of the nervous system in the department of histology and embryology of the University of Minnesota, Minneapolis.

WISCONSIN.

Smallpox.—Two cases of smallpox were recently discovered at Ironwood.——There are said to be forty cases of smallpox at Spooner and a strict quarantine has been established.——Four cases of smallpox in one family are reported in Linwood.——Washburn reports two cases of smallpox.——Several cases of smallpox are reported from Grand View.

Hospital Notes.—The Wagner Pavilion of the Milwaukee Tuberculosis Sanatorium has been completed, with accommodation for eight patients.——The plans for the Infants' Fresh Air Sanitarium, Milwaukee, have been completed and approved and bids for the construction have been asked. The building is to be 80 feet long by 40 feet wide. The front of the building will face the lake, and, when completed, the building will be an immense pavilion, entirely roofed over and open except on the west side.

Personal.—Dr. Albert J. Pullen, North Fond du Lac, has been re-elected to the school board for the third time.——Dr. and Mrs. Sherman E. Wright, Marinette, will sail for Europe August 1.——Dr. Nehemiah Dodge, at one time a leading physician of Milwaukee, has become an inmate of the Milwaukee County Hospital. His friends are raising funds to have him removed to a private hospital.——Dr. W. T. McNaughton, formerly surgeon to the Soldiers' Home, Milwaukee, sailed for England July 1.

GENERAL.

From Weekly to Monthly.—The *St. Louis Medical Review*, established in 1875 as a weekly journal and conducted for nearly three years under the efficient editorship of Dr. Kenneth W. Millican, announces that, with the issue of July 6, it ceases to become a weekly publication and will be continued henceforth in a new series as a monthly magazine.

Personal.—Major James M. Kennedy, surgeon U. S. Army, has been made honorary professor of surgery, and Henry Rutherford, assistant surgeon U. S. Army, honorary professor of medicine in the University of California.——The committee of Filipinos, appointed to investigate the death of thirteen prisoners in the Bilibid prison, following inoculation with contaminated serum in an experiment regarding cholera virus, reports that no one is responsible for the accident and specifically exonerates Dr. Richard P. Strong, of the Bureau of Science, who was in charge of the laboratory and conducting the experiments.——Medical Inspector Presley M. Rixey, surgeon general, U. S. Navy, has been advanced to the rank of medical director.

LONDON LETTER.

(From our Regular Correspondent.)

London, July 6, 1907.

Trypsin and Cancer Research.

A large meeting of the general committee of the Cancer Research Fund was held recently at which Sir William Church, in moving the adoption of the report of Dr. Bashford, the superintendent of the Imperial Cancer Research Laboratory, referred to alleged cures for cancer. He stated that no curative value could be attached to any of those which had been tested. Particular attention had been given to trypsin without any effect on the growth or development of tumors.

A School for Mothers.

Dr. Sykes, health officer of the large London borough of St. Pancras, has made a new departure in public health by establishing a school for mothers. Young and old married women will be instructed in the clothing, feeding and tending of children by means of object lessons on the babies of the pupils. With the object of promoting breast-feeding, dinners for underfed nursing mothers will be provided at the cost of a few pence.

Chlorodyne Intoxication Simulating Alcoholism.

A member of parliament and a barrister has earned notoriety resulting from the incautious use of chlorodyne. He arrived early in the morning at a London hotel after a night journey, and after breakfast was seized with griping pain for which he took chlorodyne, pouring it on his tongue undiluted. This he continued to do during the day, with the result that he had consumed, by the evening, two bottles. Meanwhile he went to his office and did some work. Feeling faint, he took two small "whiskies and soda." The next thing he remembered was entering an omnibus. He recollected nothing further until he found himself in a police cell, where he had been taken by a constable who found him apparently drunk and incapable. He had no recollection of the formalities which preceded his release from the police station until he saw his name on the placards of the papers as having failed to surrender at the police court. Eventually the charge of drunkenness was heard and dismissed. Abundant evidence both of his unimpeachable character and temperate habits was produced and also as to his sobriety on the day in question. Drs. Luff and J. S. Bury and Mr. A. J. Pepper gave evidence to the effect that the amount of chlorodyne which he had imbibed during the day had accumulated in an empty stomach until, finally diluted and its absorption aided by the action of the whisky and seltzer, it produced the symptoms of intoxication.

Centralized Authority for London Hospitals.

A central hospital authority for London has been long thought desirable by the profession, but no practical steps in that direction have ever been taken. At a special general meeting of the metropolitan counties' branch of the British Medical Association the subject was discussed and the following resolution passed: "It is desirable with view of abating the present abuse of hospital charity that a central hospital authority for London be constituted, on which all branches of the medical profession are adequately represented." One suggestion made was that the principal sources from which the hospitals derive funds—the Saturday and Sunday hospital funds and King Edward's fund—should be amalgamated so that the supervision which they exercise over hospital administration and expenditure might be concentrated and increased.

The International Conference on Sleeping Sickness.

An international conference on sleeping sickness was held at the Foreign Office under the presidency of Lord Fitzmaurice. The countries represented were Germany, the Congo Free State, France, Great Britain, Portugal, the Sudan and Italy. Some very important decisions were arrived at. It was resolved that a permanent central bureau should be established in London and that each country represented should institute a national bureau. The duty of the central bureau will be to collect documents relating to sleeping sickness, to take the initiative with regard to all international questions arising in connection with the disease, to maintain communication with he different national bureaus, and to fix the place and date of future international conferences. It was decided to prepare a map showing the distribution of sleeping sickness and of the different species of flies in the different countries.

Lead Compounds in Yarn.

The government has issued a circular giving certain regulations to be observed in the process of "heading" yarn dyed by means of lead compounds. A periodical medical examination of the persons employed is established.

Novel Method of Dealing with the Problem of Infant Mortality.

Dr. English, health officer of the town of Swinton, in Yorkshire, has inaugurated a novel method of dealing with the problem of infant mortality—a system of house-to-house visiting and instruction of mothers in the principles of baby rearing. Such instruction has previously been given by paid health visitors, but the new feature of this scheme is that the visitors are voluntary and unpaid. After a public meeting in which the importance of breast feeding and the avoidance of alcohol by nursing mothers was enjoined, about twenty voluntary workers gave their names to the health officer. The town was divided into districts, of which each member was allotted one.

The Royal Society of Medicine.

A special meeting has been held of representatives of the principal medical societies for the purpose of receiving and adopting a royal charter incorporating 15 societies into a new body under the name of the Royal Society of Medicine—an intention previously reported in THE JOURNAL, March 9, 1907, 887. The Royal Medico-Chirurgical Society surrenders for the common good a valuable freehold and other assets amounting in value to nearly $300.000. Sir William Church was unanimously elected first president. The special work carried on by the different societies will now be carried on under better conditions by 12 sections, working under common government but autonomous in their special work. The united libraries of the societies will form a new library of nearly 80.000 volumes. The society begins with a membership of 4,000 and an income of $40.000.

VIENNA LETTER.

(From our Regular Correspondent.)

VIENNA, July 1, 1907.

Industrial Insurance.

Some time ago a commission was appointed to inquire into the conditions prevailing among industrial workers and the compensation obtained by these workers for incapacitation or disease due to their occupation. The sanitary conditions in most of the factories were found to be highly satisfactory. Legislation has been very keen in this respect and stringent provisions have been made and enforced to insure not only proper ventilation, etc., but also the employment of only healthy individuals. Weekly medical examination of all factory hands has been instituted in chemical factories, match factories and brass and iron works. In grinding establishments also and in mills and mines the law requires regular medical examination of the men employed. The physician is appointed and paid by the owner of the establishment. If the laborer is ill he has to keep away from his work; meanwhile his family receives the sick pay. Special attention has been paid to phosphorus necrosis occurring in match factories, and a delegate of the University of Vienna has studied the conditions prevailing in the match industry. He has found that the number of patients that have suffered from this complaint within the past ten years exceeds 400. All these individuals had been employed in making matches with yellow phosphorus, which is highly poisonous.

Alcohol Consumption and the Birth Rate.

The report of the past year's consumption of alcohol makes interesting reading when taken in conjunction with the vital statistics. It is seen that those classes of the population consuming the largest quantities of alcohol show also the largest decline in the birth rate. While the mean birth rate for the decade 1890-1900 was 35 per thousand, during the years 1900-1906 it fell to 32 per thousand. The greatest fall was found in those countries where the consumption of alcohol (not light wines, but beer, gin, whisky or cognac) has been increasing, especially in Galicia, Bohemia and the Alpine regions. In these localities the birth rate stands at from 24 to 25 per thousand. It is interesting to note, however, that in the wine-drinking countries (Tyrol and the Mediterranean provinces) the birth rate is fairly constantly 33 per thousand.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Hyperchlorhydria and Its Treatment.

There is considerable difference of opinion as to the frequency of this condition, and there is no question that a large number of patients with dyspepsia are treated without making the diagnosis between hyperchlorhydria, erosion and ulcer, and doubtless in the early stages of these conditions many cures are effected. But if the process chances to be a little further advanced and consequently fails to be relieved by this "anti-dyspeptic" treatment, the patient usually drifts from one physician to another until he finds one with the ability to make a diagnosis, following which he usually gets relief. That so many cases do yield to simple treatment without an accurate diagnosis being established coupled with the trouble and difficulty of making such a diagnosis, is doubtless the reason why the condition is not more frequently discovered.

Under the heading of this article Dr. L. M. Gompertz, New Haven, Conn., in the *Yale Medical Journal*, June, 1907, has the following to say:

"A distinction between hyperchlorhydria and acid gastritis can only be made by the finding of an abundance of mucus in the fasting stomach. This mucus must then be subjected to a microscopic examination to determine whether it had its origin from the upper air passages or in the stomach itself. If the symptoms are present as they appear in a text-book, the diagnosis can easily be made, but when one or many of c important symptoms are absent, a correct and positive agnosis can only be arrived at by a quantitative chemical amination of the stomach contents after a test breakfast."

He says that in uncomplicated cases the symptoms vary in eir appearance with the amount and variety of food taken. om one-half to three hours after eating the feeling of pres- ure, fulness, and heartburn accompanied by a sour taste and sensation of burning along the esophagus and in the stom- h make their appearance. Headache, dizziness and insomnia e usually prominent. The appetite is good, and vomiting not common. When, however, it does occur, it is followed y relief of the above symptoms. Frequently the amount of od taken is enormous. The bowels are generally constipated, ough there may be a diarrhea.

The condition occurs in all walks of life, and while sex does ot appear to be a factor, he finds that age apparently is, the ajority of patients being in early middle and adult life, hile a large majority of them are those living under nervous nsion.

Sudden mental emotion, fright, worry, sorrow, overtaxing e brain and social excesses all tend to produce this condi- on, and Gompertz is so impressed with these latter factors s to believe that a neuropathic condition is the most impor- int etiologic factor.

In erosion and ulcer there is an excess of hydrochloric acid, gether with painful pressure points and vomiting. In hyper- lorhydria these symptoms are absent, though the entire omach may be tender, and since he believes hyperchlorhydria, osion and ulcer differ only in degree, and since the objec- ve and subjective symptoms together with the physical ex- mination frequently leave one at a loss for a diagnosis, the nly rational procedure is the test breakfast followed by the ubsequent chemical examination of the stomach contents, hich in the majority of cases, in his opinion, will show an verproduction of gastric juice, i. e., hyperchlorhydria.

If the cooperation of the patient can be obtained, the treat- ent is very satisfactory.

If the causes are mental or emotional, they should, of ourse, be removed or corrected, as must be rapid or improper astication of the food. As there is such a wide difference f opinion and considerable controversy concerning diet, he ives what has been most successful in his own cases.

"The albuminoids, especially meat, milk and eggs, should e given. These neutralize a larger portion of the acid than he starchy foods and are very much better borne. The eggs hould be taken hard boiled. Fish is allowed. Plenty of vater is given as this dilutes the acid and renders the patients nore comfortable. Butter, creams and fats are usually well orne, as are cocoa and chocolate.

"The starchy foods, potatoes, cabbage and turnips, are for- idden, as are highly seasoned foods and the condiments.

"Alcoholic beverages and any amount of large, bulky foods re injurious, as being overstimulating to the gastric glands, s are strong coffee and tea. In fact, an easily digested, land and non-stimulating diet is indicated in hyperchlorhy- ria. Whether frequent small meals or a larger amount of ood taken at less frequent intervals is better in this condi- ion, has received some attention, there being as many advo- ates for one method as for the other. According to my ex- erience, full meals taken at less frequent intervals is much etter, as the hydrochloric acid is secreted as soon as food nters the stomach, and if a large amount of food is present, he acid is better taken care of, being used up by the large mount of food present."

Electricity has been of value, and lavage may at times be seful, but usually, he thinks, the latter has been used alto- ether too much, and should only be resorted to in the most bstinate cases, when, if it does any good, the benefit is immediate. He regards the medicinal treatment as not less important than the diet. The underlying nervous condition should be treated and if necessary, tonics given. For lessening the secretion he finds belladonna the most useful drug, and alkalies are an important part of the treatment, as they relieve the pain and the sensation of pressure.

The belladonna may be given by any of the following methods:

℞.	c.c.	
Tincturæ belladonnæ foliorum............	25	℥i

Signa: Ten drops (more accurately 0.25 c.c. or ¼ c.c.) or 5 minims, in water, three times a day, before meals. Or:

℞.	gm.	
Extracti belladonnæ foliorum............	20	gr. iii
Extracti gentianæ	2	gr. xxx

Misce et fac pilulas 20. Signa: Take a pill three times a day, before meals.

Or: A tablet containing one two-hundredth (1/200) of a grain of atropin sulphate may be given before each meal.

If a patient taking any of the above preparations of belladonna complains of a dry throat or inability to see well, the drug should be stopped.

Dr. Gompertz recommends the following prescription for antacid action, when constipation is present:

℞.	gm.	
Sodii bicarbonatis	20	
Calcii carbonatis præcipitati.............	20	
Magnesii oxidi ponderosi.................	20	āā, ʒv

Misce et fac chartulas 20. Signa: Take a powder three times a day, after meals.

If diarrhea is present instead of constipation, bismuth subnitrate should be substituted for the magnesia, in the same dose, viz., one gram (15 grains).

Treatment of Local Infections.

Under the above heading, Henry S. Wieder, Philadelphia, in the *Therapeutic Gazette*, May, 1907, gives the best résumé on the management of minor infections that we have seen. Decrying the folly of waiting until an abscess or boil "points," thereby increasing the opportunity for further infection as well as prolonging the most painful period of the entire process, and calling attention to the fact that any kind of a poultice can do nothing but accentuate all the undesirable features of this waiting, he recommends what invariably gives the most immediate relief of pain, the quickest process of repair. and the surest preventive against secondary infection, viz., immediate incision over the point of greatest tenderness, no larger than necessary, but deep enough to allow some bleeding, and reaching if possible the focus of infection. The wound should be allowed to bleed as freely as it may, and then, whether or not pus be found, should be thoroughly swabbed out with phenol, lightly packed with gauze, and a wet bichlorid dressing applied. The patient is given tablets of bichlorid of mercury, instructed how to make a 1 to 1,000 solution, and told to use it as hot as he can bear it three times a day, soaking the affected part for a half-hour, without removing the dressing. In the majority of cases, if seen in time. this treatment is abortive, and when the patient appears next day all symptoms will be found improved. Should the process, however, have gone on to actual pus accumulation or to necrosis, the symptoms of inflammation will nevertheless be found lessened, and a continuation of the dressing is all that is needed. Occasionally, however, it will happen that the focus of infection was not reached by the primary incision, and when the patient appears the next day for treatment, although the inflammation will have greatly subsided and the pain have either disappeared or be markedly lessened, there will be found more or less discharge, purulent or otherwise. The use of the probe will then invariably indicate the seat of infection, either as an accumulation of pus or as the characteristic "core." If the former, it should be freely exposed, using scissors preferably; if the latter, it should be removed with forceps, experience having proved the use of the curette inadvisable in these cases. Light packing and the repetition of the bichlorid dressing is then resumed. In contradistinction to the above Wieder uses a curette freely on a carbuncle after the usual crossed incision. Then the phenol swab is followed by alcohol and the wet bichlorid dressing is applied.

He closes his article with the following summary:

"1. Poultices, so-called antiphlogistics, etc., are useless in the treatment of local infections and do harm by causing greater destruction of tissue and delaying proper remedies.

"2. Immediate incision over the point of greatest tenderness should always be practiced, followed by carbolization of the wound to destroy the nidus of infection, and then a wet bichlorid dressing applied.

"3. Free incision with constant wet drainage should be the rule in the presence of pus.

"4. Dry drainage, especially when saturated with coagulative powders, is ineffectual and harmful because of the 'caking' that occurs on the surface, sealing the cavity.

"5. Cases, especially with drainage, should receive soakings with hot bichlorid solutions thrice daily. Hot salt solution or water may be used if the bichlorid appears too dangerous.

"6. Waxed paper should not be used over wet dressings, as it forms them into moist warm poultices, which are objectionable.

"7. Never curette infections primarily, excepting carbuncles, which should always be curetted and carbolized.

"8. Gauze selvage, when soaked in bichlorid solution, makes a conveniently handled and effectual packing.

"9. Palmar infections of the fingers and hands are more serious than dorsal infections.

"10. In incising for palmar infections of the fingers, continue the incision until pus or the bone is reached, and do it without delay."

Some surgeons claim that in treating carbuncles they have less pain, less trouble with the dressings, and a considerably shortened process by administering an anesthetic and freely excising the entire mass. While this often seems a radical procedure, we are convinced that it is the quickest method.

Pharmacology

PRECEPT VERSUS PRACTICE.

Remarks on the Alleged "Independence" of the So-Called Independent Medical Journals.

There has recently been much talk on the part of certain privately owned medical journals regarding their so-called "independence." as contrasted with the implied "dependence" of the journals owned and published by organizations of physicians. It is comparatively easy to make claims regarding this or any other attribute, but it is most interesting to know to what extent the principles advocated are carried out in practice.

The editor of the *Medical Council*, of Philadelphia, read a paper before the Medical Editors' Association, June 4, 1906, on "The Independent Medical Journal." An article on such a topic, written by the editor of a privately owned journal and read before such a body, may naturally be considered an authoritative utterance on the position of the "independent" editor. A few extracts may prove interesting:

> The world is every ready to listen to a man who has earnest convictions and is willing to risk everything in his bold endeavor to express them. Man's best work has ever been accomplished when, free from all restricting alliances, actuated by his own high sense of right and inspired by his love of truth and justice, he labors conscientiously and often self-sacrificingly for the cause of science, of art, of humanity. Thus working independently in his chosen field of activity, unfettered by official dictation or commercial interests, his work will have a power and influence of its own. Such work is as everlasting as the eternal hills. By the side of this, how puny and ephemeral appear the work of those who are the mere puppets of dictatorial masters, the fawning creatures of a fickle organization or the human machines of a great commercial enterprise.

Our colaborer then proceeds to contrast independent journals with journals published by medical societies, saying that the editor of a medical society journal "has no personal independence." He closes his address with an appeal to his hearers t "give our readers clean, scientific, practical and up-to-date literature. Let us allow none but respectable and reliable advertisements in our advertising pages. Let us be true creators an leaders." These are lofty sentiments and are, in every way worthy of commendation.

Now, it would clearly be an injustice to the editor of th *Medical Council* to compare the principles which he has lai down with the practice of any other editor or even of his own practice before the reading of his paper. He certainly can no complain, however, if, a year after his eloquent address wa delivered, a current number of his journal is taken as an evidence of the manner in which he has "risked everything in hi bold endeavor" and "labored self-sacrificingly for the cause o humanity."

In the July number of the *Medical Council* appears a mos striking example of what happens when the medical editor i "free from all restricting alliances, actuated only by his own high sense of right;" it is an article entitled "The Use of Antiseptic and Antifebrile Remedies in the Treatment of Typhoi Fever, Pneumonia and Other Infectious Diseases." This article signed by S. Lewis Summers, M.D., Glenside, Pa., has nothing about it to distinguish it from any ordinary contribution by a practicing physician. The average reader would gather the impression that it is a report, from a physician actively engaged in the practice of medicine, of cases in his own experience in which he had actually used the two preparations mentioned. It is, however, an adroit advertisement of two preparations by the very man who makes them. In only a single paragraph is there any intimation whatever of the writer's relation to the preparations recommended, and even this would not be apparent to any one not already conversant with the facts. It would never be suspected from a casual perusal of the article that it was not written by a practicing physician but was written by the president and principal member of the Organic Chemical Manufacturing Company, S. Lewis Summers who usually gives his address as Philadelphia, but in this case seems to be located at Glenside.[1]

Now, strangely enough, the advertising pages of the July *Medical Council* contain three and a half pages of advertising matter of this company, two and a half pages of which are in the form of "reprints" setting forth the virtues of one of the preparations made by the Organic Chemical Company one of the reprints being taken from the reading pages of the April *Medical Council*. It is no doubt a pure coincidence that the largely increased advertising of the Organic Chemica Manufacturing Company appears in the same number of the *Medical Council* that contains S. Lewis Summers' "clinical contribution," yet one is led to speculate as to whether the increased amount of advertising was in any way conditional on the article in the reading pages of the *Medical Council*.

Evidently the editor's lofty determination to "risk everything" did not apply to advertising contracts. We quite agree with the editor of the *Medical Council* that "man's best work has ever been accomplished when free from all restraining alliances," especially if by "best work" the editor means selling at advertising rates both advertising and reading pages. The question arises in this connection, however, as to who is being "worked." Is it the Organic Chemical Manufacturing Company or is it, possibly, the subscriber to the *Medical Council* who pays for original scientific articles and gets adroitly masked advertising write-ups? Is it not possible that in such a case some slight "restricting alliance" might be of benefit, both to the editor's ethics and to the subscribers of the *Medical Council?*. Most appropriate, too, seem the glowing utterances of a year ago, especially when illuminated with a few slight interpolations to fit the occasion. "How puny and ephemeral seems the work of those who are the mere puppets of dictatorial masters [advertising managers, for instance], the fawning creatures of a fickle organization [does he mean the American Proprietary Association, we wonder?] or the human machines of a great commercial enterprise [such as the Organic Chemical

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[1] A report, just received from Glenside, Pa., gives the names of four practicing physicians located at that place. The name of S. Lewis Summers does not appear on the list.

Manufacturing Company and others]." The editor is right. These things do impress one as most "puny and ephemeral!"

Unfortunately, such instances as the above are not rare, although it is unusual for the manufacturer himself to assume the rôle of clinical reporter on his own products. Mark Sullivan's "Patent-Medicine Conspiracy Against the Freedom of the Press" finds its counterpart in medical journalism. The publisher, to get the contract, throws in so much space in the reading pages with or without the editor's consent; some one who can write M.D. after his name is found to write a pseudo-scientific article which extols the particular product; the editor winks, and the subscriber reads and believes—because he thinks the editor is honest and will give him a square deal.

It is not, as the editor of the *Medical Council* seems to think, a question of "independent" or "organization" journal, but it is one that involves the primal, simple question of common honesty, no matter who is the owner or editor.

Digalen.

The claims of Cloetta regarding digalen, sold in the form of a solution under the same name by Hoffmann-La Roche & Co., are controverted by Professor Kiliani in the *Muench. med. Wochschr.*, April 30, 1907. The claim of Cloetta that the action of digitalis is to be attributed to the action of digitoxin is also, he states, without foundation, since Windhaus has shown in a conclusive manner that digitalis leaves contain an active heart poison which is soluble in water, namely, digitalein. There is no experimental evidence that the composition of digitoxin and digalen is identical or that they furnish the same decomposition products. The claim of Cloetta that the molecules of digitoxin can be reduced to half their size by converting them into the amorphous condition is preposterous. If such a change occurred, Kiliani declares, we would expect to find distinct chemical substances with distinct physiologic actions. In Kiliani's opinion, digalen (referring to the dry substance before solution), is nothing more than a mixture containing a high percentage of digitalein and which may be prepared by the process published by Windhaus and Kiliani. Certainly Cloetta has offered no evidence to show the relation of digalen to the well characterized digitoxin nor has he even demonstrated that digalen is a definite chemical substance.

Correspondence

Misuse of Term Vaccination in Opsonotherapy.

Philadelphia, July 12, 1907.

To the Editor:—In the publication of articles on opsonotherapy the terms "vaccine" and "vaccination" are frequently appearing. They have doubtless been employed as convenient designations to indicate a degree of parallelism between the action of vaccination and bacterial inoculations. It is obvious, however, that the analogy is only partial. In vaccination a living parasite is introduced which produces a benign, modified smallpox. The bacterial inoculations on the other hand introduce toxins which, if present theories be true, sensitize the bacteria in the body and render them ready victims for phagocytosis.

There are stronger reasons than the above for the discontinuance of the use of the words "vaccine" and "vaccination" in this connection. Through a century of usage these terms have been firmly established in the medical and lay mind as related to a prophylactic measure against smallpox. The popular comprehension of "vaccination" is clear cut and concrete, and to confuse it by applying the term to various immunizing inoculations is unfortunate. Antivaccinationists will unwittingly or wittingly take advantage of the confusion of terms and turn it to their advantage. I recently read an article in which the words "vaccination" and "revaccination" were employed for bacterial injections, and the perusal of an entire paragraph did not enlighten one as to whether Jennerian vaccination was referred to or not; indeed, it becomes necessary now to qualify vaccination by saying "Jennerian vaccination."

From an etymologic viewpoint, vaccination can only refer to a subject related to the bovine species, the word being derived from *vacca*, a cow. The first lymph used by Jenner was primarily of cow origin, therefore, the name. The terms ovination and equination have been employed when lymph from sheep and horses has been used.

It is not alone undesirable to thus employ the term "vaccination," but it is unnecessary. Certainly some appropriate terminology can be created if it does not already exist. In Dr. S. Solis-Cohen's "System of Physiological Therapeutics," in an article by Dr. Joseph McFarland, the terms bacterin, bacterinate, and bacterination appear. These would seem to answer the purpose. Jay Frank Schamberg.

The Physiologic Effects of Light.

Guthrie, Okla., July 7, 1907.

To the Editor:—Your editorial on the above subject in which you refer to the effects of light on blonds and brunettes, is the cause of my writing the following:

Many reasons have been advanced to account for the large number of deaths from consumption among blacks and other dark-skinned races; all of which reasons contain their quota of truth, but are as applicable to white races also; I believe, though, that the true reason has never been stated, that is, that the excessive mortuary rate per cent. is due to the deep pigmentation of their skin. The investigations as to the therapeutic and physiologic action of light, made in recent years, if logically studied, can lead to no other conclusion.

Finsen claimed that the actinic (blue) rays in sunlight are inimical to the life and growth of the tubercle bacilli. It has been acknowledged the blue rays are the rays that are most beneficial in the light treatment of pulmonary tuberculosis. Dr. Woodruff states that in health the deeply pigmented races best withstand the injurious effects of sunlight; ergo, in disease the deeply pigmented races would least receive the beneficial effects of sunlight. Finsen's experiments, and the experiments of others since, have proved that black is the color that most prevents the ingress of blue and other therapeutic rays.

These premises being true (and I think that they are generally accepted), it follows that the more deeply pigmented the skin the graver the prognosis in a case of pulmonary tuberculosis. It has been demonstrated by postmortem dissections that hundreds of individuals who finally died from other than pulmonary troubles had had at some period of their lives attacks of pulmonary tuberculosis from which they have recovered. Postmortem statistics gathered along this line will show that a very small per cent. of those so recovering were deeply pigmented individuals.

The true black who once acquires pulmonary tuberculosis rarely recovers, but steadily and rapidly fades away. This does not mean that negroes are more susceptible to tubercular troubles (their immunity when living an active out-of-door life in ante-bellum days proves that) but that, once having acquired the disease, the deep pigmentation of their skin prevents them from receiving the beneficial action of the actinic rays, existing in all sunlight, that lighter skinned races receive.

H. W. Conrad, M.D.

Leslie's Weekly's Partnership with Fraud.

Memphis, Tenn., July 11, 1907.

To the Editor:—Your editorial entitled "Accomplice or Dupe," on page 48 of The Journal, July 6, in which you call attention to the elaborate notice given in *Leslie's Weekly* of the opening of a so-called hospital for the treatment of cancer by the Alexander method, should be supplemented with a notice of the fact that this periodical is prone to such offenses. About eighteen months ago an article was published under the heading "Is Blindness on the Increase," or something to that effect. The medical eye was at once attracted, and my disgust may be imagined when the thing proved to be an advertisement of the "cele-brated specialist," Dr. Oren Oneal. This article occupied a full page ordinarily devoted to reading matter, and was evidently intended to be taken for reading matter. Though a reader of *Leslie's* for several years, I at once dropped it, and while I do not see that the loss of my patronage has keenly hurt the periodical, I can never again be a reader of it, especially when I learn of this new offense. E. C. Ellett.

Miscellany

Collier's on Viavi.—That ingenious and widespread fake, the "Viavi" system of "curing" disease, came in for a vigorous harrowing recently at the hands of the *California State Journal of Medicine.* Now, it has been the distinction of "Viavi," that it does not advertise in the papers, but spreads its fraudulent doctrines among womankind, by "lectures," "addresses," and a system of personal visits by "Viavi" representatives, who, to a lay mind, appear to be practicing medicine without a license, since they prescribe "Viavi" medicines or "Viavi" treatment for pretty much everything from heart disease to freckles. On the publication of the medical journal's article, however, a change came o'er the spirit of the "Viavi" dream. The Law Brothers, proprietors of "Viavi," who have grown rich and influential from the money of their dupes, live in San Francisco, where the *California State Journal of Medicine* is published. Their feelings were harrowed, particularly as one daily newspaper, and one weekly in their own city, gave some space to the attack on their business. Immediately they rushed into print. To reply to the attack? To refute the charges? Not at all. It was not that kind of print. Their method was to buy advertising space, and insert huge advertisements in all the local papers. Result: A complete silence thereafter, as regards the "Viavi" matter, except that the offending daily which had already referred to the medical article printed later a pleasant and complimentary little "write-up" about the Laws and their enterprise. Yet, we presume, the Laws would indignantly deny that they had bribed the newspapers into silence, and the newspapers would even more indignantly deny having been bribed. We can swallow a coincidence as raw as any one else, but the coincidence of a concern that hasn't advertised for years, suddenly flaming into print at a considerable outlay, immediately following an attack on its methods, is too great a tax on our faith. Long since the Proprietary Association of America has shown the inner workings of that method. "Viavi" has merely adapted the "Red Clause" method to its own needs.—*Collier's Weekly,* July 13.

Military Hygiene in Public Schools.—Col. John Van R. Hoff, medical department U. S. Army, in the Seaman prize essay, which appeared in recent issues of the *Journal of the Military Science Institution,* makes the suggestion that the American Red Cross exert its influence to have the elements of military hygiene taught to boys in the public schools. He states that this could be done easily in connection with the teaching of the popular so-called "physiology." Colonel Hoff's reasons for suggesting this are not only that some of the boys will be the members of the volunteer army a few years hence, should necessity for military service arise, but also that the knowledge of personal hygiene and of the general principles of military hygiene would be of great use to them in any case. Colonel Hoff says: "It would not add much to the course nor take much time; neither would it make any intellectual demand beyond that which could be met by an average student. It would emphasize the dangers of bad food and water, it would teach the boy how to care for himself in the field, what to do and what to avoid, and it would give him rules for right living under the stress of campaign and the reasons therefor. Not very much, indeed, but enough to impress him with the fact that there is such a thing as military hygiene, and that some knowledge of it would be of importance to him under certain circumstances. Then, when all the boys have learned this fact, a great step toward the prevention of camp diseases will have been made. Simultaneously our colleges and universities should be asked to give recognition in their curricula to this subject. Particularly should this be so in our medical schools, and an adequate knowledge of military hygiene should be made obligatory not only for the degree in medicine, but in the state license to practice medicine as well. All this, it seems to me, is a legitimate part of the mission of the Red Cross, and through its instrumentality, more than any other, can we hope to see the people of the United States educated to appreciate the necessity of a universal recognition and study of military hygiene."

Oriental Rugs and Transmission of Disease.—P. Remlinger is director of the Pasteur Institute at Constantinople, and he raises a warning voice in regard to the pathogenic possibilities of oriental rugs. He says that these rugs can be said never to be bought new and they are so durable that they never wear out, and they increase in value as time mellows the colors. The mellowing of the colors is hastened in various ways, he relates, sometimes by washing or dipping in a mixture of water and alcohol or water and potassium hypochlorite, but in the Caucasus and in Persia the rugs are placed in a pit and covered with pulverized horse, sheep and other manure. When removed a few days later the colors are mellowed as if by age, but a nauseous brown powder clings to them for a long time and may never be entirely removed. In the wholesale houses the rugs are mellowed by spreading them on the floor, where there is most walking and the workmen sit and lie on them. The European bed is almost unknown in the Orient. At night a thin mattress is laid on the floor or low divan, covered with rugs, and the individual partly undresses and sleeps under a few coverings; the poor simply roll themselves up in a rug and sleep on the floor without undressing. No change is made in these customs when any one is sick, and the rugs catch the sputa, urine and sweat of the persons sleeping on them. The texture of the rugs favors the taking up and retaining of infectious matters as a sponge takes up water. The wealthy have several layers of rugs on the floor, and the walls are hung with them, with especially handsome ones over the others. They are handed down from generation to generation as priceless heirlooms and articles de luxe. Numerous peddlers travel around the country picking up a rug here and there as death or need of money forces the sale of one. These peddlers travel around sometimes for months before they accumulate a stock to take to the wholesale dealer. In the meanwhile they sleep every night wrapped up in their rugs, thus protecting them against being stolen. In the wholesale house the rugs are piled on top of each other in rooms purposely kept dark. When an amateur wishes to purchase a rug the attendants remove them from the pile, piling them up again in inverse order, and the clouds of dust that accompany the procedure testify to the previous peregrinations of the rugs. Pneumonia, bronchial asthma and tuberculosis are exceptionally prevalent among persons who have anything to do with the wholesale rug trade, from the humblest workman to the rich proprietor. Remlinger adds that the vacuum cleaning method will find its most interesting application in cleaning oriental rugs. The rugs wash perfectly, with the exception of the Djim Djim jute rug and certain Smyrna rugs which are made in aniline dyes. It might be possible to find some antiseptic to add to the washing water that would not injure the fabric. Disinfection by heat does not injure the rugs, either silk or wool, except those mentioned above, but exposure to 120 C. (248 F.) might restore the original brilliancy of the colors. The dangers of infection from oriental rugs was illustrated by a recent experience at Paris. Several cases of tropical dysentery developed in a Paris family, with two deaths. The physician traced the infection to some recently acquired oriental rugs. Remlinger's communication is published in *Hygiène Générale et Appliquée,* page 257, 1907.

Intermittent Claudication.—In a supplement to the *Med. Klinik,* iii, 20, 1907, R. Bing reviews the present status of our knowledge of the three forms of this affection, viz.: 1. The arteriosclerotic form, intermittent lameness resulting from disease of an artery and the similar intermittent weakness of the arm muscles—dysbasia or dyspraxia angiosclerotica intermittens. 2. Intermittent lameness as a vasomotor neurosis. 3. Intermittent lameness as a symptom of a spinal affection. He discusses the history and the differentation, especially from pseudoparalytic myasthenia, neurasthenic dysbasia, certain cases of sciatica and neuritis, "akinesia algera"—autosuggested pains after attempts to walk, etc., and tarsalgia or metatarsalgia. Treatment of intermittent claudication should aim first to remove the cause and next to forbid the various exaggerated therapeutic measures, hot baths, long walks, etc., which the patient has generally been trying. The diet should exclude all substances which have an energetic action on the vasomotors, strong coffee, tea, condiments, ergot, digitalis, etc. The feet should be kept constantly warm. The underlying trouble is an endarteritic process, and medication and dieting to combat this tendency and the arteriosclerosis in general should be vigorously pushed. Erb advises oiling and gentle massage of the feet to act on the local vessel affection, but Zoege von Manteuffel prefers massage of the rest of the body, instead, for revulsion. The tendency to spasm of the vessels should be combated with warmth, not heat. Galvanic footbaths have proved useful. Besides the vasodilating drugs, nitrite, nitroglycerin, quinin and other antipyretics, heart tonics are indicated, aiming to regulate the general and collateral circulation; strophanthus is to be preferred to digitalis. Baths to dilate the vessels will also prove useful. Surgical intervention has been recommended by some, in analogy to the experiences with perforating ulcer; the posterior tibialis can be exposed for 2 cm. on the inside of the ankle, and stretched, or Jaboulay's technic can be followed. This consists in exposing the femoral artery in the inguinal triangle, removing its sheath and thus destroying the sympathetic nerve fibers of the vessel, running along the artery. Jaboulay and Rhenter have reported excellent results from this operation in cases of perforating ulcer, and it seems theoretically indicated in intermittent claudication, although it has never yet been tried in the clinic for this affection. Symptomatic measures may be required, sedatives in case of pain, and restriction of the use of the limbs. Charcot used to keep his patients with this affection constantly reclining, sometimes for months, until material improvement was realized, and then gradually allowed them to exercise, a little at a time, watch in hand. A patient of Erb's succeeded in this way in improving his condition so that he could walk for more than four hours at a time and could have done more if it had not been for Erb's veto. It is important also to refrain scrupulously from every chance of contusion or scratch. Every inflammation, corn or pimple should be carefully treated with rest, position, disinfection and antiseptic dressings to prevent development of phlegmonous or gangrenous processes. The above measures may and do frequently improve the intermittent lameness to a point equivalent to a cure, but in some cases the affection persists unmodified. Mercury should always be given a trial in the spinal form. In conclusion Bing suggests that possibly writer's cramp, when the hand is cold and livid, may be a manifestation of this arteriosclerotic dyspraxia.

Patent Medicines and the Pulpit—A Sermon.

It is well known that ministers of the gospel are easy marks for the "patent medicine" men, and not a few of the testimonials and endorsements for quack medicines are furnished by them. Recently, however, there has been a change and clergymen are awakening to their responsibility in the movement against the great American fraud. Religious papers are being forced by their readers, especially by the ministers, to purify their advertising pages, and not a few sermons have been preached on the subject. We have been favored with a copy of one such sermon preached by the Rev. Marcellus B. Fuller of Dayton, Ohio, June 23. Dr. Howell of Dayton, who has kindly furnished us the manuscript, says that the auditorium in which the sermon was preached was packed. We regret that we can only give space to the following:

"The great gilded fraud of this day is the nostrum evil and quackery. Why is it tolerated? It is so heavily gilded that men often fail to see the hideous worm under the coats of paint. See how 'appetite' finds this evil and how the evil cultures the appetite. The old saw of Barnum, 'The American people love to be humbugged,' has a final proof here. Note the rich field the unprincipled practitioner has to work. 'A dying man will catch at a straw,' and humanity is never so credulous and 'easy' as when it is suffering. This appetite is whetted by the very thing that affords satisfaction. The alcohol fiends, made so by preparations of the peruna type, are so many as to defy enumeration, while the drug victims form a vast procession. Most tonics are alcohol stimulants. Catarrh powders breed cocain slaves. Soothing syrups stunt or kill infants with their opium. Headache powders with their acetanilid stop heart action. Nearly all of these preparations are of the nature of stimulants requiring increasingly large potions, until, to produce the original excitation, the system fails under the awful stress.

"Ambition puts on its coat of gilding. Do you want to live a long time? Use Duffy's pure malt whisky. Nearly every nonogenarian, if the press reports may be accepted, owes his longevity to this delicious beverage. Distinguished divines and temperance workers, who have spent their lives in uplifting their fallen brethren and placing their feet on the solid rock, are outspoken in their declaration of favor.

"Some regard ought to be given the suffering public compelled to gaze on the visage of the 'before and after' of some Hoodwink's sarsaparilla. We are admonished daily that 'women are modest.' They require absent treatment. Their communications will be held as sacredly confidential. How can a modest woman endure the exploitations of ills that would make a sphinx blush? Alluring letters are written—the regular price, $100, reduced to $30 because of special interest, etc. Who has not received such letters? How many have swallowed the bait?

"How many of the vendors of these poisons in the drug stores deserve merciless excoriation? This fraudulent business constitutes about two-thirds of the average small store.

"But the American press is the prime exploiter of this evil. Avarice seems to be the ruling cause. About $40,000,000 are spent annually in newspaper advertising. A Lydia Pinkham representative declares their monthly expenditure is $100,000. Proprietors and quacks estimate that 90 per cent. of their business is due to the newspaper advertising and to this prostitution of the religious press in the insertion of objectionable advertisements. It is a shame that there should be the occasion for reproach. Editors and advertising managers deserve stinging censure for their inexcusable laxity. We believe this fraud should be ceaselessly antagonized. It is opposed to the common standards of morality.

"Truthfulness is one of the safeguards of the nation. The nostrum evil is based on unadulterated falsehood. These nostrums do more than they promise. The laxatives become a terrible necessity. Headache powders with acetanilid cure heartache, too.

"Their effrontery is so unblushing, it amounts to a positive insult to the intelligence of the public. How can one believe such unqualified statements? 'I can cure cancer without pain, plaster or operation' 'Deafness cured.' 'Fits stopped free.' 'Consumption and catarrh cured—FREE.' These frauds are the world's monumental liars.

"This nostrum evil is a violation of purity. Purity is character. These advertisements demoralize. They do take the bloom of innocence. They do break down the line between the sexes. They do play fast and loose in their so-called manhood business. It is not possible for a decent man to read completely in his home, where his wife, daughters and sons are gathered, the regular ads of Swift's sure specific, Lydia Pinkham's highly corporeal letters, the Chattanooga Medical Company's announcements, with woman's friend and wine of Cardui, to say nothing of the boldest words that abound in published testimonials of all sorts of nostrums. How can we antagonize this evil? We can at any cost be unceasing in exposure. Take off the glittering scales and you will find the caterpillar, filthy, loathsome, the abominable thing. Let us call things by their right names. All these frauds are formed of sin. Ignorance is a large stock in trade of most of these charlatans. We can unitedly oppose this iniquity. Parents can aid by informing children of perils in their path. Teachers have an opportunity few possess. Ministers are public servants. Editors are notoriously recreant. Thus far physicians have done most in antagonizing this evil. We assert their unselfishness in this crusade. Thank God for the decent doctors. Why not idolize the doctors some? We can cry out against this thing with righteous indignation.

"Righteous men flame in hot wrath against vile sin. Is strong drink an evil? Who doubts it as he thinks of fathers turned into fiends, mothers into monsters, sons into sots, daughters into debauchers and cities into houses of the dead? Bitters, sarsaparillas and tonics are drunkard makers. Is the drug habit an evil? Is it safe for the informed to use indiscriminately the various narcotics and cough remedies, soothing syrups and catarrh powders? Is lying an evil? What truths do these fakirs enunciate? Their whole system is a fabrication of falsehood. Is impurity an evil? The nasty nostrums daily exploited will either nauseate the stomach or putrify the soul. Is blackmail an evil? Get in the clutches of some manhood shark and see the price you pay. Is commercialism an evil? The press of this country, with few exceptions, can be charged with permitting its advertising columns to be prostituted to the vilest purpose. Is theft an evil? The Chicago *Tribune*, in writing about one Thompson, says: 'Three years ago he was a strong man. Now, because of a catarrh cure, he is without money, health, home or friends.' This announces the record of many."

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Legislative Work in Texas.

During the session of the legislature of Texas a new medical practice act, approved by the State Medical Association, passed the legislature and was signed by the governor. The organized profession of the state worked systematically and persistently for the adoption of this bill. In the June number of the *Texas State Journal of Medicine* Dr. I. C. Chase, secretary and editor, says editorially:

> The report of the legislative committee shows that somewhat less than sixty members of the State Medical Association this year visited Austin in the interest of medical legislation. The trustees paid $600 out of the association treasury to meet the expenses of the committee for legislative assistants. Some of the members of this committee, as well as the auxiliary legislative committee and individual members, left their homes and went to Austin whenever necessity presented itself. Some who were individually unable expended considerable sums. The mention of these facts at a joint meeting of the house of delegates and the scientific body brought forth an overwhelming sentiment that those who stayed at home should at least be given the opportunity to pay the actual expense incurred by those who left their personal work to take up the labor for the good of all. The committee appointed to consider the best means of accomplishing this end referred the matter to the trustees. As soon as the amount can be ascertained the trustees will consider notifying county societies of their share proportional to membership. Societies should consider this a voluntary subscription, none of the parties interested made their expenditures expecting a refund of expenses, and do not wish to be placed in the attitude of requesting reimbursement for their voluntary contribution to the advancement of state medicine. A large number have refused to accept payment for their expenses.

This spirit on the part of the working members of the State Medical Association of Texas is highly commendable. When the members of our profession are so interested in securing better legislation and better professional and social conditions and are willing to give of their time and money to secure these results, there will be no doubt as to the outcome. There is not a state in the union in which the physicians can not secure the passage of any sanitary act or medical practice law which they may wish, if they will really try to secure its passage.

New Laws in Wisconsin.

Some good bills, which we abstract below, have become laws, having been passed by the legislature of Wisconsin and signed by the governor. Copies were sent us by Dr. J. V. Stevens, secretary of the State Board of Medical Examiners of Wisconsin, who writes:

> We feel that these new laws will greatly assist us in elevating the standard of the practice of medicine in this state, purifying the newspaper columns, protecting the people and making it easier for us to punish the charlatans and evil-minded men who rob the public under the guise of medical practitioners by their false and suggestively immoral advertisements. We hope that the other states will secure the same kind of legislation as soon as possible. We are selfishly interested in having them do so because papers that are published in adjoining states have a large circulation in Wisconsin and their publishers are not amenable to our laws.
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> Our midwife bill was killed by the opposition of a few physicians in the state. It passed the senate unanimously and was given a majority report by the committee on public health. One dissenting member of the committee defeated it by precipitating a vote when but few of the members were present. It is hoped that this bill will be passed at the next session of the legislature.

The first bill is one prohibiting the advertising of the treatment of venereal and sexual diseases, and creates a new section in the statutes, as follows:

> 1. Any person who shall advertise in any manner, either in his own name or under the name of another person, firm or pretended firm, association, corporation or pretended corporation, in any newspaper, pamphlet, circular or other written or printed paper, the treatment and curing of venereal diseases and of private diseases or diseases peculiar to men or to women, the restoration of "lost manhood," or who shall advertise in any manner that he is a specialist in diseases of the sexual organs or diseases caused by sexual weakness, self-abuse or excessive indulgence or in any diseases of a like nature or produced by like causes, or who shall advertise in any manner any medicine, drug, compound or any means whatever whereby sexual and venereal or urinary diseases of men and women may be cured or relieved or the monthly periods of women regulated or the menses re-established if suppressed, and the owner, publisher, editor or manager of any newspaper who shall publish any such advertisement or permit or allow any such advertisement to be inserted and published in any newspaper controlled by him or in which he has an interest, shall be guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not less than $50 nor more than $500, or by imprisonment in the county jail not more than six months, or by both such fine and imprisonment.
>
> 2. Nothing in this act contained shall be construed as prohibiting and punishing the printing, publication and distribution of medical journals, papers, pamphlets and circulars intended for scientific and professional information.

The second bill is an amendment to the medical practice act of the state, defining the words "immoral, dishonorable and unprofessional conduct" as follows:

> First, producing, aiding or abetting a criminal abortion. Second, advertising in any manner either in his own name or under the name of another person, firm or pretended firm, corporation or pretended corporation, in any newspaper, pamphlet, circular, or other written or printed paper or document, the curing of venereal diseases, the restoration of "lost manhood," the treatment and curing of private diseases peculiar to men or women, or the advertising or holding himself out to the public in any manner as a specialist in diseases of the sexual organs, or diseases caused by sexual weakness, self-abuse or excessive indulgences, or in any diseases of a like nature or produced by a like cause, or the advertising of any medicine or any means whatever whereby the monthly periods of women can be regulated or the menses re-established, if suppressed, or being employed by or in the service of any person, firm or pertended firm, association, corporation, or pretended corporation, so advertising. Third, the obtaining of any fee, or offering to accept a fee on the assurance or promise that a manifestly incurable disease can be or will be permanently cured. Fourth, wilfully betraying a professional secret. Fifth, indulging in the drug habit. Sixth, conviction of any offense involving moral turpitude.

This definition enables the State Board of Medical Examiners to revoke licenses issued to physicians who are subsequently guilty of unprofessional conduct.

The provisions of the third bill, which amends the practice of medicine, read as follows:

> 1. Every person shall be regarded as practicing medicine, surgery or osteopathy within the meaning of this act who shall append to his or her name the words or letters "Doctor," "Dr.," "Professor," "Prof.," "M. D.," "M. B.," or "D. O.," or any other title, letters, combination of letters or designation which in any way represents him or her, or may tend to represent him or her, as engaged in the practice of medicine, surgery, osteopathy, in any of its branches, or who shall for a fee prescribe or recommend or for any compensation of any kind or nature whatsoever for like use any drugs or medicine, osteopathic manipulation, appliance, operation, or treatment of whatever nature, for the cure or relief of any wound, fracture, bodily injury, infirmity or disease, provided however, that nothing in this act contained shall be construed as applying to any dentist or resident refracting optician engaged in the practice of his or her profession.
>
> 2. The use of any of the above-mentioned words or letters or titles, in such connection, and under such circumstances as to induce the belief, or tending to indulge the belief, that the person who uses them is engaged in the practice of medicine, or surgery or osteopathy in any of its branches, shall be deemed and accepted as prima facie proof of an intent on the part of such person to represent himself or herself as engaged in the practice of medicine, or surgery or osteopathy.

These three acts greatly strengthen the position of the medical profession in the state and give the state board the necessary legal authority to purify the profession and to carry out the purposes of the medical practice act.

Queries and Minor Notes

PROGNOSIS IN SYPHILIS.

——, July 8, 1907.

To the Editor:—Is any physician justified in telling a patient hat syphilis can be cured in six months? What is the fairest tatement of facts to make to the syphilitic about a case? S. T.

Answer.—The statement quoted is contrary to the experience nd advice of the best authorities. Treatment should be continued, n the average, for three years. Some advise periodic courses of reatment for eight or ten years. The patient should be informed hat the disease is curable, in some cases, but that in many cases ts manifestations are continued for many years or appear again fter the cessation of symptoms and after a thorough course of reatment has given reason to believe that a cure has been effected. On the other hand, the symptoms may disappear completely and permanently after a course of a few months, during which the symptoms may have been very mild. The patient should be warned o consult a physician immediately on the reappearance of symptoms, and of his own accord, to inform his physician of the fact hat he has had a syphilitic infection, no matter what the disease for which he may be applying for treatment.

OPSONIC THERAPY IN TUBERCULOSIS.

——, July 1, 1907.

To the Editor:—Will you kindly give the "opsonic" treatment for uberculosis? H. K.

Answer.—Our correspondent uses the term somewhat loosely when he speaks of the "opsonic" treatment for tuberculosis. It does not means that opsonins are used as remedial agents, but that the opsonic index is used as a guide in the treatment of disease by various agents. It may be so used to determine whether the time is appropriate for surgical intervention, or whether any remedy is effecting an increase of systemic resisting power which is the chief object of hygienic, open-air, dietetic and other methods of treatment. Most usually by the term "opsonic treatment" in tuberculosis is understood the use of tuberculin guided by the evidence of improvement afforded by the determination of the opsonic index. Formerly tuberculin was used in such a way that it produced a more or less violent reaction, and if the doses were repeated too frequently it did more harm than good. Now it is recognized that after the administration of a dose too small to give the classical 'reaction" a stage of lowered resistance as indicated by lowered opsonic index is exhibited and continues a variable length of time, followed by a stage in which the higher opsonic index shows that the vital resistance is increased. If the vaccine (tuberculin) be given in a second dose before the index has risen, harm instead of good will be done. If, however, the operator waits until the opsonic index has risen above its former level before giving a second injection a progressive increase of vital resistance can be brought about which is accompanied by local and general improvement. Among the articles giving the technic of the tuberculin treatment may be mentioned those of Wright, *Lancet*, Dec. 2, 1905; *Canadian Practitioner*, November, 1906; Trudeau, *Am. Jour. Med. Sci.*, August, 1906; Pottenger, The Journal, A. M. A., May 11, 1907; O. H. Brown, *St. Louis Medical Review*, May 25, 1907, Grace-Calvert, *Lancet*, Feb. 2, 1907.

TINCTURE OF ARTIFICIAL MUSK.

St. Louis, July 9, 1907.

To the Editor:—Can you tell me the formula, dose and action of the tincture of artificial musk? I fail to find any information about it. Yours truly, Y. Zaki.

Answer:—Artificial musk (trinitro-isobutyl-toluene) is a resinous compound prepared from toluene and soluble in alcohol. It has a musk-like odor and is used as a perfume. We can find no formula for a tincture for medicinal use, no account of its being used in medicine, and no data for making any statements regarding its physiologic action.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 13, 1907:

Heysinger, J. D., asst.-surgeon, granted leave of absence for two months, with permission to apply for an extension of one month.

Boards of medical officers as hereinafter constituted are appointed to meet July 29, 1907, at the places designated, for the purpose of conducting the preliminary examination of applicants for appointment in the Medical Department of the Army:

Webb, W. D., Pipes, H. F., and Huggins, J. B., asst.-surgeons, at the Army General Hospital, Washington Barracks, D. C.

Raymond, H. I., surgeon, Ruffner, E. L., and Metcalfe, R. F., asst.-surgeons, at Columbus Barracks, Ohio.

Bradley, A. E., surgeon, Gregory, J. C., and Pyles, W. L., asst.-surgeons, at Fort Leavenworth, Kans.

Richard, Chas., surgeon, and Shimer, I. A., asst.-surgeon, at Fort Jay, N. Y.

Hallock, H. M., surgeon, at Madison Barracks, N. Y.

Hansell, H. S., asst.-surgeon, at Fort Snelling, Minn.

Shockley, M. A. W., asst.-surgeon, at Fort Wright, Wash.

Whaley, A. M., asst.-surgeon, at Fort Sam Houston, Texas.

Scott, G. H., asst.-surgeon, at Fort Logan, Colo.

Ewing, C. B., surgeon, relieved from duty in the Philippines Division, to take effect at such time as will enable him to comply with this order, and will proceed on the transport to sail from Manila about September 15, to San Francisco, thence to Fort Oglethorpe, Ga., for duty.

De Loffre, S. M., asst.-surgeon, will report in person on Sept. 2, 1907, to Major R. G. Ebert, surgeon, president, examining board, Manila, P. I., for examination for advancement.

Ekwurzel, G. M., asst.-surgeon, granted leave of absence for one month and twenty-five days.

Howell, Park, Craig, C. F., Wickline, W. A., Brown, H. L., Baily, H. H., and Humphreys, H. G., asst.-surgeons, are relieved from duty in the Philippines Division, and will proceed on the transport to sail from Manila about September 15, to San Francisco, and on arrival report by telegraph to the Adjutant General of the Army for further orders.

Wall, F. M., contract surgeon, returned to duty at Fort Oglethorpe, Ga., from sick leave of absence.

Van Kirk, H. H., contract surgeon, returned to duty at Fort Logan, Colo., from leave of absence.

Koyle, F. T., Langenderfer, F. V., McPheeters, S. B., Myers, W. H., McLeod, H. C., contract surgeons, and Ingalls, R. E., dental surgeon, sailed on the *Sherman*, July 5, from San Francisco, for Philippine service.

Cook, G. W., contract surgeon, granted leave of absence for one month.

Voorhies, H. G., dental surgeon, granted an extension of one month to his leave of absence.

Oliver, R. T., examining and supervising dental surgeon, detailed to represent the dental surgeons of the Army at the meeting of the National Dental Association at Minneapolis, July 30 to August 2.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended July 10, 1907:

Glennan, A. H., asst. surgeon-general, granted leave of absence for 22 days from July 19, 1907.

Banks, C. E., surgeon, granted extension leave of absence for one month from June 20, 1907.

Brooks, S. D., surgeon, directed to proceed to the sub ports of Los Angeles for the purpose of inspecting vessels when necessary, on completion of which to rejoin his station.

Carrington, P. M., surgeon, granted leave of absence for two days from July 9, 1907, under Paragraph 189, Service Regulations.

McMullen, John, P. A. surgeon, granted leave of absence for seven days from July 5, 1907, under Paragraph 191, Service Regulations.

McMullen, John, P. A. surgeon, granted seven days' extension leave of absence.

Currie, D. H., P. A. surgeon, leave of absence granted for two months from June 9, 1907, amended to read for 13 days only.

Ward, W. K., asst.-surgeon, granted extension leave of absence for seven days, from July 5, 1907.

Hunt, Reid, Chief Division Hygienic Laboratory, designated to attend triennial meeting of the international Physiologic Congress, at Heidelberg, Aug. 12-17, 1907.

Schwartz, L., acting asst.-surgeon, granted leave of absence for two days on account of sickness, from June 28, 1907.

Williamson, S. D., acting asst.-surgeon, granted leave of absence for twelve days, from July 8, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the surgeon-general, Public Health and Marine-Hospital Service, during the week ended July 12, 1907:

SMALLPOX—UNITED STATES.

Illinois: Chicago, June 29-July 6, 2 cases; Galesburg, June 22-29, 1 case.

Indiana: Indianapolis, June 23-30, 1 case; Lafayette, June 29-July 1, 2 cases; Marion, June 1-30, 1 case; South Bend, June 22-29, 2 cases.

Iowa: Cedar Rapids, June 1-30, 2 cases; Davenport, June 16-30, 2 cases.

Kansas: Kansas City, June 22-29, 3 cases.

Louisiana: New Orleans, June 22-29, 4 cases.

Mississippi: Gulf Quarantine, May 1-31, 1 case.

Missouri: St. Joseph, June 1-8, 2 cases; June 22-29, 2 cases.

New Jersey: Newark, June 29-July 6, 1 case.

New York: New York, June 22-29, 1 death.

North Carolina: Greensboro, June 22-29, 1 case.

Ohio: Cincinnati, June 28-July 5, 2 cases; Cleveland, June 21-28, 4 cases.

Pennsylvania: Homestead, June 1-14, 1 case; New Castle, June 1-30, 3 cases.

Tennessee: Memphis, June 22-29, 4 cases; Nashville, June 30-July 6, 4 cases.

Texas: Galveston, June 21-28, 1 case.

Virginia: Richmond, June 22-27, 4 cases.

Washington: Fort Steilacoom, May 10-June 7, 2 cases; Spokane, June 22-29, 18 cases, 2 imported; Tacoma, 1 case.

Wisconsin: Milwaukee, June 22-29, 3 cases.

SMALLPOX—FOREIGN.

Brazil: Para, June 8-15, 12 cases, 3 deaths; June 15-22, 10 cases, 7 deaths.

Canada: Halifax, June 22-29, 6 cases.

China: Hongkong, May 11-25, 20 cases, 14 deaths; Neiuchwang, May 4-18, 3 cases; Shanghai, May 18-June 1, 5 cases among foreigners, among natives 83 deaths; 4 cases on S. S. *Wilmington*; Tientsin, May 18-25, 2 cases, 2 deaths.

Ecuador: Guayaquil, June 8-15, 1 death.

France: Lyon, June 11-18, 1 death; Paris, June 15-22, 1 death.

Germany: Königsberg, June 8-15, 1 case.

Greece: Piraeus, June 15-22, 1 case.

Italy: General, June 13-20, 34 cases; Naples, June 13-22, 3 cases among emigrants, 1 case removed from S. S. *Perugio;* June 22, 2 fresh cases.

Java: Batavia, May 18-25, 3 cases.

Mexico: City of Mexico, June 1-8, 7 deaths; Monterey, June 16-23, 1 death.

Russia: Moscow, June 8-15, 12 cases, 2 deaths; Odessa, 4 cases, 3 deaths; Riga, 10 cases; St. Petersburg, May 25-June 1, 9 cases, 1 death.

Straits Settlements: Penang, May 18-25, 1 case.

Turkey: Bagdad, May 18-25, present; Smyrna, April 15-May 30, 17 deaths.

India: Bombay, May 28-June 4, 1 death; Calcutta, May 18-25, 32 deaths.

YELLOW FEVER.

Brazil: Para, June 8-22, 3 cases, 3 deaths.

Cuba: Santiago, July 8, 1 case, removed from S. S. *Puerto Rico,* embarked at Habana; Union de Reyes, July 9, 1 case.

Ecuador: Guayaquil, June 8-13, 1 death.

West India: Port of Spain, Trinidad, May 25-June 15, 6 cases, 2 deaths.

CHOLERA.

India: Bombay, May 28-June 4, 1 death; Calcutta, May 18-25, 46 deaths; Kashmir Province, May 20-27, 1,447 cases, 782 deaths.

PLAGUE.

Africa: King Williams Town, May 24, 1 case.

China: Hongkong, May 11-25, 19 cases, 17 deaths.

Egypt: Alexandria, June 6-13, 2 cases, 1 death; Assiout Province, 7 cases, 7 deaths; Behera Province, 2 cases, 2 deaths; Boni Souef Province, 1 case, 2 deaths; Garbieh Province, 1 case, 1 death; Keneh Province, 15 cases, 15 deaths; Minieh Province, 1 case, 2 deaths.

French Cochin China: Saigon, May 21, present.

India: Bombay, May 28-June 4, 49 deaths; Calcutta, May 18-25, 131 deaths; Rangoon, May 18-25, 43 deaths.

Straits Settlements: Singapore, May 12-25, 3 deaths.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

ILLINOIS State Board of Health, Great Northern Hotel, Chicago, July 25-27. Secretary, Dr. J. A. Egan, Springfield.

KENTUCKY State Board of Health, City Hall Building, Louisville, August 1-2. Secretary, Dr. J. N. McCormack, Bowling Green.

CALIFORNIA Board of Medical Examiners, San Francisco, August 6. Associate Secretary, Dr. F. Dudley Tait, San Francisco.

The University of Missouri at St. Louis.—Direct information confirms the report that the University of Missouri will, after September, 1908, give the last two or clinical years of the medical course at St. Louis. This is made possible from the fact that the property of Barnes Medical College has been donated to the university free from incumbrance and without any conditions except that it be used for the advancement of medical education in the city of St. Louis. The property includes the ground, buildings and equipment of the medical, dental and pharmaceutic departments of Barnes University as well as Centenary Hospital, the entire property being valued at $275,000. The buildings are comparatively new, the medical building having been erected in 1896 and the hospital building in 1902, the latter having a capacity of 100 beds. The establishment of the clinical department at a city the size of St. Louis removes from the University of Missouri the handicap under which it has been working in the past, and will make that university a factor in the establishing of higher medical standards in that section of the country.

Two Medical Colleges Adopt Higher Requirements.—The trustees of Denver and Gross College of Medicine recently voted unanimously to require for admission to the study of medicine, beginning with 1910, in addition to a four-year high school education, a year of nine months to be devoted to physics, chemistry, biology and one modern language.

Similar action has been taken by the faculty of the College of Medicine of the University of Southern California.

Louisiana Board.—At a special meeting of the Louisiana State Board of Medical Examiners, held in New Orleans, July 13, Dr. F. M. Thornton, Arcadia, was elected president; Dr. C. D. Simmons, Baton Rouge, vice-president, and Dr. F. A. LaRue, New Orleans, was re-elected secretary and treasurer. The newly appointed member of the board is Dr. J. G. Martin, Lake Charles.

South Carolina June Report.—Dr. W. M. Lester, secretary of the South Carolina State Board of Medical Examiners, reports the written examination held at Columbia, June 11-13, 1907. The number of subjects examined in was 16; total number of questions asked, 115; percentage required to pass, 75. The total number of candidates examined was 60, of whom 41 passed and 18 failed, and one who left the room on account of sickness was granted a temporary license. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Medical College of Georgia (1906) 75;	(1907)	76
Howard University, Washington	(1906)	80
Atlanta College of P. and S.	(1907)	75, 76, 79
University of Maryland	(1906)	81, 84
Tulane University of Louisiana	(1907)	89
North Carolina Med. Coll. (1905) 80;	(1907)	75
University of North Carolina	(1907)	86
Leonard Med. School	(1907)	76
Medical Coll. of South Carolina, (1905) 83; (1906) 86;	(1907)	75, 75, 75, 76, 76, 78, 79, 82, 82, 83, 84, 85, 85, 87, 89.
Chattanooga Med. Coll., (1906) 75;	(1907)	75, 75, 75
University of Nashville	(1907)	75, 75
Vanderbilt University	(1907)	77
Meharry Med. Coll.	(1905)	79
Medical Coll. of Virginia	(1905)	83
University of Virginia	(1907)	79
University Coll. of Medicine, Richmond	(1907)	84

FAILED.

College.	Year. Grad.	Per Cent.
Medical Coll. of Georgia (1903) 66.6;	(1906)	68.5
Maryland Med. Coll.	(1906)	49.2
College of P. and S., Baltimore	(1905)	72.3
Baltimore Med. Coll.	(1907)	72.6
Leonard Med. School (1906) 64.8;	(1907)	69
North Carolina Med. Coll (1905) 68.1;	(1907)	57.1, 58, 72.6
Medical Coll. of South Carolina	(1907)	50.7, 63.3, 67
Chattanooga Med. Coll.	(1907)	62
Knoxville Med. Coll.	(1905)	39.2
University of the South	(1905)*	
University Coll. of Med., Richmond	(1907)†	

* Expelled from examination for cheating.

† Arrived too late to take all the examinations.

Louisiana May Report.—Dr. F. A. Larue, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, May 9-10, 1907. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 134, of whom 128 passed and 6 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Illinois Med. Coll.	(1907)	85
Louisville Med. Coll (1898) 78.4, 80.2;	(1906)	77.2
Kentucky University	(1906)	87.2, 89.8
Hospital Coll. of Med., Louisville	(1906)	90.6
Kentucky School of Med.	(1898)	75
Flint Med. Coll., (1904) 77.6, 80.6;	(1907)	81.2, 81.6, 81.8, 83.2, 84, 84.6, 85, 87.6.
Tulane University of Louisiana, (1893) 84.8; (1902) 84.8; (1906) 83.6;	(1907)	76:4, 76.8, 81.8, 81.8, 82.6, 82.6, 82.8, 83.6, 84.4, 84.8, 85.6, 85.8, 86.4, 86.6, 86.8, 86.8, 87.6, 88, 88, 88.4, 88.4, 88.6, 88.8, 89, 89, 89, 89, 89, 89.2 89.4, 89.4, 89.6 89.6, 89.6, 89.8, 89.8, 90, 90, 90, 90, 90.2, 90.4, 90.8, 91, 91, 91, 91.2, 91.2, 91.4, 91.8, 91.8, 92, 92.4, 92.4, 92.6, 92.6, 92.6, 92 6, 92.8, 92.8, 93.6, 93.8, 93.8, 94.6, 94.8, 95.
Medico-Chirurgical College, Philadelphia	(1906)	87.8
Memphis Hospital Med. Coll., (1891) 78.6; (1903) 91.4; (1905) 80.6;	(1907)	75, 75.2, 78.4, 81, 82, 82.2, 82.6, 83.4, 87.8, 87.8, 88.2, 88.8, 92.4, 93.
University of Nashville—(1906) 82.6;	1907)	82.4, 84.6, 85.6, 88.6, 88.8.
University of the South	(1906)	76, 78, 81.4, 82, 83, 88.2
University of Tennessee	(1907)	83.6
College of P. and S., Memphis	(1907)	91.8
Vanderbilt University, Nashville	(1907)	86
Chattanooga Med. Coll.	(1904)	83.8
Meharry Med. Coll. (1906) 82.8;	(1907)	81.4, 83.8
College of P. and S., Dallas	(1907)	75.6, 85.4
Baylor University, Dallas	(1905)	81
Laval University, Quebec	(1901)	77.2

FAILED.

College.	Year. Grad.	Per Cent.
Hospital Coll. of Med., Louisville	(1905)	71.2
Baltimore University	(1904)	72.2
University of Nashville	(1872)	66
Memphis Hosp. Med. Coll.	(1893)	53
Meharry Med. Coll.	(1906)	74.2, 74.8

Pennsylvania June Examination.—At the examination held by the Pennsylvania State Board of Medical Examiners in Philadelphia and Pittsburg, June 25-28, 1907, 284 candidates were examined, including 15 women. The following questions were asked:

CHEMISTRY.

1. Name five morbid products which may be present in urine and give a reliable test for each. 2. Give the normal degree of acidity of the gastric juice, and describe a method of determining the relative acidity in a given case. 3. Give a test for the detection of blood in any secretion. 4. Give a chemical method for converting "hard" into "soft" water. 5. What chemical tests are used for detecting the presence of organic impurities in water?

MATERIA MEDICA.

1. Name an official solution containing mercury, iodin, and arsenic, and state approximately how much of each substance is contained in one dram, or 1 c.c. of the solution; also give the adult dose. 2. Name five drugs incompatible with a mixture containing iodid of potassium. 3. Name the ingredients which enter into compound extract of colocynth. 4. Discuss hydrastis canadensis, giving chief active principles and important preparations. 5. Write a prescription for a four ounce mixture containing bromid of potassium in combination with the active principle of hops.

ANATOMY.

1. Describe the portal system. 2. Describe the palmar fascia. 3. Describe the knee joint, give its articulations, and name and describe its cartilages. 4. Give the origin, foramen of exit, and distribution of the pneumogastric nerve. 5. Give the surface topography of the fundus of the gall bladder, lower border of the spleen, and the apex of the heart. 6. Give the length, course and relations of both the male and female ureters. 7. Describe the uterus, its position and relations. 8. Describe the stomach, name its coats and give its blood and nerve supply. 9. Locate the foramen of Winslow and name the structures in relation therewith. 10. Describe the bones forming the nasal fossæ, and name accessory sinuses communicating therewith.

PHYSIOLOGY.

1. Discuss the flow of blood in the capillaries, and explain why the capillary circulation occupies so important a place in the vascular system. 2. What is the normal rate of respiration per minute, and the ratio it bears to cardiac rhythm? 3. Explain how nutrition of the heart is effected, and name the sources of supply to the myocardium. 4. Summarize the functions of the blood, and specifically enumerate those of the erythrocytes and leucocytes. 5. Describe the three principal functions of the liver.

PATHOLOGY.

1. Discuss fatty degeneration, explaining of what it may be a symptom when affecting parenchymatous cells. 2. Discuss the effects of an exudative type of inflammation on structure, and explain how and why function may be permanently impaired. 3. Give a minute description of and explain the process occurring in necrosis of bone. 4. Describe the changes in the wall of an artery occurring in any form of aneurism. 5. Define embolism, and describe its sources and nature.

PRACTICE AND THERAPEUTICS.

1. What are the symptoms of aneurism of the arch of the aorta? 2. What are the symptoms of acute suppurative appendicitis? 3. What are the symptoms of locomotor ataxia? 4. What are the symptoms of obstructive jaundice? 5. What are the symptoms indicative of intestinal perforation in typhoid fever? 6. How would you treat a case of intestinal perforation in typhoid fever? 7. Name some of the indications and contraindications to digitalis. 8. Give some of the indications for the use of the following drugs as cathartics, and the dose of each: (a) Castor oil. (b) Calomel. (c) Magnesium sulphate. 9. Name some of the drugs used as diuretics and state the conditions in which they are severally indicated. 10. How would you treat a case of cardiac dropsy?

SURGERY.

1. Describe the symptoms of mastoid abscess and an operation for the relief of same. 2. Describe in detail an operation for the repair of a laceration of the female perineum. 3. Describe the proper technic of uterine curettage; name conditions indicating and contraindicating this operation. 4. Describe the essential principles involved in an operation for the radical cure of inguinal hernia in the male. 5. Describe in detail the technic of tracheotomy. 6. What symptoms in fracture of the skull demand immediate operation? 7. Describe in detail symptoms of internal abdominal hemorrhage, name conditions in which it might occur and outline the treatment. 8. Define volvulus and give the symptoms and treatment. 9. Give the symptoms and treatment of a fracture at the upper third of the femur. 10. Give the symptoms of a backward luxation of the forearm and method of reduction.

OBSTETRICS.

1. Give the symptoms of ectopic pregnancy and describe the treatment. 2. What are some of the prodromic symptoms of eclampsia, and how should you treat a patient thus threatened? 3. What are the causes of asphyxia neonatorum? Give treatment. 4. Describe delivery of child presenting by the breech. 5. What importance is attached to antepartum hemorrhage? Give causes and treatment. 6. Give treatment of pernicious vomiting of pregnancy. 7. What antiseptic precautions should be taken before and after delivery, with reference to attendants, mother and child? 8. What is the "bag of waters," what is its use, and what precautions are necessary in relation to it? 9. What precautions should be taken to avoid laceration of the cervix and perineum, and if they occur what should be done and how do it? 10. What measures should be taken to prevent ophthalmia neonatorum?

DIAGNOSIS.

1. Give the early diagnostic symptoms of locomotor ataxia, and differentiate between this disease and multiple neuritis. 2. Differentiate carcinoma of stomach and chronic pancreatitis. 3. Diagnosticate two varieties of cirrhosis of the liver. 4. Differentiate the more common late cutaneous and periosteal syphilitic diseases, and the non-specific diseases which closely resemble them. 5. Differentiate delirium tremens and cerebral meningitis.

HYGIENE.

1. What measures would you use to prevent the spreading of infections and contagious diseases? 2. State the principal causes of infantile mortality, and what hygienic measures you would employ to reduce the mortality rate. What diseases may be transmitted through the agency of (a) the soil, (b) water, (c) air, (d) insects? 4. Describe an approved method of ventilating the sick room and explain the principles involved. 5. What principles should be observed for preventing eyestrain in the schoolroom?

Arizona April Report.—Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, April 1-2, 1907. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 11, of whom 10 passed and one failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
University of California	(1892)	78
California Med. Coll.	(1893)	75
Hahnemann Med. Coll., Chicago	(1893)	77
Rush Med. Coll.	(1906) 80; (1907)	90.2
Indiana Med. Coll.	(1904)	76
Medical College of Ohio	(1899)	76
University of Pennsylvania	(1905)	85
American Med. Coll., St. Louis	(1897)	75
Western Pennsylvania Med. Coll.	(1893)	75.5.

FAILED.

College.	Year Grad.	Per Cent.
Barnes Med. Coll., St. Louis	(1902)	24.2

Minnesota April Report.—Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, April 2, 1907. The number of subjects examined in was 15; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 18, of whom 9 passed and 9 failed. Fourteen reciprocal licenses were granted. The following colleges were represented:

PASSED.

College	Year of Graduation.	Medicine.	Surgery.	Obstetrics and Gynecology.	Materia Medica.	Anat. and Hist.	Physiology.	Chem., Toxicol. and Urinalysis.	Pathology and Bacteriology.	Prev. Med. and Med. Juris.	General Average.
Rush Med. Coll.	1905	95	85	84	96	95	80	88	99	82	82.2
Rush Med. Coll.	1905	78	75	75	80	82	75	63	86	82	77.3
Coll. of P.&S., Chicago	1906	76	76	79	77	75	75	66	88	78	76.7
Northwestern Univ.	1905	99	77	91	92	93	88	75	99	80	88.2
University of Minnesota	1906	78	77	75	84	75	76	79	64	78	76.2
Minn. Coll. of P. & S.	1906	94	77	77	79	80	76	70	80	75	78.6
Jefferson Med. Coll.	1889	80	85	89	96	76	75	72	75	72	80
University of Virginia.	1906	82	75	60	82	91	82	75	78	72	77.4
McGill Univ., Quebec.	1906	79	80	64	79	92	90	93	78	77	81.3

FAILED.

College	Year of Graduation.	Medicine.	Surgery.	Obstetrics and Gynecology.	Materia Medica.	Anat. and Hist.	Physiology.	Chem., Toxicol. and Urinalysis.	Pathology and Bacteriology.	Prev. Med. and Med. Juris.	General Average.
Rush Med. College	1902	74	54	71	60	79	60	41	76	70	65
Ft. Wayne Coll. of Med.	1906	74	47	65	60	70	75	55	67	72	65
Minneap. Coll. of P.& S	1906	68	69	52	49	75	75	58	82	72	66.6
Minneap. Coll. of P.& S	1904	78	57	64	61	72	57	39	47	66	60.1
Univ. of Minnesota	1905	80	59	75	62	75	58	45	74	68	66.3
*Minneap. Coll. of P.& S	1906	80	76	66	75	83	75	67	86	75	75.8
Miami Med. College	1902	84	68	68	75	90	60	56	55	72	69.7
Milwaukee Med. College	1904	74	54	90	75	74	75	47	62	72	69.3
University of Toronto.	1906	77	75	62	75	86	63	75	76	73	73.5

*Failed on account of his low marking in obstetrics.

LICENSED THROUGH RECIPROCITY.

College	Year Grad.	Reciprocity with.
Northwestern, University	(1903) Iowa; (1906)	Illinois
College of P. & S., Chicago	(2, 1904) Illinois; (1895)	Iowa
Bennett Coll. of Ecl. Med. & Surg.	(1887) (1898)	Wisconsin
Hahnemann Med. Coll., Chicago	(1906)	Illinois
Rush Med. College	(1898)	Illinois
Sioux City Coll. of Med	(1904)	Iowa
University of Michigan	(1887)	Michigan
Syracuse University	(1901)	New Jersey
Jefferson Med. Coll.	(1906)	Illinois
Woman's Med. Coll. of Pennsylvania	(1878)	Iowa

Marriages

Ralph C. Matheny, M.D., to Delia M. Rice, M.D., both of Galesburg, Ill., July 3.

Myer Brody, M.D., Philadelphia, to Miss Anna Bialosky of Cleveland, Ohio, June 25.

Edward Franklin Stephens, M.D., Pine Knot, Ky., to Miss Mary Etta Burnette, June 27.

Selmon A. Cassady, M.D., to Miss Ellen Smith, both of Cantril, Iowa, at Keokuk, June 27.

Wilhelm S. Anderson, M.D., Warren, Minn., to Miss Anna C. Anderson of Joliet, Ill., July 2.

Henry Wolf Gray, M.D., Philadelphia, to Miss Florence Crawford of Ferrol, Va., June 12.

Harry R. Woods, M.D., Pittsburg, Pa., to Miss Nan B. Spanogle of Johnstown, Pa., July 2.

John E. Prest, M.D., Comstock, Neb., to Miss Maud Isabelle Pearce of McCool Junction, Neb., June 26.

Deaths

Ralph Preston Stubbs, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1897; a member of the American Medical Association; assistant gynecologist at Delaware Hospital; visiting physician to the Home of Merciful Rest for Incurables, Wilmington; physician to the Newcastle County Workhouse; a member of the Wilmington board of health, and one of the organizers and a director of the Delaware Anti-Tuberculosis Society; a young practitioner of great promise; died at his home in Wilmington, July 7, after an illness of more than twelve weeks, from ulcerative endocarditis, aged 32.

Charles Henry Mills, M.D. Medical Department, Western Reserve University, Cleveland, 1857; Illinois Army Board, 1862; Medical Department of the University of Nashville, Tenn., 1864; a member of the American Medical Association, and one of the oldest practitioners of central Illinois; surgeon of the One Hundred and Twenty-fifth Illinois Volunteer Infantry during the Civil War, died from heart disease at his home in Champaign, Ill., July 4, aged 83.

James Hamlin Gunn, M.D. Bellevue Hospital Medical College, New York City, 1869; a member of the American Medical Association; once president of the Shelby County Medical Society, and for 30 years a practitioner of Calera, Ala., on June 29, while remonstrating with policemen who were maltreating a prisoner, was shot by one of the policemen and died in St. Vincent's Hospital, Birmingham, July 3, aged 61.

Mark Anthony Dashiell, M.D. Medical College of Indiana, Indianapolis, 1851; a pioneer practitioner of Indianola, Iowa, and a member of the Iowa State and Warren County medical societies; thrice representative and twice senator in the state legislature; for 10 years a trustee of the State Industrial School, died at his home in Indianola, July 3, after an illness of three weeks, aged 81.

William Parmenter, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1857; a member of the Michigan State and Eaton County medical societies, and for 45 years a practitioner of Vermontville, Mich., died at his home in that place, July 4, after an invalidism of several years, aged 78.

William L. Albright, M.D. Eclectic Medical Institute, Cincinnati, 1891; a member of the Michigan State and Allegan County medical societies; died at his home in Allegan, Mich., July 6, after an illness of five days, and three days after an operation for appendicitis, aged 39.

Edward John Hadfield, M.D. Jefferson Medical College, Philadelphia, 1890; a member of the Medical Society of the State of Pennsylvania and Chester County Medical Society, died at his home in Phoenixville, Pa., July 5, from paresis, complicated by nephritis, aged 39.

F. M. Magruder (Years of Practice, Ky.), 1893; for more than 40 years a practitioner of Daviess County, Ky., and for 20 years a resident of Utica, died at the home of his daughter in Habit, Ky., July 5, after an illness of ten days, from heart disease, aged 68.

Almon L. Ellsworth (Years of Practice, Mich., 1900); for more than 50 years a practitioner of Lowell, Mich., and once supervisor of the town, died at his home, April 29, from cerebral hemorrhage, after an illness of three days, aged 81.

James Bradley Everett, M.D. Dartmouth Medical School, Hanover, N. H., 1861; a member of the Massachusetts Medical Society, and for nearly 40 years a practitioner of Everett, Mass., died at his home in that place, May 20, aged 78.

Bertrand H. Keating, M.D. McGill University Medical Faculty, Montreal, 1904; of Montreal, died at Los Angeles, Cal., July 5, after a prolonged illness, which had necessitated his residence in Denver, Mexico and Northwest Territory.

John J. Hoopingarner, M.D. Western Reserve University Medical College, Cleveland, 1854; died at his home in Berrien Springs, Mich., July 6, six weeks after an accident in which he fractured his thigh, aged 83.

William Acland Haywood Oronhyatekha, M.D. Faculty of Medicine of Trinity College, Toronto, 1892; died suddenly at his home in Deseronto, Ont., July 7, from heart disease, aged 38.

William D. Groton, M.D. University of Maryland School of Medicine, Baltimore, 1879; died at his home in Rivera, Cal., July 2, after an illness of several weeks, aged 52.

Alexander W. Swan, M.D. Eclectic Medical Institute, Cincinnati, 1869; died at his home in Middleport, Ohio, July 4, after an illness of a few days, aged 79.

Joseph L. Duhart (Examination, La.); a resident of Lafayette, La., for 20 years, died at his home, June 23, after a brief illness, aged 57.

P. L. Powell, M.D. Barnes Medical College, St. Louis; of Summerville, Mo., died recently while returning from making a call on a patient.

Robert E. Worley, M.D. Rush Medical College, Chicago, 1903; a medical missionary, was accidentally drowned at Swatow, China, July 5.

Elbert J. Powell, M.D. Medical College of Alabama, Mobile, 1872; died at his home in Maysfield, Texas, March 8, aged 57.

Deaths Abroad.

Sir William Henry Broadbent, Bart., K.C.V.O. 1884; M.D. London, 1860; F.R.C.P. London, 1869; LL.D. Edin., 1898, and St. Andrews, 1899; D.Sc. Leeds, 1904; F.R.S.; physician extraordinary to Queen Victoria from 1898 to 1901; physician in ordinary to the king and the prince of Wales; commander of the Legion of Honor; fellow of the Royal Medico-Chirurgical Society and Medical Society of London; honorary member of many learned societies; consulting physician to St. Mary's Hospital, London Fever Hospital and New Hospital for Women; formerly senior physician and lecturer on clinical medicine at St. Mary's Hospital; president of the Medical Society of London in 1881; of the Harveian Society, of the Clinical Society in 1887-88 and of the Neurological Society in 1895-96, and censor of the Royal College of Physicians in 1888-89 and 1895-96; eminent as a practitioner and writer; an authority on pulse and heart disease, died at his home in London, July 10, aged 72.

Julius Dreschfeld, M.D. Würzburg; F.R.C.P. Lond.; B.Sc. Vict.; consulting physician to the Manchester Royal Infirmary; professor of medicine, Victoria University, Manchester, died at Manchester after an illness of only four days, aged 61. He was born in Bavaria, but came to Manchester in 1861, at the age of 16. He was educated at Owens College, where he distinguished himself. In 1872 he was appointed assistant physician to the Manchester Royal Infirmary, and in 1883 full physician. In 1881 he was appointed lecturer on pathology at Owens College, and in 1891 professor of medicine. For many years he held the foremost position as a physician in Manchester and his opinion was much sought after in difficult cases by his medical brethren. He was an indefatigable worker, with all that minuteness and thoroughness for which the Teutonic mind is famous. His contributions to medical literature are numerous and important. They include "The Bradshaw Lecture" on diabetic coma, delivered before the Royal College of Physicians in 1888; "Enteric Fever," "Gastric Ulcer and Endocarditis," in Allbutt's System of Medicine; "Primary Lateral Sclerosis," "Alcoholic Paralysis," and "Some of the Rarer Forms of Muscular Atrophy," "Adenoma of Adrenals."

Society Proceedings

COMING MEETINGS.

Minnesota State Medical Association, Duluth, August 13.
Wisconsin State Medical Society, Superior, August 20-22.
Ohio State Medical Association, Cedar Point, August 28.

RHODE ISLAND MEDICAL SOCIETY.

Ninety-sixth Annual Meeting, held in Providence, June 13, 1907.

The President, Dr. C. F. Barker, Newport, presiding.

Officers Elected.

The following officers were elected for the coming year: President, Dr. C. V. Chapin, Providence; vice-presidents, Drs. F. B. Fuller, Pawtucket, and E. Kingman, Providence; secretary, Dr. S. A. Welch, Providence; treasurer, Dr. G. S. Mathews, Providence.

The secretary's statement showed that the society has 377 members, of whom 339 are resident fellows, 26 are non-resident, and 12 are honorary members.

The committee on contract work, through Dr. George D. Hersey, chairman, presented the following resolution, which was passed:

Resolved, That contract practice requiring a physician to attend people not in destitute circumstances, for a sum much lower than the ordinary fee, is unbusinesslike, undignified, unfair to other practitioners, and derogatory to the best interests of the medical profession.

Prizes.

The trustees of the Fiske fund reported that the prize of $250 for the best essay on "Diet in Typhoid Fever" had been awarded to Dr. John Benjamin Nichols of Washington, D. C. For 1908 a prize of $200 is offered for the best essay on the subject, "Has Surgical Treatment Lessened the Mortality of Appendicitis." For 1909 a prize of $200 is offered for the best essay on "The Mode of Infection and the Duration of the Infectious Period in Scarlet Fever."

The trustees of the Chase-Wiggin fund reported no award of the prize offered this year. For the year 1908 a prize of $75 is offered for the best popular essay on "Tea and Coffee and Their Injurious Effects."

Dr. John Champlin reported as delegate to the American Medical Association, showing the wonderful growth in numbers in the last few years, the business aspect and some of the work of national importance which had been accomplished.

Foreign Body in Bronchus.

Dr. Frank B. Sprague reported two cases of foreign bodies in the right primary bronchus which were successfully removed. The first was a ten-ounce tack, which could be seen in the bronchus with the bronchoscope. A tracheotomy was done, and by means of Kelly's cystoscope and a long uterine forceps the tack was removed. After its removal there was a flow of sero-mucus which had accumulated below the tack.

In the second case an eighteen months' baby had a piece of a peanut in the right bronchus. There was great dyspnea and an alarming condition. The same method was followed as in the first case, using ether, the cystoscope, and a uterine tenaculum with a part of the end broken off to hook up the peanut. Both patients made prompt recovery.

Dr. John Champlin emphasized three things as "good business" for the physician: Cleanliness, personal and moral, the best equipped and most attractive office he could provide, and a good residence and turnout. He spoke of the awakening which, he said, was taking place everywhere among medical societies, and declared that the organized profession was becoming for the first time a force to be reckoned with in state and national legislation. Dr. Champlin thought there should be a secretary of health in the President's Cabinet, declaring that health was the most important of all matters of national concern, and the neglect to recognize it due only to the self-depreciation of medical men.

The Psychic Factor in Disease.

Dr. George C. Smith, Boston, said that the "psychic fad" differed in no wise from other delusions that had been taken up, dissected, their nucleus of good extracted and dropped. He called it a fad, he added, but in Boston at present it was almost a monomania. The principal point of difference from popular delusions of the Middle Ages was that then the devotees were the ecclesiastics and the populace, whereas now they were the members of the teaching and medical professions. The rest of the paper was devoted to a technical and professional discussion of the value and place of psychic treatment in neurasthenia, melancholia and similar diseases.

Expert Medical Testimony.

Mr. Justice Brown of the United States District Court said that it was the common opinion among local judges that the physician, as a rule, made a good witness; that he was honest, clear in his statements and showed a trained mind. Judge Brown said that in dealing with the ordinary questions of law we must look to the usual safeguards which our present system affords. There are, however, in the medical profession, as in the legal profession, a very small minority who are dishonest, and these men present a substantial problem. That is not merely a problem of the medical expert; it is a general problem of the liar in a court of law; the special problem of the liar who is given the privilege of expressing his opinion on obscure questions. The problem is practically the same with the patent expert, the real estate expert, and the expert on any of the subjects of expert testimony. The dishonest medical expert, he concluded, must be dealt with as any other dishonest witness, as an individual.

Judge Brown upheld the value and necessity of the medical expert's presence in the courts. He had not found in his experience basis for the general and sweeping condemnation of medical testimony, he said. On the contrary, he held the honest partisanship of the witness under fee as an expert to be not at all an unmixed evil. That the witness was under fee was known to the jury, which always considered that fact, and he had more occasion to caution juries to give due weight to expert testimony than to caution against giving it undue weight. He did not favor the proposed substitution of a court-appointed commission for experts retained by the contending parties, regarding it as open to serious objection as an interference with the system of trial by jury. It was no part of the judicial function, said Judge Brown, to select witnesses or endorse their credibility. That was for the jury. He also disapproved of the proposal to abolish the hypothetical question as entirely impracticable and a most extraordinary attack on ordinary logical processes of human reasoning. He referred to the great advantage of the hypothetical question, in that it permits an opinion on a state of facts prior to the final establishment of that state of facts. He stated that it was often the most exact and shortest method of trying the real issue in a case.

Professional Secrets in Courts of Law.

Hon. Charles E. Gorman traced the rise of the professional privilege in the law. Through the years the evolution had been restriction rather than extension of the privileged communication. At present the right is confined to the lawyer and the priest, and in some twenty-five or thirty states to the doctor. Mr. Gorman pointed out some of the differences between the confidences of lawyer and client and of doctor and patient. He showed that practically the doctor's practice was never diminished by lack of privilege; that it was only in a few cases that the physician himself felt any need of secrecy, as in a case of venereal disease. The demand is more of a sentiment than a need. He thought that the doctors should disclose all they knew and so help the administration of justice.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Forty-first Annual Meeting, held at Long Branch, June 25-27, 1907.

The President, Dr. Alexander Marcy, Jr., Riverton, presiding.

Legality of State Medical Examinations and Reciprocity.

Dr. E. L. B. Godfrey, Camden, said that the right of a state to demand that graduates of medical colleges shall pass a state board examination before being allowed to practice is based on the police power of the state. It is one of the rights not vested by the Constitution in the federal government nor denied to the states. It could not be exercised by the federal government without an amendment to the Constitution. He also made a strong plea for reciprocity between states having nearly similar standards of qualifications.

Dr. Mortimer Lampson, Jersey City, denied that medical examining boards had had any influence in advancing the merits or standing of the profession.

Dr. C. D. Bennett remarked that no practitioner could state that the attention of the New Jersey Board of Examiners had ever been called to any one practicing illegally, but what they had called the attention of the district attorney to the matter. The law does not permit the board to prosecute. He likewise claimed that the examining board does advance the profession by raising the standard and compelling the colleges to raise theirs in accordance with it.

Progress in Surgery.

The evening session was a general one. Dr. Albert Vander Veer, Albany, N. Y., delivered the oration in surgery, reviewing the progress made in almost every conceivable surgical procedure during the last 40 years.

The Physician and the Medical Press.

Dr. Morris Manges, New York, in the oration on medicine contended that what is regarded as unfit for the body of a medical journal should be considered unfit for its advertising pages. He thought that articles regarding the newer drugs should be published for the information of physicians, but that manufacturers should be forbidden to reprint these for commercial purposes.

When to Operate and When Not to Operate in Ruptured Ectopic Pregnancy.

DR. J. S. BAER, Camden, said that although it would be best to operate before rupture has taken place, this is not possible; therefore, the question is when to operate after the rupture has been diagnosed. He said that in most cases one should operate as soon as the diagnosis is made; but that in some few cases, when there is profound shock, a little waiting will sometimes result in saving life. He reported six cases, illustrating these points.

DISCUSSION.

DR. B. F. BAER, Philadelphia, always operates whenever there is a tumor found in the pelvis, whether it is extrauterine pregnancy or not. When the rupture has occurred and the patient is practically dead, Dr. Baer believes that the patient will be saved more frequently if the gynecologist waits for a while. He does not endorse the operation by vaginal section in extrauterine pregnancy.

DR. EDWARD J. ILL, Newark, thought that such patients should not be taken to a hospital, but should be attended to on the spot, no matter where it be. He also thought that no operation should be performed in cases of tubal abortion.

DR. P. A. HARRIS, Paterson, said that there are two symptoms by which the general practitioner can diagnosticate ectopic gestation; atypical menstruation and pains. He should not accept a statement that it is probably a case of abortion without inquring whether the fetus has been seen by anyone.

DR. G. K. DICKINSON, Jersey City, did not think that operation had ever hastened a death in extrauterine pregnancy. He believes in always operating, without waiting to transfer the patient to a hospital.

DR. EMERY MARVEL, Atlantic City, said that in conditions of shock, stimulation will benefit the vasomotor system, and can be given during the operation. Therefore, delay on that ground is unjustifiable.

DR. J. W. MARTINDALE, Camden, recently had two cases in the tragic stage of ectopic gestation. One patient was operated on and died, and the other was operated on and recovered. One can not tell which case will recover and which will not, so one should operate in all cases. Collapse is a fainting condition, and fainting is Nature's way to stop bleeding. If stimulation is applied the bleeding will recommence. It would, therefore, be productive of more harm than good.

DR. J. S. BAER does not believe in stimulation, except in a radical operation. He saved one patient by intravenous infusion of salt solution. He does not know in which cases waiting will save the patient, but feels that such cases exist. All his patients were out of bed sooner than if he had operated from below. He believes that the hematocele is absorbed in but a limited proportion of cases.

Diet in Pulmonary Tuberculosis.

DR. THEODORE SENSEMAN, Atlantic City, said that not the amount of food ingested, but the amount assimilated, is the important consideration. Improve digestion and allow appetite to follow of its own accord. There is a pivotal point in each patient's digestive ability, which must be ascertained. This pivotal point is capable of being raised. All tubercular individuals show evidences of digestive derangement. It is folly to attempt to make them do more work in this condition than they could in a healthy state. Stuffing patients with solid food is, therefore, a mistake. The diet that gives the greatest amount of nourishment and makes the least demand on the digestive organs is the diet of choice. Raw eggs and milk meet these requirements. Each patient has a normal weight, beyond which we should not endeavor to force him. This normal weight attained, the smallest quantity of food that will enable him to maintain it is sufficient. So long as this normal weight can be maintained, the patient has nothing to fear from tuberculosis.

DR. D. E. ENGLISH, Milburn, emphasized the value of purgation. He favors three or four bowel movements a day, to get rid of the waste products of the extra amount of food ingested. He adds a little water and salt to each glass of milk.

Premature Separation of the Placenta.

DR. J. W. MARTINDALE, Camden, described a fatal case. He at first thought the patient was suffering from placenta prævia, but soon became suspicious that there was a separation of the placenta, and that the blood was working its way between the uterus and the membranes. The uterus was emptied, and the placenta was swept out with a tremendous gush of blood. The uterus contracted well, and the patient did not lose much blood after delivery. The pulse was very weak and the respirations rapid. Stimulants failed to rally her, and she died an hour and a quarter after being seen.

DR. CHARLES P. NOBLE, Philadelphia, said that everyone who attends labor cases should post himself regarding premature separation of the placenta, because, though such cases are rare, the only salvation of the patient is that the physician act promptly and courageously. The consensus of opinion is that if, at the time the diagnosis of concealed hemorrhage is made, the cervix is sufficiently dilated for the application of the forceps, that treatment should be instituted. If not, a Cesarean section should be done at once, provided there is available anyone that can do it properly; but it should never be done by one that does not know anything about it.

Etiology of Diseases of the Gall Bladder.

DR. H. G. NORTON, Trenton, said that cholecystitis is more difficult to diagnose and less amenable to treatment than other surgical diseases. It is thought to be most commonly caused by (1) microbic infection, (2) toxins, and (3) direct traumatism to the gall bladder. The microbic infections include septicemia, pyemia, influenza, pneumonia and typhoid fever, and toxins arising from diseases of the alimentary canal, including typhoid and dysentery. Appendicitis is sometimes a focus for the spread of the infection to the liver and gall bladder. It may be direct extension from the duodenum, through the common and cystic ducts, or by way of the blood vessels, or both. The author has never seen a well-marked case of typhoid cholecystitis, although it does occur as a complication. The irritation of previous cholelithiasis may be the factor needed to produce cholecystitis as a complication of typhoid, acting either by obstructing the duct and causing distension, or by ulceration of the mucous membrane from pressure, thus affording an avenue of infection. More than one variety of germ may be found at the same time in the gall bladder. Suppurative cholecystitis is due to a further development of the causes of acute cholecystitis. The presence of gallstones in the gall bladder is probably a frequent causative factor of cancer, but gallstones are frequently present for years in cases in which no cancer develops. Primary cancer occurs without the presence of gallstones in 20 per cent. of the cases. Irritation from the gallstones in the gall bladder of a person predisposed to cancer, probably produces cancer of the liver. Analogous to irritation by the gall bladder as a factor in causing cancer is the greater frequency of uterine and mammary cancer in multipara.

Diagnosis of Diseases of Gall Bladder.

DR. P. A. HARRIS, Paterson, said that to make the diagnosis one should uncover the body of the patient and have the exact seat of the pain pointed out. Palpation, inspection and percussion should then be practiced. In cholecystitis it is the inflammation caused by the stones, rather than the stones themselves, that causes the symptoms. The commonest diagnostic symptom is colic. The pain does not always center over the gall bladder, although it usually does. The differential diagnosis is to be made from: 1, Lesions of the gall bladder; 2, ulcer and cancer of the stomach and duodenum; 3, appendicitis; 4, kidney stone or tuberculosis, and 5, pancreatitis. Under the heading of gastralgia may often be found a good description of gallstone colic. Jaundice does not appear when the seat of inflammation is limited to the gall bladder. Its presence is presumptive evidence of gallstone disease, but its absence would not disprove this diagnosis. The test of find-ng or not finding gallstones in the stools after the attack has nly a restricted value.

Medical Treatment of Diseases of Gall Bladder.

Dr. John H. Musser, Philadelphia, said that there are many instances in which operation can not be resorted to. Cholelithiasis is caused, on the one hand, by toxic influences; and, on the other, by alterations in the digestion producing modifications in the reflexes of the duodenal end of the stomach, and thus causing either a limitation or an increase of hepatic secretion. It may also arise from circulatory conditions of the liver secondary to heart trouble and from infection. Remembering these four predisposing conditions, one realizes that there is a large field for medicinal or hygienic therapy. In a general way, then, it may be said that cholelithiasis demands hygienic treatment; removal or modification of the cause, so far as it can be brought about; and, further than this, the use of specific measures. In a number of cases Dr. Musser has succeeded in probably lessening the number and severity of the attacks by having the patient wear a properly constructed bandage. In regard to the use of olive oil, Dr. Musser has seen no relief from the gallstones from its use; but sometimes there is a relief from the hyperacidity that usually accompanies gallstones. After its administration the patient can nearly always exhibit pseudo-gallstones.

Surgical Treatment of Gall-Bladder Disease.

Dr. John B. Deaver, Philadelphia, said that disease of the gall bladder shows itself in two forms, the calculous and the non-calculous. In both forms there are various grades of inflammation of the gall bladder. Adhesions of the upper abdomen are sometimes so thick that the liver is never seen during the operation for stone. These adhesions are the result of delay in surgical intervention under the guise of medical treatment. The physician should not delay until hope is gone and the surgeon becomes a last resort. The indications for immediate intervention are (1) complication showing the spread of infection; (2) symptoms of obstruction of the common duct after a reasonable interval. Other conditions demand operation, but the necessity is not so urgent. The purpose of operation is to remove the inflammation, to remove the stones and to prevent recurrence. When the structures are not normal the procedure becomes very difficult; and one should be a master of the anatomy of the upper abdomen. It is much wiser to drain outside of the abdomen than to allow the infectious bile to flow into the duodenum. The drainage should be left in until it has accomplished its purpose and is ready to drop out. The diet should be restricted.

DISCUSSION.

Dr. E. W. Hedges, Plainfield, criticised Dr. Deaver for saying that he hesitated to take out the gall bladder under certain conditions. If the source of gallstones is nearly always in the gall bladder, why not take it out when you get a chance, and thus rid the system of the possibility of a recurrence? Dr. Hedges said that the fact that 10 per cent. of the autopsies performed show gallstones, and that one elderly woman in every four has gallstones has a direct bearing on the treatment of this condition. If they are common in women, it must be due to the retardation of the bile caused by tight lacing. When a patient complains of persistent nausea and vomiting or of recurrent pains in the epigastric region, one should palpate carefully in the region of the gall bladder.

Dr. A. Vander Veer, Albany, emphasized the rôle of typhoid in the production of gallstones. He has found typhoid bacilli ten or twelve years after the attack of typhoid, and always takes this factor into consideration. He related a case of typhoid in which gallstone colic developed. The patient was operated on during the acute attack and recovered. Dr. Vander Veer believes that there are certain cases that the medical man may treat successfully, but that most patients that think they are cured by this means are not, and finally have to be operated on. When there is great distension he is suspicious of malignant trouble. In such cases he has done gastrointestinal anastomosis and drained the gall bladder, and this made the patient comfortable for years. It is in that condition particularly that an exploratory incision is of benefit. Dr. Vander Veer said that it is very difficult to get patients to give up the belief that olive oil does good in some cases. He believes that the gall bladder should be allowed to drain as long as it will, which will sometimes be as long as eighteen months or two years. If it goes longer one should reopen the wound, when a useless sac that can be dissected out will usually be discovered.

Dr. Philip Marvel, Atlantic City, referred to the intermediate class of cases demanding immediate operation. These he classed as (1) those that are complicated by other diseases previously to the attack, and (2) those that are complicated by diseases following the attack. He asked whether in such cases it would not be better not to operate.

Relations, Responsibilities and Duties of Medical Profession.

Dr. Alexander Marcy, Jr., in his presidential address made an appeal to the medical press. He considered the following points: 1. How can we elevate the standing of the medical profession in the community? 2. What is its moral responsibility? 3. What is its duty regarding some of the evils that threaten our body politic? His recommendations were: 1. A four years' course followed by a year in a hospital before the degree is conferred, a re-examination every five years, and a comprehensive plan of postgraduate work. 2. That the members be well developed morally, with the highest ideals, and characters above reproach. 3. That the profession should use their best efforts to create a sentiment among the people against the use of liquor, and that it should report every case of abortion to the prosecuting attorney.

The General Practitioner and Laboratory Methods of Diagnosis.

Dr. Robert N. Willson, Philadelphia, said that internal medicine includes, primarily, an accurate diagnosis; a very little therapeutics; abundant intelligence and common sense, and every scientific method of diagnosis and treatment that can be proved to be practical and available for general use. No condition can be diagnosed completely and exclusively by means of olden methods or by the new. Every known aid to accuracy must be utilized. Laboratory methods are useful and necessary in the study of disease. Without them no study has been even part way thorough. If the general practitioner will devote to scientific medicine the odd minutes often spent over a glass or a cigar he will save an hour out of the twenty-four. An additional hour may often be secured after his family have retired to rest. If he is too busy, he should have an assistant on whom he can depend for accurate and prompt laboratory reports. Beginners in practice are very glad to get such work to do. They should send in their own bills, as the best means of preserving their identity. Laboratory methods can be used by the well-equipped physician as a means to dignity and self-support. Laboratory medicine has opened up a new field for the young and poor man. As he grows older it will be a comfort to him as a clinician to be able to control by first knowledge the work of his laboratory men. The family doctor has not gone and will not go, and the specialist is here to stay. The laboratory enthusiast is another fixture. In all these classes one will occasionally find the physician who scorns no method and flouts at no school; who executes his own work perfectly, so long as it is a possible thing, and then enlists the aid of younger men, whose untempered science finds its complement in his own mellow judgment and ripe experience.

Dr. Alexander Marcy, Jr., said that while it is easy for the laboratory worker and the clinician to cooperate in the city, it has not until now seemed feasible in the rural districts. It has, however, become absolutely necessary for the country doctor to avail himself of these scientific and accurate methods. Dr. Marcy suggested that the country practitioner should take a postgraduate course of study at a medical school, and should keep in touch with progress by means of current medical literature. Each community should have some one man who is competent to attend to laboratory investigations and willing to devote his time to them. The county medical society should be the center of graduate medical work and study, as well as for the diffusion of a knowledge of the recent discoveries and latest practical methods of treatment.

The next annual meeting will be held at the Hotel Cape May, Cape May, June 27-29, 1908.

Other Papers Read.

The following papers were also read: "Some Remarks on Lymphatics," by Dr. E. Z. Hawks, Newark; "Complications in Diseases of the Biliary System," by Dr. G. K. Dickinson, Jersey City; "Toxins and Antitoxins," by Dr. B. A. Waddington, Salem; "Symposium on Scarlet Fever, Measles, Roetheln and Smallpox," by Drs. H. Williams, Passaic; P. Marvel, Atlantic City; A. McAllister, Camden; E. E. Worl, Newark.

Section Discussions

PREPARED AND PREDIGESTED FOODS.

BY GRAHAM LUSK, NEW YORK.

(*Concluded from page 202.*)

DISCUSSION.

Dr. S. J. Meltzer, New York, said that he hoped the members of the Section would know that Dr. Lusk is one of our best authorities on the questions pertaining to metabolism, and that his coming out firmly against many of these foods is to be regarded as a brave, public-spirited act.

Dr. W. S. Thayer, Baltimore, said that he considered Dr. Lusk's book on the "Science of Nutrition" one of the most valuable works on the subject for the general practitioner; indeed, he felt that it was the most important addition to his library during the past year.

Dr. W. A. Witherspoon, Nashville, Tenn., said that for a long time many have depended on these so-called predigested foods. It is simply marvelous what amounts are sold. Persons throughout the country have an idea that because the stomach will not reject some of the foods mentioned by Dr. Lusk that they are ideal foods. This is an error, for the majority of them have no nutriment and are prepared entirely for commercial purposes. He felt that Dr. Lusk would confer on the Section a great benefit if he would demonstrate, and let it be known, what these foods really consist of; let it be well known that the Section stamps its disapproval on these products. In treating the convalescent and the patient with gastro-intestinal disorders, the physician should take into consideration that they do better if given more beef juice, eggs, albumin, true foods, and that they should depend less on what is made with little science and offered for commercial purposes.

Dr. Woods Hutchinson, New York, said that physicians' responsibility to the public should be considered. After referring to what Smith and Adams have done in their crusade against quack remedies, he said that the gun should be turned against some of the medical journals whose pages are filled with their advertisements. Not only is there a low proteid content in these predigested foods, but a considerable part of the proteid is so changed in the process of preparation that it is no longer valuable in the animal economy.

ETIOLOGY OF INFANTILE ATROPHY.

BY DR. A. H. WENTWORTH, BOSTON.

(*Concluded from page 210.*)

DISCUSSION.

Dr. E. E. Graham, Philadelphia, said that physicians are continually brought in contact with cases of atrophy, in which they are convinced that the amount of atrophy is out of proportion to the failure of digestion and absorption, and most men are only too glad to grasp at any hypothesis that may explain the condition. In other words, these are not cases of malnutrition because the patients do not digest and do not absorb enough nutriment to build them up. Other children are seen, he said, who regain their health and weight, but who take less food and digest less of the food taken. In the cases described by Dr. Wentworth the patients gradually fail and die. Not only that, but nothing is found at the autopsies that will enable one to differentiate these cases.

Dr. R. B. Gilbert, Louisville, Ky., referred to some cases showing gross lesions, i. e., enlargement and induration of the mesenteric glands; whether due to remote specific history or not, he did not know. In these patients, induration of the mesenteric glands completely shuts off the nutritive element on the way to the lacteals. The child dies hungry and apparently assimilating its food.

Dr. G. H. Cattermole, Boulder, Colo., said that he had an interesting case of this kind. The child lived to three years of age, by careful feeding, and at death the pancreas was found completely fibrous. There was no pancreatic tissue whatever. Shortly after the death of the child the father was operated on for suspected appendicitis, but the intestines presented more the appearance of a syphilitic condition. A second child underwent operation for supposed appendicitis, and a third child is now in a condition of malnutrition at the age of 2½ years. Dr. Cattermole said that any one who had followed such cases has been impressed with the fact that failure to achieve success is due to the inability of the child to secrete the particular fluids necessary for the digestion of its food.

Dr. A. H. Wentworth, Boston, said his paper dealt solely with infantile atrophy; other causes of emaciation in infants, such as syphilis, tuberculosis, etc., do not belong in the discussion. The size of a lymph node is no measure of its absorptive power. The mesenteric lymph nodes may be enlarged to some extent in infantile atrophy. He had seen lymph nodes, in other respects normal, that were two or three times the usual size. A marked enlargement of the mesenteric lymph nodes is not characteristic of infantile atrophy, and in most cases such enlargement is due to tuberculosis. With few exceptions patients with infantile atrophy recover promptly on good breast milk, and the reason that most cases fail to do well is because they receive some other kind of nourishment.

OBSERVATIONS ON PEMPHIGUS.

BY DR. JOSEPH ZEISLER, CHICAGO.

(*Concluded from page 225.*)

DISCUSSION.

Dr. W. T. Corlett, Cleveland, O., said that one or two distinct affections are grouped under the name of pemphigus. We all recognize pemphigus vulgaris, with its classic features, and we also recognize the peculiar form of dermatitis in the new-born, which clinically presents few if any of the features of pemphigus vulgaris. In these cases there is an exudation accompanying the pemphigus, with resulting excoriations, until usually the disease is relieved by death. There is a similar form to this met with in the adult. At the last meeting of the American Dermatological Association Dr. Corlett said that he showed an adult with a bullous eruption which, for want of a better name, he called pemphigus foliaceus, although the case did not present the classical features pertaining to that disease, the lesions resembling more closely the type of pemphigus of the new-born. Most of these cases are fatal. The case he showed in Cleveland subsequently recovered, however. He has under his observation a physician whose brother died of this form of pemphigus about four years ago. This physician has been running down in health during the past year, and has suffered from bullous lesions on the face and hands. This type of the disease is not yet well understood. Dr. Corlett believes it is due to local causes, and that it occurs largely in debilitated subjects In regard to the occupation of butcher being an etiologic factor, Dr. Corlett said that he has seen the form of pemphigus described by Dr. Zeisler, although he has never associated it with the handling of meat.

Dr. John A. Fordyce, New York City, said that the neurotic theory has never appealed to him very strongly; about the only basis for it is the bullous eruptions in certain forms of leprosy and in other affections of the central nervous system. Dr. Fordyce favored the septic theory. The type of pemphigus which is seen in the new-born, pemphigus neonatorum, has been fairly well proved to be of streptococcic origin, and closely allied to impetigo contagiosa. He has seen pemphigus of a fatal type following injury; such cases are probably of septic origin. The microbic theory, however, will not explain all types, and those may possibly have their origin in some chemical agent.

Jay F. Schamberg, Philadelphia, said that it seemed to him that the so-called neurotic and infectious theories of the origin of pemphigus and pemphigoid eruptions may be harmonized.

There is an abundance of clinical evidence to show that bullous eruptions may be produced by the introduction of animal poisons, by microbic infection, by drugs, and allied agencies. In these conditions there is circulating in the fluids of the body a chemical poison; in the last analysis the several poisons, although from diverse sources, are, perhaps, very closely allied, and produce the same pathologic results. In the bullous eruptions which have been observed from time to time to follow vaccination, the poison may have been introduced in the virus or through the vaccination wound subsequent to vaccination. At any rate there is strong evidence to demonstrate that these acute bullous eruptions are the result of an infection of one character or another; to say acute is to step on rather thin ice, for many of these cases last for months or years.

In the old classic form of pemphigus of long duration and fatal termination, it would appear that we have to deal with an autotoxic poison resulting from the mal-function of one organ or another, and exerting a selective action on nerve cells. Acute anterior poliomyelitis is an infectious disease, the poison of which possesses an affinity for certain cells in the spinal cord; so the poison of pemphigus may possess a similar affinity for certain nerve structures. In many of the bullous eruptions following vaccination, arsenic seems to act as a specific. Dr. Schamberg recently had to deal with an extensive case of this character, and the giving and withholding of arsenic were coincident with improvements and recurrences in the disease. The disease was finally cured, the arsenic acting as much as a specific as does mercury in syphilis.

Dr. J. B. Kessler, Iowa City, Ia., reported that he has had three cases within the past eighteen months. Before that he has not seen a case for five years.

In reference to Dr. Zeisler's statement that avocation probably has something to do with the development of this disease, I might say that the first and second cases were in farmers, aged 46 and 50, who had suffered from the disease for a year and for four years, the lesions in Case 1 being confined largely to the trunk. The third case was in a girl of 16 who was employed in a hotel. At his first examination of this girl he was very much inclined to make a diagnosis of erythema bullosum, but when the patient came back in the course of a month, it seemed clearly pemphigus. Large bullæ came out of the sound skin, one in particular being as large as a hen's egg. Salicin, beginning with 15 grains, t.i.d., and increasing to 30 grains, seemed to do very well. In the two older patients he gave arsenic, salicin, and pretty nearly everything else, without any appreciable benefit.

Dr. L. Duncan Bulkley, New York City, reported a most troublesome experience with pemphigus. At the New York Skin and Cancer Hospital there have been one or more cases almost continuously, and even the nurses rebel against receiving them. A butcher had an acute, tense bullous eruption on his hands and said that for many years he had been subject to a recurrent attack at about the same season of the year. The bullæ were usually located on the hands and arms; sometimes elsewhere. They would last for a couple of weeks, and give him much distress. Dr. Bulkley did not think that the man's occupation might have a bearing on the trouble, but he put the patient on an absolutely strict vegetable diet, and gave him nothing but rice, bread and butter three times a day, together with some internal medication. Three days later the acute bullæ had flattened down, and within a week everything had disappeared and he passed from Dr. Bulkley's observation. That is the only instance he can recall in which the handling of meat or possibly meat and nitrogenous diet might have had some bearing on the origin of the disease.

Pemphigus should be distinguished from so-called erythema bullosum. Dr. Bulkley sees many of the latter cases, with a considerable amount of erythema, burning, itching and roughening of the skin; these cases are relatively mild, and yield to treatment, but in true pemphigus, in which bullæ develop on an uninflamed base, often in elderly persons, one is dealing with a rebellious disease, and one that is responsible for most of the deaths in the skin department with which Dr. Bulkley is connected.

He considers arsenic a valuable remedy in this affection, and believes that physicians do not, as a rule, give it often enough or strong enough. If necessary, it should be repeated every two or three hours, six or eight times daily, in the form of Fowler's solution, and pushed until there is gastric or intestinal disturbance. Whatever may be the origin of these cases, he is absolutely convinced that these bullæ are the ultimate result of nerve disturbance, which theory he believes is largely confirmed by the control that arsenic has over these lesions.

Dr. A. Ravogli, Cincinnati, said that in order to establish the differential diagnosis between dermatitis herpetiformis and pemphigus one must bear in mind the polymorphic and relapsing character of the lesions and the presence of eosinophiles in dermatitis herpetiformis. Dr. Ravogli has under observation in the City Hospital, two girls, one 5 and the other 7 years old, with dermatitis herpetiformis, and in both of these cases the bullæ contain from 23 to 27 per cent. of eosinophiles. In true pemphigus he has found no more than 2 or 3 per cent. of eosinophiles. In dermatitis herpetiformis he has never found any alterations in the urine, while in every case of true pemphigus the urine has been found to be alkaline in reaction, and to contain albumin and casts, and he has no doubt that this is an important factor in the differential diagnosis between the two diseases. It is possible that the leucocytes themselves, after losing their vitality, may act as a poison circulating in the system and produce intoxication.

He agrees with Dr. Schamberg regarding the utility of Fowler's solution in true pemphigus, but he has found that, in dermatitis herpetiformis, arsenic is absolutely useless. True pemphigus, in spite of all manner of treatment, is almost invariably fatal, while his cases of dermatitis herpetiformis have recovered under the use of iron and tonics, together with applications of ichthyol, which he has found extremely beneficial.

Dr. Joseph Zeisler, Chicago, said that the purpose of the paper was to call attention to an etiologic element which in previous years had not been clear to him. In 1892 he wrote the article on pemphigus for Morrow's "System of Skin Diseases," and at that time he did not have the impression that an animal poison had anything to do with pemphigus. Since then, observations of that kind have amplified and the cases he reported impressed themselves very strongly on his mind. The pemphigus problem has not been solved by microscopic examination, or by urinalysis, or by chemical examination of the contents of the bullæ. He hoped that in the near future physiologic chemistry will be developed to such a degree that physicians will be able to discover the presence of ptomains and leucomains, which it is not possible to do to-day.

OCULAR NEURASTHENIA.

BY DR. HIRAM WOODS, BALTIMORE.

(Concluded from page 215.)

DISCUSSION.

Dr. S. D. Risley, Philadelphia, said that there can be no doubt that many obscure ocular symptoms are only part and parcel of a general systemic state, call it by what name we may. Dr. Woods' endeavor has been to analyze this general state and to point out some of the more or less specific and local conditions which lie at the foundation of the general ill health and incidentally of the ocular symptoms. Many persons are afflicted with an inheritance of a delicately poised nervous system. Their nervous equilibrium is readily upset by the disturbing influences and difficulties which beset their pathway in life. While the average individual is able to push aside or to surmount adverse circumstances, to others they become veritable lions in the way which terrify and shock them. Pelvic disorders in these delicate women upset their poise and the upset may manifest itself in many ways. Dr. Risley had seen many examples of ocular disturbance which he could not relieve until the pelvic trouble was removed. A woman, aged 36, who sought relief from asthenopia, had a refraction error which needed correction, but while her glasses proved a necessity, that is to say, she could not get on without them, some features of her asthenopia persisted. A slight right hyperphoria was corrected by a trial prism, but after a short time the hyperphoria was left instead of right, and this gave place to exophoria or esophoria. She was postmistress in the village where she resided and had to stand many hours daily. When the day was over she went home in a state of general exhaustion, and with fronto-occipital headache which radiated down the spine and vertex pain. She was unable to use her eyes for any near work and suffered from backache. Dr. Risley requested her to consult her family physician regarding the possibility of uterine disease or displacement and received a negative reply. She was then sent to a gynecologist with a letter stating that pelvic disturbance might be the possible cause of her general fatigue and the irregular ocular symptoms, and requesting him to support the uterus with a pessary as a therapeutic measure. He did so and the asthenopia promptly disappeared. Dr. Risley is sure that patients with asthenopia accompanied by variable and irregular binocular imbalance not infrequently are victims of uterine displacements and pelvic adhesions.

Dr. Woods, with every other experienced ophthalmic surgeon, recognizes the very great importance of accurate corrections of any error of refraction in every case of asthenopia, and the accuracy is peculiarly necessary in neurotic individuals. This is true also of persons whose daily routine not only requires the more or less constant use of their eyes at a near point, but who by virtue of their constant activity, usually in illy ventilated buildings, in constant contact with other people, close the day with a sense of general malaise, and return to their homes with their nervous energies exhausted, and half intoxicated by breathing for many hours an atmosphere poisoned by impurities. It is doubtless true that the careful, accurate correction of existing ocular defects is in some sense peculiarly important for all such persons; but it is folly to expect that glasses are to remedy the evils which result directly from the unfortunate environment of their daily life. We can not as oculists for a moment decry the great need for correction of refraction errors, nor are we for a moment blind to the great blessings which the modern use of spectacles has been to the present generation of mankind. The personal crusade, made in their behalf in recent years, in so far as the claims made are true, has been taught by all special teachers for more than a quarter of a century; is deeply imbedded in the ophthalmic literature of the period and is worked out practically and carefully in the daily routine of consulting room and clinic; but, while this is done, we must not be blind to the serious influence exerted by dyscrasia of various sorts, and by the ill health resulting from the care and wear of daily toil and responsibility in setting up ocular disturbance. It is by no means always easy to fix definitely the *fons et origo* of a symptom-complex. While it is true that eyestrain may lie at the foundation of a complex group of symptoms which constitute ill health, it is equally true that asthenopia may be but one phase of the symptom-complex resulting from an impaired metabolism or some specific infection sapping steadily the general vitality.

DR. H. D. BRUNS, New Orleans, said he had in mind two cases of interest in this connection. A nurse in the Charity Hospital for two or three years constantly had one dilated pupil. She was examined and theorized on by a large number of doctors. Finally, after several years, abdominal symptoms called attention to the case again, and she was freed of a large tapeworm and immediately got rid of the dilated pupil. There had been no symptoms pointing to the real trouble for a long time. Another case that illustrates the point that Dr. Woods makes was that of a young girl presenting classical asthenopic symptoms. Careful examination showed very low hypermetropic error. Dr. Bruns assured the parents that he could not imagine that such a low error could give rise to the symptoms. In less than ten days she developed typhoid fever, and he was glad that he had not put glasses on her, thinking that her complaints were due to eyestrain.

DR. A. L. DERDIGER, Chicago, reported a case of a man, aged 50, complaining of nervous trouble, whose case he was informed had been diagnosed by neurologists as classical neurasthenia. He found that the patient's eyes would vary every few minutes so far as the tests were concerned. There were six degrees of esophoria, with one degree left hyperphoria. These tests were repeated several times during the next week with the same results and the addition of compound hypermetropic astigmatism. The following week he found two more degrees of esophoria with one more degree of hyperphoria. The patient complained of a feeling as though the eyes were drawn too close together. He would lose the lines. That occurred so frequently during his daily work that he was obliged to give up his position as editor on a pharmaceutical journal. Dr. Derdiger decided not to prescribe glasses but to continue examining the muscles daily to ascertain the full amount of hyperphoria. He finally prescribed his correction simple hyperopia, with a four degree prism base in, to be used three times a day for muscular exercise. That treatment was continued two weeks and during the last week the daily tests showed one degree left hyperphoria and no esophoria and no astigmatism. The patient was then able to read without losing the lines and the feeling of the eyes being drawn in disappeared. The neuralgic attacks and all neurasthenia from which he had suffered disappeared. Dr. Derdiger concluded from the history of the patient's failure to be cured of the functional neurosis by general practitioners and neurologists that the neurasthenia was due to eyestrain, which diagnosis was confirmed by repeated examinations of six months' duration and the wearing of glasses for hyperopia and presbyopia, together with muscular exercise with prisms for six months and no return of symptoms of neurosis, the patient being able to resume his editorial work.

DR. LUCIEN HOWE, Buffalo, N. Y., said that we are apt to be refractionists rather than physicians. We are, especially in this country, constantly looking for the results of what we call eyestrain. We are looking for the effect the eye has on the body; we too often forget the effect which the body has on the eye. Gastric conditions are affected by the eyes, and the eyes are affected by gastric conditions. This is seen in anemia and in imperfect elimination of urea. A test of the eye is a very small part of our work. We should make blood tests; examination of the urine goes without saying; examination of the stomach contents is often absolutely necessary. We have no right to treat a patient for headache until we know the condition of the stomach. We have no right to treat chlorotic girls unless we know the amount of anemia. First of all, we should be physicians.

DR. HENRY GRADLE, Chicago, said that too many colleagues seem to adhere to the idea that all asthenopia is due to refractive errors and that imperfect refraction always causes asthenopia. But asthenopia and headaches are a reaction of the nervous system in the production of which we must study not merely the ocular error, but also the susceptibility of the nervous system itself. Many healthy persons tolerate considerable ametropia without distress or with but very slight annoyance. On the other hand, an unstable nervous system may react severely to slight errors of refraction or a mild conjunctivitis or blepharitis. Anemia, poor nutrition, prolonged lactation of mothers, confinement indoors, minor toxic conditions after infectious diseases, and especially gastrointestinal disturbances, may render a nervous system intolerant to minor ocular anomalies, particularly so in subjects predisposed by bad heredity. In some of the most persistent instances Dr. Gradle found no optic imperfection or ocular anomaly whatsoever, at least at the time of his examination. Many observations have taught him that concentration of attention on the eyes or injudicious warning regarding possible danger may prolong indefinitely the distress caused in a susceptible subject by some transient condition long passed when seen by the oculist. These cases border on hysteria. Hence, in all examinations for asthenopia one should act not merely as oculist, but also as physician and sometimes, too, as psychologist.

PROF. CARL HESS, Würzburg, Germany, agreed with Drs. Risley and Howe. He has sent a good many such patients into the mountains and has seen many of these complaints disappear completely with this treatment. Call it eyestrain or something else, but the patients wear glasses without any relief; but when sent into the mountains of Switzerland for a few months they come back without the eyestrain. It is very important that we should be physicians as well as oculists.

DR. S. L. LEDBETTER, Birmingham, Ala., said that these cases occur in young mothers who are apparently healthy in every respect. Twenty years ago a young mother reported to him for eye trouble, stating that she was unable to read, play the piano or ride in a carriage without having headache. He found practically nothing on examination, no muscular abnormality, possibly 0.25 diopters hypermetropia. He assured her her headaches were not due to the eyes. She was then nursing her second child. When the child was sufficiently old she was relieved of the headaches, but with the third child had the same trouble. She passed over a period of ten years during which she had no trouble. About five years ago a fourth child came and she had a repetition of the trouble. Since then she has had no further trouble until the past year, when he fitted her with a pair of weak presbyopic lenses for reading. She was a nervous, high-strung young woman, very intellectual, and Dr. Ledbetter attributed the trouble to her general nervous condition at these times.

Dr. G. E. de Schweinitz, Philadelphia, said that the discussion did not concern the very large class of cases in which there can be no possible doubt that the entire neurasthenic outbreak is a symptom of eyestrain, if one might be permitted the use of this word in this connection, or, more accurately, is one of the symptoms by means of which the results of constant accommodative effort or muscular imbalance are interpreted. These and all other cases in which examination shows the necessity for glasses or the treatment of the ocular muscles, should, of course, receive the fullest consideration from the refractive standpoint. But this is not all, and it is time that these patients were classified. In a large number of cases the neurasthenia, in all its phases, whether interpreting itself through the eyes or elsewhere, is an expression of a degraded nervous control. Many of these patients have what Dr. Dercum calls smallness of the circulation, perhaps an actual under-development. It has seemed to Dr. de Schweinitz that in a large number of these cases the caliber of the retinal vessels is not as great as it should be in persons of the age and weight examined. He spoke with great deference and uncertainty, as it is a subject which should be investigated. He said that Dr. Woods is perfectly correct in pointing out that a certain number of nervous patients are really made neurasthenic by constantly having their attention directed to their eyes, although their eyes are perfectly healthy and there is not the slightest reason, either from them or from the general condition, why they should not be used. Far from encouraging these patients to take an eye rest-cure, they should be encouraged to gain confidence and use their eyes within reason. Professor Hess has referred to the great class of patients who seem to be cured, not only of their eye symptoms, but of their other complaints, only when they are sent away from their surroundings. Unhappily, as he also points out, the symptoms are apt to return with return to original modes of life. By all means let us be, as Dr. Howe suggests, physicians as well as oculists. No one can be a decent oculist unless he has the instincts of a physician. It is the greatest possible mistake to study the patients to whom Dr. Woods has referred from the standpoint of one organ alone. Every possible source of nervous irritation, coming from the eyes as well as from other organs, should be eliminated, and with the removal of underlying pathologic causes we are likely to get better results.

Dr. Hiram Woods, Baltimore, referred to the point made by Dr. Gradle, to which he alluded in the body of his paper. It is the state of the public mind regarding the eyes as the starting point of all head pains. An instance occurring in his office a few years ago illustrated this. A lady brought her 16-year-old daughter to him and introduced the child as follows: "She has headaches. I want you to see if the eyes are the cause. If they are not, I shall get Dr. A. (a rhinologist) to remove the adenoids; if that is not the case, I shall have Dr. B. (a gynecologist) make an examination, and if he finds nothing I shall consult our family physician." In other words, this society woman had undertaken to decide for herself the meaning of a mere symptom, and had stripped her family physician, one of the best Baltimore ever had, of his function as medical advisor. It was simply a case of specialism overdone; and specialists are in a great measure responsible for this state of the public mind. It will require years and a great deal of teaching to undo this; but very much of the pernicious effects of such reasoning can be neutralized if the specialist who first sees the case takes broad enough view to think beyond his own special domain.

PARAFFIN INJECTIONS NEAR THE EYES.

BY DR. A. E. DAVIS, NEW YORK.

(*Concluded from page 218.*)

DISCUSSION.

Dr. E. A. Thompson, New York City, said that embolism, which is undoubtedly the complication most to be feared, is hardly likely to occur unless the paraffin is injected into the cellular tissues as in the correction of "saddle-back" deformities of the nose.

The case reported by Dr. Davis of extrusion of the paraffin from Tenon's capsule is, he said, certainly unique. It must have been due, as Dr. Davis suggests, to injury of the capsule at the time of the operation, and yet the structure of the capsule is so delicate that it is easy to understand how such laceration might occur. Dr. Thompson does not implant a ball in Tenon's capsule, for the formation of a stump, but uses a paraffin ball of a high melting point instead of the glass ball after the method of Mr. Mules. It seems to him that the advantages of the paraffin over glass in this operation are very great. It is less irritating and more apt to be retained; there is no danger from breakage, and, most important of all, if the scleral lips separate, the mass may be reduced in size by cutting away some of the paraffin with a small probe slightly heated, and the sclera will heal. Of course, the first attempt may not be successful, but the process can be repeated, and it usually happens that the greater part of the ball can be saved. If a ball of glass or other unyielding substance be used, and a single suture gives way, the sclera will be gradually retracted and the ball will be cast out.

Dr. Frank C. Todd, Minneapolis said that the advance in surgery by the use of paraffin injections is such that we would dislike to give up this practice in certain cases, though no surgeon would be willing to do this work, if he felt that there was a possibility of some of the dire results taking place which have been reported by Dr. Davis and in the paper of Professor Uhthoff of Breslau (*Berliner Klin. Wochschr.*, 1905, xlviii, 1461).

Dr. Todd said that he had never seen any ill effects, but about two years ago he received a letter from a patient whom he never saw, asking what could be done for relief when too much paraffin had been used and where it had extravasated into the cheeks.

Another objection to the use of paraffin has recently been recorded; two cases by Heidingsfeld (*Jour. Cutan. Dis.*, November, 1906) and a case by Armsby (The Journal A. M. A., May 18, 1907) shown at the Chicago Dermatological Society. "This consists of a connective tissue overgrowth at the site of the paraffin injection, as a result of the long-continued slight irritation produced by the presence of the paraffin." Tumors developed at the sites of the injection, which were hard, dense, purplish in color and gradually increasing in size. Sections of these tumors show a connective tissue overgrowth like a granuloma, with many cells and other evidence of inflammatory process presenting many similarities to keloid.

The second case reported by Dr. Davis not only shows the dangers of the use of paraffin, but also the fact that it is absolutely of no service in forming a good stump for the prothesis. The pressure exerted by the artificial eye is bound sooner or later to change the shape of this mass and thus make the eye look worse than if simple enucleation had been performed. Since, however, gold balls are found to be entirely satisfactory in this work, there is every reason for the non-employment of paraffin. In a considerable experience in performing the Mules or the Frost-Lang operation, he has found success common, but not so with paraffin, which has the disagreeable faculty of forming a point, working its way through the mucous membrane and coming out. Sewing up the opening only forces it in another direction, and he has consequently discarded its use altogether.

How, then, can these accidents be avoided? It is evident from the collection of cases and the writings of Eckstein that this danger is much reduced, though not always excluded, when paraffin of a high melting point (above 50 C.) is used. More important still is it that the paraffin should be introduced by means of a screw syringe so that the paraffin in the non-liquid state is carried through the needle and at the will of the operator placed in small, solid but soft strings, and when inserted for saddle-nose firm pressure should be exerted on each side of the nose to prevent its entrance into the surrounding tissue.

Dr. S. H. Large (*The Laryngoscope*, April, 1907) describes Professor Gersuny's latest method of injecting paraffin. Under aseptic precautions a hypodermic needle is introduced, to which is attached a small syringe through which is introduced Schleich's solution, followed by aspiration at the same time. If the solution remains clear, showing that no blood vessels have been entered, he attaches a large syringe containing paraffin, which has been allowed to become semisolid, injecting slowly and taking care not to inject too much at one sitting. Gersuny, who was the originator of this work, does a tremendous amount of it, and although previous to the adoption of this practice he had one case of embolus of the lung and another of blindness, Dr. Large quotes Gersuny as saying he has not had a case with a bad symptom since using this method.

Dr. F. J. Parker, New York City, said he had had some experience in the use of paraffin in Tenon's capsule. He performed a number of these operations in which the paraffin sphere was used instead of the glass ball, and in most of these cases, a little over one-half, the paraffin came out again. Some times it would come out entire and in others it would slowly exude around the sutures. He also recalled seeing a case in which paraffin was injected for the correction of saddle-nose. This was followed by marked swelling of both eyelids. He did not know what the ultimate result was. In another case of Mules' operation in which the paraffin was used instead of the glass ball, two weeks later there was sympathetic trouble beginning in the other eye. A few days later the paraffin came out and there was subsidence of the sympathetic symptoms.

Dr. Harmon Smith, New York City, said that he had seen and made numerous injections in the neighborhood of the orbit. In any hypodermic injection if you have an air embolus it will do harm. All liquid substances tend to assume a globular form, and in order to overcome that the paraffin should not be in a semisolid condition, but in solid form, injected in a cylindrical condition. The larger the lumen of the needle the less danger there is of embolism. He injects it away from the soft tissues of the orbit and canthus of the eye, toward the tip of the nose. To prevent regurgitation into the soft tissues he has the assistant make pressure on the nasal bones so that the paraffin can not go back until it has settled. As to inflammatory conditions, he has injected it into the peritoneal cavity of a rabbit, killed the rabbit and had the tissues examined, and there was no evidence whatever of inflammatory reaction—no formation of fibrous tissue. One should avoid, of course, luetic patients. As regards the technic, he said he believes that is where the majority of men who have had bad results have failed. Surgical cleanliness is as essential as in any other operation; sterilization of the surface and of the hands, as well as of the instruments. It should be injected slowly and hyperinjections should be avoided. The tissues must be given an opportunity to take care of the foreign substance and not be too much on the strain at one time. As regards the place of injection, it should be beneath the skin, not in the skin, which causes anemia and may be followed by necrosis.

Dr. J. L. Borsch, Philadelphia, said that the remarks made by those who had preceded him do not apply to the operation he has described for the extirpation of the lachrymal sac by first injecting paraffin therein. In this operation paraffin is injected through a natural channel—the tear duct—into a toughened lachrymal sac (in order to outline it), and not into the tissues. Besides, the paraffin is immediately removed enclosed in the sac, and thus this operation is unattended by the dangers mentioned. He also called attention to the fact that the instrument he employs is not one that injects the paraffin by means of a screw, but by means of pressure of one hand, leaving the other hand of the operator free, whereas if the screw instrument were employed one would require an assistant to aid in making the injection and the amount of pressure could not be controlled.

Dr. W. B. Marple, New York City, said that a year or so ago he saw an account by one of the house surgeons of the Massachusetts General Infirmary in regard to the use of the paraffin spheres, and after reading that article he used it in some half dozen cases. His experience with the paraffin balls is very similar to that of Dr. Parker's. In about one-half they remained in and in the other half were extruded.

Dr. A. E. Davis, New York City, said that perhaps 120 degrees is too low a melting point for the paraffin. If it is lower than this, as in the first case he reported, the man may become overheated and the paraffin became soft. He was glad to hear reported Dr. Parker's case of sympathetic irritation. The more of these cases we have the more, he said, we will hear of this sympathetic irritation, just as where you put the glass ball or any other foreign substance in the capsule of Tenon. Concerning Dr. Smith's reference to having placed paraffin in the peritoneal cavity of rabbits without producing inflammatory reaction, Dr. Davis said that it is well known that the peritoneum will tolerate foreign substances better than any other tissue in the body, so that he does not think that the comparison applies very well to the eye.

PREMIUMS PAID TO EXPERIENCE.

BY DR. F. T. ROGERS, PROVIDENCE, R. I.

(*Concluded from page 223.*)

DISCUSSION.

Dr. Lewis H. Taylor, Wilkes-Barre, Pa., agreed with Dr. Rogers that refraction is a very important part of the work of the oculist. From an estimate made some years ago, he thought that about 50 per cent. of all his eye patients received glasses, but he now finds, in summing up the results of more than three times as many as Dr. Rogers has taken for his study that he has only 47 per cent. of refraction cases. Taking them by thousands, the highest percentage reached in any consecutive thousand is 54.7 per cent. Dr. Taylor agreed that refraction work is of utmost importance, but he did not agree with the idea sometimes expressed that the majority of oculists are doing poor work and do not know how to fit glasses accurately. The idea expressed by Dr. Rogers under "The Personal Equation of the Examiner" is that as one advances in experience and practice and consequently is able to do better work, he nevertheless does poorer work, that is, "he, in turn, gets too busy for accurate work and it passes to another." This certainly should not be. Dr. Taylor emphasized that glasses should not be given to a patient from one examination and test, and he very rarely does so. Even with people beyond 40 who come for glasses for near work only, he insists on a second test, at least, except in those rare cases where the exigency of time or distance require the work to be done in one day. In case of patients under 40 he insists on a cycloplegic. Again and again, when patients have refused the cycloplegic on account of time needed, he has refused to attempt to fit glasses.

Dr. Taylor has done refraction work with atropia for twenty-five years and knows no better method. He has tried other methods and other cycloplegics, but has come back to atropia. Occasionally to save time for the patients he uses homatropin. He has used atropia many thousands of times and has never had glaucoma result from its use. As to full correction of hypermetropia, Dr. Taylor finds that patients can not see accurately and comfortably with full correction, and therefore he does not give it. His patients are better off without it. He does not believe in the "fogged vision" theory. He believes in giving patients the glasses that give the best sight and this, as a rule, not always, gives the greatest comfort. He agreed with Dr. Rogers in giving full correction in myopia.

To obtain good results the oculist should impress on his patient the fact that he is to keep on coming until fitted. If this rule were followed there would be less inaccurate work from overhaste in fitting glasses. That the proper fitting of glasses will relieve headaches in the vast majority of cases is well understood. It is also well understood by most of us that the fitting of glasses will not cure all cases of headache and that the oculist must be a physician and not a refractionist merely.

Dr. Taylor said that he abandoned the use of protargol some cars ago because of one case of marked argyrosis. He has sed argyrol freely in many cases with no bad results as yet. n trachoma he has had many excellent results from expression with Knapp's and Noye's forceps. Much time, he said, can e gained in the treatment of this affection by an operation uner a general anesthetic. It is useless to attempt this operaion under local anesthesia. In regard to corneal ulceration, e has found two agents effectual, the pure tincture of iodin nd the galvanocautery. He has not seen the brilliant results laimed by Dr. Risley and Dr. Rogers from the use of subconunctival injections of a physiologic salt solution in macula orneæ, though he has been pleased with dionin, and has found ood results follow the persistent use of yellow oxid ointment.

Dr. E. E. Holt, Portland, Maine, urged that physicians tabulate their cases and make deductions therefrom, and thereby ontribute toward making a standard method of recording ases and making statistics therefrom.

By the assistance of a standard form for keeping record of ases physicians treat their patients better and therefore nake better practitioners of medicine. Dr. Holt has his forms nterleaved so that the record can be extended and all the corespondence relative to the case can be pasted to the stubs of hese interleaves, so that everything pertaining to the case s right at hand for reference. In Dr. Holt's practice the proportion of refraction cases to the whole number of cases is about the same as that given by Dr. Rogers. If ametropia constitutes two-thirds of the cases as they come to us, it is mportant that papers and discussions should be more numerous on this subject.

Dr. Allen Greenwood, Boston, suggested that putting on record a cure of embolus in the central artery is hardly justifiable. In a man of 55 the question of whether it was an embolus or obstruction of the central artery due to endarteritis unobservable by the ophthalmoscope is one to be considered. The fact that the vision cleared up would indicate that it was not a case of embolus, because an embolus large enough to stop in the central artery of the retina would hardly go on so far beyond the primary branches as not to leave a segmental oss of the visual field. Cases of sudden stoppage of the central artery from spasm of the vessel subject to endarteritis are much more common and frequently relieved.

Dr. Robert L. Randolph, Baltimore, said that he has been using the discs of Wood in the estimation of errors of refraction for many years and has found them eminently satisfactory. The whole procedure takes scarcely more than an hour, and with a drop of eserin, 2 grains to the ounce, after the examination is finished, the patient in a few hours is comparatively comfortable. In some of these cases he failed to give relief, and thought that maybe it was due to some impurity in the discs and so used atropin or homatropin, but practically never found any difference in results.

Dr. Oscar Wilkinson, Washington, felt that one is hardly justified in doing refraction on any subject under 40, without the use of a mydriatic. As a rule, he uses homatropin; in exceptional cases, atropin. Concerning the effect of chalazion on the refraction of the eye, he recalled the fact that Dr. H. D. Bruns, in the *Ophthalmic Record*, 1906, reported a case in his own person in which the amount of astigmatism and acuity of vision were both changed by the presence of a chalazion. He has found Dr. Dixon's fogging method of advantage in some cases, but as the author has stated, if the strong lens is given at first it will often increase the asthenopic symptoms instead of relieving them. It is better to give gradually increasing lenses and to inform the patient that the lenses are temporary and will have to be changed very soon. In reference to disease of the sclera, he mentioned a case of scleritis due to malaria, in which the administration of quinin following two or three chills cleared up the case immediately. The patient had had the condition for more than a year and had been to several oculists.

Dr. A. E. Bulson, Fort Wayne, Ind., referred to a paper published some years ago in which he reported the use of homatropin in 3,000 cases, and advocated its use as a cycloplegic. He began using atropin on these patients and found that there were considerable increases of error. To make his results more accurate, he determined, whenever a patient came in who had been refracted under homatropin, to try atropin, and he was surprised to find more error under the stronger cycloplegic, and at once began to modify his views on the subject. Dr. Bulson objected to the term mydriatic. It is a mistake for ophthalmologists to speak of a mydriatic when they mean a cycloplegic; a cycloplegic is a mydriatic, but the converse is not necessarily true. Dr. Bulson claimed that in the treatment of purulent ophthalmia there is nothing that will take the place of silver nitrate. He recently had two patients treated by the nitrate method, both aggravated gonorrheal ophthalmia, in the adult, in whom he was able to save the vision. Two other cases of less virulence, treated with argyrol, ended disastrously.

Dr. Bulson said that many ophthalmologists are too careless in keeping complete records of their cases. He uses the card index system and even places on the card the amount paid or the fee for operation agreed on. Another thing of importance is the ability of the ophthalmologist to greet his patient when he enters the examination room. It has been Dr. Bulson's practice for years to have his assistant bring in the name and, before the patient comes in, he has the record before him and knows what the condition is.

Dr. A. R. Baker, Cleveland, said that one thing that ophthalmologists are apt to forget is that they are physicians and not merely refractionists. Often the prescribing of glasses is the smallest part of the problem, although it often consumes much time and the expenditure of much gray matter. Another thing he thought that oculists often fail to explain is that they do not expect younger patients to wear glasses always. They are merely a temporary aid to help out the present trouble. It may be to finish out a college course or a piece of literary work, or until the occupation is changed to one requiring less eye work, or it may be until the health is improved. Feeling keenly the necessity of treating the general condition of the patient, Dr. Baker not only prescribes medicines, but has diet lists published. He tries to impress on these patients that if they expect to get well they must stick to their family physician and follow his instructions.

As to cycloplegics, he has not refracted a case under 40 in the last year without using a cycloplegic. As a routine, he uses homatropin first, but tells the patient that this is an expedient to save him time. If there is any contradiction in the results of the examination with the ophthalmometer, retinoscope and test type, he insists on using atropin.

Dr. L. A. Alleman, Brooklyn, does not believe that there is any drug that will entirely relax the accommodation. He said that if the doctor had used atropin first and homatropin later he would have duplicated the results he obtained. In his experience, patients who have worn a full correction of their refractive error, determined under any cycloplegic, will gradually accept an increase in the correction at subsequent examinations, frequently without a cycloplegic. In some cases he has been unable to produce cycloplegia by the use of atropin and other cycloplegics, although he continued their use for many weeks.

Dr. J. L. Borsch, Philadelphia, said that it is a well-known fact that overeating or eating improper food sooner or later impairs the functions of the intestines; the food ferments, putrefaction takes place, and toxins are produced and absorbed in greater quantities than the system can cope with, and serious lesions result. It is easy to understand how so delicate an organ as the eye is affected by the irritation caused by these toxins; how the ciliary muscle, the retina, chorioid and particularly the vitreous readily respond to the irritation caused by this autointoxication. The intestinal antiseptics relieve for a time, but aggravate the intestinal condition, for they affect alike the intestines and the germs. He places these patients on a diet of sour or fermented milk, with the result that the symptoms complained of entirely disappear. It would seem, therefore, that a diet of some form of fermented milk rich in bacilli of lactic acid is a good remedy for those cases of muscæ volitantes and asthenopia of intestinal origin.

Dr. F. T. Rogers, Providence, explained the difference in statistics in the errors of refraction by stating that in Providence is made all the jewelry sold in Atlantic City, and a large number of patients are employed at this work, which is very trying on the eyes. The object at which he aims is comfort to the patient, and if he tests a patient with homatropin comfort is what he is after. If he fails to give relief, then he uses atropin. As to the diagnosis of embolism of the central artery, the ophthalmoscopic picture presented was typical of that condition. The diagnosis was confirmed by an eminent oculist of Boston, who saw the case on the second day.

LICHEN PLANUS.

BY DR. M. B. HARTZELL, PHILADELPHIA.

(*Concluded from page 226.*)

DISCUSSION.

Dr. William S. Gottheil, New York City, confirmed Dr. Hartzell's observations with one of his own. The case was one of extensive lichen planus; practically the whole body was involved except the face, and including the palms and soles and the visible mucosa. The patient was given arsenic in heroic doses by hypodermic injection, up to 40 minims of a 1 per cent. solution of arseniate of soda and carbolic sublimate ointment locally. Subsequently, he developed some joint symptoms, for which the salicylates were given, and coincident with this his joint symptoms as well as his eruption began to improve. Dr. Gottheil hesitated at the time to attribute his improvement to the salicylates, but wished to place the case on record in confirmation of Dr. Hartzell's observations.

Dr. Joseph Zeisler, Chicago, said that four years ago, at the meeting of the Association at New Orleans, and a year later at the Niagara Falls meeting of the American Dermatological Association, he took the ground that arsenic has ceased to be—as it was formerly considered—a specific for lichen planus, and to-day he feels like going one step farther and saying that arsenic is absolutely contraindicated in lichen planus, in spite of the teaching of the elder Hebra, who considered it a valuable remedy in this affection. He said that he has seen a fairly large number of cases of lichen planus, and his experience is that, while the lesions may disappear under the systematic use of arsenic, the sufferings of the patient are intensified thereby out of all proportion to those caused by the disease itself. Many years ago he discontinued the use of arsenic in lichen planus, and he does not expect to treat a case with that remedy again. He expressed surprise that Dr. Hartzell did not give any credit to the internal use of mercury in lichen planus, particularly the protoiodid, which Dr. Zeisler considers of much more value than arsenic. Nevertheless he is glad of the suggestion regarding the salicylates, because mercury, after all, is not an indifferent drug; many patients have a peculiar antipathy against it, and it is well to have another drug to fall back on. He felt like repeating what he said four years ago, that the *x*-rays have an almost miraculous effect on some of these cases, particularly those of the verrucous type. In some of his cases of lichen planus annulatus only one lesion was present; in others there were two or three little rings, very peculiar looking, easily mistaken for syphilis, and consisting simply of an agglomeration of small lichen planus papules.

Dr. J. B. Kessler, Iowa City, Iowa, said that his experience with arsenic in lichen planus corresponded with that of the last speaker, while mercury at times has proved very beneficial. His experience with lichen planus has been very limited. Locally, he prefers applications of Vleminck's solution, beginning with a weak solution and gradually increasing it up to full strength.

Dr. George T. Jackson, New York City, said that he regarded arsenic as almost a back number in dermatology, though it is very commonly given, by the general practitioner, for all diseases of the skin. In acute conditions arsenic certainly aggravates the trouble, and lichen planus, in its acute form, is certainly made worse by it. Lichen planus is a peculiar disease; it comes suddenly and goes suddenly, and it is sometimes difficult to say how much good treatment really does. It has disappeared under rhubarb and soda, the protoiodid of mercury or the salicylates. In the chronic form arsenic, or the salicylates, or mercury, are of little value. In such cases the *x*-rays, curettage or other energetic treatment must be used.

Dr. Robert W. Taylor, New York City, expressed the opinion that sufficient attention is not paid to the value of the old Boeck treatment in cases of acute and very generalized lichen planus. In an article which he wrote many years ago in the first volume of Dr. Bulkley's Archives of Dermatology, cases were reported which showed the almost magical effects of that treatment on the itching and hyperemia. The treatment consists of 20 drops of dilute nitric acid, taken before meals, and 15 grains of the chlorate of potash, taken in water after meals. He particularly recalled a recent case in which the result of this treatment was most wonderful, and he has seen many similar instances since. He did not know how these remedies act in these cases, whether as anti-rheumatics or otherwise, but Dr. Boeck's idea was that they add oxygen to the blood. Dr. Taylor said that his paper, in which this method of treatment was outlined, was the first paper on lichen planus ever written in this country. That was about 1871 or 1872.

Dr. L. Duncan Bulkley, New York City, said that last year at Boston he spoke very strongly on the treatment of lichen planus, and stated then that for the past thirty years or more the remedies mentioned by Dr. Taylor have been his almost constant stand-by in lichen planus. While he should not hesitate to give the salicylates a trial, he had the greatest confidence in the use of nitric acid and chlorate of potash. His method is to give the chlorate of potash up to 10 grains, dissolved in water immediately after eating, and the nitric acid thirty minutes or an hour later; beginning with three or four drops of the strong acid three times daily, he increased it even to six or eight drops, if necessary. He is sure that this method of treatment, in the acute form of lichen planus, relieves the irritation and prevents the development of new lesions. He has not given arsenic in lichen planus for many years, excepting in some long-standing cases that resisted other methods of treatment, in some of which arsenic, if administered properly and with other remedies, acts beneficially. He seldom gives it alone; almost always in combination with iron and alkalies. He agreed that the *x*-ray and the hypostatic current are of very great value in the old verrucous forms of lichen planus, especially of the lower extremities. He has seen such patches melt away almost like magic under the influence of those agencies. He has given mercury in some cases of lichen planus, but has seldom found it necessary to resort to it, on account of the good results from the treatment first mentioned.

Dr. W. T. Corlett, Cleveland, Ohio, agreed as to the uselessness of arsenic. After visiting Dr. Crocker's clinic, a few years ago, and seeing psoriasis treated with salicylates, he put a number of patients on the drug, but was disappointed in the results. From what he had seen in London, however, he did not expect anything very striking. He hoped the salicylates would prove more effective in lichen planus.

Dr. M. B. Hartzell, Philadelphia, said that his paper was on the salicylates in lichen planus, not the treatment of lichen planus. It was not his purpose to discuss at length the treatment of this disease, nor could he agree with the statement that arsenic is entirely useless. In one of his cases of lichen planus arsenic was very effective and the salicylates only moderately so. In one instance the pruritus and general discomfort improved very markedly under the arsenic. He does not think lichen planus dependent on a rheumatic diathesis. He considers mercury a valuable drug in some cases. One of his patients who had suffered from lichen planus for eighteen months had been very thoroughly *x*-rayed, with the sole result of stirring up the lichen planus and making it much worse. That was his experience with the case of the woman whose photograph he showed; this case was of the verrucous type, with lesions on the leg and thigh. The *x*-rays set up a dermatitis and increased her discomfort very much. He would not resort to it again in lichen planus. The carcinate type of lichen planus was referred to by one of the speakers. He recently saw a case with two rings, one on the forearm and one on the face. The two patches were not larger than a dime, both ring-shaped, the rest of the body being entirely free.

Book Notices

Principles and Practice of Dermatology. Designed for Students and Practitioners. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois. Illustrated. Cloth. Pp. 1021. Price, $6.00. New York and London: D. Appleton & Co., 1907.

This work is divided into two general parts: The first, covering 165 pages, is devoted to the principles of dermatology, while the remaining 850 pages constitute the second division, dermatologic practice. The general principles of dermatology have been given much more space than is usual in works of this kind, an innovation that seems eminently desirable. General treatment in particular has been considered most fully. The second division, dealing with practice, is made up of fourteen sections, in which under a rational classification the various dermatoses are considered. That the work is thoroughly up to date is evidenced by the description of meralgia paresthetica and uncinariasis of the skin and by the discussion on the *Spirocheta pallida* and on Wright's method of treatment. The author's description of the principles and technic of opsonic therapy, while brief, is a remarkably clear exposition of a subject that is somewhat involved. The illustrations are numerous and unhackneyed and are such as distinctly increase the value of the book; a large number of them are from the author's private collection. The sections on *x*-ray dermatitis, eczema, pemphigus and syphilitic eruptions are particularly commendable, as are also the chapters devoted to tuberculosis of the skin and to malignant growths. The various forms of malignant tumors of the skin are very completely illustrated. The author has been conservative in his references to literature; the bibliography is not "as complete as money will buy," but it is confined—wisely, we think—to references to important, or recent, contributions to dermatologic literature. While the work will be a notable addition to the library of the dermatologist, its lucid style and conciseness of description will make it of great value to the general practitioner and student. It must be regarded as an important contribution to dermatologic literature.

Essentials of Obstetrics. By Charles Jewett, A.M., M.D., Sc.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, assisted by Harold F. Jewett, M.D. Third Edition Revised and Enlarged. Thirty Illustrations and Five Colored Plates. Cloth. Pp. 413. Price, $2.25 net. Philadelphia: Lea Bros. & Co., 1907.

The present edition represents a complete revision of Professor Jewett's excellent work. Much has been rewritten and new matter has been added. The work is a valuable one to the student who needs to master the elements of obstetrics before undertaking the study of larger works. It is also a convenient book for the practitioner who may wish to review the subject.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas State University. Flexible Leather. Pp. 743. Price, $3.00. Philadelphia: P. Blakiston's Son & Co., 1907.

Two years after the appearance of this excellent manual, a third edition has been called for. This corresponds in excellence with the previous editions. A number of illustrations have been added and the volume has been increased by 95 pages. Descriptions of a few classical operations on the genitourinary system and anus, and a diagram showing the relation of the stomach and pylorus, duodenum, pancreas, etc., have been added.

Medicolegal

Provisions for Treatment of Seamen.

Circular No. 40, dated June 18, 1907, of the United States Treasury Department, Public Health and Marine-Hospital Service, relative to contracts for care of seamen, etc., gives a list of the contracts made for the care of seamen entitled to relief from this service for the fiscal year ending June 30, 1908, and provides, among other things, that it must be cited, giving its number and date, on all bills for the treatment and maintenance of seamen, as the authority for any expenditure incurred under its provisions. Charges will be allowed for the day of admission of a hospital patient, but not for the day of discharge or death. The right is reserved by the Secretary of the Treasury to terminate any contract whenever the interests of the service require it. All relief must be furnished in accordance with the regulations of the Public Health and Marine-Hospital Service; and, except as provided in paragraphs 445 and 448 of the regulations of the service, no allowance will be made for expenditures incurred at any port not named in this circular.

On admission to a contract hospital of a patient with a disease or injury which, in the opinion of the medical officer, the acting assistant surgeon or attending physician, will require more than twenty days' treatment in hospital, and it appears that the patient can travel in safety without an attendant, the officer issuing the permit will at once request authority from the bureau to transfer such patient to the nearest marine hospital, unless such authority be already given by this circular in the paragraph relating to the work at the particular station.

The attention of customs officers, commissioned medical officers, acting assistant surgeons, or other physicians in charge of patients of the Public Health and Marine-Hospital Service at contract stations, is hereby called to the necessity of discharging patients promptly on the termination of the necessary hospital treatment, and without awaiting the expiration of the period authorized in the permit.

The term "contagious diseases," wherever occurring in this circular, includes only those diseases which, under usual municipal regulations are required to be treated in a special hospital for contagious diseases.

Officers and enlisted men of the United States Army and Navy may be admitted for care and treatment as patients of the service on the written request of the proper military or naval authority, the rate of charge to be 50 cents a day at United States marine hospitals, and the regular contract rate to be charged at stations of the second and third class. Patients of the above-named class are not subject to the provisions regarding transfer to marine hospitals.

The rate of charge for the care of seamen from foreign vessels (admitted under act of March 3, 1875) will be $1 a day at United States marine hospitals. At second and third class stations seamen from foreign vessels will be cared for at contract rates. Patients of the above class are not subject to the provisions regarding transfer to marine hospitals.

Liability for Injury from Carbolic Acid Sold Without Prescription.

The Supreme Court of New York, Appellate Term, says in the case of Horst vs. Walter, that the plaintiff's wife went to the defendant's drug store and asked for something to wash out a wound or cut which her husband had received on his knee. The clerk gave her a small bottle bearing the words, among others: "Poison. Carbolic Acid." She took this home and applied it to the wound. The result was that the knee was burned and turned black, and caused serious trouble. On chemical analysis the solution was found to contain between 86 and 90 per cent. of carbolic acid. Two questions were presented: 1. Was the act of selling the preparation, under the circumstances shown, one that would have constituted legal negligence if done by the defendant himself, instead of his clerk? 2. Was this a case where the employer should be held responsible for the act of his clerk?

On the first point it has been held in New York state that a druggist is liable in negligence for damage caused by the sale of poisonous medicine without proper label or instructions. Wohlfahrt vs. Beckert, 27 Hun. 74, affirmed, 92 N. Y. 490. In the present case there can be little question that it was a negligent act for the druggist to sell a solution of carbolic acid of such strength. Section 67 of the Sanitary Code prescribes that: "No phenol, commonly known as carbolic acid, shall be sold at retail by any person in the city of New York, except on the prescription of a physician, when in a stronger solution than 5 per cent." But, aside from such prohibition of the Sanitary Code, the court does not think there can be any doubt that it is an act of negligence for a druggist, when asked for a solution to wash a wound, to sell a preparation of such a dangerous character as was furnished in this case.

On the question whether the act of the clerk was chargeable to the defendant there was little room for doubt. The general rule is that an act done by the servant in the prosecution of the business that the servant was employed by the master to do is chargeable to the master. That this rule applies in the case of the preparation and sale of drugs has been held in this and other states. Thomas vs. Winchester, 6 N. Y. 409; Norton vs. Sewall, 106 Mass. 143. In the former of the two cases just cited the defendant was held liable for injuries flowing from the act of his assistant in business in putting up belladonna, labeled as "dandelion," which, through the medium of several intermediate dealers, was ultimately sold to the plaintiff and used by her, to her serious injury.

It was suggested by the defendant that the plaintiff was guilty of contributory negligence, but the court sees no ground for any such contention. The plaintiff had a right to suppose that the defendant and his employés would perform their duty with care, and, when applied to for some solution to wash a wound, that they would furnish something, if not efficient, at least harmless, and was warranted in applying it without further inquiry.

Upholds Law Taxing Traveling Doctors.

The Court of Criminal Appeals of Texas says, on the appeal of W. K. Fouts vs. State, that by the act of the Twenty-fifth Legislature a tax was levied on doctors and surgeons who traveled as specialists in the practice of their profession. By virtue of subdivision 13 of said act (Acts of 1897, page 49, chapter 18), this tax was levied and the following section 14 levied a tax on the same class but who practiced their profession only locally. So it will be observed that the difference between the two sections or subdivisions of said occupation tax law is found in the fact that one class applies to traveling physicians, etc., while the other applies to local physicians. By acts of the Twenty-sixth Legislature, page 320, chapter 380, subdivision 14 was repealed. It related only to that particular clause of the act of the Twenty-fifth Legislature which pertained to the physicians, etc., who were localized in this practice.

It was contended in this case that, by the repeal of said subdivision 14, the provisions of the repealing act were sufficiently broad and comprehensive to repeal subdivision 13 with reference to traveling physicians. Such was not the intention of the legislature. By the terms of the act of the Twenty-sixth Legislature, subdivision 14 is specifically enumerated, and only subdivision 14 is mentioned as having been repealed. There was nothing in the contention of the defendant, therefore, that the act as to traveling physicians was repealed.

It was also urged that there was no license law under which the defendant could be punished, because the license was not particularly described. But the court can not assent to that proposition. Article 112 of the Penal Code of 1895 provides: "Any person who shall pursue or follow any occupation, calling or profession or do any act taxed by law, without first obtaining a license therefor, shall be fined in any sum not less than the amount of the taxes due and not more than double that sum." Unless the law specifically prescribes what a license is, or may contain, a receipt for the occupation tax is regarded as a license, and, unless the legislature prescribed otherwise a receipt for the tax will operate as a license.

Evidence in Personal Injury Case.

The Supreme Court of North Carolina says that in the personal injury case of Allen vs. Durham Traction Company, the defendant's first three exceptions were on the ground that the trial court permitted an osteopath to testify as an expert in regard to the nature of the fractures of the bones of the woman plaintiff, and to testify as to the amount paid him for his services to her, in considering the amount of damages. The trial court found on the evidence that the witness was an expert. This conclusion was not reviewable. State vs. Wilcox, 132 N. C. 1131; Geer vs. Water Co., 127 N. C. 355, and cases there cited. The court decides as to the admissibility of the witness as an expert; the jury decides as to the weight to be given to his testimony. Flynt vs. Bodenhamer, 80 N. C. 207. The amount paid him for his services was, of course, not binding on the jury, but they could take into consideration the reasonable worth of the attention and nursing rendered by him in passing on the measure of damages. Even if it had been true that this witness could not, under section 4502 of the Revisal of 1905, have recovered for his services to the woman in an action at law, this was not an action by him to recover compensation. His services were not criminal (State vs. Biggs, 133 N. C. 729), and, the plaintiff having paid him for his services, if they were reasonably proper attention under the circumstances, the jury could take their value into consideration. Laws 1907, c. ——, has incorporated the "North Carolina Society of Osteopaths" as a recognized branch of healing, but aside from that, if the services of the witness had been availed of to alleviate pain or in nursing, the reasonable amount paid for such services was a matter for consideration by the jury. If, in a case like this, a bill for medical services were barred by the statute of limitations, its payment could not be enforced at law, but, if paid, it would be a proper item for consideration by the jury in assessing the damages.

Verdict of Insanity Not Conclusive of Lunacy or Unfitness to Make Defense to Criminal Charge.

The Supreme Court of Kansas holds, exparte Wright, that a verdict of insanity, found under chapter 99 of the General Statutes of that state of 1901, does not conclusively show that the person therein named is a lunatic, or mentally unfit to answer or make defense to a criminal charge against him.

The court says that the purpose of this law is to provide procedure whereby a judicial determination may be had of whether or not the person being examined is a proper subject to become a patient in the state hospital for the insane. By its provisions any person may be admitted who, by reason of brain sickness, has become incapable of caring for his own estate, or is a fit subject for care and treatment in a hospital for brain diseases, or insanity. The meaning of the word "insane," as used in this law, is expressly limited, and applies to any degree of mental derangement for which the patient might be admitted to the state hospital for care and treatment. This includes every phase of a disordered mind, from temporary nervous excitement to acute insanity. It can not be said, therefore, that a verdict under this statute, finding the person examined to be insane, necessarily means that he is bereft of all reason or incapable of protecting his own interests in a lawsuit.

It is the law of this country, independent of any statute, that a defendant shall not be compelled to answer to or defend against a crime, if mentally or physically unable at the time to do so in a rational manner, when such disability has developed after the alleged commission of such crime, but in the absence of a statute to the contrary, the duty of determining whether or not such disability exists rests with the court whose duty it is to hear such answer or defense.

When the attention of a court is called to the fact that the defendant about to be arraigned before it is unable, because of mental disability, to make proper defense to the accusation against him, it is, doubtless, the duty of the court to take notice of the suggestion, and make such inquiry concerning it as will fully protect the rights of the accused. On such an inquiry the findings of a court in a lunacy proceeding and any other proper evidence, may be received and considered.

Restriction on Physicians as Witnesses in Wisconsin.

The Supreme Court of Wisconsin says that in the personal injury case of Hocking vs. Windsor Spring Company, the incompetency of a physician as a witness in the case was alleged under chapter 426 of the Laws of Wisconsin of 1903, which provides that no person shall have the right to collect any fees for medical or surgical services or "to testify in a professional capacity as a physician or surgeon, or insanity expert . . . unless he or she holds a license" or certificate and diploma, or a membership in a medical society, duly recorded as prescribed, and that nothing in the act shall restrict courts from receiving the testimony of any person in a criminal action.

It was undisputed that this witness was not a resident of Wisconsin and had not complied with the provisions of this statute. The witness testified that he found that the plaintiff's eye had been injured by a cut from some object which passed into it and penetrated the lens; that he washed the eye, sent the plaintiff to a hospital, and there removed the splinter from the eye with a magnet; and that he afterwards removed the eye. These facts were not disputed in the case. It was averred, however, that this statute disqualified him to testify to any of the facts above stated because he was within the class of persons practicing medicine or surgery, who are debarred from testifying "in a professional capacity as a physician or surgeon, or an insanity expert in any case," except criminal actions. But the court is of the opinion that this contention gave to this statute a wider scope than its context warrants.

Applying the language of the statute to the subject covered by the legislation, the court says that it is clear that persons practicing medicine and surgery are thereby deprived of the right to collect any compensation for such services, and "to testify in a professional capacity as a physcian, or surgeon, or insanity expert," unless they comply with the law. The phraseology of the law is quite clear and direct in expressing a legislative intent that such persons should be disqualified to testify as experts in their professional capacity. Such a disqualification, however, would not affect their competency to testify to facts not within the field of an expert. As to such matters, their qualifications would be governed by the rules applicable to any other person.

It was averred that the evidence of this witness was in its nature expert evidence of a physician and surgeon. The evidence, however, disclosed that, aside from the statement that the splinter penetrated the lens, the witness testified to nothing but what was within the observation of any person, and this statement had no bearing on the controverted issues litigated. It could not have operated to the defendant's prejudice, since it was practically admitted that the eye was so seriously injured as to necessitate its removal. Under these circumstances the court finds nothing in the testimony of the witness which should have been excluded from the case.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below:

Medical Record, New York.

July 6.

1 Operations for Urinary Calculi. G. E. Post, Beirut, Syria.
2 Future of Medical Journalism. J. E. Pilcher, Carlisle.
3 *Syphilitic Tumors of the Breast. J. B. Bissell, New York.
4 Prevention of Venereal Disease. A. H. Baker, Elmira, N. Y.
5 Chronic Perforating Ulcer of Bladder. H. K. Leake, Dallas, Texas.
6 *Fibroid Sarcoma Under Enzyme Treatment. W. T. Doran, New York.

3. **Syphilitic Tumors of Breast.**—Bissell gives the history of five cases of syphilitic tumors of the breast observed by him. He concludes that, as a rule, late syphilitic lesions of the breast can be differentiated easily by careful diagnosis, and certain breasts can be saved from operation. In cases of doubt we should resort to the rapid administration of mercury by hypodermic injection, and see what effect it has on the tumor.

6. **Enzyme Treatment in Recurrent Fibroid Sarcoma.**—Doran describes a case of fibroid sarcoma of the uterus in which panhysterectomy was done and all the involved glands were removed. The disease recurred and was treated by injections of the enzymes, trypsin and amylopsin. The result was an apparent cure, the enlarged glands disappearing and the patient feeling entirely well at the time of writing.

New York Medical Journal, New York.

July 6.

7 *Climate of New Mexico, Nature's Sanatorium for Consumptives. P. M. Carrington, Fort Stanton, N. M.
8 *Auscultation Ratios in Pulmonary Tuberculosis. J. S. Billings, Jr., New York.
9 *Pneumonia in Infants and Young Children. W. P. Northrup, New York.
10 Histogenesis of Tumors, Particularly Cancer. H. Oertel, New York.
11 Malignant Growth of the Mouth and Lips. G. G. Ross, Philadelphia.
12 *Pathognomonic Eye Symptoms in Rabies. W. B. Coakley, New York.
13 Medical Experiences: The Doctor. T. Bannan, Syracuse.

7. **Climate of New Mexico.**—While Carrington devotes considerable space to the discussion of the climate of the entire state of New Mexico, he describes more particularly the conditions at the government reservation at Fort Stanton. He says that New Mexico, as a resort for consumptives, has the following advantages: (a) Altitude; (b) low relative humidity; (c) large percentage of sunshine, advantageously distributed as to season; (d) cold or cool nights; (e) moderate wind movement; (f) small precipitation; (g) rarity of fog; (h) pure air; and (i) well drained soil with low percentage of soil moisture.

8. **Auscultation Ratios in Tuberculosis.**—A rather extensive experience in the examinations of chests of persons suspected of having incipient pulmonary tuberculosis leads Billings to claim that it seems probable that the relative intensity of the breath and voice sounds over the upper and lower portions of the upper right lobe of the lung remains about the same in health, being about 5 to 4, or 5 to 3. When the sounds at the apex are physiologically intensified, there is a corresponding intensification of the sounds over the rest of the upper lobe, the ratio being about the same is in normal chests. In incipient tuberculosis, with beginning infiltration of the right apex, the signs at the apex are intensified while those over the rest of the right upper lobe remain normal. The ratio between them is thus distinctly increased to 2 to 1, or even higher. Such an increase suggests the presence of infiltration, possibly tubercular, at the apex of the right lung.

Billings uses a modification of Oertel's stethoscope. It consists of a binaural stethoscope, the bell of which may be either the ordinary hard rubber form or the combination Bowles-Stanley phonendoscope. One of the soft rubber tubes of the instrument is closed by means of a ligature. In the course of the other rubber tube there is introduced the metal combination tube which constitutes the essential part of the Oertel stethoscope. This consists of two metallic tubes, the one being graduated vertically, the other transversely in millimeters. The third, outer metallic tube glides up and down over the other two for half their length. By rotating the middle tube by means of its milled head, and sliding the outer tube downward, an opening measuring 40 mm. may be obtained. The more intense the sound, the larger the opening required to obliterate it. The patient should be examined in a standing position, as changes in the sounds seem to be less readily recognized when the patient is lying down. The instrument should be applied with the outer sliding tube closed and the middle and inner ones separated by an interval of 2 mm. The sliding tube is then pushed slowly down until the particular sound (voice, breath) has disappeared. The area of the opening necessary to obliterate the sound is then noted by means of graduations on the tubes. This procedure is carried out at the apex of the lung in front and behind, and also over the second space and third rib in front, one and one-half inches from the sternum and just above the upper angle of the scapula behind. Considerable practice and experience were necessary before satisfactory results were obtained. Much depends on the patient. With a person of intelligence the procedure is relatively easy; with one of low intelligence who will not speak or breathe twice in the same way, it is often impossible to obtain any satisfactory results. The method is said to be not adapted for the use of the general practitioner, but would necessarily be limited to those making a specialty of the recognition of early cases of pulmonary tuberculosis.

9. **Pneumonia in Infants.**—Northrup summarizes his paper as follows: Diagnosis. The early manifestations of pneumonia in infants are: Sudden onset; prostration ("dopey"); fever; disturbed respiration, pulse ratio; râles. These are sufficient for diagnosis. The further signs and symptoms are in the order of their practical value and appearing: Diminished respiratory murmur; bronchovesicular respiration; bronchial voice and breathing; bronchial "whiff"; dulness; cough. Treatment. Purgation, calomel and castor oil, or castor oil alone in full dose. Careful feeding to avoid flatulence. Plentiful use of water for drinking and bathing. Quiet and undisturbed rest. Fresh, cool, flowing air. Antipyretics, bathing, sponging, cool drinks, no coal-tar products. Heart stimulants, wine, whisky, strychnin. Early recognition of complications and their treatment.

12. **Pathognomonic Eye Symptoms in Rabies.**—The sign noted by Coakley is a pinpoint contraction of one or both pupils, which is uninfluenced by light, atropin, or cocain. Shortly before death the pupil dilates suddenly to about the size of a large matchhead. The symptoms were observed only in rabid dogs.

St. Louis Medical Review.

June 29.

14 Study of Deaths from Pneumonia. O. H. Brown, St. Louis.
15 Sugar in Cancer. T. H. Evans, Philadelphia.

The Lancet-Clinic, Cincinnati.

July 6.

16 The Strenuous Life and Race Suicide. H. V. Sweringen, Fort Wayne, Ind.
17 Cases of Probable Maternal Impressions. J. M. Walton, Memphis, Tenn.
18 Phthisis Pulmonum and Abortus Provocatus. T. Howard, New York.

American Journal of Obstetrics, New York.

June.

19 Fibroid Tumors of Uterus in Pregnancy, Labor and the Puerperal State. M. D. Mann, Buffalo.
20 *Case of Quadruplets. F. H. Washburn, Jefferson, Mass.
21 *Induction of Labor in Contracted Pelves. J. B. Cooke, New York.
22 Interruption of Pregnancy for Causes Other Than Pelvic Contraction and Eclampsia. C. Jewett, Brooklyn.
23 *Retroversion Flexions of Uterus in Relation to Pregnancy. C. W. Barrett, Chicago.
24 Case of Tight Knot of Umbilical Cord and Consequent Antepartum Death of Fetus. R. T. Frank, New York.
25 Pelvic Tuberculosis. J. R. Goodall, Montreal.
26 Sodium Citrate in Infant Feeding. D. W. Prentiss, Washington, D. C.
27 Two Cases of Chorioepithelioma Malignum; Hysterectomy; Recovery. H. N. Vineberg, New York.

20. **Quadruplets.**—In the case reported by Washburn, three of the children were attached by separate cords to what seemed a common placenta, while the fourth child was attached by its funis to a distinct placenta. Each fetus was enclosed in its own amnion.

21. **Induction of Labor.**—Cooke says that the pelvis of every pregnant woman should be measured carefully, and the physical development of the husband should be learned. Beginning with the end of the seventh month of gestation, the Mueller method of cephalometry, as modified by Hirst, should be practiced at weekly intervals until the induction of labor is clearly indicated by reason of disproportion between the fetal head and the pelvic brim. With a true conjugate of 9.5 cm. labor should be induced at the thirty-sixth week. If the true conjugate is only 8 cm. labor should be induced also at the thirty-sixth week, and aided by forceps, or version, according to the character of the pelvic deformity.

23.—See abstract in THE JOURNAL, Dec. 1, 1906, page 1849.

The American Journal of Medical Sciences, Philadelphia.

June.

28 *Tuberculin Immunization in Pulmonary Tuberculosis. E. L. Trudeau, Saranac Lake, N. Y.
29 *Chronic Polycythemia and Cyanosis with Enlarged Spleen (Vaquez's Disease.) J. M. Anders, Philadelphia.
30 *Transient Spontaneous Glycosuria and Its Relation to Alimentary Glycosuria. T. B. Barringer, Jr., and J. C. Roper, New York.
31 *Manifestations and Diagnosis of Infantile Scurvy. L. E. La Fétra, New York.
32 Treatment of Fracture and Dislocation of Vertebræ. A. Nicoll, New York.
33 *Most Frequent Hernia in Childhood and Its Significance. E. M. Corner.
34 Clinical Resemblance of Cerebrospinal Meningitis to Disseminated Sclerosis. W. G. Spiller and C. D. Camp, Philadelphia.
35 *Etiologic Factors in Recurrent Facial Palsy. T. J. Orbison, Philadelphia.
36 *Bacteriology of Blood in Typhoid. W. Coleman and B. H. Buxton, New York.
37 *Influence of Iodin Preparations on Vascular Lesions Produced by Adrenalin. L. Loeb and M. S. Fleisher, Philadelphia.
38 So-called Hysterical Affections of Abdomen. G. P. LaRoque, Richmond, Va.

28. **Tuberculin Immunization in Tuberculosis.**—Trudeau believes that all knowledge points to immunization in the treatment of pulmonary tuberculosis, and that while much remains to be learned about the tuberculin treatment, he inclines to the belief that the production of tuberculin immunity by the mild clinical method is capable of favorably influencing the course of chronic tuberculosis or prolonging life, and in many cases of aborting a commencing infection or extinguishing the smoldering fires of a chronic infection.

29. **Chronic Polycythemia.**—Anders reports three cases of the so-called Vaquez's disease, a study of which leads him to the conviction that defective venous tonus plays an important rôle in the pathogenesis of the condition. He reviews the cases reported in the literature, which, with his own, gives a grand total of 53 cases.

30. **Transient Spontaneous Glycosuria.**—Barringer and Roper made a very careful study of 20 cases of transient glycosuria, which were discovered between 1895 and 1901. At the end of five years 20 per cent. of these patients had become diabetic; 15 per cent. had become suspicious cases, and 10 per cent. somewhat suspicious; 55 per cent. had remained free from diabetes. Eight of 11 cases of spontaneous glycosuria, in which sugar recurred, became diabetic or probably diabetic. The authors claim that the alimentary glycosuria arising from glucose or cane sugar, provided the test is properly conducted, and repeated at intervals, affords a valuable aid to prognosis, in cases of spontaneous glycosuria. A positive test is of much more value than a negative test. Alimentary glycosuria *e saccharo* is essentially diabetic in its nature.

31. **Infantile Scurvy.**—La Fétra reports seven cases of infantile scurvy which show the more common as well as the unusual phases of this affection. These infants were taking, respectively, sterilized milk, pasteurized milk, milk that was not heated when made, but overheated when warmed for the bottle feeding, pasteurized peptonized milk, a weak milk mixture made up with starchy food, with heated milk. La Fétra says that to sterilize milk is often necessary, but it should be adopted rather as a mode of treatment than as a method of feeding.

33. **Hernia in Childhood.**—Corner found as the result of a rather extensive series of observations on 3,300 cases, that multiple hernias are far more frequent in children than in adults, and that the majority of hernias in children are acquired and not congenital. The variety of hernias seen most often is the median ventral, which in Corner's series of cases appeared in 61.3 per cent., and when in combination as well, in 87.1 per cent. He believes that the majority of hernias in children arise from the increased intra-abdominal pressure, which results from the gas production of intestinal fermentation. The younger the child, the shorter the time required for the development of a hernia. Clinical experience shows that raised abdominal pressure is directly related to the frequency of inguinal hernias, and probably also to their initiation. Corner's tables show that the true proportion of acquired to congenital hernias is about two to one.

35. **Recurrent Facial Palsy.**—Orbison claims that there is one cause of recurrent facial palsy that has not been emphasized sufficiently, and that is a defective condition of the intestinal tract, associated with a faulty elimination of waste products by way of the kidneys, the lowered tone of the nerve being a secondary and consequent symptom. He reports two cases.

36. **Bacteriology of Blood in Typhoid.**—Bacteriologic examinations of the blood of typhoid and suspected cases have been made a routine practice in many hospitals, and the number of cases reported, including the cases of Coleman and Buxton, reaches a total of 1,602. Of this number 75 per cent. gave a positive result. The examinations were made at all stages of the disease, and by different methods. The authors conclude from an analysis of these cases that the typhoid bacillus is present in the blood of every case of typhoid fever throughout its course, but that the bacillemia in typhoid does not constitute a true septicemia, but it represents an overflow of bacilli from the lymphopoietic organs. The clinical picture of typhoid results only from infection of these organs by the typhoid bacilli, with invasion of the blood stream and destruction there of vast numbers of bacilli. Furthermore, the endotoxins of the typhoid bacillus are not cumulative in action, and convalescence from the disease itself is established within a few days after the disappearance of the bacilli from the blood.

37. **Iodin Preparations, Vascular Lesions and Adrenalin.**—Loeb and Fleisher found that it is not possible, by the use of various iodin preparations, to prevent the arterial changes produced in rabbits by the injection of adrenalin. In fact, when

large doses of iodin preparations were injected, the arterial changes produced by adrenalin were more marked than when adrenalin was used alone. Injections of potassium sulphocyanid in fair sized or relatively large doses, did not cause an increase in the arterial lesions produced by adrenalin. In fact, they seemed to exert a preventive influence on the adrenalin.

The Northwestern Lancet, Minneapolis.

June 15.

39 Eclampsia. A. J. McCannel, Minot, N. D.
40 La Diete Hydrique in Treatment of Gastrointestinal Diseases. R. O. Beard, Minneapolis.
41 *Treatment of Retrodisplacement and Prolapse of Uterus. A. W. Abbott, Minneapolis.
42 Rattlesnake Bite, with Recovery. F. C. Baier, Minneapolis.
43 *Obturator Hernia. E. D. Keyes, Winona, Minn.

41. **Retrodisplacement of Uterus.**—Abbott shortens the uterosacral ligaments through an abdominal incision, by folding each ligament on itself.

43. **Obturator Hernia.**—Keyes observed a case of obturator hernia in a man 51 years of age. The man was seized suddenly with intense pain, referred at first to the abdomen, later extending down the left thigh. Careful examination located the center of the disturbance in the left groin, with the most painful point below the pubic crest, and internal to the saphenous opening. The patient consented to an operation about twenty-four hours after the onset of the symptoms. A knuckle of the small intestine was found so firmly wedged into the obturator foramen that it could not be dislodged. The membrane was nicked and the intestine returned, after having turned in a small gangrenous spot.

The Therapeutic Gazette, Detroit.

May.

44 *External Use of Adrenalin in Neuralgia, Neuritis and Reflex or Referred Pain. H. G. Carleton, Atlantic City.
45 Ocular Manifestations in Venereal Diseases. A. Bray, Philadelphia.
46 *Tubercle Bacilli Products in Treatment of Tuberculous Lesions. G. R. Pogue, Greeley, Colo.
47 Examination of Feces. G. H. Jones, Toledo.
48 Treatment of Internal Hemorrhages. G. Werley, El Paso, Texas.
49 *Treatment of Local Infections. H. S. Wieder, Philadelphia.
50 Aseptic Operative Technic. J. E. Cannaday, Hansford, W. Va.

44. **Use of Adrenalin to Combat Pain.**—Carleton has used adrenalin externally to combat the pain accompanying functional neuralgias and neuritis. The only absolute failures noted were in cases of neuralgia, springing from toxic conditions. Reflex neuralgias of great severity were relieved for periods varying from a few hours to several months, and the pains of gout, articular and muscular rheumatism, and myalgia are relieved almost entirely for a considerable time after the application of the adrenalin. In nearly 100 cases one application of an adrenalin ointment relieved the patient of pain in cases of recurrent facial neuralgia for periods of from one month to six months. Carleton says that the quantity of a 1 to 1,000 ointment of adrenalin to be used in any affection of a peripheral nerve should not exceed from one to two minims, by inunction, except in case of the sciatic nerve, when two or three minims may be used. Larger quantities often produce ischemia which might prove injurious. The application of the ointment must be made directly over the affected nerve.

46. **Serum Therapy of Tuberculosis.**—Pogue speaks well of the use of tubercle bacilli products in the treatment of tuberculosis. He says that the most noticeable feature about the arrested cases is the very few relapses that have occurred. In those cases where a relapse did occur it was the result of disobedience to instructions on the part of the patient.

49. **Treatment of Local Infections.**—Wieder advises immediate incision over the point of greatest tenderness, followed by carbolization of the wound, and the application of a wet bichlorid dressing. In incising for palmar infections of the fingers the incision should be continued until pus or bone is reached. The Bier method of treatment, he thinks, is especially worthy of further trial, in the case of milder panaritia of the cutaneous or paraungual type.

Journal of Medical Research, Boston.

May.

51 *Serum Anaphylaxis in the Guinea-pig. F. P. Gay and E. E. Southard, Boston.
52 *Study of Normal and Diarrheal Stools for Detection of Dysentery or Allied Organisms. J. W. Fisher, Middleton, Conn.
53 *Study of Agglutination. J. W. Fisher.
54 Application of Card Cabinet System in Storage of Microscopic Slide Preparations. E. E. Tyzzer, Boston.
55 Estimation of Leucocytes from Stained Blood Smears. R. C. Larrabee, Boston.
56 *Case of Oidiomycosis. W. B. Coley and M. Tracy, New York.
57 *Absorption from Peritoneal Cavity. B. H. Buxton, New York.
58 Solid Teratoma of Mediastinum. H. A. Christian, Boston.
59 *Hemolytic Properties of Organ and Tumor Extracts. R. Weil, New York.
60 Study of Toxins of Bacillus Prodigiosus. M. Tracy, New York.
61 Agglutinins and Precipitins in Antigonococcic Serum. J. C. Torrey, New York.
62 *Degree and Duration of Passive Immunity to Diphtheria Toxin Transmitted by Immunized Guinea-pigs. T. Smith, Boston.

51. **Serum Anaphylaxis.**—Gay and Southard advance a theory in regard to the remarkable susceptibility to intoxication by horse serum of guinea-pigs, which have been previously injected with small quantities of horse serum; this theory, however, does not seem to make the complex conditions involved any clearer. The most interesting part of their work relates to the lesions produced by this intoxication. The lesions consist of multiple hemorrhages, especially in the stomach, cecum, lungs and heart, associated with widespread fatty changes of the capillary endothelium. The heart muscle, the skeletal muscle, the nerves and the epithelium of the stomach show striking local fatty changes.

52. **Detection of Dysentery.**—Fisher studied 37 cases of asylum dysentery and in practically all of those with blood or bloody mucus in the stools was found the Flexner type of the dysentery bacillus. In 44.4 per cent. of normal stools Fisher found a dysentery-like organism, bacillus F., which differs from dysentery, colon and typhoid bacilli; hence it may be classed with the so-called pseudo-dysentery group.

53. **Agglutination.**—Fisher makes the interesting observation that when more than one bacillus is used to immunize animals, less agglutination is produced for each bacillus than when only one kind of bacillus is used for immunization. The simultaneous immunization with various bacilli produces, however, specific agglutinins for each organism.

56. **Oidiomycosis.**—Coley and Tracy describe a case of generalized blastomycosis in a man 27 years old, who, several months after getting his left foot injured with a clam shell, suffered from an attack of pain in the back which was regarded as lumbago and was followed by pain with marked swelling over the dorsal region of the left foot; in a few days fluctuation and a small sinus formed, while two small swellings appeared on the outer aspect of the right foot. These crusted and on removal of the crusts there was found pus-like matter in the center. About a week later still similar lesions developed on the face and simultaneously numerous subcutaneous swellings appeared over various parts of the body, but especially on the thighs and arms, varying in size from that of a hazelnut to that of a small egg. They usually broke spontaneously after a few days. Cough appeared and rapid emaciation. Microscopic examination of the lesions showed granulation tissue with leucocytes, and giant cells and spherical and budding blastomycetes, some of the giant cells containing several organisms. Similar forms were found in pus of the abscesses and pure cultures of the organism were obtained. Blood culture was uniformly sterile. The authors think that the infection entered through the lungs, although they recognize the possibility that the infection may have entered the blood current through the wound in the foot.

57. **Absorption from Peritoneal Cavity.**—Buxton reports further on experiments of absorption from the peritoneal cavity, in this case of typhoid bacilli in immunized rabbits. He finds that an immunized rabbit does not dispose of sublethal quantities of living bacilli more rapidly than normal rabbits, nor is it more resistant to endotoxins. On this account he believes that the immunity may be due to an increased capacity of the phagocytes, especially the macrophages, for taking up bacilli, but he does not make it clear whether this increased capacity is inherent in the phagocytes or due to the new formation of opsonins. It is regarded as advantageous that the bacilli are destroyed within the cells because the endotoxins then first come into contact with the substance of the cells instead of being discharged directly into the fluid of the body.

59. Hemolytic Properties of Tumor Extracts.—Weil finds that necrotic tumors contain a hemolytic substance which is different from that obtained in extracts of normal organs or of growing tumors, and which probably is the result of necrosis in which dialysable hemolytic compounds appear to be formed. He naturally suggests that the anemia of malignant tumors probably will be found to be due in part to the action of such products.

62. Immunity to Diphtheria Toxin.—Smith shows that by testing the resistance to diphtheria toxin of the offspring of female guinea-pigs injected with a toxin-antitoxin mixture as used in standardizing diphtheria serum, we have a method for determining the persistence of active immunity in the body of breeding females. The tests so far carried out by Smith show that there is no immediate relation between the severity of reaction on the part of the body and the degree of active immunity produced. While a severe disease produced by toxin alone results in the transmission of no immunity to the offspring, a single injection of a toxin-antitoxin mixture, causing no local or general symptoms, may induce active immunity persisting for several years. At present the significance of this fact can not be made clear, but it is suggested that possibly there may be a dissociation of the toxin-antitoxin compound and that the large amount of toxin—38 minimum fatal doses—thus introduced may be used by the body to produce immunity. Growing out of this the suggestion presents itself that similar neutral mixtures possibly may be used to produce active immunity in the human subject; the great value of substituting for passive immunity in exposed children an active immunity extending over a longer period is self-evident. Is such immunity attainable with so little difficulty as in the guinea-pig?

University of Pennsylvania Medical Bulletin, Philadelphia.

May.

63 *Heart Disease. C. N. B. Camae, New York.
64 *Preservation of Deep Sensibility of Face After Destruction of Fifth Nerve. R. H. Ivy and L. W. Johnson, Philadelphia.
65 *Case of Aneurism of Abdominal Aorta. W. Pepper, Philadelphia.

63. Heart Disease.—Camae says that rate, rhythm and intensity taken together, not singly, may give indication of threatened compensation, or incipient organic lesion of the heart or blood vessels, and that tricuspid insufficiency is an effort of Nature to correct disease of the left side of the heart. Unfortunately, it occurs more often than is suspected, hence is not diagnosed early enough to permit of the institution of effective treatment.

64. Preservation of Deep Sensibility of Face.—Ivy and Johnson summarize their paper as follows: The fifth nerve conveys fibers of sensibility to light touch, changes in temperature, and pain from those parts generally recognized as being within the area of distribution of the said nerve. The seventh nerve conveys fibers of deep or pressure sensibility from the muscles which it supplies with motor fibers. The muscles of mastication, which derive their motor supply from the fifth nerve, probably are also furnished with fibers of deep sensation by that nerve.

65. Aneurism of Abdominal Aorta.—Pepper reports one case and reviews the postmortem notes of 10 other cases of aneurism of the abdominal aorta. The interesting features of his case were the great size attained by the aneurismal mass, the character and severity of the pain, and the extreme emaciation of the patient. The aneurism measured 10 c.c. in length and was of corresponding width.

New York State Journal of Medicine, Brooklyn.

May.

66 Syphilis. J. Ewing, New York.
67 Work of the New York State Cancer Laboratory. R. Park, Buffalo.
68 Parasitism and Infection in Cancer. H. R. Gaylord, Buffalo.
69 Immunity Against Cancer in Mice. G. H. A. Clowes, Buffalo.
70 Medical Charities in Manhattan and the Bronx (Concluded). F. L. Lattimore, Philadelphia.
71 History of the Medical Society of the State of New York. J. J. Walsh, New York.

June.

72 *Danger Signals from the Skin. L. D. Bulkley, New York.
73 *Toxic Nephritis Dependent on Surgical Conditions. N. Jaeobson.
74 New York State Medical Library. A. Vander Veer, Albany.
75 State Aid for Medical Libraries. S. Baker, Utica.
76 Endocardial Murmurs and Their Meaning. E. E. Cornwall, New York.
77 Doctors in State Hospitals. R. M. Elliott, Willard.
78 History of the Medical Society of the State of New York (Continued). J. J. Walsh, New York.

72.—This article appeared in full in The Journal, May 25, 1907, page 1740.

73.—See abstract in The Journal, March 2, 1907, page 822.

Chicago Medical Recorder.

June.

79 *Extravesical Versus Intravesical Methods of Removing Prostatic Obstruction. W. Andrews, Chicago.
80 Acute Diffused Gonorrheal Peritonitis. C. G. Buford, Chicago.
81 *Mesosigmoiditis and Its Relation to Gynecologic Affections. E. Ries, Chicago.
82 Tubercular Infections of Faucial Tonsils. C. M. Robertson, Chicago.
83 Prevention of Obstetric Lacerations. H. D. Roehler, Chicago.
84 Repair of Both Eyelids by Means of Single Split Flap in Carcinoma of the Lids. E. F. Snydacker, Chicago.
85 The Mouth, Nose and Throat in Their Relations to Stomach and Intestines. O. J. Stein, Chicago.

79.—See abstract in The Journal, Jan. 27, 1906, page 305.

81.—See abstract in The Journal, June 8, 1907, page 1987.

Western Medical Review, Omaha.

May.

86 Management of Placenta Prævia in Country Practice. A. E. Engzelius, Wakefield, Neb.
87 The Newer Physiology of Digestion. L. Crummer, Omaha.
88 Practical Treatment of Inebriety. T. D. Crothers, Hartford, Conn.
89 Reflex Neuroses from Eyestrain. D. C. Bryant, Omaha.

Medical Sentinel, Portland, Ore.

May.

90 Practical Application of Roentgen Rays in General Practice. C. W. Botsford, Chicago.
91 Is the Spirocheta Pallida the Specific Organism in Syphilis? A. Tilzer, Portland.
92 Prognosis and Treatment of Enlarged Prostate. A. E. Mackay, Portland.
93 The Stomach as She Is. S. E. Bruce, Lewiston, Idaho.

Central States Medical Monitor, Indianapolis.

May.

94 Treatment of Cardiac Dilatation. C. R. Sowder, Indianapolis.
95 Human and Animal Tuberculosis. R. W. Tuck, Arkansas City, Kan.
96 Minor Surgery. M. A. Austin, Anderson, Ind.
*97 Case of Double Uterus and Vagina. R. O. McAlexander, Indianapolis.
98 Heredity. J. W. Crismond, Anderson, Ind.

Colorado Medicine, Denver.

May.

99 Cases of Internal Derangements of Knee-joints. L. Freeman, Denver.
100 Bone Injuries. W. T. B. Baker, Pueblo.
101 Radical Cure of Varicocele and Its Results. F. G. Connell, Oshkosh, Wis.
102 Surgical Treatment of Cancer of Rectum in Women. W. B. Craig, Denver.
103 Rupture of Urinary Bladder. J. R. Espey, Trinidad.
104 Surgical Treatment of Digestive Disorders. J. R. Arneill, Denver.
105 Diagnosis of Operative Stomach Conditions. J. N. Hall, Denver.

Philippine Journal of Science, Manila.

May.

106 Modern Theories in Relation to Immunity. P. C. Freer.
107 Cultivation of a Bovine Piroplasma. M. Miyajima.
108 Etiology of Dengue Fever. P. M. Ashburn and C. F. Craig.

Alienist and Neurologist, St. Louis.

May.

109 Is Genius a Sport, a Neurosis, or a Child Potentiality Developed? (to be continued). J. G. Kiernan, Chicago.
110 The Tramp as a Social Morbidity. H. C. B. Alexander, Chicago.
111 Entoning of Neurones in Practice of Medicine and Surgery. C. H. Hughes, St. Louis.
112 A Psychologic Medicolegal Study. G. F. Adams, Kenosba, Wis.
113 Psychologic Study of Man's Moral Evolution. A. S. Ashmead, New York.
114 Case of Canine Hermaphrodism. R. W. Shufeldt, New York.
115 Is Sexual Perversion Insanity. H. N. Moyer, Chicago.
116 Erotism, Normal and Morbid, and the Unwritten Law in Our Courts. C. H. Hughes, St. Louis.
117 Thaw's Paranoiac Morbid Egoism. C. H. Hughes, St. Louis.

Virginia Medical Semi-Monthly, Richmond.

May 24.

118 Puerperal Infection. G. D. Lind, New Richmond.
119 Treatment of Peritonitis. W. L. Peple, Richmond.
120 Acute Purulent Otitis Media. J. R. Perkins, Spencer, Va.
121 Prognosis in Chronic Valvular Lesions. M. Call, Richmond.

122 Means Used in Treatment of Tuberculosis. T. B. Keyes, Chicago.
123 Evolution of Man's Digestion. M. O. Burke, Richmond.
124 Principles of Surgery. S. McGuire, Richmond.

Indiana Medical Journal, Indianapolis.

June.

125 President's Address of Fifty-eighth Annual Session of the Indiana State Medical Association. G. J. Cook, Indianapolis.
126 Evolution of Medical Education. W. E. Stone, Purdue.
127 *Blastomycosis and Its Congeners. A. W. Brayton, Indianapolis.
128 Opsonins. Practical Application of Opsonins (Part 2). H. S. Thurston, Indianapolis.

127.—See abstract in The Journal, June 22, 1907, page 2145.

Denver Medical Times.

June.

129 Colloid Carcinoma of Mammary Gland. F. J. Dixon, Denver.
130 Diarrheal Diseases. H. G. Cattermole, Boulder.
131 Corrosion Anatomy. B. Robinson, Chicago.
132 Localized Infection Treated by Bier's Method. G. R. Pogue, Greely.
133 Rapidly Developing Scurvy on Condensed Milk and Eskay's Food. H. S. Shafer, Denver.
134 Atypical Case of Gall Stones. F. G. Buchanan, Denver.
135 Visiting Nurse Association. E. Lawney, Denver.
136 Nervous Irritation. D. A. Richardson, Denver.

Utah Medical Journal, Denver.

June.

137 *Use of Iodin in Surgical Work. J. E. Cannaday, Hansford, W. Va.
138 Bacteriology and Bacteriemia of Pneumonia. S. J. Townsend, Salt Lake City.

137.—This article also appeared in *American Medicine* for November, 1906.

Kentucky Medical Journal, Bowling Green.

June.

139 Ideal Relation Between the Doctor and the People. W. W. Richmond, Clinton.
140 Cerebral Congestion. J. T. Smith, Gamaliel.
141 Insanity. J. M. Ferguson, Hopkinsville.
142 Nelson County (Ky.) Medical Society in Relation to Hygiene. W. L. Heizer, New Haven.
143 Plea for More Faithful Consideration of Natural History of Disease. J. B. Bullitt, Louisville.
144 Disjointed Observations on Our Technic. A. M. Cartledge, Louisville.
145 *Medical Treatment of Gall Stones. R. A. Bates, Louisville.
146 Concussion of Brain. T. H. Garvin, Horse Cave.
147 Case of Cardiac Asthma. W. M. Ewing, Smiths Grove, Ky.
148 Origin of Medical Science. W. Blair, Glensfork.
149 Miscarriage and Its Treatment. W. H. Strother, Hot Springs, Ky.

145.—See abstract in The Journal, Oct. 27, 1906, page 1402.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

June 22.

1 *Tropical Ailments as They Are Met With in Britain. J. Cantlie.
2 *Referred Pain and Its Diagnostic Value. D. Forsyth.
3 *Treatment of Locomotor Ataxia by Fibrolysin. F. M. Pope.
4 Causes and Significance of Ambiguous Reactions Obtained in Testing Urine for Sugar. H. Maclean.
5 *Ligature of Common Carotid for Arterial Dilatation and Epilepsy. R. Parker.
6 Cultivation of Meningococcus in Epidemic of Cerebrospinal Meningitis in Belfast. W. St. C. Symmers and W. J. Wilson.
7 *Rôle of Various Elements in Development and Regeneration of Bone. W. Macewen.
8 Dystocia from Encephalocele. L. G. Davies.
9 Uterine Hemorrhage and Ovarian Disease. W. H. Maling.
10 Case of Rumination in Man. A. C. L. La Frenais.
11 *Infection of Measles Transmitted by Letter. H. R. Davies.
12 Hyperemesis. W. M. Crofton.

1. **Tropical Ailments in Britain.**—Cantlie claims that it is not at all uncommon for a tropical resident, while at home, to develop some latent illness, even in the most remote highland glen or in the wilds of Galway. The diseases discussed are malaria, hemoglobinuria, dysentery, sprue, tropical liver, hepatic abscess, plague, beriberi, Dhobhie itch, Malta fever and filiariasis.

2. **Referred Pain.**—Forsyth says that referred pain is, in a way, an error of judgment. The phenomenon is a subjective one, but not infrequently is so characteristic as to suggest the diagnosis, such as the shooting pains down the arm in angina pectoris, the pain in the back in liver colic, and the pain in the knee in hip disease.

3. **Treatment of Locomotor Ataxia by Fibrolysin.**—In one case reported by Pope the intramuscular injection of fibrolysin, 2.3 c.c., on alternate days, was followed by much improvement and by return of the knee jerks. The shooting pains had disappeared and the patient was able to walk well with the aid of two sticks. The pupil reaction remained unchanged. A second case, treated at the same time, showed little or no improvement.

5. **Ligature of Common Carotid.**—Parker reports a case of arterial dilatation of the left side of the head, attended by epilepsy and right hemiparesis, in which relief was obtained by ligature of the left common carotid artery. The patient, a female, was 32 years of age. The dilated vessels were first noticed on the left forehead when she was 17 years old. The fits began at the age of 22. Latterly there had been as many as 13 a week. There was no aura, but complete loss of consciousness. The left common carotid was tied with catgut. The patient was immediately relieved of her headache and all other inconvenience and was free from fits for a time. The fits returned about three months after the operation, but were mild and occurred but seldom. The patient's memory and power of speech were failing, but in other respects she was healthy and cheerful.

7. **Regeneration of Bone.**—From the abstracts of Macewen's paper it would appear that the osteogenic power of bone cells is far greater than that of the periosteum. A long bone deprived of its periosteum continued to grow in experiments made, and so also did the flat bones of the skull. Furthermore, bone may be made to grow in the midst of lacerated muscles by the mechanical distribution of osteoblasts. On the other hand, the removal of a shaft of bone from its enveloping periosteum was not followed by the regeneration of the bone in the periosteal cylinder.

11. **Infection of Measles.**—Davies reports a case of measles occurring at a considerable distance from any other case. It appears that a young man was taken ill with a very light attack of measles, and while in bed wrote a letter to his brother. Shortly after the receipt of the letter the brother was attacked by measles, having been in contact with no one previously who had had the disease.

The Lancet, London.

June 22.

13 *Nature and Treatment of Hemorrhoids. A. E. J. Barker.
14 *Treatment of Hysteria. T. D. Savill.
15 *Two Cases of Excision of Ruptured Spleen. E. W. Roughton and T. P. Legg.
16 *Symptoms Which May Be Produced by Seventh Cervical Rib. C. M. H. Howell.
17 Case of Acute Leukemia. H. H. E. Scatliff and E. Hobhouse.
18 *A Dangerous Dry Shampoo. H. C. Colman.

13. **Treatment of Hemorrhoids.**—When hemorrhoids are present in abundance, and covered by irritating mucous discharge, Barker applies a lotion of bichlorid of mercury 1 to 1,000, twice a day. He says it is surprising what improvement will take place, even in very bad cases, under this treatment. If this treatment fails, and there is only a single hemorrhoid, Barker advises its submucous excision, replacing the mucous membrane over the denuded area. When there are many hemorrhoids or when there is not enough mucous membrane to cover all the stumps, and there is some risk of contraction of the anus, Barker does the Whitehead operation, and his results have always been good.

14. **Treatment of Hysteria.**—Savill discusses this subject under five headings: 1, Certain general measures directed to improve the tone and nutrition of the nervous system and to allay its irritability; 2, other symptomatic treatment, mainly by the aid of drugs; 3, etiologic treatment which depends on the discovery and eradication of the determining cause of the hysterical manifestation in operation; 4, the use of vasoconstrictors, vasodilators and blood remedies, and 5, educational and other preventive measures.

15. **Excision of Ruptured Spleen.**—Roughton and Legg each report one case of traumatic rupture of the spleen, in which splenectomy was done successfully. One patient was alive and well 18 months after the operation, and the other was in perfect health when seen last, more than three years after

the operation. Both patients were girls, aged respectively 7 and 12 years. The blood findings in each case are detailed at length.

16. **Cervical Ribs.**—Howell reports 16 cases of cervical ribs, of which he makes a complete analysis on the basis of clinical history.

18. **Dangerous Dry Shampoo.**—Colman reports a case of chloroform poisoning following the use of tetrachlorid of carbon as a dry shampoo. The symptoms were typical of chloroform poisoning, and the patient did not recover her usual health for several days.

British Journal of Children's Diseases, London.

May.

19 *Tuberculosis of Testis in Children. R. J. Howard.
20 Rearing of Children. G. Carpenter.

19. **Tuberculosis of Testis in Children.**—Howard records 9 cases of tubercular epididymo-orchitis occurring in children under 12 years of age, which were admitted to the London Hospital during a period of 10 years. During this time 149 cases occurred in patients over 12 years of age. The total number of male patients admitted during the 10 years was 55,912. In three of the 9 cases both testes were affected, the right gland twice and the left four times. In only two of the cases was there any marked history of tuberculosis in the family. The oldest patient was 10 years and the youngest 6½ weeks old. Howard says that if general hygienic and opsonic treatment do not rapidly improve a tubercular testis in a child the organ should be removed. If both testes are attacked, or if one has already been removed, orchidectomy should only be done as a last resort.

Glasgow Medical Journal.

June.

21 Scottish Medicine Before the Union. E. H. L. Oliphant.
22 *Perforation of Jejunal Ulcer Seven Years After Gastrojejunostomy. G. H. Edington.
23 Fluid of Milky Appearance Removed from Tunica Vaginalis. H. E. Jones.

22. **Perforation of Jejunal Ulcer.**—Edington reports a case of pyloric stenosis in which an anterior gastrojejunostomy was done near the pyloric end of the stomach. Nearly five years later a cholecystotomy was done and a stone was extracted from the cystic duct. Two years after this operation the man was awakened by an intense epigastric pain. A laparotomy was insisted on, and on the anterior surface of the jejunum, close to the gastrojejunal anastomosis, there was found a perforation. This was closed by Lembert sutures, but the patient never rallied, and died three and a half hours later. The ulcer was to the distal side of the artificial stoma, in a part of the gut, which would probably not be bathed by the bile and pancreatic juice before the stomach contents came in contact with it.

Annales d. Mal. d. Org. Gén.-Urin., Paris.

Last indexed, XLVIII, page 91.

24 (XXIV. Nos. 21-24, pp. 1601-1920.) *Restoration of Perineal Urethra After Severe Traumatism of the Perineum, in Case of Traumatic Strictures, and in Certain Gonorrheal Strictures. (Réfection de l'urèthre périnéal.) O. Pasteau and A. Iselin.
25 Means to Transform the Urban Electric Current for Use in Bladder or Urethra. (Inconvénients du transformateur du courant électrique, etc.) R. Bonneau.
26 Wolffian Cysts of Spermatic Cord. (Kystes wolffiens du cordon.) Vautrin and Apffel.
27 *Radiotherapy of Enlarged Prostate (Traitement radiothér. de l'hypertrophie de la prostate.) A. Tansard and G. Fleig.

24. **Restoration of Perineal Urethra.**—This profusely illustrated monograph is based on both experimental work and clinical experience. The total list of cases of rupture of the urethra and attempted restoration embraces 127 cases, many of which have never previously been published. The article won the Argenteuil prize of the *Académie de Médecine*. The technic advocated seems to accomplish the purpose while avoiding danger of strictures later.

27. **Radiotherapy of Enlargement of the Prostate.**—Tansard and Fleig give the details of a case in which Roentgen exposures induced atrophy of the enlarged prostate, reducing its size until it ceased to interfere with the passage of urine. They regard radiotherapy as indicated particularly in cases that have not yet reached the stage of retention, also for young patients, and for those with retention whose business requires prompt measures, also in case the bladder is infected, the kidneys diseased or the patient advanced in years. In the case described 13 exposures were made in the course of eight months, using from 2 to 5 H. units, exposing the perineum and focusing the rays on a surface 5 cm. in diameter. In a second case four exposures in a month gave great relief. Both patients had had gonorrhea in youth.

Presse Médicale, Paris.

28 (XV. No. 30, pp. 242-248.) Chronic Nephritis as Cause of Arteriosclerosis (Néphrite chron. cause d' art.-sclér.) O. Josué.
29 Indications for the Actual Cautery. (Cautérisation ignée.) P. Desfosses and A. Martinet.
30 (No. 31, pp. 249-256.) *Experimental Study of Cancer Poisons. (Poisons cancéreux.) Girard-Mangin and H. Roger.
31 Circulation of Blood in Liver. (Circ. sanguine dans le foie.) E. Géraudel.

30. **Experimental Study of Cancer Toxins.**—Roger and Girard-Mangin report experiments which seem to indicate that the toxic character of certain substances in cancers is intimately connected with their structure. Soft cancers are more toxic than hard, and the toxicity diminishes as the fibrous tissue crowds out the true cancer cells. Each form of cancer seems to have its specific toxic properties, the effects varying with the nature of the neoplasm when animals are injected with the cancer extract.

Archiv f. Kinderheilkunde, Stuttgart.

Last indexed, XLVIII, page 1640.

32 (XLVI, Nos. 1-2, pp. 1-160.) *Causes of Backwardness in School Children. (Vorgeschichten und Befunde bei schwachbegabten Schulkindern.) E. Schlesinger.
33 *Milk Powder as Food for Infants During Hot Weather. (Getrocknete Milch, etc.) A. Hüssy.
34 Breast Feeding at Budapest. (Verbreitung der natürlichen Säuglingsernährung in Budapest.) H. Flesch and A. Schossberger.
35 Two Cases of Progressive, Familial Dystrophy of the Muscles. (Dystrophia musc. progressiva familiaris.) J. Winocouroff.
36 Cerebellar Tumors in Children. (Kleinhirngeschwülste.) Id.
37 *Forms of Meningitis and Lumbar Puncture. (Meningitisarten und Lumbalpunction nach Quincke.) E. J. Gindes.

32. **Causes of Backwardness in School Children.**—Schlesinger has made a special study of 138 children in the special school at Strasburg for children who are unable to keep up with the lowest classes in the grammar schools. He finds by study of the individual cases that the defective condition is, as a rule, the result of injurious influences acting on a central nervous system already suffering from an inherited weakness. The most serious conditions are observed in children in whom several of these injurious influences had cooperated, even when the hereditary taint was slight. His statistics show that these backward children form 1.1 per cent. of the total number of school children, and that boys are in the majority. In 13 cases there had been severe injuries of the head; in 28, convulsions in infancy, epilepsy, chorea or infantile paralysis, and in 20, severe headaches. Drunkenness in the parents was noted in only 30 cases; long sickness during infancy in 52, and exclusively artificial feeding in 55, measles in 76, whooping-cough in 40, diphtheria in 22, and scarlet fever in 10. He urges that these backward children should be given more opportunities for bathing, free meals, country schools, etc. They should have the benefit of everything of the kind, and the medical inspector of a school for backward children should be empowered to watch over the children and to treat them as occasion arises, if he finds that the parents do not follow his recommendations in regard to medical advice. As these children are generally of the class in which the parents are unable to pay for a physician's care for their children, no one will lose pecuniarily by such a course, while the children would benefit immeasurably by constant medical oversight and treatment as indicated.

33. **Milk Powder for Infant Feeding.**—Hüssy's experiences were not altogether favorable. In a few cases sick children seemed to suffer from the use of the desiccated milk powder possibly because it contained too much fat. Its use is to be recommended, however, he says, in certain circumstances for want of anything better, as, for instance, when it is impossible to obtain pure milk, especially while traveling. It might be possible to produce a desiccated milk powder containing less fat which would answer the purpose still better than that on the market.

37. **Various Forms of Meningitis and Lumbar Puncture.**—Gindes insists on the diagnostic importance of lumbar puncture, as the various forms of meningitis induce practically the same clinical picture. Lumbar puncture alone, he asserts, gives the clue to the correct diagnosis. The cerebrospinal fluid should be examined for pressure, aspect, proportion of albumin, and the morphologic elements of the sediment, with chemical, bacteriologic and cryoscopic tests. None of these diagnostic elements is conclusive alone, except the finding of tubercle bacilli, but their combination affords insight into the disease process. He advises lumbar puncture in every case of meningitis for these reasons, but chiefly for its curative action and the possibility of therapeutic injections into the spinal canal. The vomiting is generally arrested, the patient feels better, while the temperature drops and the stiffness of the neck subsides—these changes are observed so frequently that they can not be explained by a mere coincidence. He always supplements the puncture with hot baths and inunctions with a silver preparation. He has applied lumbar puncture in 30 cases of meningitis, avoiding aspiration of the fluid, and has never observed serious by-effects. Some of the case histories are given in detail.

Beiträge zur klinischen Chirurgie, Tübingen.

Last indexed XLVIII, page 372.

38 (LI. No. 1, pp. 1-246.) *Carbolic Acid in Operative Treatment of Infections. (Verwendung koncentrierter Carbol-Säure bei op. Beh. von Inf.) K. Lennander.
39 Syndromes simulating Appendicitis Without Appreciable Pathologic Findings in Abdominal Organs. (Epityphlitis-ähnliche Krankheitsbilder, etc.)
40 Defects in Ribs and Other Malformations in Case of High Scapula. (Ueber Rippendefekte und anderweitige Missbildungen bei cong. Hochstand des Schulterblattes.) A. Lieberknecht.
41 *Chronic Adhesive Pericarditis and Treatment by Cardiolysis. (Chron. adhesive Med.-Peric. und Cardiolyse.) W. Danielsen.
42 Torsion of Seminal Cord. (Tors. des Samenstranges.) W. Dreibholz.
43 *Several Years of Feeding Through a Stomach Fistula and Lessons Learned Thereby. (Mehrjährige Magenfistelernährung.) von Hacker.
44 Absence of Functional Disturbances After Resection of Peripheral Nerves. (Resektion von periph. Nerven.) E. Goldmann.
45 Tardy Form of Inherited Syphilis Affecting the Joints. (Hist. und Radiol. zur hered. Gelenklues.) B. Bosse.
46 (No. 2, Pp. 247-501.) *Operation for Perforated Gastric Ulcer. (Perf. Magengeschwüre.) E. Noetzel.
47 *Pathology and Treatment of Benign Stenosis of the Pylorus. (Benigne Pyl-Sten.) R. Kramer.
48 Traumatic Necrosis of Spleen with Perisplenitic Abscess. (Traum. Milz-Nekrose.) K. Omi.
49 Tumors of Salivary Glands. (Speicheldrüsentumoren.) R. Ehrich.

38. **Carbolic Acid in Addition to Operative Treatment of Infections.**—Lennander advocates the use of concentrated carbolic acid in treatment of infectious processes, and especially as an adjuvant to operative measures. He applies 95 per cent. pure carbolic acid for a quarter or half a minute up to two or two and a half minutes, according to the tissues, and for from five to ten minutes in cavities in the bones. It is then carefully washed out with alcohol. The anesthetic action of the carbolic acid is an important factor in the cure. As it destroys and obliterates the tissues with which it comes in contact, including the lymph and blood vessels, it is not absorbed, and hence causes no poisoning like the weak solutions. He describes his successful experience with it in a number of cases of buboes and soft chancres, leg ulcers, gangrenous ulcers, appendicitis, fistulas in bones, osteitis, staphylococcus osteitis, osteomyelitis, streptococcus infection with a compound fracture of the leg, tuberculous joint affections, actinomycosis and accessible cancers. In case of a malignant neoplasm which he is unable to resect into absolutely sound tissue, he does not cover the surrounding part with skin, but leaves it exposed and applies Roentgen treatment as soon as the patient's condition allows, as also in cases in which the skin is sutured.

41. **Cardiolysis in Treatment of Chronic Adhesive Mediastino-Pericarditis.**—Danielsen reports another case which brings to nine the number operated on by Brauer's technic of making an opening over the heart in the wall of the thorax. In the case described a flap of skin and muscle was turned back to the axillary line, the tip reaching to the margin of the sternum. The fourth, fifth and sixth ribs were resected under the periosteum to the axillary line, including the costal cartilages, and the periosteum was carefully removed. Nine months later the heart action was found immensely improved so that the man—a butcher—can attend to his business. The pulse is full and regular, the ascites has completely disappeared and the patient feels perfectly well, although certain symptoms still persist. Danielsen discusses the symptoms due to the mediastinal factor, that is, the symptoms resulting from the external pericarditis, and those resulting from the myocardial factor. He dwells further on the importance of the anamnesis and the objective traces of former affections. The clinical picture of adhesive mediastino-pericarditis differs, of course, as these factors are combined. He believes in cardiolysis in cases of trouble accompanied by systolic retraction of a broad expanse of the thorax as removal of part of the wall will certainly give relief. To determine whether or not the heart will be benefited by the operation it may be wise to test it by bed rest with tonics and diuretics to see if it is still capable of functioning well when some of the obstacles to its functioning are removed. The results of the operation to date have been most excellent. Various methods of anesthesia have been used, but a combination of morphin and a few whiffs of ether gave especially favorable results in the case reported.

43. **Gastric Fistula.**—In the case described by von Hacker, a woman in the thirties accidentally drank some lye with subsequent cicatricial stenosis of the esophagus, requiring gastrostomy. Dilatation of the esophagus with sound was commenced and continued by her family physician with, finally, perforation of the wall with the tip of the sound 3 cm. below the jugular vein. A phlegmon developed in the neck, which was cured by incision and mediastinotomy, but entailed complete cicatricial stenosis of the esophagus. Since then, for nearly five years and a half, the patient has been feeding herself exclusively through the fistula into the stomach and has been well nourished. The fistula has been perfectly continent, not giving rise to any tendency to eczema in the vicinity, although the patient wears constantly a large drain tube. The food, well chewed and mixed with saliva, is introduced into the stomach through a tube and funnel, its passage through the tube sometimes aided by pouring in fluids or "milking" it along. The fistula was made by the Hacker-Lucke technic. He has been equally successful with two other patients; the fistula healed readily after the esophagus had been duly dilated with sounds. He discusses the technic, indications, etc.

46. **Operative Treatment of Perforated Gastric Ulcer.**—Noetzel discusses 16 cases of perforated gastric ulcer observed at Rehn's surgical service at Frankfurt since 1898. Nine of the patients recovered. In four of the favorable cases the operation was undertaken during the first ten hours; in two the interval had been only three hours and there was no sign of peritonitis, but one of these patients never recovered from the collapse incident on the perforation. Three patients with severe peritonitis were not operated on until the fortieth or fifty-third hour and yet all recovered. The ulcer was in the anterior wall in every case. Appendicitis was diagnosed in three cases. The symptoms at first are those of any acute irritation of the peritoneum, and later, of diffuse peritonitis. The intense pain in the stomach region and the rigid abdomen may accompany other processes. They were observed recently in two cases of ileus from torsion. It may be accepted as a rule, he says, that any distinct symptoms proceeding from the peritoneum may be regarded as indicating a process which requires operative intervention. Acting on this rule in all acute cases may sometimes impel the surgeon to do an apparently urgent operation when, in fact, there is no need for such haste, but he need scarcely fear that he is ever doing an unnecessary operation. The technic is reviewed, and in conclusion he asserts that operative treatment of gastric ulcer should be instituted earlier than has been the custom hitherto, not waiting for years of disturbances before deciding on surgical interference. His experience has convinced him that ulcers which do not heal rapidly never heal permanently. The longer the patient is both-

ered by the ulcer the greater the chances of perforation and of transformation into a cancer, and the more extensive the ulcerative destructive processes, rendering the results of operative treatment more precarious, not to mention the danger of multiple ulcer formation, of impaired stomach functioning and of subjective nervous disturbances after the operation. He urges an exploratory laparotomy in all chronic stomach troubles, especially those accompanied by pain, as they are almost certain to be the work of an ulcer. Gastric catarrh persisting for six months or more in persons not addicted to liquor is due to ulcer in all cases without exception, he thinks.

47. **Benign Stenosis of the Pylorus.**—Kramer reviews 139 cases in which Czerny operated before 1905. A large number of the patients have been examined anew recently and the findings are analyzed from various points of view. He found that the after-treatment of the patient has a decisive influence on the final outcome of gastroenterostomy for innocent stenosis, especially for stenosis resulting from an ulcer. The patient must refrain from any food liable to lead to retention in the stomach. If the patient can not be kept under intermittent control, it is best to forbid permanently certain dishes, such as coarse, not finely mashed vegetables, especially salads. By observing these not very onerous restrictions the prospects of avoidance of retention of food in the stomach, with its train of evil consequences, will be much improved and the patient's condition remain permanently good.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

50 (XXXIII, No. 20, pp. 785-832.) *Coronary Arteries and Myocardium. (Coronararterien und Herzmuskel.) C. Hirsch and W. Spalteholz.
51 Complement Deviaton Test Probably Not Adapted for Test of Rabies and Vaccine. (Komplement-Bindung, etc.) O. Heller and E. Tomarkin.
52 *Tracheal Diphtheria with Multiple New Formation of False Membranes. Recovery. (Trachealdiphtheria, etc.) H. Herzog.
53 *Iodoform-Oil Emulsion in Leprosy. (Heilung der Lepra.) Diesing.
54 Pyocyaneus Sepsis in Adult. (Pyocyaneussepsis.) Hübener.
55 *Case of Primary Lung Cancer. (Lungenkrebs.) G. Morelli.
56 Alcoholism in the Orient. (Alk. im Orient.) B. Laquer.

50. **Coronary Arteries and Myocardium.**—Hirsch and Spalteholz state that if the findings in dogs and monkeys can be assumed to represent conditions in man, the coronaries are not terminal arteries, but have exceptional facilities for anastomosis. The article is illustrated.

52. **Tracheal Diphtheria with Repeated Formation of False Membranes.**—Herzog's patient, a child about 3 years old, coughed up the tube half an hour after its first introduction, bringing with it the membrane drawn over the tube like a cot, more than six and a half inches long. The child was relieved at once, but required intubation again ten hours later, and again the tube was coughed out in half an hour, bringing a membrane cot with it nearly six inches long. The procedure had to be repeated again fourteen hours later, when the tube was coughed up almost immediately, bringing a third membrane tube nearly six inches long, after which the child rapidly recovered. The antitoxin treatment evidently loosened the membrane, and it was also probably responsible for the rapid recovery after the severe diphtheria.

53. **Iodoform-Oil Treatment of Leprosy.**—Diesing describes the technic for his method of subcutaneous injection of a mixture of one part iodoform to three parts of olive oil. In his experience all mild, uncomplicated cases and a large percentage of the severe were cured by this treatment. He makes the injections at different parts of the body each time, injecting 0.005 c.c. at first, gradually increasing to 2 c.c., and repeating this standard dose daily for fifteen or twenty days, suspending it for a few days if symptoms of intoxication appear, such as loss of appetite, weakness and pallor, or if the organism is saturated with iodoform, which is noticeable in the odor. In most cases a month's treatment, he asserts, completes the cure. The treatment is not adapted for patients with brain troubles, as the iodoform is liable to induce maniacal attacks in them. It is also contraindicated in leukemic conditions and in case of weak heart action, in which iodoform aggravates the condition.

55. **Primary Cancer of the Lung.**—Morelli's patient, a woman of 28, presented merely the symptoms of a subacute pleuropneumonia, accompanied by considerable emaciation and weakness. The first symptoms were a chill, with fever and cough. In three months the sputum showed traces of blood and the patient died in seven months from heart failure Autopsy confirmed the diagnosis of pleuropneumonia, but it revealed likewise cancerous masses distributed through the lymph spaces of the adventitia of both lungs. The youth of the patient, the absence of metastases, the infiltrating character of the disease, the acute course and the absence of any physical signs of the cancer, as the areas of dulness almost entirely cleared up in time, were the special features of the case.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

Last indexed, page 93.

57 (LXXXIV, Nos. 4-6, pp. 277-588.) Tribute to E. Rose on His Seventieth Birthday. (Alte Erinnerungen.) R. U. Krönlein.
58 *Surgery of the Kidneys. (Nierenchirurgie.) H. Doering.
59 Detachment of Parts of Joints and Allied Processes. (Ablösung von Gelenkteilen.) K. Budinger.
60 *Increased Growth of Long Bones in the Young in Incipient Tuberculous Joint Inflammations. (Gesteigertes Längenwachstum der Röhrenknochen.) T. Wartmann.
61 *Ultimate Results of Operative Treatment of Mammary Carcinoma During Last Twenty-five Years. (Mammacarc. und op. Endresultate.) H. Wunderli.
62 Pathologic Anatomy of Appendicitis. (Appendicitis.) E. Franke.
63 Amyloid Tumors of Tongue. (Am.-Tum. der Zunge.) H. Gross.
64 Isolated Primary Tuberculosis of Lobule of Ear. (Tub. des Ohrläppchens.) Paetzold.
65 *Kinking of the Intestine. (Knotenbildung des Darms.) R. Faltin.
66 Intestinal Lipoma. (Intestinallipom.) N. Hellstrom.
67 *Experiences with 64 Cases of Peritoneal Tuberculosis. (Tub. Peritonitis.) Gelpke.
68 Fibroadenoma of the Breast Weighing One-tenth of the Body Weight, and Innocent Tumors of the Female Breast in General. (Benigne Tumoren der weibl. Brustdrüse.) J. Finsterer.
69 Cure by Splenectomy in Advanced Stage of Primary Splenomegaly with Anemia, Ascites, Icterus and Hemorrhage from Nose and Gums. (Op. Behandlung der Bantischen Krankheit.) A. Thiel.

58. **Treatment of Wandering Kidney.**—Doering concludes from experiences with 70 cases of wandering kidney treated in the clinic at Göttingen, that satisfactory results can be expected after fixation of the kidney when there are no severe nervous-hysteric complications. In case of the latter the operation may fail to benefit the patient, irrespective of the stage of the trouble. About 72 per cent. of the patients in the first group were cured and nearly 19 per cent. improved. He does not approve of fastening the kidney to the twelfth rib with silver wire, as the pleura is liable to be injured in so doing. Partial decortication and fastening the edges of the slit capsule to the side abdominal wall are the measures adopted, supplemented by a suture passing entirely through the kidney parenchyma, capsule and abdominal wall. No functional disturbance, he says, need be feared from this technic.

60. **Increased Growth in the Long Bones with Incipient Tuberculous Joint Affections.**—Wartmann cites specific examples to demonstrate the frequency of increased growth of the long bones in commencing disease of a joint above or below. It is important to bear this in mind and to have the heel and sole for the foot on the sound side raised to correspond to the increased length of the long bone on the affected side. Otherwise severe deformity may result.

61. **Mammary Cancer.**—Wunderli's statistics embrace 221 cases of mammary cancer, observed from 1881 to 1905, coming from a total population of about 150,000, the total number in the region being about 360 during this period. The number of cases of gastric cancer was 4,379. Only 60 of the women with mammary cancer had not borne children, the average being 4.9 to each woman, and 12 had had a suppurative mastitis at some time. In 20 per cent. of the total number hereditary antecedents were evident. The 26 cases of definite cure are described in detail. The greatest danger seems to be the development of cutaneous recurrences. They are almost invariably observed in the neighborhood of the breast, and he thinks this tendency might be avoided by extensive resection of the skin in the vicinity.

65. **Kinking of the Intestines.**—Faltin has had occasion to observe six cases in which the intestines seemed to tie up

in a knot. The patients were all men and were awakened suddenly in the night with the severe symptoms. All succumbed except one patient saved by early resection of the gangrenous twisted intestine. In order to loosen the knot, puncture of one or more of the distended loops may be necessary. He knows of only two other cases on record in which the patients survived. In Turner's case the intestine was found sound, and resection was not needed after reduction of the knot.

67. **Peritoneal Tuberculosis and Its Lesions.**—Gelpke gives a historical, anatomic, pathologic and clinical sketch of peritoneal tuberculosis and relates his experiences with sixty-four cases and much experimental research. He is convinced that the effusion in tuberculous peritonitis is not a harmful product, but is rather a means of defense on the part of the organism against the invasion of the tubercle bacilli. It is irrational to hasten to remove it and thus deprive the organism of its aid. After the effusion has lasted for weeks and has probably done all it is capable of doing, it may be aspirated to give place to the formation of new and more powerful effusion. In many cases the effusion vanishes itself without assistance from without. He advises against draining after laparotomy in peritoneal tuberculosis, as it is liable to induce the formation of a fistula, and it drains away juices useful for the organism. The abdominal cavity should not be rinsed with salt solution, and it is superfluous to dust it with iodoform. The physician should refrain, he states, from manipulation of the abdomen, curetting, releasing of adhesions and the like, as they are liable to lead to development of a fecal fistula. The tubes should not be removed unless readily accessible and much diseased. Tuberculous peritonitis without effusion should be treated with expectant measures only, as the general consensus of opinion seems to be that surgical intervention is of dubious value in this form, while it is apt to entail a fecal fistula. In the previous studies of tuberculous peritonitis too little attention has been paid to the analogous processes in the pleura and the other serous cavities, and the "water" has been regarded too exclusively as the principal morbid element. Gelpke's experience has shown the frequent coincidence of fixation of the uterus in retroflexion with the relics of a tuberculous process in the peritoneum. He comments further on the rapid and radical way in which the organism is able to conquer severe tuberculous lesions of the peritoneum in some cases, not only curing the peritonitis, but an action at a distance being also apparent. Weisswange has witnessed the simultaneous cure of tuberculous processes in the kidneys and lungs, Israel and König of processes in the intestines, Nassauer in the tubes, and Gelpke in the tubes and lungs. These facts seem to indicate, he says, that the serous membranes are capable of producing a curative serum, and that the curative agents there evolved have likewise a favorable action on the primary affection elsewhere, so that the patient after the cure of his peritoneal tuberculosis is better off than before with his latent focus or foci in the intestines, tubes or lungs.

Münchener medizinische Wochenschrift.

70 (LIV, No. 18, pp. 865-920.) *Action of Hot or Cold Water Bandages in Inflammation. (Wirkung des Priessnitzschen Umschlags). H. Schade.
71 *Blood Pressure and Hypertrophy of Heart in Sclerosis of the Aorta. (Blutdruck und Herzhypertrophie bei Aortensklerosen.) A. Bittorf.
72 *Agglutinins in Typhoid Urine. (Ausscheidung von Agglutininen.) H. v. Hoesslin.
73 *Mutual Relations Between Diazo Reaction, Bacteriemia and Agglutination in Typhoid. (Unterleibstyphus.) A. T. Genken.
74 *Examination of Heart with Pelvis Raised. (Untersuchung des Herzens in Beckenhochlagerung.) A. Stern.
75 *Nature and Origin of B. Fischer's "Scarlet Oil" Proliferation of Epithelium. (Epithelwucherungen.) L. Jores.
76 Simplification of von Bylicki's Pelvic Gauge. (Beckenmessung.) O. Hoehne.
77 A New Method of Administering Phosphorus to Children. (Phosphorernährung, etc., im Kindesalter.) S. Posternak.

70. **Action of Hot and Cold Water Bandages in Inflammation.**—Schade refers to the fact that the osmotic pressure of the fluid in which they are laved has a great influence on the size of the cells. When the osmotic pressure is high the cells of the region swell and pain results; the cells are injured and inflammation follows. The application of hot or cold water bandages to induce "reactive hyperemia," among other things affects the conditions of the osmotic pressure, increasing the centrifugal movement of the lymph and with it sweeping the products of inflammation toward the periphery, where they are liable to be taken up by the blood or otherwise rendered innocuous. Superficial edema with deep-seated inflammation should be regarded as an indication for inducing this reactive hyperemia, and this indication can be met by applying a Priessnitz bandage. It is also indicated when the edema is still latent, as the effect is far reaching.

71. **Blood Pressure and Hypertrophy of Heart with Sclerosis of Aorta.**—Bittorf relates the details of 27 cases of aortic sclerosis in which the blood pressure was high and the heart more or less hypertrophied. He thinks that these findings occur more constantly than is generally recognized. He ascribes the increased blood pressure to changes in the nerves in the walls of the vessels, for which he presents evidence. He omits from consideration all cases with signs of nephritis.

72. **Elimination of Agglutinins in Urine in Typhoid.**—The conclusions of von Hoesslin's research are that healthy kidneys do not allow the passage of agglutinins, but when albuminuria exists, agglutinins appear also in the urine and in about the same proportion as the albumin.

73. **Mutual Relations Between Diazo Reaction, Bacteriemia and Agglutination in Typhoid.**—Genken calls attention to the remarkable parallelism between the diazo reaction and bacteriemia in cases of typhoid fever not under the influence of medication. The diazo reaction was never observed in his experience unless viable typhoid bacilli were circulating in the blood. As the bacteria disappeared from the blood the diazo reaction subsided, although other symptoms persisted. As the bacteria vanished from the blood, agglutination became positive. When the patients had been given salol, calomel or tannalbin this parallelism with the diazo reaction was not observed. The bacteriemia persisted, but the reaction was constantly negative. He believes that the above facts throw some light on the etiology of the diazo reaction, as it is observed likewise with spotted fever, measles and miliary tuberculosis.

74. **Examination of the Heart with the Pelvis Raised.**—Stern discusses the findings when the pelvis is raised and the heart then systematically examined. This technic is a good control of other methods, while percussion of the relative dulness of the right heart gives more reliable findings, the diastolic murmur of mitral stenosis becomes more distinct, and the characteristics of the systoles become more prominent.

75.—See editorial in The Journal, Nov. 10, 1906, page 1566.

Zeitschrift f. Geb. und Gynäkologie, Stuttgart.

Last indexed, XLVIII, page 1293.

78 (LX, No. 1, pp. 1-159.) *Effectiveness of Modern Measures in Aseptic Gynecologic Laparotomies. (Kritik der modernen Massnahmen.) W. Hannes.
79 *Study of Endometritis. (Lehre von der Endometritis.) F. Hitschmann and L. Adler.
80 Mechanism of Torsion of Pedicle of Ovarian Tumors. (Stieltorsion von Ovarientumoren.) R. Jolly.
81 Intraligamental Chorioepithelioma Following Tubal Pregnancy and Intrauterine Abortion. (Intralig. entwickeltes Chorioepitheliom.) A. Garkisch.
82 *Hydatidiform Mole. (Zur destruirenden Blasenmole.) H. Kauffmann.
83 Inversion of Uterus After Abortion. (Inversio uteri post abortum.) F. Prüsmann.

78. **Bacteriologic and Clinical Study of Modern Aseptic Methods of Gynecologic Laparotomies.**—Hannes' communication issues from Küstner's gynecologic clinic at Breslau. The conclusions of the extensive research described are to the effect that dry, sterile rubber gloves, drawn over the disinfected and dried hand, are an effectual barrier to invasion of the wound by germs from the hand. Infection from the abdominal wall can also be entirely prevented, at least in comparatively short operations, by painting the field of operation with fluid rubber. This is more reliable than the use of rubber tissue. Now and then infection from the air in the operating room may occur. Wounds known to contain bacteria may heal as perfectly as if absolutely aseptic. There is still room for further improvement in technic, possibly by using some mild disinfectant instead of depending so much on physiologic salt

solution for rinsing the gloves, and by taking the boiled instruments out of an antiseptic fluid to protect against germs dropping on them out of the air, and he says that the aseptic apparatus should be given a bacteriologic test now and then for control. Hannes concludes that it is impossible to affirm with certainty that we are operating under strictly aseptic conditions, even with the most scrupulous attention to every detail to ensure asepsis.

79. **Endometritis.**—This article by two assistants at Schauta's clinic relates the results of extensive research which has demonstrated that the conditions described in the literature as "hypertrophic" and "hyperplastic glandular endometritis" are in reality merely the normal physiologic condition of the uterus lining just before menstruation. There is only one form of endometritis, they state, namely, interstitial inflammation. The inflammatory process develops in the mucosa of the uterus just as it develops in mucosa elsewhere. Previous observers have mistaken the physiologic changes of menstruation for inflammatory processes. The diagnosis of endometritis should be based exclusively on the finding of ordinary infiltration cells, the plasma cells, well characterized by their shape and staining properties.

82. **Hydatidiform Mole.**—Kauffmann reports the case of an xi-para of 38, with flat pelvis, whose unusually large children always had to be artificially delivered, generally with manual detachment of the placenta. Menstruation had always been profuse. After several weeks of a hemorrhagic discharge the uterus was found enlarged to the size of a five-months' pregnancy, but nothing suggesting a fetus could be palpated. The os was dilated with tents and the diagnosis of hydatidiform mole was confirmed by protrusion of vesicles. Under chloroform the large mole was easily detached and removed. It had not penetrated into the wall of the uterus at any point. No attempt was made to curette the uterus; it was merely rinsed out and tamponed, and ergot was given. After two days of pyrexia and a chill in the evening, the temperature dropped permanently to normal and the patient was soon discharged. Six weeks later the uterus was curetted; nothing was found in the scrapings except scraps of mucosa, clots and a few free villi in one scrap. A soft, elastic tumor gradually developed in the upper part of the right broad ligament, suggesting a chorioepithelioma, as menstruation continued unmodified and the uterus did not enlarge. It proved, however, to be a hydatidiform mole which had developed in the broad ligament, with a pedicle connecting it with a polyp in the uterus, from which it was separated by the whole width of the mass of muscle. A few villi had evidently been left in the uterus at the first operation, and from these a second mole had developed, but not in or near the uterus, starting evidently in the broad ligament. This new mole remained confined to the veins, not displaying any malignant characteristics. Some of the findings in this case suggest that the syncytium proceeds from the Langhans cells, and may be regarded as a degenerative form of the latter. Removal of the uterus at first would not have prevented the development of a chorioepithelioma later, as such growths are not necessarily restricted to this organ. On the other hand, hysterectomy would have exposed the very weak patient to a new danger. She seems to be entirely cured to date, with no signs of further trouble since the laparotomy in November, 1906, four months after the first operation.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

MATERIA MEDICA, THERAPEUTICS, PHARMACOLOGY AND PHARMACOGNOSY, Including Medical Pharmacy, Prescription Writing and Medical Latin. A Manual for Students and Practitioners. By William Schleif, Ph.G., M.D., Demonstrator of Medical Pharmacy in the Medical Department of the University of Pennsylvania. Series Edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, New York. Third Edition, Revised and Enlarged. Cloth. Pp. 470. Price, $2.50 net. Philadelphia: Lea Bros. & Co., 1907.

TEXT-BOOK OF PRACTICAL THERAPEUTICS. With Especial Refe ence to the Application of Remedial Measures to Disease and The Employment upon a Rational Basis. By Hobart Amory Har M.D., B.Sc., Professor of Therapeutics and Materia Medica in t Jefferson Medical College, Philadelphia. Twelfth Edition, Revis and Rewritten. Illustrated. Cloth. Pp. 939. Price, $4.00. Phil delphia and New York: Lea Bros. & Co., 1907.

THE HOME MEDICAL LIBRARY. By Kenelm Winslow, B.A. M.D., Formerly Assistant Professor Comparative Therapeutics, Ha vard University. With the Cooperation of Many Medical Advisi Editors and Special Contributors. First Aid, Family Medicine Etc. In Six Volumes. Cloth. Pp. about 270 each. Price, $7.5 New York: The Review of Reviews Co., 1907.

HYGIENIC LABORATORY BULLETIN NO. 35. Report on the Orig and Prevalence of Typhoid Fever in the District of Columbia. M. J. Rosenau, L. L. Lumsden and J. H. Kastle (Including Articl Contributed by Ch. W. Stiles, J. Goldberger and A. M. Stimson Paper. Pp. 361. Washington: Government Printing Co.

PRACTICE OF OBSTETRICS. By American Authors. Edited Charles Jewett, M.D., Professor of Obstetrics and Gynecology the Long Island College Hospital, New York. Third Editio Revised and Enlarged. Illustrated. Cloth. Pp. 820. Price, $5. net. New York and Philadelphia: Lea Bros. & Co., 1907.

MODERN MEDICINE, ITS THEORY AND PRACTICE. Edited by Wi liam Osler, M.D., Regius Professor of Medicine in Oxford Un versity. Assisted by Thomas McCrae, M.D. Vol. II. Infectio Diseases. Illustrated. Cloth. Pp. 828. Price, $6.00 net. Phil delphia and New York: Lea Bros. & Co., 1907.

TREATMENT OF DISEASES OF CHILDREN. By Charles Gilmore Ke ley, M.D., Professor of Diseases of Children, New York Polyclin Medical School and Hospital. Fully Illustrated. Cloth. Pp. 59 Price, $5.00 net. Philadelphia and London: W. B. Saunders Co 1907.

BIENNIAL REPORT OF THE BOARD OF TRUSTEES of the Milwauke Hospital for the Insane. For the Two Years Ending Sept. 3 1906. Paper. Pp. 67. Madison: Democrat Ptg. Co., 1907.

THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEAC ING. First Annual Report of the President and Treasurer. Pape Pp. 83.

NEW PATENTS.

Recent patents of interest to physicians:

854452. Formaldehyd preparation. Henry S. Blackmore, Moun Vernon, N. Y.
854399. Syringe. Walter G. Bridge, Boston.
854282. Supporter for artificial legs. Erick H. Erickson, Minn apolis.
854093. Neuroptometer. Frank Kennedy, Detroit.
854510. Artificial foot. James W. Mahaffey, Pueblo, Colo.
854593. Pessary. Louise Nelson, Oakland, Cal.
854534. Vaginal syringe. Henry R. Searles and S. S. Jones, Ca bondale, Pa.
854546. Eye protector. Emile Verdeau, New York.
854318. Electric sterilizer. Julius Wantz, Chicago.
854548. Pneumatic massage machine. Algot A. Wiekland, Chicag
855383. Hair tonic and dandruff preventive. Frans W. Brock Tombstone, Ariz.
854983. Massage machine. Richard V. Clark, St. Louis.
855296. Sanitary cuspidor. Arthur Fishmann, New York.
855342. Movement-cure device. Louis E. Richmond, Cleveland Ohio.
855202. Combined fan and eye protector. Theodor Ritter, Wes Hoboken, N. J.
855022. Trial frame for opticians' use. John W. C. Smith, Wes Lafayette, Ind.
855931. Apparatus for administering anesthetics. Frederick Brooking, Macomb, Ill.
855942. Disinfection. Francois Duret, Paris, France.
855573. Medical appliance. Albert C. Heath, St. Paul.
855641. Combined brace and stretcher. Wm. Johnson, Fremont Ohio.
856093. Syringe nozzle. Harlon F. Ong, Portland, Ore.
855984. Medicine receptacle. Fred J. Russell, Newberry, S. C.
856006. Powder-compacting device for druggists. Ora Ware, Mus kogee, Ind. T.
856686. Surgical needle. Thomas C. Edwards, Salinas, Cal.
856778. Optical apparatus. Georgina Heddon, London, Eng.
856587. Medicine cabinet. Otto Jaeger, Ogontz, Pa.
856975. Treating creosote and product thereof. Albert G. Meyer San Francisco.
856296. Caustic pencil holder. John J. Requa, New York.
856301. Apparatus for atomization. Wilber L. Root, Cincinnati.
856920. Vibrator. Henry M. Sciple, San Francisco.
856927. Tonsillotome. Edwin E. Straw, Marshfield, Ore.
856432. Device for developing the lungs. George M. Thomson London, Eng.
856378. Mechanical vibrator. Edgar P. Ward and A. H. Herron St. Louis.
857019. Catamenial appliance. Wm. D. Berry, Louisville, Ky.
857224. Obtaining medicine from carrots. Emilio F. Bolt, Copen hagen, Denmark.
857323. Sanitary head-rest. Nelson Breakenridge, Redlands, Cal
857043. Screw-press for molding tablets. Hubert Endemann Vienna, Austria Hungary.
857566. Atomizing spray nozzle. Alessandro Franchetti, New York.
857127. Testing tube. Constantin Wagner, New York.
857547. Emptying device for collapsible tubes. Alfred H. Weber Hamburg, Germany.

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Address

THE NEED OF MEDICAL COOPERATION IN LABORATORY WORK.

ADDRESS OF CHAIRMAN OF THE SECTION ON PATHOLOGY AND PHYSIOLOGY, AT THE FIFTY-EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION AT ATLANTIC CITY, JUNE, 1907.

WALTER L. BIERRING, M.D.
IOWA CITY, IOWA.

In accordance with past precedent and the dictates of our program, it is my privilege to say a few words of greeting, and I take this opportunity to express my appreciation of the honor accorded me in the selection as chairman of this Section. It is particularly gratifying to the Section to have as its guest for this meeting Prof. J. George Adami of Montreal, and I extend to him herewith on behalf of the Section a most cordial welcome.

As we meet here in the city by the sea it seems fitting to recall that this is the birthplace of the Section. In the seven years since its organization we have met in St. Paul, Saratoga, New Orleans, Atlantic City, in far away Portland, in Boston, and again in the city of its birth.

To those who have labored for the Section's welfare it should be a source of pride to note the recognition that has come to it as an active section of the Association. As an avenue for reporting the investigative work of the Association it has fulfilled its function. Many of the papers presented have been of recognized scientific value. A number contributed within recent years were reports of work carried on by special grant of the American Medical Association. Several joint sessions have been held with the Section on Practice of Medicine, and on Surgery and Anatomy, indicative of the recognized affiliation with the infant section.

No retrospect of this nature would seem complete without a generous acknowledgment of the help and endorsement of Dr. W. W. Keen, president of the Association at the time of the organization of the Section on Pathology and Physiology, to Dr. Ludwig Hektoen, its first chairman, and to Dr. Frank B. Wynn, the indefatigable director of the scientific exhibit, the father of the same and almost in the same sense related to this Section. That the success of the scientific exhibit has influenced the development of the Section we must freely acknowledge and the close correlation with the Section's work has been conducive to the scientific prestige of the organization as a whole.

In establishing this Section and encouraging its development the Association has recognized the need of a closer medical cooperation with general laboratory investigation, and to this idea I wish to direct a few remarks.

Six years ago while visiting a number of European medical institutions I was impressed with the new buildings at the Pasteur Institute in Paris; to the original institute and the new laboratory for biochemistry a well-equipped pavilion for infectious diseases had been added. The latter represented the many ingenious methods such as might be expected under the directorship of a Roux and a Metchnikoff, unique also in its glass-enclosed galleries, adjoining the rooms of patients, permitting continuous study without danger of contact. This renowned laboratory institute and pioneer of its kind felt the need of a hospital annex under its control in furtherance of its investigative and beneficent work.

Again in the new city hospital of Munich, built in 1900, I found a conjunction of laboratory and clinical work such as I had not then seen elsewhere, a laboratory of pharmacology, physiology, chemistry, experimental physiology, and pathology in close association with the hospital wards, under the same roof as it were, forming a cooperation unexcelled for teaching purposes.

Of a broader and slightly different character were the plans of the contemplated institute at Vienna, which, though rather slow in its development, is to be a scientific institute patterned after the Pasteur Institute, comprising the departments of experimental pathology, physiology and pharmacology, with closely connected hospital facilities, all to be under the directorship of Professor Paltauf. Reference could be made to the institute of Professor Ehrlich at Frankfort-on-the-Main and similar institutions, but those mentioned are representative types.

Since then the spirit of this new departure in scientifice medicine has come across the sea, and it is gratifying to note the extent to which it is developing in our country. A pioneer of its kind is the combined laboratory of experimental medicine, pathology, physiology and medicine and surgery at Johns Hopkins University which was established three years ago. Here diseased animals are treated and the student learns medicine and surgery. Diseased conditions simulating those occurring naturally are produced. Methods of physiology and clinical methods are applied to study the immediate and late effects; the end results are studied by the methods of pathology.

The demand for a closer cooperation between the worker in the laboratory and the hospital ward is met in part by such institutions as the Memorial Institute for Infectious Diseases at Chicago, the Rockefeller Institute for Medical Research, the William Pepper Laboratory of Clinical Medicine, the several institutions for the investigation of cancer, for the study of tuberculosis, and numerous hospitals affiliated with university medical colleges.

The requirements of the time recognize that a hospital does not perform its true function unless it aids in the diffusion of knowledge, and this it can not do without a closer investigation of problems that come within its sphere. Municipal and state laboratories have a further duty than the making of routine examinations, and should engage in some form of investigation.

In the perfect organization of the clinical departments affiliated with European hospitals our confrères across the sea further illustrate the tendency of the newer medicine. The clinical chief with his broad grasp on the bearing of pathology, physiology and chemistry on clinical medicine has associated about him a corps of laboratory workers who, by well-directed investigation, give to the German clinic particularly the prominence which it enjoys to-day.

It is generally recognized that the many interesting problems confronting the medical investigator to-day permit of elucidation and study often better in the living, at the bedside, than by autopsy study or other pathologic methods, and in this connection it can be stated that the most significant advances in pathology are being made in the study of the nature and mode of action of the causes of disease. There is reason to believe that the contributions to pathologic and physiologic knowledge during the next decade will come as freely from the clinical worker as the purely laboratory investigator.

It is but a matter of recent memory when our entire conception of pathology consisted of the study of morbid anatomy or histologic lesions. As the scientific viewpoint of pathology has enlarged physiology and physiologic chemistry have been accorded their due recognition as most important factors in advancing the knowledge of the nature of disease processes, the latter, in fact, having largely overshadowed the former. It is a further significant fact that in a process like diabetes with an unknown morbid anatomy our knowledge of the pathologic physiology or the metabolic and functional disturbances is more complete than in many disease conditions with definite lesions.

An alliance of pathology with experimental therapeutics opens up a field for interesting and profitable research for specific chemical studies. Physical chemistry offers an encouraging prospect of shedding new light on many obscure biologic phenomena. Giving to pathologic and physiologic study a broader meaning but indicates the wider application of the methods of true science in all lines of medical work; it is suggestive of that greater seeking for truth, to get at the root of problems which is so peculiar to our time, all with the common goal to learn more of the nature, prevention and the cure of disease.

It is gratifying to note how with each year the range of problems of successful attack by the American laboratory is increasing, yet there is need to emphasize that continued medical cooperation is essential in all investigative work if we would keep scientific medicine in America on a par with that of the old world.

Tuberculosis.—Tuberculosis is a house disease. The battle is in our own hands. We must meet it squarely and bravely, like men. It is not to be overcome by fear, and we use the word advisedly, by fear either of the disease or of loss of income from our investments, should we build suitable habitations for those who must, from force of circumstances, live in the evermore crowded districts of our great cities. In these localities men have deemed life of less value than money, and such views mean dark, ill-ventilated dwellings and disease.—*Journal of the Outdoor Life.*

Original Articles

THE RELATION OF THE CIRCUMLENTAL SPACE TO THE CAUSATION OF GLAUCOMA AS SHOWN BY THE WURDEMANN LAMP.*

JOHN A. TENNEY, M.D.
BOSTON.

It is obvious that this disease is caused either by excessive secretion in the eye, or by obstruction in its outlets, or both.

Hippocrates applied the term glaucoma to all opacities behind the pupil. Taught by dissection, Brisseau[1] was the first to announce in 1709 that, while cataract was an opacity of the lens, glaucoma was a similar affection of the vitreous humor; therefore, no operation could afford relief. Mackenzie early in the last century recognized the disease as one of pressure, stating that:[2]

> A morbid secretion, of the origin of which we can give no accurate account, fills the cavity of the retina, but, like other morbid productions, is not furnished with the apparatus of removal, necessary for keeping its quantity *in equilibrio.* Hence the unnatural firmness of the glaucomatous eye, a symptom that often increases to such a degree that the organ is felt to be of a stony hardness.

Von Graefe believed the pressure was due to a chorioiditis with exudation. When the invention of the ophthalmoscope showed that the chorioid did not show any anatomic changes in this tissue he assumed that there was a serous exudation present. Donders ascribed the increased pressure to irritability of the ciliary nerves, causing excessive secretion from the chorioidal vessels. Stellwag believed the starting point of the disease to be an increased pressure in the intraocular blood vessels, obstructing the vortical veins where they make a sharp turn at their exit from the globe.

In support of the exudation theory Beltman[3] recently reported a case of chronic glaucoma associated with an enormous telangiectasia of the face, and dilatation of the external blood vessels of the eye, narrowing of the field of vision, increased tension and pain. The glaucomatous pressure was most severe just before the menstrual period, when the blood pressure is known to be the greatest. He held that a corresponding dilatation of the chorioidal vessels increased the secretion of fluids in the eye.

In 1873 Leber[4] showed that the path of the aqueous humor is from the ciliary processes through the pupil to the spaces of Fontana, called the filtration angle of the eye. Three years later Knies and Weber[5] independently found closure of the filtration angle, and of the canal of Schlemm in most cases of chronic glaucoma. This discovery gave a great impetus to the retention theory. It should be noted that in most cases of acute glaucoma these outlets are unobstructed.

Ring[6] saw glaucoma lighted up by the instillation of euphthalmin solution into the eye. We are told not to use atropin, cocain or even adrenalin in solution where there is a tendency to glaucoma, through fear of compressing the filtration angle; but only recently I had a patient with acute glaucoma referred from a physician, who had used a solution of atropin for the intolerable pain, thinking he was dealing with a case of iritis. The pain soon subsided, vision was reduced to fingers, but gradually rose to 3/50. When an operation was suggested the patient dropped out.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Mackenzie (William): Diseases of the Eye, 1833, 583.

[2] Ibid., 586.

[3] Congenital Telangiectasia of the Eyes as a cause of Simple Glaucoma, Graefe's Arch. f. Ophth., lix, 502.

[4] von Graefe's Archiv. xix, No. 2, 87.

[5] Ibid., xxii, No. 3. 163, and xxiii, No. 1, 1.

[6] Glaucoma from Euphthalmin, Trans. Am. Ophthal. Soc., 1903.

Intraocular tumors produce secondary glaucoma by causing increased pressure in the vitreous, while posterior synechiæ, anterior staphyloma from injuries, dislocation of the lens, and serous cyclitis obstruct the outlets of the eye, the latter clogging the filtration angle with albuminous fluid.

Sala found an excess of albumin in the aqueous humor in two cases of contusion of the eyeball, followed by glaucoma.[7] Peters[8] corroborated this by citing four cases of glaucoma after contusion, with the aqueous loaded with albumin. He suggested that the traumatism caused paralysis of the ciliary body and consequently an increased secretion of albumin, impeding filtration.

Bartels[9] incised the conjunctiva in four or five places in rabbits and dogs, passing threads behind the muscles from one slit to the next and tying the threads. He produced a condition similar to acute glaucoma, injection of the conjunctiva, anesthetic cornea, wide pupils (except in rabbits), and increased tension. There was absence of obstruction in the filtration angle in all cases. He concluded that obstruction in the anterior ciliary venous circulation is the probable cause of glaucoma.

According to Priestley Smith,[10] the lens increases in diameter one-tenth and in volume one-third between the ages of 20 and 60. He holds that hyperopic eyes are most liable to the disease, for in these the lens develops out of proportion to the dimensions of the eye, pressing against the filtration angle. He claims also that a narrow cornea goes with a small eye; and in patients whose corneal diameter is not more than 10 mm., few escape the disease.

I examined the eyes of 200 persons of all ages to see to what extent the lens encroached on the ciliary processes as age advanced. I applied the Würdemann lamp to the margins of the lids at the outer canthus and looked obliquely through the pupil. When one eye is affected with glaucoma, the other may be examined by using alypin for a local anesthetic, as it does not increase the tension of the eye, but rather decreases it. If the observer looks forward far enough into the normal eye, he sees the ciliary body as a dark ring."[11]

The space between the rounded margin of the lens and the ciliary processes is given as 0.5 to 0.6 mm. The lens being about 9 mm. in diameter, if this diameter were increased one-tenth, it would come near to the ciliary processes; then any unusual congestion might cause trouble.

An eye affected by glaucoma has a narrow circumlental space, as a matter of course. It is also narrow in all cases in which, after middle age, the lens is pushed forward so far as to render the anterior chamber shallow. This condition is common with people who die of old age and who never had glaucoma. Since commencing this line of investigation. I have noticed many cases in which the anterior chamber was very shallow, and the circumlental space also, yet there was no increase of tension. I have noticed also that the members of a family in which glaucoma has appeared all have a narrow circumlental space. I have not seen a case of narrow cornea, all the cases of glaucoma that I have seen having corneas measuring 11.5 mm. Hyperopia is common, but some cases are emmetropes.

Priestley Smith, with scientific fairness, remarks,[12] "the obstruction at the outlet, discoverable in eyes blinded by glaucoma, explains the excess of pressure in the chambers, but it does not reveal the starting point of the disease." He describes an apparatus for injecting the eye,[13] consisting of two flexible tubes, each being provided with a pinch tap, and ending in hollow needles. These tubes are suspended at the same height. The eyes of a sheep are removed immediately after death and injected while they are still warm. One of the needles is inserted into the aqueous chamber, and the other into the vitreous chamber. The fluid in the tubes is a 1 per cent. solution of anilin black. When the tubes are at the same height, the fluid passes through the filtration angle, and flows from the cut ends of the episcleral veins. Now, if the tube connected with the vitreous chamber is elevated above the other, the process of filtration stops; the lens and iris advance, and there is no escape of fluid from the severed veins.

It would seem that chronic glaucoma must be caused by excessive pressure in the vitreous chamber, caused by diseased blood vessels in the uveal tract; at the same time there is probable alteration in the constitution of the aqueous humor, which blocks up the outlets. We have seen that this alteration in the fluids produces glaucoma after traumatism, and in serous cyclitis; and Troncoso claims to have found an excess of albumin in eyes affected by chronic glaucoma. Why may not the ciliary process secrete albumin when age has changed the character of the blood vessels?

If sympathectomy ever relieved the intraocular tension, it did it through its influence on the circulation in the chorioid and the ciliary processes. The same must be said of iridectomy. It does not reduce the tension immediately, showing that its influence is exerted on the intraocular circulation. Another thing pointing in the same direction is the fact that in some cases of iridochorioiditis with diminished tension, it is increased by an iridectomy.[14]

My thanks are due to Dr. Myles Standish, Dr. H. B. Chandler and their assistant, Dr. Clap, in the Eye and Ear Infirmary, for their courtesy in allowing me to examine their patients.

THE SURGICAL TREATMENT OF CHRONIC GLAUCOMA.[*]

S. D. RISLEY, A.M., M.D., Ph.D.
PHILADELPHIA.

There is probably no form of ocular disease which has excited more interest or which affords, in some of its clinical features, more reasonable opportunity for opposing opinions than chronic glaucoma.

Although it is my purpose in this paper to discuss the surgical treatment of the disease, it is, first of all, important that we should entertain a common understanding of the clinical picture had in mind.

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[7] Glaucoma Following Discission and Contusions of the Eyeball, Klin. Monatsb. f. Augenh., April, 1904.

[8] Glaucoma After Contusions of the Eye and Its Treatment, Klin. Monatsb. f. Augenh., Dec., 1904.

[9] Ueber Blutgefässe des Auges bei Glaukom, und ueber experimentelles glaukom durch Versperrung von vorderen Abgeführenden Blutbahnen. Berlin. S. Karger, 95.

[10] Norris and Oliver's System, iii, 650.

[11] Würdemann (H. V.): Ophth. Rec., November, 1906.

[12] Norris and Oliver's System, iii, 633.

[13] Ibid., 632.

[14] Berry (George): Diseases of the Eye, Art. Glaucoma.

[*] Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

For a generation there has been no doubt in the minds of experienced surgeons as to the necessity and signal value of iridectomy in the treatment of the inflammatory types of glaucoma. But in so-called chronic, simple, or non-inflammatory glaucoma there has been much diversity of opinion as to the value of surgical interference.

It is probable that the adverse views which have been and are still entertained by different surgeons depend, in large measure, on the mental concept entertained by the individual surgeon of both the nature of the disease and the exact clinical picture had under consideration.

It can not be denied that there is room for doubt as to the exact nature of certain comparatively rare cases of ocular disease characterized by steadily increasing impairment of vision, a concentric narrowing of the field, and typical glaucomatous cupping of the optic nerve, but with entire absence of pain, inflammatory signs, demonstrable increase of tension in the globe or notable exacerbations in the clinical history. The progress in this group of cases is steadily onward toward blindness, much as in simple atrophy, unless it is possible by treatment to arrest its course.

There is a wide reach between this picture of glaucoma simplex and, for example, the stormy manifestations of disease afforded by glaucoma fulminans, with its violent objective and subjective signs of inflammation, the stony hard ball and almost sudden abrogation of functioning power. Between these extremes, however, lies the large group of cases with which we are all familiar and which I believe to be those our chairman wishes me to discuss. A careful study of this group, however, will serve to show that at some time in their early history these patients have manifested the symptoms of disease so vaguely as to leave both patient and surgeon in doubt: The former as to whether anything is actually wrong with his eyes, whether he is not, after all, the victim of his imagination; the latter in doubt, certainly as to the nature, perhaps even of the existence, of a disease of which he now and again gets vague glimpses only, but which for many weeks or months, it may be, eludes his most subtle means of analysis and leaves his diagnosis suspended until such time as the cupping nerve, the contracting field, the increasing impairment of central vision shall have declared its nature. In a word, till the condition has passed from the stage of incipient glaucoma simplex into the stage of easily recognized chronic glaucoma.

The question for the surgeon to answer to his own satisfaction is: Does this subtle, but colorless, progressive malady belong in the same category with inflammatory glaucoma? The answer given to this inquiry will, in great measure, determine both the course and vigor of his advice and treatment.

Our unwillingness to answer it definitely in the affirmative is the cause of the vague and variable condition of the literature of chronic glaucoma and affords sufficient reason for the timid and vacillating treatment of the disease during its early stage. That the affirmative answer is too often, or too long, withheld in individual cases should not cause surprise. The indeterminate clinical history, in a relatively small group of cases, is maintained to the end; that is to say, until irretrievable blindness has resulted before the inflammatory stage of the disease is reached. Then, sooner or later, come the engorged long anterior ciliary vessels, the hard eyeball, the completely atrophic, deeply cupped nerve, and pain, with more or less well-pronounced inflammatory signs.

Fortunately, however, in many cases new and more determinate features are added to the clinical progress of the disease which prompt the timid surgeon to definite action before it is too late. These symptoms are generally slight, transient exacerbations of increased dimness of vision, with suggestion of discomfort or actual pain, accompanied with a sense of fulness in the eye and periorbital region supervene.

The patient may ascribe the symptoms to overfatigue after a hard day, to some error in diet, to overuse of the eyes or to dim or too bright light. After rest the acute symptoms disappear and may not recur for many weeks or even months, but the impression has been left on the mind of the patient that the eyes are not so good as they were before the attack of dimness. Recurrences, however, are sure to follow and they come with increasing frequency and variable severity. The recovery after each exacerbation is not so complete as at first. The impairment of vision soon becomes permanent even between the attacks, but worse during their continuance, and pain becomes a well-marked feature. Halos are observed around the gas flame or lamp, and the eyes are injected, it may be but slightly. The cornea is steamy, the tension of the ball is increased even between attacks, but is variable, being greater during the recurring more acute exacerbations at which time the sensibility of the cornea is diminished. If no treatment is instituted this history may be pursued for long periods of time, finally causing complete loss of vision with atrophy and characteristic cupping of the nerve. In other cases following on some unusual stress, as ill fortune, or some cause for grief, the scene closes with a sudden attack of glaucoma fulminans.

The dangers which cluster thickly about the clinical history of chronic glaucoma are greatly enhanced by this subtle beginning and the variable and treacherous course of the disease which has been briefly described. There is no form of ocular disease in which early recognition and well-defined views as to its nature and treatment are more important; for, if treatment is delayed until the delicate retinal fibers, where they emerge over the scleral ring, are injured too greatly by the recurring periods of increased tension of the globe, it is not to be expected that any procedure whatever can restore their function.

The greatest danger of delay on the part of the surgeon is in the group of patients in whom the disease progresses without obvious exacerbations; that is to say, in cases in which there has been demonstrable hardness of the ball or attacks of extraordinary dimness of sight. Here the inquiry may reasonably be made, Why operate, or, for that matter, why use miotics, in an eye in which increase of tension has never been observed, since both the miotics and iridectomy are employed with the ostensible design of reducing increased tension?

In reply it may be observed that increased tension of the eyeball is always relative. In the first place, it is probable that our mental concept of normal tension is an overestimate for many eyes. That is to say, for some eyes, e. g., those with a thin sclera, a degree of resistance to palpation which would be normal for many eyes is excessive and amounts to an increased hardness, sufficient, indeed, to account for the cupped nerve. For it is fair to assume that in the eye with a thin sclerotic coat there will be also a relatively too readily yielding lamina cribrosa.

Then, too, it is not only possible but it is rendered probable by certain clinical signs that mild exacerbations of increased tension coming on especially in the night often pass without recognition by the patient. Many persons ascribe their insomnia to ocular discomfort, and this symptom is frequently ameliorated by the use of weak solutions of eserin salicylate instilled at bedtime. The same drug will often relieve also the weak eyes and occipital pains with which many patients awake early in the morning.

There is, moreover, a rational basis for this, in some measure, *a priori* reasoning. The patient retires for sleep after the fatigues of the day and assumes a recumbent posture. The lights are extinguished and the pupils dilate, blocking the spaces of Fontana as effectually as though a mydriatic had been employed, thus furnishing conditions which delay excretion of the intraocular fluids and favor increase of tension in the globe.

That this deductive reasoning is based on a correct premise seems to find corroboration in the well-known frequency with which attacks of acute, inflammatory glaucoma come on in the night, during sleep, in patients with glaucoma imminens. We are justified, therefore, in assuming that in cases of marked cupping of the nerve without any increase of tension ever having been observed, that it had nevertheless occurred, possibly in the night or during sleep, an inference which finds additional force in the observed clinical fact of the well-known relation, under all ordinary circumstances, between the cupped nerve, contracted field of vision and increased tension of the ball.

It is believed that the suggestions in the preceding pages will find corroboration in the following clinical histories of carefully observed cases occurring in my private practice, in all of which opportunity was afforded for continuous observation for long periods of time. After careful consideration this course was chosen in preference to carefully applied statistical tables of large numbers of both private and clinic patients, in many of which the clinical history was incomplete.

Case 1.—Chronic Glaucoma in Right Eye. Iridectomy, followed by Creeping Non-inflammatory Glaucoma in the left, Culminating in an Attack of Acute Inflammatory Glaucoma and Permanent Loss of Vision.

Patient.—Mrs. M., aged 50, was sent to me by her physician in 1879 for failing vision in the right eye. She had been treated several months for recurring right hemicrania, which had been regarded by her physician as the cause of the pain and loss of sight in the right eye. The eyeball was hard, pupil dilated, cornea slightly hazy, and lacking in sensibility. Vision was reduced to one-fourth or less, 20/lxxx, and the field to a small area in the temple side. The nerve was deeply cupped and atrophic. The left eye was aparently normal in all respects. V. = 20/xx.

Operation.—A broad upward iridectomy was performed on the right eye which gave rapid and complete relief from pain, and vision rose to 20/lxiv, with normal tension of the globe and some improvement in the field.

Postoperative History.—There was no recurrence of the glaucoma and vision was maintained for two years, then slowly sank through atrophy of the optic nerve until total blindness was reached in 1884, five years after her first consultation. In October, 1883, she was alarmed over a spell of dim sight in the left eye while at her dressing table preparing for an evening entertainment, and she came to see me the following morning. The impaired vision lasted less than ten minutes, she thought, but she then related that the trouble in her right eye began in the same manner several years before I had seen her, and was repeated at varying intervals until it had culminated in the "neuralgic" attacks in the eye, which both she and her physician believed were caused by the hemicrania; she declared that she now knew better, and begged that something be done to arrest the disease in the left eye.

Treatment.—The vision was 20/xx; there was no contraction of the field and tension was normal. She received eserin solution to be used in the event of another attack, which unfortunately followed the first in a few weeks, coming on in the evening again after a fatiguing day in the shops. These attacks continued to occur at long but varying intervals for a year and a half, but were relieved in a few moments by the instillation of the eserin solution, which she kept constantly at hand. The exacerbations occurred invariably in the evening, but had always disappeared before she could get to my office for study, so that up to this time I had not seen her during an attack.

April 10, 1884: V. = 20/xx, and there was but little if any variation from the normal in the field of vision, but there was a quite obvious cupping of the nerve at the lower border. The lower temporal portion of the nerve was gray. She was then told of the undoubted character of the disease and that it would surely pursue a similar history to that of the right eye, and was urged to consider the necessity for operation in the near future. The fate of the neglected right eye, so far from convincing her of the wisdom of early interference, as it should have done, had the directly opposite effect on her mind.

Jan. 24, 1889: I did not see her again until this date, nearly five years later. In the meantime, however, she had continued to use the eserin solution with increasing frequency on her own responsibility, until its daily use had become a constant habit. She had, as a result, a chronic granular conjunctivitis. V. = 20/xl. The field of vision was contracted, nearly concentrically, to about 30° on the perimeter chart, with an additional cut in the lower nasal field. The cornea was clear, the pupil reacted, but somewhat sluggishly, to light and shade and contracted under a miotic. The anterior chamber was shallow, tension doubtfully +1. The nucleus of the lens was gray and ophthalmoscopic examination difficult. Operation was then strongly urged but declined. She received a stronger solution of eserin salicylate to be used twice daily. Under this vision rose to 20/xxx and the field was broader.

May 22, 1889: Her visits had been discontinued for the previous five months, but the miotic was continued. Vision remained at 20/xxx, and there was no notable change in the field, notwithstanding the fact that she had many attacks of transient impairment of vision, which she observed were apparently precipitated by eating fruits, especially peaches or grapes. She again declined to submit to iridectomy, and did not return until November, 1889, the miotic having been steadily employed. In the meantime her husband had suffered financial ruin and died. Her vision had sunk to 1/10, the pupil was habitually dilated, but contracted under a strong solution of eserin; the field was so much contracted that she found difficulty in going about without an attendant, the lower half of the field of vision being entirely absent. The dilated pupil permitted a study of the nerve, which was now deeply cupped. She was having moderate pain. The ball was rigid but not very hard.

Nov. 28, 1889: While using the eserin solution three times daily she suffered a violent attack of acute inflammatory glaucoma, which came on in the night. The following morning the ball was stony hard; there was no perception of light. She was suffering intense pain and begged for immediate operation, which was performed under general anesthesia in the afternoon after a cautious paracentesis in the morning. On the third day she had conjunctival inflammation with chemosis, which subsided under treatment. The pain and tension were entirely relieved, the wound healed kindly, but convalescence was tedious. Vision slowly returned.

Feb. 2, 1891: Fourteen months after iridectomy, V. = 20/cxxvi. The lower field was blind, even for candle flame. Two months later vision was only 2/cc, eccentric fixation, and sank rapidly to total blindness. She lived about two years subject to the most distressing visual hallucinations.

This unfortunate history can not be contemplated without sadness. There can be but little doubt, in the light of many other experiences, that blindness would have been prevented in both eyes of this patient had a skilful iridectomy been performed in each during the early stage of the disease. In the first eye the glaucoma was cured by the operation, but too late to avert blindness by progressive atrophy of the optic nerve. In the second eye she would not submit to operation until too late.

The history, however, seems to show the danger and futility of relying with too great confidence, certainly in all cases, on the sufficiency of miotics in averting the fatal denouement.

The following history of a patient who came under observation during the same years as the previous case seems to justify the conclusions just formulated.

Case 2.—Chronic Glaucoma, Exacerbations of Subacute Inflammatory Glaucoma, Following Many Years of Recurring Attacks of Dim Vision without Pain or Redness of the Eye.

Patient.—Mrs. T., aged 40, consulted me in November, 1887, with chronic glaucoma. She related that she had consulted two eminent colleagues, the first in 1875, the second in 1876, both of whom had advised iridectomy, to which she had not submitted. Her vision had been failing steadily for a long time before consulting them, but she had frequent attacks of dim sight, lasting at times for a few minutes only, but often for several hours. These attacks had not been acompanied by pain or redness until 1878. The tension was, in the right eye, + 1. V. = 20/lxx. The pupil showed a tendency to dilate, there was a well-marked glaucomatous cup and an intermittent pulsation of the lower temporal retinal artery. Left eye, V. = q. p. l. T. + 2, pupil dilated, deep glaucomatous cup and retinal pulse. Some ciliary injection and pain.

Operation.—Iridectomy was performed under general anesthesia in both eyes, with an interval of one week. The symptoms were entirely relieved, the fields of vision improved in both eyes and vision had improved on July 10, 1879, eight months after the operation, in O. D., with correcting glasses, to 20/lxiv; in O. S. to 20/cc. Eleven years later vision in the right eye was 20/xxx, but in the left there was nearly complete blindness, with a total atrophy of the nerve. In October, 1906, I saw this patient, then 68 years of age, alight from a railroad train and pursue her way unattended, evidently seeing her way about with ease.

Case 3.—Non-inflammatory Glaucoma in both Eyes, Progressive Loss of Vision and Contraction of Field, Deep Glaucomatous Cupping of Both Nerves. No History of Exacerbations; Constant Headache; Iridectomy in Both Eyes at One Sitting.

Patient.—Mary F., aged 24, a mulatto, came to see me in 1878 because of rapidly failing vision and constant headache. There had been no inflammatory symptoms at any time and no exacerbations of ocular disturbance, with the sole exception of increased pain in the head from time to time, which radiated from the eyes and periorbital region to occiput, often keeping her awake at night. The failure of vision had been rapid until she at last found difficulty in doing work about the house. She stumbled over chairs, knocked things over on table and mantelpiece, etc. This proved to be due to marked contraction of the field of vision, which at no point was wider than 40°, and was only 10° in the upper and lower fields of each eye. Central vision was 20/xl in each, and tension was normal. Both optic nerves were gray, devoid of capillaries and deeply cupped.

Operation.—She was admitted to the Episcopal Hospital and a broad upward iridectomy performed on both eyes at the same sitting, under general anesthesia, on June 7, 1878. The convalescence was uneventful, and on July 23, 1878, with correcting glasses, central vision remained at 20/xl, but the field was wider.

Postoperative History.—This patient was kept under observation for many years. She married and gave birth to several healthy children. She was last seen at the Wills Eye Hospital, March 16, 1894, sixteen years after the iridectomies were performed. She still had high grade of astigmatism in both eyes, but with careful correction O. D. V. = 6/vi, O. S. V. = 6/ix, miscalling confusion letters with each eye. The field of vision in the right eye, temple 76°, nasal 10°, lower temple 55°, lower nasal quadrant blind, upper temple 40°. In the left eye, temple field 76°, lower and upper temple quadrants 40°, upper nasal 10°, lower nasal 50°.

This patient, who at 24 years of age presented all the classical signs of advancing glaucoma simplex, i. e., absence of increased tension or inflammation, but with characteristically cupped nerves and contracted fields, sixteen years later was found with a permanent improvement in both central and peripheral vision and without any advance in the atrophy of the nerves.

Case 4.—Myopic Astigmatism.

Patient.—Mrs. McC., aged 30, was referred to me by Dr. George M. Gould in June, 1897. She had for many months been using eserin under Dr. Gould's advice.

History.—There was a deep glaucomatous cup in both nerves and marked contraction of the field of vision in the right eye, to 30° in the temple and lower, 20° above and to 10° in the nasal field. The increase of tension was apparently slight, but the balls were large and the sclera thin. There was a broad, atrophic, myopic conus at the temporal side of both optic nerves. In the right eye, with correcting glass V. = 20/c (1/5). The left eye had only quantitative perception of light, T. = + 1. She was suffering from violent periorbital and occipital headaches, was extremely nervous and hysterical, and was a victim of vaginismus, which had been the cause of much domestic discord. There had never been inflammatory symptoms or exacerbations of ocular disturbance.

Operation.—She was admitted to the Wills Eye Hospital and a broad, peripheral iridectomy was performed on both eyes. The periorbital and occipital pain promptly disappeared and the field of vision in the right eye markedly improved in all directions. The left eye resumed normal tension and was free from pain, but remained blind.

Postoperative History.—Nine years later this patient returned with an acute conjunctivitis. There had been no return of glaucoma, and the acuity of central vision remained as in 1897, so that she was able to earn a living for herself and three children as a music teacher.

It is interesting to note that, after the relief from her simple glaucoma by operation, her general neurotic condition had greatly improved and she had given birth to three children.

It is obvious that the iridectomy had saved the right eye from the fateful dénouement of the simple glaucoma which had befallen the left under the steady use of the miotics alone.

Case 5.—Chronic Non-inflammatory Glaucoma, Entire Absence of Pain or Tension. Iridectomy in Both Eyes.

Patient.—Mrs. K., aged 77, a tall, spare, swarthy woman with stalwart frame, was brought to me in March, 1895, by Dr. S. W. Wiley, of Norristown, Pa., complaining only of her failing vision, supposing it to be due to cataract. The vision had not been good for many years, but failure had been more rapid during the last year.

Examination.—O. D. H. = 3.D., with correcting glass. V. = 1/lx, and nasal field cut to fixation point, temple 50°, 30° above and below. The pupil reacted sluggishly, the tension was doubtfully increased, but the eyeball was rigid. The media were clear. The nerve was greenish and deeply cupped to its scleral border, except at the nasal side, where the vessels emerged in a peculiar manner from the apex of a deep physiologic excavation. There was a slow, occasional pulse wave in the lower temporal artery. In O. S. with her correcting glass + 4 D. V. = 6/xviii. Field cut to near the fixation point on nasal side, but temple field nearly normal. T. = + ? Pupil reacted to light and contracted under eserin promptly. The nerve was cupped as in O. D., but was obviously less atrophic. Iridectomy was advised in both eyes as the only means of arresting the disease, but an unfavorable prognosis was given. She received a solution of eserin to be used as freely as possible without causing pain, and returned to her home in the center of the state. She returned after two weeks with marked improvement in central vision in both eyes, but a more pronounced cut in the lower field of each.

Operation.—A broad peripheral iridectomy was performed on the left eye and six days later on the right. Recovery was rapid in each and uneventful.

Postoperative History.—April 18, 1895: The tension was subnormal in both eyes. In O. D. vision had risen to 6/lx, and the field of vision for form had widened to nearly normal, except an area of blindness even for candle flame, which included almost the exact lower nasal quadrant. In the left eye the temporal field was nearly normal, but the entire nasal field was blind to candle flame. With + 3.00 s ⌒ +3.00 cy ax 165° V. = 6/xii.

May, 1895, a month later: V. in O. S. same, but in O. D. V. had risen to 6/xviii.

November, 1895, six months later: Vision in the right eye had slowly fallen again to 6/xlviii, with a concentric narrowing of the remaining field.

Oct. 10, 1898: The optic atrophy had steadily progressed in the right eye to nearly total blindness, approximately three and a half years after the operation, but at no time had there been any increase of tension or other renewed signs of glaucoma.

The left eye, however, in which the onset of the disease was more recent and the cupping of the nerve and atrophy less advanced, retained vision 6/xxiv, with no further change in the fields until the patient's death on Aug. 9, 1900. More than five years after the iridectomy.

There can be no reasonable doubt that had the iridectomy been performed at an earlier date this patient would have been spared blindness from atrophy in the right eye also. Had the operation been done before the serious impairment of the fields of vision in both eyes I am convinced that she would have enjoyed throughout the remainder of her life approximately normal vision.

This conclusion would seem to find adequate corroboration in the history of the following patient, referred to me for operation by a colleague. Incidentally this case is introduced to represent a large group of patients operated on in private practice within the last ten years, seven of them within the last two years, in all of whom useful vision had been destroyed in one eye when first seen and the disease was already passing into the inflammatory stage, while in the other eye the disease was still in its incipiency. In all of them glaucoma has been completely arrested in the second eye by operation, and at the present date without exception they enjoy approximately normal vision. The fate of the blind eye, furthermore, illustrates the danger of deferring operation even under the steady and judicious employment of a miotic.

Case 6.—Chronic Glaucoma.

Patient.—Mrs. J., aged 60, consulted me Feb. 21, 1906. She had been using eserin under close observation for more than two years. Notwithstanding this, she had suffered exacerbations of dim sight from time to time, but no severe pain. Her vision in October, 1904, was in O. D. 20/xxx, in O. S. 20/xv.

Examination.—When seen by me it had sunk in O. D. to 10/cc. eccentric fixation. In O. S. to 20/xxx. O. D. T. = + 2, pupil dilated, A. C. shallow, media transparent, deep cupping, nerve atrophic, and marked pulse in both upper and lower temporal arteries. The sensibility of the cornea was impaired and only a small island remained in the temporal field near the fixation point. There was severe pain. O. S. V. = 6/ix, T. = N (+ ?), ball had a rigid sclera, pupil reacted to light, A. C. was shallow; there was a beginning cup at the lower border of the nerve, no retinal pulse, and no marked impairment of field.

Operation.—She was admitted to the Wills Eye Hospital and a broad peripheral iridectomy was performed on the right eye on Feb. 26, 1906. The convalescence was uneventful. The pain and tension were promptly relieved and she was discharged from the hospital on March 7, with no improvement in the field.

Subsequent History.—She was readmitted to the hospital and on March 19, 1906, iridectomy was performed on the left eye. Convalescence was normal till March 21, when she had a sudden pain, probably from injury during sleep. The following morning the anterior chamber was filled with blood. This was rapidly absorbed and recovery progressed without further incident. On May 18, 1906, two months after operation, with + .25 s ⌒ + 1.25 cy. ax. 170° V. = 6/v, and the field of vision was normal in all respects.

March 23, 1907, one year later: O. D. V. = only q. p. l., optic nerve atrophic. O. S. + 1.25 cy. ax. 170° V. = 6/v. T. = N. in each eye. Eyes are white and free from pain.

Case 7.—Simple Glaucoma.

Patient.—I. L., aged 41, consulted me May 28, 1898, with simple glaucoma. At that time the right eye was apparently normal with V. = 6/vi and no restriction of the field. In the left eye vision was reduced to 6/xv and a marked cut in the nasal field, the upper nasal quadrant being cut to almost fixation point. The anterior perforating vessels were full and tortuous. There was an arterial pulse in both upper and lower temporal arteries and a well-marked glaucomatous cup.

Operation.—Iridectomy was advised and performed on the left eye May 30, 1898. The operation was smooth and recovery without incident.

Subsequent History.—This patient was kept under observation at short intervals until September, 1899, at which time there was a distinct cupping of the right optic nerve and a progressive narrowing of the field of vision, but worse in the upper nasal quadrant. In a word, the eye was obviously pursuing the same history as the left had done before the operation. Vision in the left eye had risen to 6/x, and the field of vision was markedly improved in all directions except the upper nasal quadrant, which remained unchanged. Iridectomy was then advised for the right eye also, but declined. Nothing more was heard from this patient until during the preparation of this paper, when the vision in the left eye was found unchanged, but the right eye, on which she had rejected the advised operation, was totally blind.

This brief history of Case 7 is introduced to give the reverse of the picture as set forth in Case 6. Here the operation on the left eye had been accepted early enough in its history to save the vision, whereas the right eye, which was not operated on and which was the better when first seen, had been allowed to take its course uninterruptedly to the end.

The case histories which have been introduced are selected simply for illustration and to demonstrate the claim which has been made in the introductory remarks, viz., that the clinical history of glaucoma simplex, chronic or non-inflammatory glaucoma, when followed from the incipiency of the disease during long periods of time, demonstrates that the affection belongs, in its essential character, in the same category with glaucoma fulminans, or acute inflammatory glaucoma; that the latter violent manifestation of disease is in fact but the dénouement of the former. In a word, the symptom complex we have recognized as glaucoma imminens is a steadily advancing simple glaucoma, which, under the stress and strain of life, and the pathologic changes in the organism which come on and advance between the forty-fifth and sixty-fifth years of age in large numbers of people, under favoring ocular conditions culminate in the types of disease under discussion.

It is true that in a considerable number of individuals the culmination into acute inflammatory disease, for many reasons, may never come, but may, nevertheless, end in total blindness, beginning and ending as a purely local manifestation of disease. But add to the local affection some general dyscrasia—notably the rheumatic or gouty diathesis with the accompanying disease of the general vascular tree and the associated impairment of the general nutrition—and it is easy to conceive how the participation of the ocular tissues, notably the uveal tract, in the general pathologic state, may furnish local mechanical and pathologic conditions which culminate in the inflammatory types of glaucoma and their striking symptoms-complex. Blindness already reached as the result of simple glaucoma does not, however, necessarily avert the occurrence of acute glaucoma. Every surgeon must have found it necessary to do iridectomy or to remove the offending eye for the relief of pain in blind eyes with absolute glaucoma, it may have been many years after total loss of vision had been suffered.

The technic of iridectomy is important. There is probably no more difficult surgical procedure than iridectomy in the acute stage of inflammatory glaucoma. I am of the opinion that it should never be attempted except under profound general anesthesia. The hard eyeball, the steamy cornea, the shallow anterior chamber, the engorged, often inflamed iris, not infrequently form a group of conditions which make its correct and safe performance extremely difficult. The frequent failure to arrest the disease by the operation under these difficult conditions is, I am sure, because it has been found impossible to carry out an ideal technic. These difficulties in the acute inflammatory stage furnish a strong reason for operation before the occurrence of glaucoma fulminans, not only for the purpose of averting this catastrophy in patients under observation, but for the sufficient reason that in the non-inflammatory stage of the disease the operation can be performed with ease, precision and safety.

In no other operation on the eye is a faultless technic of more signal importance than in iridectomy for glaucoma if we hope to arrest the disease. This is always possible so long as we have an anterior chamber of approximately normal depth, a reacting iris and a patient quiet under general anesthesia.

I believe that, for a successful issue, the iridectomy should be peripheral, i. e., to the root of the iris, and that it should include one-sixth of its circumference.

I very much prefer the triangular bent keratome, the blade of which is approximately an equilateral triangle, the base and the cutting sides being equal. The blade should be entered through the corneal limbus at a point as nearly as possible on the same plane with the anterior surface of the root of the iris and carried forward parallel with it until the base of the knife engages in the wound. The slow and deliberate withdrawal of the knife is important, as it allows the gradual escape of the aqueous, prevents the sudden impact of the lens against the cornea, and often avoids the prolapse of the iris into the wound. The iris forceps can then be made to seize the iris at a selected point near the rim of the pupil, when it should be gently but firmly drawn out and carried strongly to one angle of the wound. The tension outward being steadily maintained, it can be severed at its base by successive snips with the scissors as the remaining uncut portion is carried toward the opposite angle of the wound. The severance being complete, the anterior chamber is apt to fill with blood; the angles of the wound, however, should be carefully freed from any entanglement of the pillars of the coloboma and the blood be allowed to escape by gentle but firm pressure made on the posterior lip of the wound by the flat side of an elastic tortoise shell spatula. If it is found impossible to free the anterior chamber of blood by this means no other effort should be made. The blood will usually be absorbed in from twelve to twenty-four hours and its presence is much less to be feared than the results of manipulation to secure its escape. It is probable that opacities of the capsule and lens cortex are more frequently caused by the efforts of the surgeon to free the anterior chamber from blood than from any direct injury to the lens by the point of the knife or by the forceps in grasping the iris.

In my experience the occurrence of cataract after iridectomy has been very rare except in cases in which the opacification of the lens had already begun before the operation. In one case of acute glaucoma with a very hard ball, a sudden escape of aqueous before the section was completed thrust the lens violently forward against the knife, rupturing the brittle anterior capsule and opacity followed, but in this case general anesthesia was prevented by the general condition of the patient.

DISCUSSION

ON PAPERS OF DRS. TENNEY AND RISLEY.

Dr. H. V. Würdemann, Milwaukee, Wis., said that for the past year he had examined all cases of increased ocular tension that had come under his observation, and in a number of instances other members of the same family, by ocular transillumination, in hopes that this method would throw some light on the mechanism of glaucoma. Glaucoma is not a disease *per se;* it is a condition, the most pronounced symptom of which is excessive intraocular pressure. Primary anterior glaucoma may be due (*a*) to increased secretion; (*b*) to sclerosis of the vessels. Secondary glaucoma may arise from previous iritic disease causing obstruction of the filtration apparatus, or due to closure of the posterior chamber from iritic synechiæ. These conditions (*a* and *b*) are curable or alleviable by myotics or by the operations of iridectomy or sclerotomy.

Posterior glaucoma is due to obstruction of the vortical veins of the chorioid and diseased blood vessels, and is usually accompanied by general arteriosclerosis. Mixed types are due (*a*) to ocular tumors, which, from their growth and consequent intraocular pressure, produce obstruction of the anterior and posterior drainage apparatus; (*b*) so-called hemorrhagic glaucoma, usually due to subchorioidal hemorrhage which produces the same; for these two conditions enucleation is the only resort; (*c*) increased intraocular tension following injury to the lens which causes it to swell and press on the anterior filtration apparatus, obliterating the circumlental space and increasing the amount of albumin in the aqueous. Operations of iridectomy and removal of the lens are the usual recourse for this condition.

In the anterior types the diagnosis is assisted by transillumination. The diaphanoscope is best applied to the sclera at the outer canthus after application of 2 per cent. alypin or 5 per cent. cocain, although the light may be passed through the lids for superficial examination. The pupil is thereby lighted up and if the eye be looked at obliquely the opposite portion of the ciliary body will appear as a dark ring—the circumlental space as a clear ring at the root of the iris between the rounded margin of the lens and the ciliary processes. This is usually from 5 to 6 mm. wide. If the lens diameter be increased or if it be further forward than normal, or if the ciliary processes be thickened by congestion or if filled in by exudates, this space is encroached on and may be obliterated. The circumlental space is enlarged during accommodation.

Anatomic conditions, as a narrow circumlental space, predispose toward increased ocular tension, and individuals of families who are prone to anterior glaucoma will most of them be found to have a narrow circumlental space. Such cases do not have any increased tension except after the onset of conditions which cause glaucoma, but in them a small degree of swelling or congestion of the root of the iris or the ciliary processes tends to block up the space around the lens and thus interferes with drainage from the posterior to the anterior chamber and the filtration at the iridic angle. Traumatic cataract causes much the same conditions.

In posterior glaucoma, unless the anterior chamber becomes smaller—and this is by no means always the case in the chronic, simple non-inflammatory type—diaphanoscopy is negative. In glaucoma produced by intraocular tumors the shadow of the tumor may be seen, and if the anterior chamber be affected the conditions above described will also be readily demonstrated. Thus, the lighting up of the eye by diaphanoscopy gives us some idea of the mechanism of glaucoma and the anatomic conditions that predispose to this affection. We clearly see that the anterior chamber is smaller, that the lens is further forward, and that the iridic angle and circumlental space are encroached on. Diaphanoscopy of the eye in glaucoma does not show anything new; it is, however, a valuable corroborative method of examination.

Dr. John E. Weeks, New York City, said that, in considering the relation of chronic glaucoma to other forms of glaucoma with a view to its proper classification, it is necessary to inquire into the cause of glaucoma in general. This may be broadly stated to be a partial or complete blocking of the avenues for the escape of fluid from the interior of the eye, an excessive flow of fluid into the eye, or both. Glaucoma is very appropriately divided into two great classes, namely, primary and secondary, which, to obtain a comprehensive knowledge of the subject most readily, should be studied in the reserve order, as Priestley-Smith has done.

Primary glaucoma, one form of which concerns us, presents, as we all know, a number of clinical pictures which differ widely, but if these various clinical forms of glaucoma are analyzed, it will be found that there is no sharp dividing line between them; one blends into the other. The form of glaucoma that is not subject to congestion may be termed non-congestive primary chronic glaucoma in contradistinction to the congestive forms which may or may not be chronic. This distinction must not be drawn too closely, as the non-congestive form of primary glaucoma, may, and often does, become congestive, passing into subacute and even into acute glaucoma.

The research and experimental work of Priestley-Smith shows that the underlying cause of primary glaucoma in all of its phases is, in the vast majority of cases, obstruction to some degree of the filtration angle. In a few cases excessive secretion may overtax the normal avenues of escape and produce glaucoma.

No one who is informed doubts the efficacy of operative treatment in acute glaucoma. If we admit that chronic glaucoma and acute glaucoma are due to similar causes and that they differ in great part only in degree of severity, should we not expect that the same operative procedure that affords relief in the one would also afford relief in the other, provided that the procedure was applied at the proper time? The questions to be answered are: When is the proper time for operation, and what operation or operations should be performed? The changes affecting the filtration angle, gradually causing the root of the iris to encroach on and to become adherent to sclera and cornea at the iris angle, and the atrophic influence on the nervous elements of the retina and the optic nerve, reduce the possibility of arresting the disease either by sufficiently opening the filtration angle or by favorably influencing the atrophy of nervous elements, in direct proportion to the duration of the disease. Dr. Week's experience is in full accord with that of Dr. Risley, namely, that the results have been very satisfactory in the cases that were operated on early and very unsatisfactory in the cases operated on late.

What operations shall be performed? To be of value, iridectomy should be performed before vision is much impaired and while there is still sufficient space between the iris, sclera and cornea at the iris angle to permit the making of an incision in the iris angle. It should effect the removal of a portion of iris at its place of attachment to the ciliary body so that no stump remains. About one-sixth of the iris should be removed. If the iris is already adherent to the periphery of the cornea, iridectomy is not of value.

Dr. Weeks uses a Graefe knife in making the incision, except when the anterior chamber is fairly deep. The incision is made above; puncture and counterpuncture about 2 mm. from the margin of the cornea, so made that the incision will be about 5 mm. long internally. The Graefe knife is used because it can be made to enter the iris angle with more certainty than the keratome, especially when the anterior chamber is very shallow. If the anterior chamber is very shallow or the tension very high, a posterior scleral puncture is made. The iris usually bulges into the wound on completion of the section. It is seized near the pupillary margin, drawn toward the left, and the exposed iris radially incised at the extreme right. Traction is then made to separate the iris from its insertion for from 5 to 7 millimeters. The engaged part of the iris is then drawn to the right to free it from the wound and cut radially at the extreme left. The iris, if engaged, is then freed from the wound by means of the spatula.

Anterior sclerotomy is employed only as an adjuvant to iridectomy. Posterior sclerotomy is employed to facilitate the performance of iridectomy and in cases of simple chronic glaucoma which have become absolute to relieve tension. In the latter case the opening in the sclera is quite large and T- or L-shaped. Section of the cervical sympathetic or removal of the superior ganglion of the cervical sympathetic is resorted to only as a last measure.

Dr. H. D. Bruns, New Orleans, said that about 40 per cent. of those who come to his clinic are negroes, and the negro, while not more often affected by inflammatory glaucoma than the Caucasian, is more frequently the victim of non-inflammatory simple glaucoma. The negro is also liable to atrophy of the optic nerve, simple bluish-white atrophy with excavation, and it is sometimes difficult, if we do not insist on finding tension at all times, to decide whether we have slight excavation in an early case of chronic absolutely non-inflammatory glaucoma, or whether we have the beginning of atrophy with excavation. Dr. Bruns has come to rely very much on the shape of the field of vision. Those who do not practice in a country where negroes are numerous do not know, perhaps, that they never come in until they are really moribund, either as to their bodies or eyes. It is vain to talk of early operation, as they are never seen early. This has enabled him to satisfy himself beyond the peradventure of a doubt that when the disease is well established it is absolutely useless to operate. He agreed with those who say that it seems to accelerate the disease after it is fully established. Occasionally there is a chance to operate on the better eye. He has watched these cases for years and has never seen acute or subacute attacks in these negro patients.

He has been interested lately in a paper by LaGrange who believes that the incision in glaucoma facilitates the escape of fluid by the formation of a leaking scar and has recommended making the section so as to peak a little piece of sclera, then, by turning back the conjunctiva and clipping off this little peak, to enlarge the size of the cicatrix. LaGrange is a careful observer, and he writes of his experience in 20 cases, some of two years' standing, and finds that in this way he gets better results than with the simple incision.

Dr. J. L. Borsch, Philadelphia, said that since the illustrious von Graefe described glaucoma we have learned little more about the disease. Dr. Borsch once asked de Wecker what he thought glaucoma was due to, and he said that he did not know. If so great a master admits that he does not know, certainly a great many of the men who say they do can be mistaken.

Dr. Borsch has often compared the disease to a headache. He said that he considers it the symptom of an obscure condition of which we are as yet ignorant. Headache may be due to many things, as a brain tumor, intestinal irritation, or refractive error. He does not believe that an iridectomy does any more good than in sclerotomy (posterior and anterior combined) glaucoma. He did not think cutting the iris arrests the disease. He said that he had the honor of assisting de Wecker in the operation he did on Javal, who came to him with simple chronic glaucoma. He did a sclerotomy and maintained good vision for seventeen years. When he had another attack, de Wecker wanted to repeat the sclerotomy, but Javal wanted an iridectomy. He had the cervical ganglion removed, but the condition went on to complete blindnesss.

Dr. M. Wiener, St. Louis, said that Vollert of Leipzig allows a piece of iris to be incarcerated in the wound. Dr. Henry L. Wolfner, many years ago, made the remark that he did not object if there was a slight prolapse of iris in the wound in iridectomy for glaucoma. He did not try to do it, but also did not try to replace it if it occurred. Three or four years ago he purposely started performing iridectomy by incarcerating an edge of iris in the wound, and claims to get permanent drainage in that way.

Prof. Carl Hess, Würzburg, Germany, said that for a patient with simple chronic glaucoma, one eye being blind and the other not, he tries irridectomy on the blind eye. If the result is encouraging he tells the patient that he is willing to try the operation on the good eye also, but that he can not promise him any good effect; that if nothing is done he will surely be blind, but that the operation may possibly result in some vision. He has frequently seen the iridectomy made without fault and vision lost after a short time, and it seemed often that it was lost still more quickly than in the eye in which no operation was done.

Dr. S. L. Ziegler, Philadelphia, agreed that an early operation is the best procedure. The suggestion of Dr. Wiener, in regard to the incarceration of the iris, reverts to some of the abandoned procedures of the early part of the last century. Incarceration of the iris would be very disastrous for most of us to contemplate on account of the possibility of sympathetic ophthalmia, for an incarcerated iris and a contracting wound may set up sympathetic trouble in the other eye at any time. If one wishes the wound to leak it would be preferable to turn a piece of the conjunctiva into the wound, but it would be better to make a posterior sclerotomy and then have a leaking of the posterior chamber, or rather, a governor to control the tension. He thought, therefore, it would be better to dress the iris back carefully, and see that there is nice healing of the wound with no inflammatory irritation afterward; otherwise there might still be another attack of glaucoma through plastic closure of the angle already freed. One of the objections to early iridectomy has been the possibility of cataract development afterward. Of course, it does develop in some of these cases, but generally it is the ordinary senile cataract, as glaucoma most frequently occurs in old patients. Another objection is that of varying astigmatism because of pressure on the corneal wound. It is, of course, possible that one may have every year a varying of the astigmatism requiring frequent refraction and change of glasses.

Posterior sclerotomy is an alternative operation that is often resorted to in certain circumstances. It is often done when the patient refuses the operation of iridectomy. He may be willing to risk the milder operation. Again, we may have such a shallow anterior chamber that it is dangerous to make the keratome incision. Of course, this is more easily performed with the narrow cataract knife, but even then there is some risk. A third class is that in which there is a possibility of hemorrhage into the eye. Dr. Ziegler said there is less danger of this accident after posterior sclerotomy than after iridectomy. He has performed posterior sclerotomy in a number of cases with good results. He has a patient in the Wills Eye Hospital, on whom he did a cataract operation recently, who had a posterior sclerotomy five years ago for fulminating glaucoma. He was able to reduce the tension at once, and, some weeks later, did iridectomy in both eyes. The iris of one eye was so rotten that it had to be taken out in small pieces. The other showed a very smooth coloboma. With proper glasses he has retained almost normal vision, but requiring frequent refraction, as the astigmatism changed. Posterior sclerotomy is best performed by plunging a Graefe knife into the eyeball midway between the extraocular muscles and about 6 mm. back of the limbus. Rotate the knife, press out a bead of vitreous, turn the knife at right angles and withdraw quickly, leaving a T-shaped incision.

Dr. J. O. McReynolds, Dallas, Texas, said that Leibrich of Paris said it was the practice of von Graefe to make the incision downward and inward instead of upward as we do now, and Dr. Liebrich was not sure even now that there is any particular value to be ascribed to that situation of the incision. Dr. McReynolds spoke of this in order to be enlightened. He sometimes had a case like this: A patient comes completely blind in one eye with glaucoma, and very much diminished vision in the other eye. The question is, if he did not operate, how long would the patient retain the vision; if he did operate, is there much danger of causing sudden loss of vision? In such cases he had sometimes made a compromise which seems to have worked satisfactorily, based on the idea that it is the peripheral character of the iridectomy as much as the extent of the iridectomy that is the valuable feature, and he was convinced that a more narrow iridectomy is a safer procedure than a very broad one. The traumatism is greater in a broad iridectomy. After a narrow iridectomy, there is left a sufficient amount of iris to hold the lens in better position, and there is more iris tissue for the myotic to operate on if it is to be used after the operation. He had had just as good results with the narrow iridectomy as with the broad one. There is less deformity and less dazzling with the narrow iridectomy. If the operation must be repeated it can be done, for many iridectomies can be made at different times if the necessity should develop.

Dr. Hiram Woods, Baltimore, said that some incidental conditions which ought to receive attention are the age of the patient, condition of arteries, kidneys, etc., and state of the lens. He narrated the case of a woman, 77 years of age, who came to find why she was "sometimes unable to see." With slight myopic correction her distant vision in each eye was 20/30. He could not get illumination with the ophthalmoscope, and a drop of euphthalmin (5 per cent.) was put in each eye and she was sent to the waiting room. In a half hour both pupils were dilated ad maximum, with increased tension in the right eye. Then he found opacities at the periphery in each lens, floating bodies in each vitreous, but the fundus in good shape. Special attention was paid to the arteries. There was no pain and a rough examination of the right field indicated contraction in the inferior nasal quadrant. Eserin was ordered. Two days elapsed before tension was normal in the right eye and the pupil was as small as that of the left. Central vision was again 20/30, but the field was contracted to nearly 30 degrees in the quadrant indicated. This was in May, 1906. Eserin was used during the summer while he was abroad. In the autumn she saw Dr. Risley, who, finding no increased tension but a cloudy lens, ordered a weak solution of homatropin. Later she returned to him with increased tension. He found further contraction of the field, but this was the only symptom of chronic glaucoma except the increase of tension by a mydriatic. Dr. Risley ordered eserin. When Dr. Woods saw her again in November, the field was contracted on both sides of the lower half, with a tongue-like scotoma shooting in toward the fovea, and reaching within 20 degrees of the latter, from the inferior nasal field. Central vision was as recorded, there was no pain, and the lens condition was unchanged. There was no bending of the vessels at the disc margin. The general condition was good. On the strength of Dr. Bull's observations, his own experience, and with Dr. Risley's approval, Dr. Woods did an iridectomy. The result was rapid and complete clouding of the lens, and development, after a fortnight, of acute glaucoma. There have been several attacks since. He told Dr. Bull about the case, and asked if the age and opacity of the lens should have kept him out of it. The reply was: "It would have kept me." Dr. Woods said it would keep him out of it another time. There are definite operative risks in these cases. Probably, with the slow progress of the disease, as regards central vision, at least, and no evidence of glaucoma in the left eye, a woman at the age of 77 would have preserved useful vision the balance of her life, in one if not in both eyes. Dr. Woods was sure he did not puncture the capsule during operation, yet the operative traumatism seems to have caused rapid swelling and opacification of the lens with subsequent acute glaucoma.

Prof. Carl Hess, Würzburg, Germany, said, concerning the extent of the iridectomy, that he has repeatedly made a small peripheral buttonhole and has had good success, so that he considers the extent of the iridic excision of no importance; a small iridectomy does just as well as a large one. He referred only to the simple cases, one eye blind and the other becoming worse; but a much more difficult question arises when both eyes retain good central vision and only the visual fields are contracted. Dr. Hess asked what American ophthalmologists do in these cases. Before he crossed the ocean he saw a woman of 36 who had been operated on—an iridectomy for chronic glaucoma. In one eye the lens had been injured and a complete cataract had been afterward extracted. When he saw her the anterior chamber was deep, the optic disc white, with excavation, but central vision nearly normal. In the other eye the lens was transparent, the fields a little smaller than normal, and normal central vision. He refused to operate as long as vision was nearly normal. He has used eserin for weeks or months and often that is sufficient to keep the vision normal. In the case mentioned the attendant wished him to do the operation and insisted that every six months for some years past the field had been found to be smaller and smaller, but Dr. Hess declined to operate while the vision continued to be almost normal.

DR. JOHN A. TENNEY, Boston, agreed with Dr. Würdemann's statement that there is posterior glaucoma. Intraocular tumors may close the circumlental zone; but Dr. Tenney was speaking of ordinary chronic glaucoma. Several years ago a certain patient had traumatic cataract in one eye. It was evidently a soft cataract, very white, and the iris was paralyzed so that only a slight rim remained. Two years ago, Dr. Tenney removed it by needling. Since his paper was sent in this patient came to him, and had hardly noticed that the vision had nearly gone out of that eye. Dr. Tenney noted the increased tension and suggested that withdrawal of the aqueous might help the vision. It did not have that effect. He tested the fluid and found it loaded with albumin. Here was a case of chronic glaucoma going on so insidiously that the patient hardly knew that it existed, and the aqueous was loaded with albumin. That confirmed Dr. Tenney's opinion that chronic glaucoma may be caused by closure of the filtration angle by an excessive amount of albumin in the anterior chamber.

DR. S. D. RISLEY, Philadelphia, said that he had never approached a subject, before this Section or elsewhere, with more perturbation than this one. He purposely avoided, in the paper, any allusion to the etiology of glaucoma, or to the reasons for doing what he had suggested, other than those pointed out in the clinical histories related. He declared that a careful reading of the text of the paper, which was written with much care and forethought, on a subject which has agitated his mind for many years, will show that every inquiry raised in the discussion is thoughtfully answered in the clinical pictures supplied. He started out primarily to give a careful analytical study of the 140 cases on which the paper was based. Such study was made, but the analyses were not given in the paper.

He has always used the bent keratome, the character of which is described in the paper. He agreed with Dr. Bruns regarding the tendency of the colored race to chronic simple glaucoma, but his experience does not agree with Dr. Bruns as to its never passing into the inflammatory type. He had repeatedly seen the chronic non-inflammatory glaucoma present in one eye and the inflammatory type of older date present in the other. In that respect he did not think that the colored race differs materially from the white. One of the contentions in his paper is that these forms of the disease are one and that, if the patients live long enough, even if blindness has come to pass during the non-inflammatory stage of the disease, it will sooner or later pass into the congestive, more or less pronounced inflammatory type.

He had many times been compelled to enucleate eyes, long blind but painless, for a more or less sudden onset of acute fulminating glaucoma. He said that he appreciated very highly the conservatism of Dr. Hess' advice, and emphasized the necessity for the greatest conservatism in the management of glaucoma simplex. A careful reading of the histories given in his paper, he said, would show that he had again and again to operate on one blind eye presenting a moderately congestive form of glaucoma which had, nevertheless, gone on for many months, in some cases for years, without inflammatory exacerbations, but which finally compelled the patients to seek relief from the intolerable pain of the final inflammatory stage, while the fellow-eye still presented the characteristic non-inflammatory type of the disease, with the contracting field of vision, doubtful tension and cupping of the nerve.

Removal of Piece of Glass from the Pericardium.—A robust young man was stabbed in the heart with a long, pointed piece of window glass. The threatening symptoms of hemo-pneumothorax the next day compelled surgical interference, and Ortiz de la Torre found and successfully removed the pointed tip of the glass, which had broken off in the wound. It measured 1½ by ¾ inches, and was found in the pericardium, the tip implanted in the wall of the auricle, rising and falling with the latter. The pulse tracings and other details of the case and operation are given in the *Siglo Medico*, liv, page 338, 1907. At date of writing, a week later, the patient was in good condition, pulse 86, temperature normal and respiration tranquil. The wound was sutured without drainage.

THE PREVENTIVE TREATMENT OF TRANSFERRED OPHTHALMITIS.

(SO-CALLED SYMPATHETIC OPHTHALMIA.)*

CHARLES A. OLIVER, A.M., M.D.

PHILADELPHIA.

For many months I have been engaged in the collation of the histories of all of the recorded cases of every form of so-termed "sympathetic disease"[1] that had been treated in the dispensary and indoor services of Wills Hospital in Philadelphia since its opening, a period embracing more than seventy years.

During these studies—in which I received excellent help from three of my personal assistants[2]—I soon realized that in spite of a vast yearly increase of the work done at the hospital and a broader and earlier recognition of the condition, there was a decided lessening in the number of cases, and a much less degree of fatality among those which had been treated than in former years. These findings seemed so important that I instantly chose the preventive phase of the disease as worthy to be the subject of this paper.

The many desultory, and at times uncertain, cases of the first thirty-five years' work of the hospital were grouped together, while the latter half of this portion of the hospital's work, which had been systematically arranged into annual groups, was divided into periods of time similar to those which I had used in a study of several thousand cases in which senile cataract was extracted.

Critical inquiry into the detailed histories of the cases elicited many points of value. For example, it was found[3] that, in spite of a vast increase of the types of cases which are ordinarily supposed to be provocative of the condition (some 62 per cent.), the proportionate number of cases seen was actually reduced nearly 80 per cent. within the past ten years. This is a remarkable improvement and one which is worthy of special record, when it is considered how long the institution has existed, that it is situated in the midst of a large industrial and commercial center, that it is near to an immense mining territory and agricultural district, and has always been favorably known—reasons, which, for many years past, have been the means of bringing from ten to fifteen thousand new eye cases annually to its doors.

Employing the title "preventive treatment" as it should be employed, i. e., to express both the indirect and the direct preventive measures for lessening the chances of occurrence of the disease, I here offer some of them in brief detail under their two respective headings.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] As I have elsewhere stated, for several years past I have taught my classes and private students that so-called "sympathetic irritation" and "sympathetic ophthalmia" are simply different stages of a condition which is preferably termed "transferred ophthalmitis." I believe that the expression "sympathetic," as ordinarily understood in this connection, has no significance whatever, and I am certain that the term "irritation" is just as false; it must be conceded also that the word "ophthalmia" should not be applied to any form of inflammation of the interior of the eyeball. The word "transferred" is correct, no matter what the process may be, and the generic term "ophthalmitis" is both adequate and comprehensive.

[2] Drs. S. Rush Ketcham, Albert J. Britt, and Ida Louise Haverstick.

[3] As noted in the "Discussion on Sympathetic Ophthalmia." before the 1906 (seventy-fourth) annual meeting of the British Medical Association, Toronto, Ontario.

INDIRECT CAUSES.

1. More improved and better constructed machinery, which, as a rule, has contrivances for the rapid and the safe removal of extraneous and useless débris, etc.

2. More carefully arranged, more sanitarily built, and more adequately illuminated factories, mills, shops, etc., than formerly.

3. A broader compulsory employment of personal protectives by the workmen during their occupations (as was found by comparison and contrast of the conditions prevailing at the different places from which the patients came).

4. More prompt search for and amelioration of the original disturbing conditions. Study of the cases showed that for the past ten years the time elapsing between the onset and the first examination and treatment had greatly lessened; this in great measure having been the result of the present realization of the value of speedy relief, and the increased ease of railway communication between distant centers and the hospital.

5. Better personal condition of the patient. This was so pronounced that in many cases prognoses could be determined in great measure after a cursory inspection of the general appearance of health and cleanliness of the patient; this in addition to the race, the nationality, the sex and the age—all of which serve as greater prognostic factors than is ordinarily believed.

6. A better arrangement on the part of the hospital for immediate attention to first aid applications and remedial measures to every case that is brought to the institution. For the past six years there has been an efficient medical officer constantly on hand to attend promptly to any case applying, while two or more of the surgical staff are nearly always to be found within a few minutes' time for personal advice and action.

7. A higher grade of skill on the part of those in charge of the cases than formerly. This has been obtained through a vast increase, and now almost constant repetition, of similarly affected cases.

A better equipment, always available, of all of the modern instruments and appliances known, thus allowing more or less positive results for good to be obtained within the briefest periods of time after the admission of the patient.

DIRECT CAUSES.

9. An increased certainty in intelligent action by the early employment, if necessary, of one of the most exact methods of *x*-ray studies in the country.

10. The prompt removal, whenever possible, of any foreign body from the interior of the eyeball by the methods which have been found to be the latest and best adapted for each special case.

11. A greater tendency toward the early removal of shattered and useless eyeballs of dangerous types by the simplest and the least complicated methods of operative procedure.

12. A better preparation of the patient for—as nearly as may be possible—aseptic operative measures or special remedial treatment in the wards of the hospital, every case being subjected to the best and the least disturbing cleansing processes for both skin and mucous membrane, each case being isolated, as far as practicable, by being placed in bed, and every affected eye being promptly treated for prevention or lessening of reaction and reduction of inflammation.

13. A more prolonged continuance of controlled therapy than formerly, thus ensuring an increased probability for permanent quiet and a greater chance of escape from subsequent disturbance.

14. Better facilities for guard over the cases for long periods of time, each patient always being personally requested and whenever possible required, through his employer, to report at fixed intervals for careful restudy of the remaining conditions.

1507 Locust Street.

DISCUSSION.

DR. C. R. HOLMES, Cincinnati, said that so far there has been nothing adduced to prove the theory that sympathetic ophthalmia is due to an infection, and that there is still a wide difference of opinion as to whether the infection travels by way of the intraocular blood vessels, or along the nerves, optic or ciliary, or even the far-fetched theory of infection through the subcutaneous veins crossing the bridge of the nose (by Motais). The results of experiments on animals have failed to clear up the mystery of this disease. There is no guide to treatment, but the clinical picture of a plastic nonsuppurative inflammation, alike in the injured and secondarily involved eye—and hence it has been declared that the causative agent can not belong to the pus-forming bacteria, as was once supposed. At the time of or shortly after the injury it is impossible to tell whether, if inflammation should develop, it will be a purulent involvement or a primary plastic fibrinous inflammation. Dr. Holmes believes that the per cent. of sympathetic ophthalmia has decreased so enormously because the theory of infection is now recognized by all physicians and pretty thoroughly disseminated among the laity, and, above all, because a large number of the general practitioners have learned to keep their hands and infected instruments and applications away from the freshly injured eye, but promptly cover it with a clean protective bandage and hurry the patient to an oculist. Dr. Holmes said that, in severely injured globes, when there is no doubt that vision is permanently lost, one should not be influenced by the appeals of the patient or his family to save the globe and thereby to invite future trouble—but should promptly remove the eye, or perform evisceration, rather than to take any chances on the possibility of transferred ophthalmitis developing in the future. Even if harmless, these eyes seldom retain their spherical form, and shrink with extensive changes of the cornea and iris and become far more unsightly than a well-fitted artificial eye.

DR. WILLIAM ZENTMAYER, Philadelphia, said that Dr. Oliver mentioned, among the direct causes for the lessening of cases of sympathetic inflammation, "the prompt removal, whenever possible, of any foreign body from the interior of the eyeball . . . ." Dr. Zentmayer said that, while this is without doubt true, yet it is his belief that in some instances this has been the direct cause of sympathetic inflammation. Sometimes in the removal of magnetic foreign bodies from the interior of the eye the amount of trauma resulting is so great that better judgment would be to perform immediate enucleation, but the success in extracting the foreign body makes the patient less willing to accept such counsel and makes the physician more indulgent to his pleading and as a result one sees patients with sightless irritable eyes which are a constant menace to the fellow eye.

DR. JOHN A. DONOVAN, Butte, Mont., said that most eyes are lost by meddlesome ophthalmology. Clean the eye and keep it clean without producing irritation. Do not operate on an injured eye until sure it should be operated on. Do not operate on an injured eye until sure it has attained the best possible condition likely to be obtained. Then do the operation which will produce the best results. Dr. Donovan believes that sympathetic ophthalmia should and will become an obsolete disease if these suggestions are carried out.

DR. L. R. BORSCH, Philadelphia, said that the injection of large quantities of bichlorid of mercury, 1 to 2,000, into the conjunctiva will sometimes prevent sympathetic ophthalmia. He saw a patient who had been injured by a piece of stone penetrating his eye and making a large wound. The eye had become highly inflamed and the vision was reduced to light perception. The man was an Italian and had seen several oculists, who advised him to have the eye removed, but he refused. Although Dr. Borsch advised immediate removal the patient absolutely refused, and Dr. Borsch was compelled to treat him. He removed the foreign body, disengaged the whole of the conjunctiva and simply turned it completely around so that the wound was covered by healthy conjunctiva. He injected a whole syringe full of bichlorid solution. The patient suffered greatly for 24 hours, but six months ago he had absolutely normal vision. He had irritation in the other eye at the time which subsided. Dr. Borsch attributes the good result to the injection of the mercury. Such an experience, he said, should not, of course, make one temporize with a case unless compelled to.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind., said that in deciding the question of enucleation in these cases of injury in which there is a possibility of sympathetic trouble, one sometimes errs on the wrong side by enucleating too early, and in the endeavor to prevent the possibility of sympathetic inflammation may take out an eye which otherwise might be saved. The prevailing opinion among general physicians is that an eye in which a foreign body has entered is one for enucleation whether the foreign body has been retained in the eye or not. He recently had an experience which leads him to object to the methods pursued by some ophthalmologists of enucleating these eyes to substantiate the opinion of the family physician or under the mistaken idea of the possibility of sympathetic inflammation. A patient was brought to him with a perforating injury in the ciliary region in which there was a very mild infective process. He saw the patient a few hours after injury and advised local treatment for a period of a week or ten days, telling the family physician that during that time it would be possible to foretell the fate of the eye, and that there was no danger in pursuing this policy, as no case of sympathetic inflammation had ever been known to occur within two weeks following the injury to the fellow-eye, and that if. at the end of a week or ten days, or even before, there should develop dangerous symptoms, enucleation should be performed at once. Much to Dr. Bulson's surprise, a highly respected member of this Section in an adjoining city coincided with the family physician as to the necessity for prompt enucleation, and the operation was performed within four days subsequent to the injury. Later he learned that the condition of the eye at the time of enucleation was no worse than when he saw it, and at that time there was useful vision. In his judgment the patient was not given an opportunity of knowing whether or not the eye could have been saved or not, and an eye with useful vision was enucleated fully ten days earlier than any case of sympathetic inflammation has ever been known to occur following such an injury. Such methods may be called conservative surgery, but in Dr. Bulson's judgment it is radical surgery and the patient has to suffer the consequences. It requires a great deal of judgment to handle these cases properly, but there are certain established rules which physicians are always warranted in following, and one of them is that unless an eye has been injured beyond all reasonable hope of saving either vision or eyeball, the operator is perfectly safe in postponing removal of the eyeball until at least ten days to two weeks has been given to an attempt to save either sight or eyeball.

Dr. Charles A. Oliver, Philadelphia, agreed with Dr. Holmes in regard to infection; also in reference to shattered and dangerous eyeballs. He always removes them. In regard to the avoidance of prompt operative treatment of injured eyeballs whenever necessary, for fear of provoking "sympathetic disease," through additional traumatism, he deems it unwise and, at times, reprehensible. He agreed with Dr. Randolph that those eyeballs which have lowered tension are the ones from which disease is most likely to be transferred.

Unapplauded Heroes.—It is a strange thing that the applause of men greets only those who fight with men. They who battle with the enemies of man, with disease, with accident, with unknown forces, and unknown seas and lands, these men must fight, and, if necessary, die almost unnoticed by their fellows.—*Lancet*, London.

FURTHER OBSERVATIONS ON RETINITIS PUNCTATA.*

H. GRADLE, M.D.

CHICAGO.

On the basis of ten personal observations, five cases reported to me by colleagues,[1] and a review of the literature, I presented to the International Congress at Lisbon in 1906 a paper on the Punctate Forms of Retinitis.[2] In this study I came to the conclusion that the term had been and could be applied to several different types of disease, which had in common merely the occurrence of white dots in the fundus but varied in significance and clinical history. These conclusions I can confirm and extend by a further study of some of my patients.

While a pronounced retinitis punctata albescens, as the term is used by Mooren and most of the writers, is a rare disease, the appearance of discrete and usually not numerous white or yellowish-white dots, apparently situated in the retina, is not uncommon. When these white dots are numerous, counting up into the hundreds, the ophthalmoscopic picture is a striking one. When they are few in number they are usually faint and not readily seen through a narrow pupil. They range in size from about one-half to one diameter of a retinal artery of the second order, are round or rounded, well defined even if faint, and are usually not close enough to any vessel to show how deeply they are situated. The white dots occur in both eyes, although often the two eyes are not involved alike. They are in many instances transient, though of long duration, and may hence be considered minute infiltrations. Perhaps they may be of a degenerative nature when permanent. The cases observed by myself or reported in literature can be divided into the following types of disease:

SIMPLE PUNCTATE RETINITIS.

I shall reserve this name for the cases which present retinal dots without other complications at the beginning or during the duration of the disease. In this form the dots are not numerous, a few to a dozen, rarely beyond a few dozen, more or less near the margins of the optic disk, to some extent spreading toward the macula, and as a rule one eye more involved than the other. The sight may be normal or slightly reduced, especially in the more involved eye. With normal sight there may be irritability or asthenopia. The latter is sometimes relieved by appropriate correction of an existing ametropia, which had previously not annoyed the patient. In most of the cases seen or collected by me rest of the eyes and hygienic management have caused the dots to disappear in the course of months.

Possibly the cases described by M. Gunn,[3] in which such dots of minute size were found without symptoms belong to this group. Gunn found this anomaly in seven members of one family. The etiology is not clear in any of the cases. The case which I have had the best opportunity of studying is worth quoting from the Transactions of the Lisbon Congress, especially as the patient suffered a relapse since my previous report.

Case 1.—(Case 4 in the Lisbon Transactions.) *Patient.*—Mr. L., aged 36, of good health.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] I wish to thank Drs. Hotz, Faith and Wescott for their courtesy.

[2] Full abstracts of this paper have appeared in the Ophth. Rec., October, 1906, and Arch. of Ophth., November, 1906.

[3] Trans. Ophth. Soc. U. K., vol. iii.

History.—Patient had a recurrent inflammation of left frontal sinus. Incidentally he mentioned that for two years past he had not seen as well with his right eye as with his left.

Examination—R. E. V. = 20/50. Field normal. No scotoma. L. E. V. = 20/20. In right eye fine whitish dots scattered all over the central part of fundus, about ten in the macular area. In L. E. about six similar dots near the temporal side of disk. No other lesion. Under potassium iodid in large doses the sight of R. E. rose to 20/40 within two weeks. After six weeks there were apparently fewer spots in the macular area of R. E. Six months later sight of R. E. normal. At that time as well as some sixteen months subsequently no dots could be found.

Subsequent History.—Mr. L. was seen repeatedly during the next year on account of transient left supraorbital neuralgia due to purulent inflammation of either the frontal sinus or the anterior ethmoid cells. The discharge as well as the pain yielded each time quickly to intranasal treatment. About 2½ years after the first examination he complained again of poor sight in the right eye, and admitted that the left was not perfect. V. was found = 20/40 + in each eye, the R. E. being subjectively more dim. A fresh crop of white dots had appeared in the R. E., perhaps some 30 in number, at the temporal edge of the disk and again in the macular region The left eye showed only three dots at the nasal side of the disk and a few scattered throughout the central area. No other ocular lesions. No scotoma. He had a slight purulent discharge from both sides of the nose, apparently from the anterior ethmoid cells. Iodid had no effect this time. The dots in both eyes increased moderately in number. Those near the papilla in R. E. enlarged in size so that several became distinctly elongated in shape. V. diminished in both eyes to 20/50, varying somewhat on different days. As iodid seemed to increase the nasal discharge it was stopped and only nasal irrigation and sprays were employed. About the fifth week decided subjective and later on objective improvement began. Still later the nasal discharge became reduced and intermittent, and finally ceased. At one time the sight of the left eye was not as clear as that of the right, although the spots were always more pronounced in the right. After four months vision became normal and the dots reduced in number were fading.

PUNCTATE RETINITIS FOLLOWING OPTIC NEURITIS.

Frost[4] has pointed out that dull white dots occur occasionally in the retina near the disk in the course of a neuritis. This I have observed repeatedly, most notably in an instance of unilateral optic neuritis of moderate severity in an adult in whom a small number of white dots persisted for some months without interfering with ultimate recovery. In my case books I have not noted these cases as retinitis punctata. The striking picture of retinitis punctata may, however, be brought on in the course of an optic neuritis, as observed by Dr. Faith in two instances kindly placed at my disposal by him.

CASE 2 (Dr. Faith).—*Patient.*—Boy, aged 15, had complained for two weeks of headache and failure of sight. V. = ⅛. Pronounced optic neuritis without hemorrhage. Slight fever. Urine normal. Under treatment (sweats, iodid of mercury) sight improved and a central scotoma became demonstrable. After two months V. = 6/9. As the neuritis disappeared numerous white yellowish pinpoint dots appeared around the disks verging toward the macula. In the course of a year they had almost disappeared with ultimate normal sight.

CASE 3 (Dr. Faith).—*Patient.*—Girl, aged 15, complained of headache and blurred sight. V., which had formerly been 6/5, was reduced to 6/9 in R. E. and 6/7.5 in L. E. Edges of disc blurred and vessels tortuous. Numerous small bright specks surrounding the discs. Moderate anemia.

Treatment.—Iron and aresnic were given and in two months vision rose to 6/5 and the fundus anomalies disappeared except the dots. The blood count became normal. A year later no anomaly was found, except a few faint dots below the disc in the R. E.

I wish to emphasize this relationship of retinitis punctata to optic neuritis, as I believe it furnishes the clue to the pathology of the larger number of instances reported in literature shortly after Mooren's first use of the name.

PUNCTATE RETINITIS AS PART OF GENERAL RETINAL DISEASE.

In the cases reported by Hirschberg,[5] Landesberg,[6] Burnett[7] and M. Standish[8] there were retinal exudates, vascular changes and hemorrhages in the earlier part of the disease. The patient of Standish showed especially well the evolution of the disease, viz., gradual failure of vision to 1/5, diffuse haze of the retina, becoming complicated by retinal exudate, and infiltration around the disk with tortuous vessels, whereupon a few retinal dots began to appear. On the course of a week's treatment all lesions disappeared except the dots, which continued to increase while sight became normal. The disease was almost always bilateral but not equally extensive in both eyes. All the patients had decided impairment of sight, usually in the form of a well-marked central scotoma. Some recovered completely, others only partially, with some optic atrophy. These latter incidents, the typical scotoma not explained by localized retinal disease and the possibility of later atrophy, suggest strongly that a retrobulbar neuritis was present, probably as the most important of all the lesions. The presence of the white dots does not account for the scotoma; in fact, with a retina studded with these minute infiltrates vision may become almost perfect.

ATYPICAL FORMS OF RETINITIS ALBUMINURICA.

Two of my observations (Cases 10 and 11 in the Lisbon Transactions) could be interpreted as atypical forms of retinitis albuminurica due to pronounced kidney disease. In both the retina showed as the principal lesion the characteristic punctate infiltrates. Unfortunately, both patients did not stay permanently under observation.

PUNCTATE RETINITIS WITH INVOLVEMENT OF CHORIOID.

In some instances which can be called punctate retinitis there is some involvement of the chorioid. I can not say, however, whether this is primary or secondary. Dr. Hotz gave me the reports of two cases of transient white punctate infiltrates of the fundus with practically normal vision ending in recovery, which he interpreted as chorioidal disease, because in one of them there were fine filaments floating in the vitreous, while in the other chorioidal hyperemia during the course of the disease led finally to irregular mottling of the chorioid pigmentation. In one of my own observations of retinitis punctata, apparently due to kidney disease with diffuse retinal cloudiness and central scotoma, the sight steadily failed with the development of a diffuse opacity of the vitreous. I have also seen a case of a localized patch of areolar chorioiditis in which the white dots characteristic of punctate retinitis were scattered throughout the central area of the fundus.

ATYPICAL RETINITIS PIGMENTOSA.

The name retinitis punctata is at present, however, mostly applied to an entirely different form of disease which is probably an atypical variety of retinitis pigmentosa. These patients complain of more or less night-blindness, usually since youth. The central vision is sometimes normal, sometimes reduced. In some the visual field is restricted. There is often, but not always, consanguinity in the parentage. Several instances occurred in brothers and sisters. The greater part of the fundus, but not the periphery, is studded with minute dull white dots, while the macula is nearly free when central sight is still good. In many of the cases pigment figures were seen in the periphery of the fundus sometimes described as not characteristic of retinitis pigmentosa. In cases with reduced sight the nerve appeared moderately pale. It has been repeatedly observed that the disease can remain stationary for many years and that it progresses rapidly.

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[4] Fundus Oculi, 1896, p 199.

[5] Centrlbl. f. A., 1882, 330.

[6] Centrbl. f. A., 1883, 261.

[7] Arch. of Ophth., 1882, xxii, 22.

[8] Ophth. Rev., September, 1893.

Cases of this kind have been reported by Gayet,[9] Dor[10] and Nettleship.[11] Fuchs[12] subsequently interpreted these cases as atypical retinitis pigmentosa. Further reports have since appeared by Liebrecht,[13] by Griffith,[14] also by Tr. Collins and Swanzy,[14] and Wuestefeld.[15] The latest of the same kind are reported by Wicherkiewicz[16] and by Takayasu,[17] who saw two instances in Japan.

Case 4.—*Patient.*—Miss L., aged 29, anemic, complained of headaches, especially in the afternoons, and of fatigue of the eyes. Did not see well at night.

Examination.—V. R. E. = 20/20; L. E. = 20/40, improved to 20/30 by Cyl. + 1, axis 135. Homatropin showed in addition H. = 1 D. in both eyes. Nerves and vessels normal. Near but not quite at the periphery of the fundus was a zone showing pigment figures in the form of delicate branching threads. In the L. E. there were two dozen white specks in the more central part and several areas of exceedingly fine white dots. A fainter dotting was also seen in the R. E. The headaches were permanently relieved by appropriate glasses. No change after one year.

Subsequent History.—Eight years later I saw the patient again. Her night-blindness was a trifle more troublesome, but her central vision was as good as formerly. The fields were still perfect. The ophthalmoscope showed no certain change in the appearance of the retinal pigmentation. The white dots, however, could no longer be found.

The case can not be considered ordinary retinitis pigmentosa on account of the atypical form of pigmentation as well as the persistence of practically normal vision for eight years in a patient now 37 years of age. As far as I know this is the first instance of this form of retinitis punctata watched during such a long time, and also the first in which the white dots have ultimately been found to disappear.

DISCUSSION.

Dr. M. Wiener, St. Louis, said he has had little experience with the punctate retinitis, described by Dr. Gradle as a retinal infiltration which disappears and sometimes reappears to fade away again, leaving no trace or scar. He has seen a punctate infiltration of the retina which he would term a senile form, in which the swelling would subside and leave little sharply outlined dots, as though they had been punched out with a conductor's punch. These may, or may not, affect the visual acuity according to what degree the macula be affected. Where the spots occur around the disc or between the disc and the macula, which is the most frequent site, we may have no disturbance of vision. But should they lie in the macula we have a marked reduction of the visual acuity. Dr. Wiener has examined the fundus of patients with no other trouble than their presbyopia and found these atrophic spots, the patient unconscious of having had any inflammatory trouble in the retina. Then again, as Dr. Gradle pointed out, the retinal dots may be associated with some other trouble, as optic neuritis or with diffuse retinitis. He said he believed that in a great many cases the retina is only secondarily affected, the trouble being primarily in the chorioid; the infiltration occurring almost at the same time, or a little later, in the retina. The atypical albuminuric form he has not seen.

Dr. R. S. Lamb, Washington, D. C., called attention to what he believes to be the foundation cause of retinitis punctata, the condition of the arteries. He asked if Dr. Gradle takes the blood pressure in any of these cases. He said he should think that the retina would be the first to be affected, rather than the chorioid, because of the size of the vessels.

Dr. H. Gradle, Chicago, said that in the two instances which seemed atypical forms of albuminuric retinitis there were probably vascular changes. In none of the others was there any reason to suspect this.

SURGERY OF TUMORS OF THE BLADDER FROM A MODERN ASPECT.

G. KOLISCHER, M.D., and L. E. SCHMIDT, M.D.
CHICAGO.

Operative interference in tumors of the bladder is not at the present time conducted in a uniform manner, nor is it based on any generally accepted rules, as is the case in other domains of surgery. Each operator has notions and fancies of his own and operates accordingly, employing in many instances methods which, if applied in other branches of akiurgy, would bring ridicule on his head. Therefore, the possibility of approaching this subject in a more orderly and systematic manner, as well as the great scientific advantage to be derived therefrom, has induced us to attempt, by taking into consideration the work that we had observed in various genitourinary clinics, by availing ourselves of the pertinent literature, and by analyzing our own experiences, to establish certain basic principles on which, as a foundation, might eventually be built up a rational and consistent surgery of tumors of the bladder.

From the very first one essential principle becomes apparent: benign tumors should be approached from the inside, malignant tumors from the outside of the bladder. The intrinsic qualities of a benign tumor are such that it is manifestly sufficient if its mucosa, submucosa and pedicle alone be removed; it is not necessary in operating on such a tumor to go through the entire thickness of the bladder wall and resect all its layers.

CYSTOSCOPE OR INCISION?

In approaching benign tumors from the inside of the bladder we have at our command two methods: one, the endovesical, through an operative cystoscope; the other through an incision in the viscus, which renders accessible the implantation of the growth. In the endovesical method, after proper dilatation of the bladder, the operative cystoscope is introduced, the tumor is focused and the galvanocaustic snare is developed into a loop within the bladder. Then, in case the tumor is not too large, the loop is passed over the growth and down to its base and constricted until it fits snugly around the pedicle. The electric current is now turned on and the interpolated resistance is diminished until little bubbles appear around the loop, after which the pedicle is seared through by slowly constricting the loop. Then, if deemed necessary, the galvanocaustic loop-carrier is withdrawn and a straight, solid galvanocautery is inserted in its place, by means of which the stump of the pedicle is again cauterized.

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[9] Arch. d' Ophth., iii, 386.
[10] Id., 481.
[11] Trans. Ophth. Soc., U. K., iv, 162; vii, 301; viii, 163.
[12] Arch. f. Ophth., 39, iii, 65; and Arch. of Ophth., 1888, xxvii, 484.
[13] Klin. Monatsb. f. A., June, 1895.
[14] Trans. Ophth. Soc., U. K., 1897.
[15] Ztschr. f. A., v, 2.
[16] Trans. of Lisbon Congress.
[17] von Graefe's A. f. Ophth., lxiii, 281.

The severed tumor either is picked up by forceps introduced through the cystoscope or, after removal of the cystoscope, is pumped out through an evacuator; if very small it may be left to be expelled by the urinary stream. The suggestion of using a steel wire snare, instead of the incandescent platino-iridium loop, to crush the tumor and thus prevent subsequent hemorrhage (B. Klose) seems to have been based largely on theoretical speculation, for actual experience has not justified its claims. In case the tumor is rather large it may be removed piecemeal by means of the galvanocaustic snare; when the pedicle is reached it is seared through by means of the loop or burned down with the solid galvanocautery.

Although the instruments almost exclusively used by the operators who are doing endovesical work are those with indirect view, we desire to state that, in our opinion, which is based on manikin practice and experience on the living subject, it is of decided advantage to use the cystoscope of direct view in operations of this character. As a matter of fact, the cautery of Nitze's operative cystoscope almost entirely obstructs the view of the point of its application; this defect has led to the suggestion of using a fenestrated galvanocautery (B. Klose). With the instrument of direct view it is much easier to pass the wire loop over the tumor and down to the insertion of the pedicle, first, because the loop and the tumor are in the direct line of view, and, second, because of the short distance between the window, the loop-carrier and the growth. The same reasoning holds good in the use of the solid galvanocautery. It must be admitted, however, that in operating endovesically on a tumor located in the vertex of the bladder the cystoscope of direct view can hardly be used; in such cases, which, however, are extremely rare, the so-called long wire-loop of Nitze's operative cystoscope should be employed. Judging from our experience on the manikin, it would seem as though many of the disadvantages observed in the operative cystoscope of Nitze might be avoided by using an instrument of indirect view, constructed after the pattern devised by Casper.

There are some writers who object on principle to all endovesical operations so far as tumors of the bladder are concerned, basing their objections on the possibility of subsequent hemorrhage, the less extensive excision of the base of the tumor, and their belief that, since such an interference calls for specialized study and skill, it will never become a routine surgical procedure (Cathelin). Technical objections coming thus from men who have had no personal experience with the endovesical methods have no weight. The theoretical objections as to the insufficient extensiveness of the operation are refuted by the statistics of those who are actually doing endovesical work (Nitze, Wenrich, Klose, Casper, Keersmaecker). Among these Nitze stands pre-eminent; there are no statistics which compare even approximately with the splendid results obtained by this master and his pupils. In the light of such work even those who are most pessimistic as to the outcome of operations on bladder tumors, however radical the excision may be, are beginning to realize more and more the necessity of employing the endovesical procedure (Keydel).

EXSECTION.

The other method for the removal of the benign tumor involves its bloody execution after the bladder has been opened by an incision. The only route through which such an operation should be approached is the suprapubic, for in this way free access is obtained to all parts of the bladder. We desire to submit, as the fundamental principle of this operation, that it be conducted with one object always in view, i. e., the complete closure of the bladder after the tumor is extirpated. In order, however, that primary union and uneventful recovery ensue, it is of paramount importance to bear certain details carefully in mind, remembering always that a liberal incision through the anterior wall of the bladder is requisite for smooth, clean surgical work inside the viscus; nowhere is button-hole surgery more out of place than in bladder work.

The anterior aspect of the bladder should, therefore, be freely exposed in order to gain space for the generous incision; perivesical fat and the peritoneal duplication are to be stripped off until a sufficiently large area of the bladder wall is exposed. The bladder wall is caught by a few sutures, which are used later on as guy ropes. The bladder is incised between these sutures and all squirting blood vessels are ligated. The tumor and its base are now brought into full view and made easily accessible either by catching the base of the bladder with sutures and pulling on them so that the field of operation is brought into the incision and close to the surface, or by having an assistant insert two fingers into the rectum or into the vagina, as the case may be, and thus force the base and the fundus of the bladder upward (Fig. 1). Sutures are now run beneath the insertion of the tumor and are promptly tied one by one in the path of the operator as he is excising the base of the growth (Figs. 2 and 3).

This detail in technic prevents the hemorrhage which otherwise would flood the field of operation and necessitate extensive sponging and continual hunting for the excision wound, and thus avoids a traumatism of the mucosa which might interfere with the prompt and complete closing of the bladder. Care should be taken not to grasp the tumor with the fingers or the forceps, since, as a rule, such growths are very friable and are apt to bleed profusely when crushed or torn. If the tumor be located close to the vesical portion of one of the ureters one end of the ureteral catheter is run a few inches up into the ureter, previous to the insertion of the preventive stitches, and the other end is led through the internal orifice of the urethra and thence outside by way of the urethra. Should some of the preventive sutures encircle the vesical end of the ureter the fact would become apparent on attempting to remove the ureteral catheter; it would be engaged. In this case the catheter is simply left in place for a week or so, until the healing process has progressed sufficiently, and then withdrawn (Figs. 4 and 5).

After the main tumor has been removed it is very important to inspect the entire inner surface of the bladder in order to discover smaller-sized papillomata, should such be present. Particular attention should be paid to the parts opposite the main tumor, since we often find these smaller growths in those areas which come in contact with it when the bladder is empty. This condition is of such frequent occurrence that the suggestion of contact infection forces itself on the mind. All such smaller tumors, if present, should be removed in the manner described above; the erroneous diagnosis of a relapse of the removed tumor is often due to the fact that these have been overlooked and not extirpated. After the viscus has been cleared of all growths, large and small, and after the excision line or lines have been closed by sutures, the incision of the bladder is closed by means of two layers of sutures. The essential feature of this suturing is to bring together only denuded and bleeding surfaces and to prevent any impaction of the mucosa into the suture line.

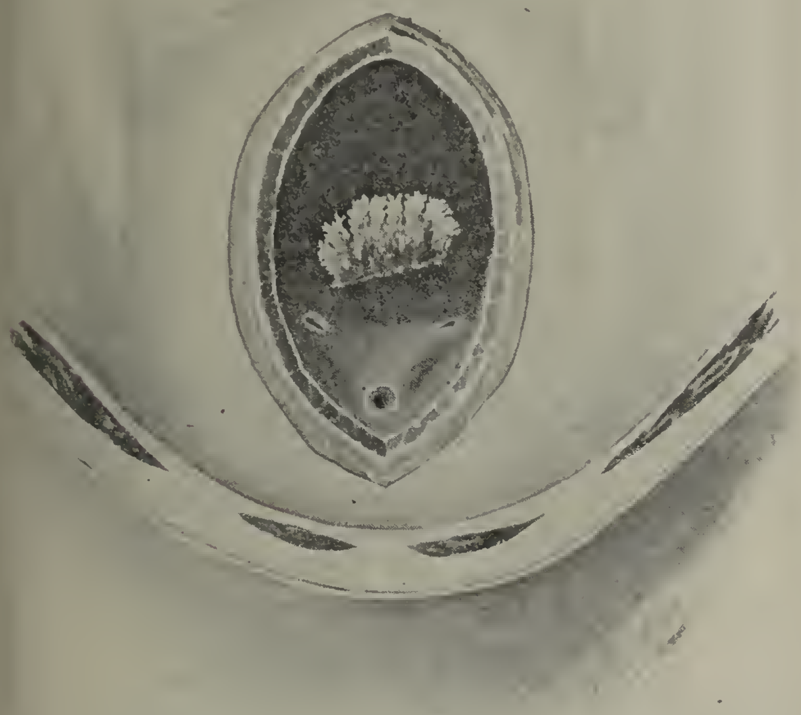

Fig. 1.—Benign tumor exposed.

The closed viscus is now so suspended to the abdominal wall as to exclude any dead spaces and thus prevent the accumulation of secretion; it is important, however, in order to prevent pressure necrosis, that the suspension sutures do not interfere with the suture line closing the vesical incision (Fig. 6). The abdomen is closed in the usual manner. As a rule patients urinate naturally a few hours after the operation; it is only when a patient does not do so that catheterism at proper intervals is resorted to. The permanent catheter should never be used, as it offers no advantage; on the contrary, it always leads to irritation, quite often to infection.

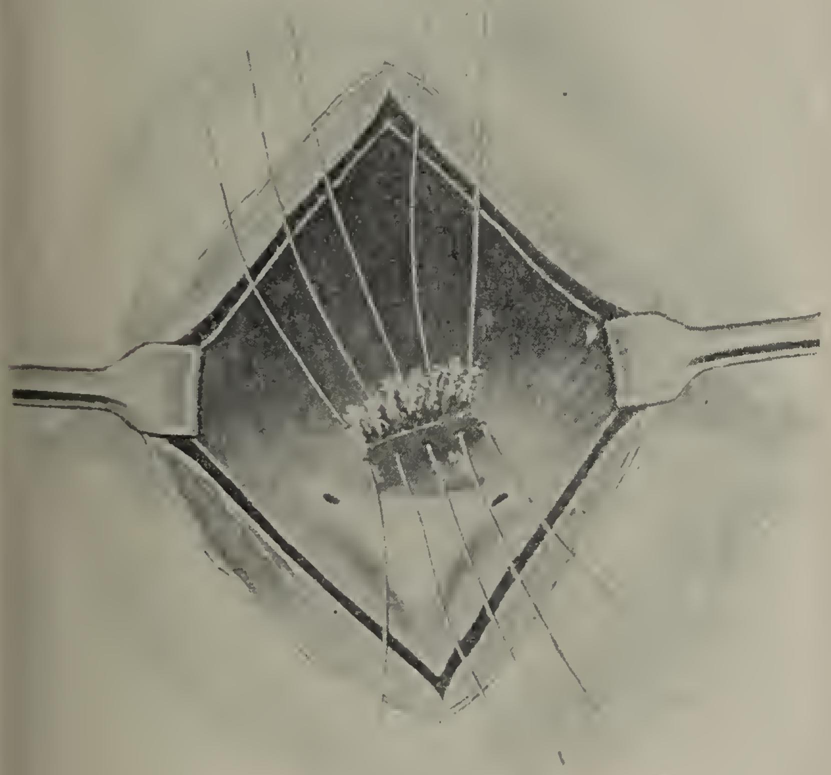

Fig. 2.—Preliminary sutures run underneath the base of the benign tumor.

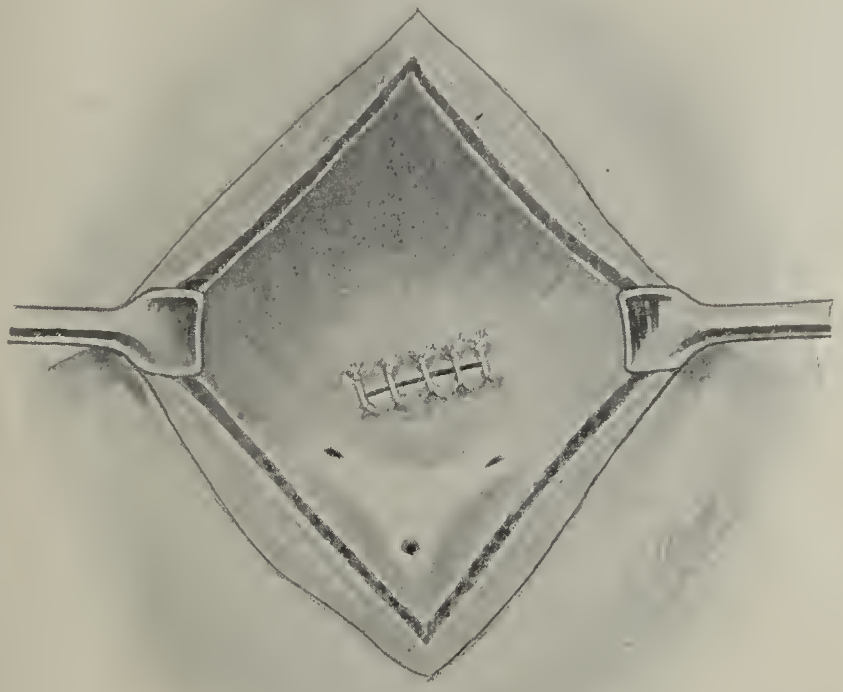

Fig. 3.—Suture line after removal of the tumor.

TRANSFORMING BENIGN INTO MALIGNANT GROWTHS.

It is often contended that the simple removal of benign tumors, such as is indicated above, leads in the majority of cases to recurrence, and that all recurrences are of a malignant character; on the other hand, there are opinions which differ entirely from this contention, some coming from authoritative sources (Lubarsch, Birch-Hirschfeld). A kind of middle ground is taken by Wendel:

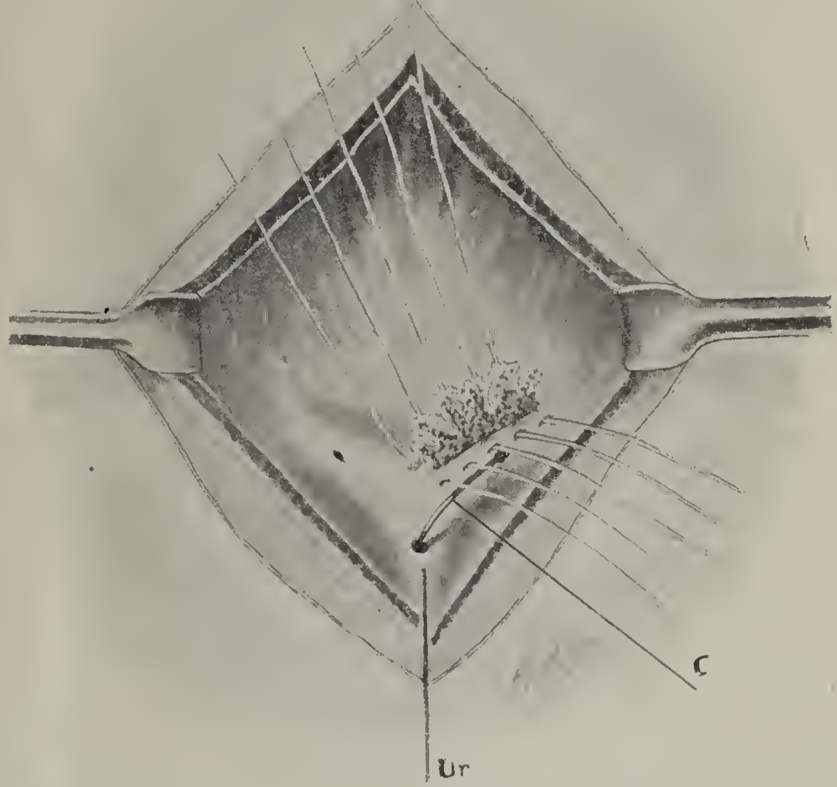

Fig. 4.—Ureteral catheter inserted into both ureter and urethra to prevent tying up of the ureter by the preliminary sutures. Ur. ureteral orifice; C, catheter.

We are compelled to believe that not infrequently bladder tumors will appear which are, in outward appearance and in histologic and clinical characteristics, unquestionably benign, but which later on might become transformed into cancer. In all such cases there is a stage in which surgical interference may occur early enough to remove these tumors with the same favorable outlook as is the case in other benign tumors.

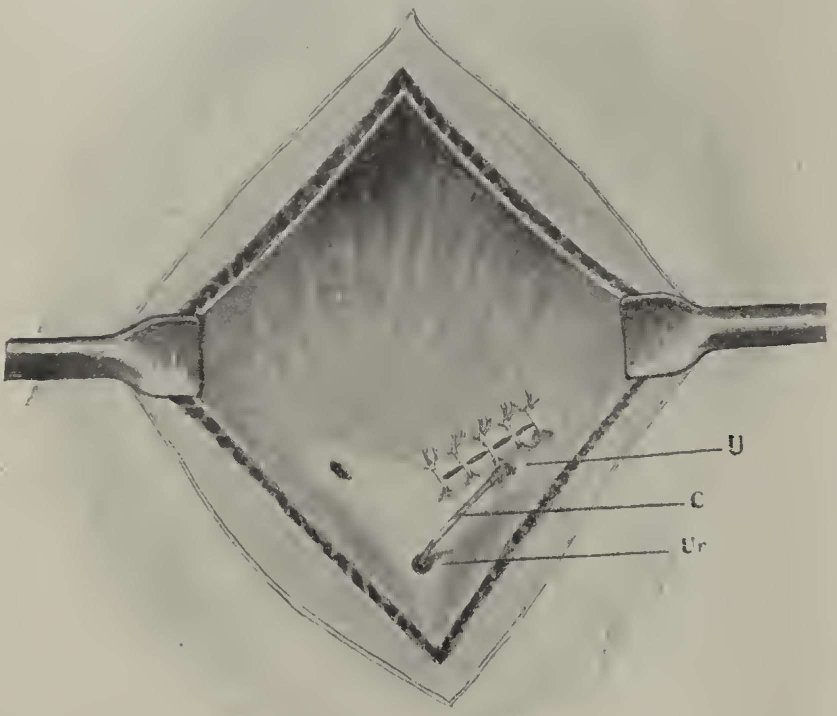

Fig. 5.—Suture line after removal of the tumor with catheter in place. Ur, urethra; C, catheter; U, ureteral mouth.

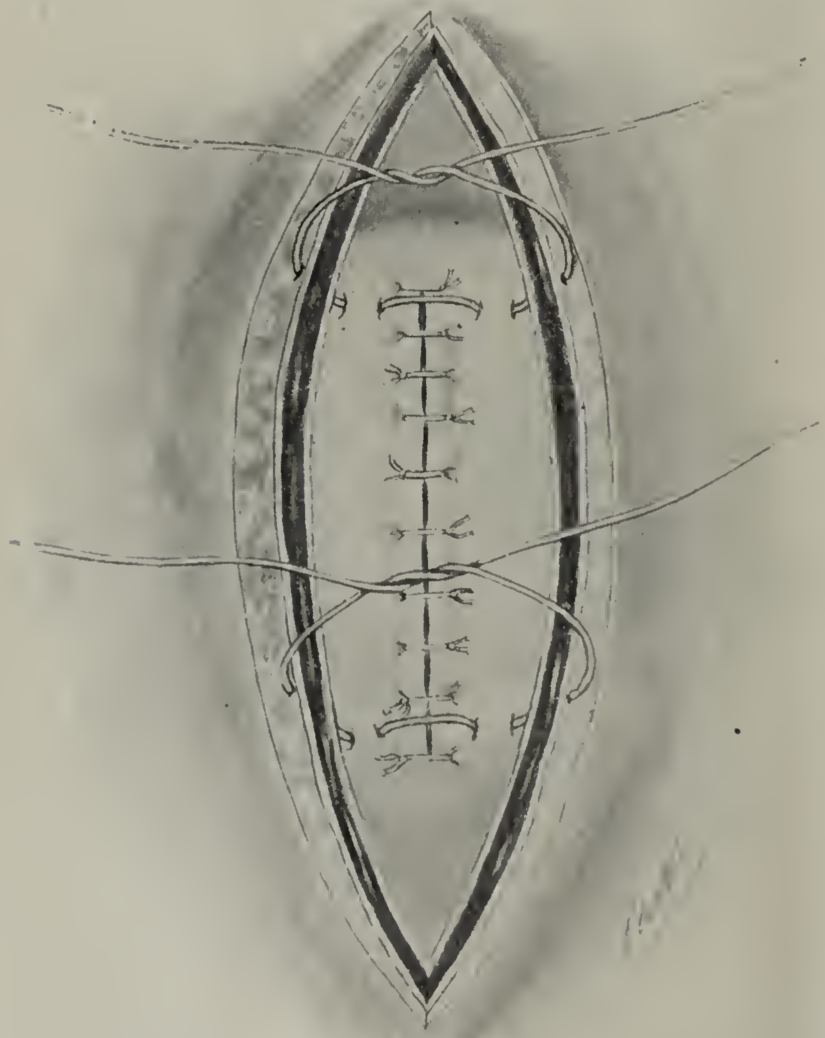

Fig. 6.—The closed bladder suspended to the abdominal wall by two sutures.

As a matter of fact, most authors have relinquished the idea that benign tumors suffer relapse of malignant character (Rafin). All men of actual experience concur in the opinion that benign tumors should be operated on immediately after their discovery (Rafin, Malesherbes, Hegue, Escat, Desmos, Carlier, Hamonic, Nitze, Fischer, Casper, Fedoroff, Bary, Fedenat, Albarran and others).

Operations for the removal of malignant tumors should be guided by principles derived from sound surgical reasoning and not by traditional superstition. We believe that all operations of this character should be started from above, but at the same time we wish to say emphatically that the traditional method of making a suprapubic incision into the bladder and of then hunting for the malignant tumor from the inside should be absolutely condemned. If a surgeon were dealing with a pyloric carcinoma, would he first make an incision through one of the curvatures and endeavor, by working his way through this opening, to dig the cancer out from the inside of the stomach? Certainly not! Why should not the same reasoning hold good in operations for malignant tumors of the bladder? The incision into and through the bladder wall should be made as close to the location of the tumor as is consistent with the obvious demand that the lines of excision should run through apparently healthy tissue (Fig. 7). Making a routine median incision into the bladder regardless of the location of the tumor means inflicting an unnecessary injury on the bladder. The recognition of these facts calls for a topographic diagnosis of the tumor before operation and demands a free exposure of that portion of the bladder which is going to be in the field of resection. Sometimes the base of the tumor can

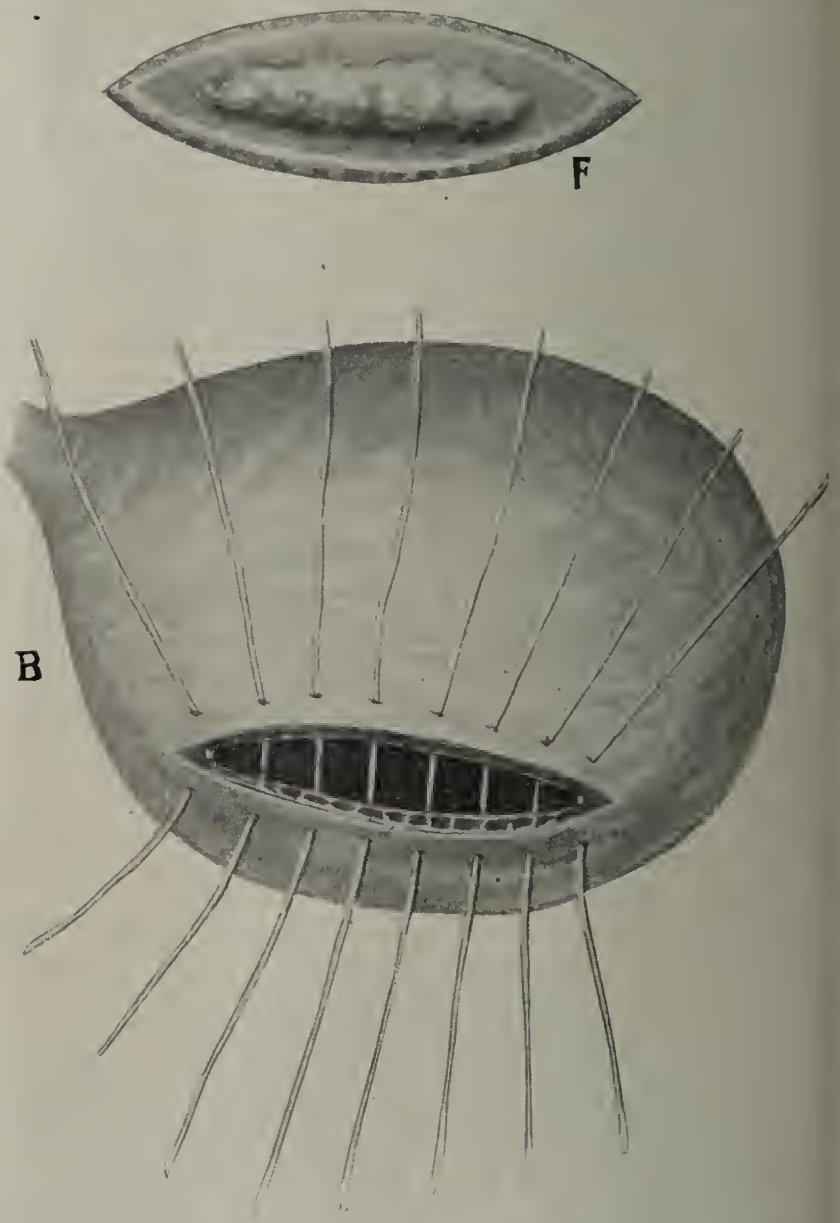

Fig. 7.—Excision of section of bladder wall carrying a malignant tumor. B, bladder; F, section.

be definitely outlined, or the presence and extent of infiltrations ascertained only by palpation after the bladder is made accessible by detachment and incision.

The steps of the operation should be as follows: The suprapubic incision is made; the perivesical fat, which is thus exposed to view, together with the peritoneum, is stripped from the bladder to such an extent that the anterior aspect of the viscus is freely exposed. A few sutures are now drawn through this part of the bladder to serve as guy ropes in facilitating its further manipulation. The denuding of the bladder and its detachment from the adjacent tissue is continued until its exterior surface, in so far as it corresponds with the seat of the tumor inside, is exposed, thus giving additional leeway for resection through healthy tissue. The flap formed by the perivesical fat is now tilted back over the peritoneum and fastened there with a few stitches; in this way a firm protection is furnished for the peritoneum against subsequent infection.

The bladder is now dragged to one side by means of the guy ropes and an incision is made into its wall as close to the site of the tumor as is compatible with surgical demands. Then, by means of the index finger passed into the bladder through this opening, and the thumb outside, the extent of the second incision is determined by palpation; this second incision completes the resection and removes from the entire thickness of the bladder wall a sector which carries with it the tumor. It goes without saying that the excision will, as far as possible, be made in such a way as to facilitate the approximation of the edges of the wound. The resection, in case it does not remove more than one-third of the bladder, should be followed by total suturing of the viscus (Fig. 8). After the organ is closed, a cigarette drain is run down to the deepest point of the bed of the wound, the bladder is suspended to the abdominal wound, and all is closed up save for the point of drainage. The permanent catheter should never be used in cases of partial resection and subsequent complete suturing of the bladder; the patient either urinates naturally or is catheterized at appropriate intervals.

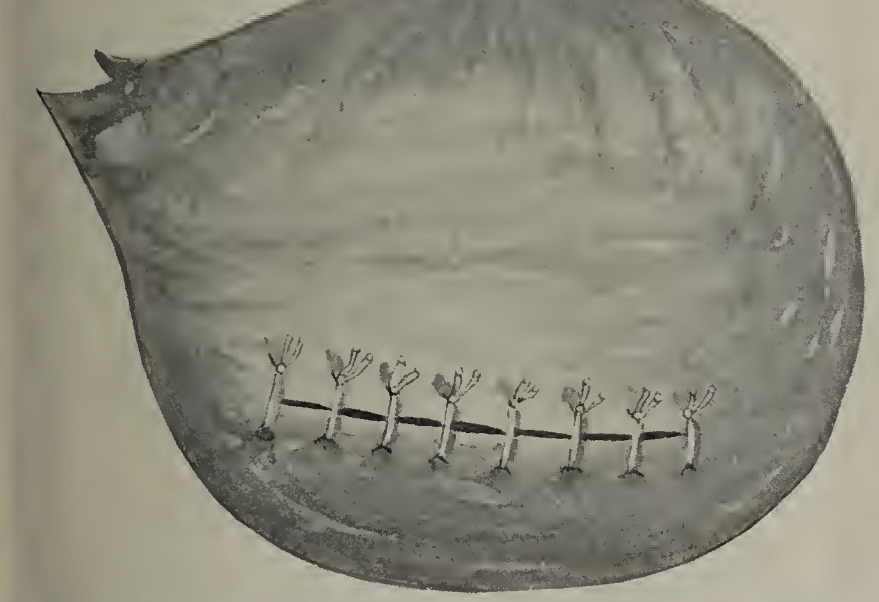

Fig. 8.—Suture line closing up wound after resection of flap out of the lateral wall of bladder.

WHEN THE URETERAL OPENING IS INVOLVED.

Should the tumor involve a ureteral opening, the bladder is dissected out to such an extent that not only complete excision of the tumor base becomes possible, but also the vesical end of the ureter is laid bare. The ureter is clipped off at its insertion into the bladder, and then the excision of the tumor base, including the ureteral mouth, is accomplished. The stump of the ureter is now reimplanted into the upper end of the excision wound, after one of the standard methods, the wound of the bladder is closed as completely as is feasible (Figs. 9 and 10), and the wound cavity attended to appropriately.

In case a more extensive resection of the bladder wall is necessary, it becomes impossible to close up the organ entirely. However, an attempt should always be made to reform the bladder, as far as possible, by suturing and by attaching the edges of the remaining portion of the viscus to the abdominal muscles. It is astonishing to observe what a small remnant of the bladder will suffice to start the formation of a serviceable organ inside of a few weeks. We have on record three cases, two cancers and one sarcoma of the bladder, in each of which more than two-thirds of the viscus was removed. After about eight weeks in each instance, all was healed over and the patient was able to retain from 250 c.c. to 300 c.c. of urine; the action of the bladder was perfect, the stream being projected with force, the viscus completely emptied. One is induced to believe that muscle fibers grow from the bladder remnant into the cicatricial tissue which forms over the mutilated organ, and thus impart contractile power to this newly formed portion of the bladder.

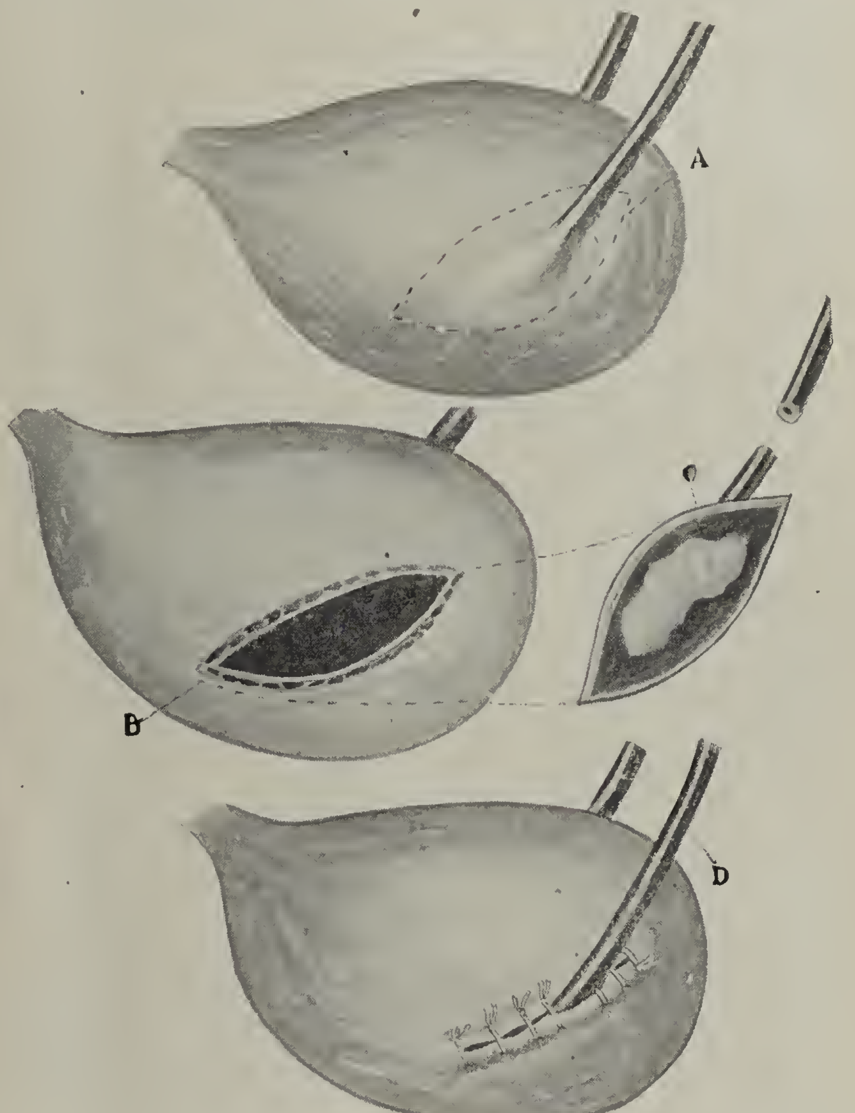

Fig. 9.—Section carrying tumor involving ureteral mouth cut out of bladder wall. A, puncture line indicating line of excision; B, bladder after excision; C, flap with tumor and ureteral stump; D, outside aspect of bladder after implantation of ureter and closing up of the excision wound.

In those cases in which a radical operation is no longer possible, there are two methods of relieving the patient's suffering. One method is to open the bladder from above and cauterize the exulcerated surfaces with a Paquelin; as a rule, this intervention does not benefit the patient to any great extent, at least not for any length of time, for the urine flows into the bladder and over the excoriated and irritable surface of the tumor, and thus necessarily leads to permanent pain. The other method, which furnishes more satisfactory results, consists in establishing permanent kidney fistulæ and thus diverting the urine from the bladder; the patient is at once relieved from all pain and is made quite comfortable. A belt carrying two small pouches keeps the patient comparatively dry.

The choice of anesthesia is of the utmost importance in all cases of bladder surgery. Endovesical operations can, as a rule, be carried on under the influence of an antipyrin anesthesia supported by the rectal application of morphin. For the cutting operations, we always employ, as a matter of routine, the anesthesia produced by laughing gas. This anesthesia, besides being free from danger, so far as the heart is concerned, possesses a great advantage in that the patient returns to full consciousness immediately after the completion of the operation; this enhances the possibilities of natural micturition, of very early breathing exercises, and of the early administrations of food and drink. Up to the present time we have never observed any untoward influence of gas-anesthesia on the kidneys.

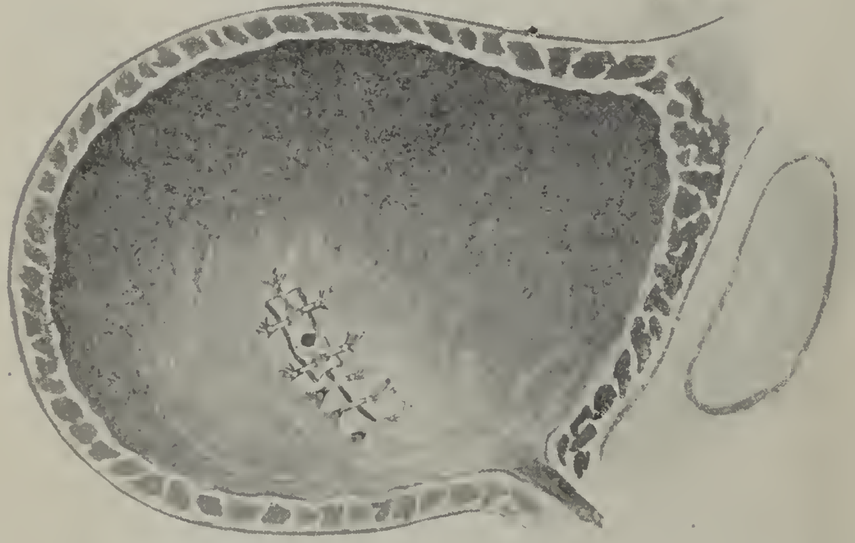

Fig. 10.—Inner aspect of the bladder showing the implanted ureter. Flap operation.

The next question that naturally arises is whether or not it is possible to determine, previous to the operation, the character of a bladder tumor; we do not hesitate a moment to answer in the affirmative and to say that such diagnostic work can be done with accuracy sufficient for all practical purposes. Any man with experience in cystoscopic diagnosis can recognize a benign tumor from its appearance (Nitze, Weinrich); tumors of doubtful nature are to be considered and treated as malign. In this connection it should be borne in mind that the benign papillomata comprise the majority of bladder tumors (Civiale, Thompson, Guyon, Soemmering, Kuester).

It was formerly held by a great many surgeons that, because of the poor permanent results and the quickness of the relapses, patients with malign bladder tumors should never be operated on. This view is shared at the present time by some writers. In our opinion, however, the soundness of such reasoning is, to say the least, open to discussion because, in the first place, a great many patients were and are still being operated on in an irrational manner, and, in the second place, because the diagnosis is quite often made so late that the chances for a successful operation are greatly reduced; the more general employment of the cystoscope, however, will greatly improve matters as to the latter point. Furthermore, it should be taken into consideration that the use of rational operative methods and the uniform employment of gas anesthesia will certainly reduce the primary mortality of these procedures.

As it is, there are two cases of vesical cancer on record in which total extirpation of the bladder accomplished a cure without relapse for five years (Hogge), and for fifteen years (Pawlik), respectively. Rafin reports five cases of partial resection of the bladder for carcinoma that remained cured for more than three years. In Czerny's sarcoma case the patient lived for twelve years after the operation without relapse. Quite a few surgeons report cases of malign bladder tumor which, after partial vesical resection, have remained cured for from one to three years (L. Davis, Pousson, Pitha, Leschnew, Albarran, Alessandri, Schmidt, Kolischer).

Mikulicz, in his last publication before his death, declared that he felt convinced that he had relieved the sufferings and prolonged the life of his patient every time he had operated for cancer of the bladder. Surely so impressive a message gives warrant for our belief that, even though nothing else were accomplished than the adding of a few years of comfort to the sufferer's life, the operation would be fully justified.

CONCLUSIONS.

In conclusion we desire to submit, as the result of our work along these lines, the following fundamental propositions:

1. All benign tumors of the bladder should be approached from the inside, all malign tumors from the outside of the viscus.
2. In all malign cases in which the loss of substance is not too great the bladder should be closed completely by sutures after the removal of the tumor.
3. In cases of malign tumor the incision into the bladder should be made in accordance with the location of the growth, as defined by the cystoscope.
4. The permanent catheter should be absolutely abolished.
5. Gas anesthesia should be employed exclusively.
6. A constant cystoscopic surveillance should be maintained over any bladder that has ever been operated on for tumor.

ONYCHOMYCOSIS TRICHOPHYTINA,

WITH REPORT OF TWO CASES.*

A. RAVOGLI, M.D.
CINCINNATI.

The nails, like any other epidermic tissue, are exposed to the invasion of the trichophyton, yet cases of the kind occur rather rarely. Saubouraud, in the department of the ringworm affections in the Hospital St. Louis, considers onychomycosis trichophytina a rare disease. Neuberger[1] referred to the fact that Anderson, in Glasgow, among 11,000 cases of cutaneous diseases, of which 178 were of trichophytic nature, did not have a single case of trichophyties of the nails. White, of Boston, in 5,000 cases of diseases of the skin, with 180 cases of tinea trichophytina, did not have one case of trichophytic onychomycosis. On the other hand,

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Ein Fall von Onychomycosis Trichophytina, Derm. Ztschr., xi, 551.

Pellizzari, Arnozan, Dubruille have often seen cases of the kind, and Pick considers this affection of the nails not so rare as stated by the others.

In some cases of onychomycosis trichophytina, the origin of the fungus is clearly found as patches of herpes tonsurans in other parts of the body, showing the infection of the nail to be due to the act of scratching. Mahon noted the coincidence of herpes tonsurans of the scalp, with that of the finger-nails, which are in this way more frequently affected than the toe nails.

In rarer cases the nails only are infected with trichophyton, and yet the patient has never had any trichophytic affection in other parts of the body. A case of this kind was reported by Gerson,[2] where a man had the nail of the second finger of the left hand for two years affected with trichophyties, and gradually all the other finger-nails were equally infected, without showing any patch of trichophytics in any part of the body. The case of Neuberger[1] is of the same kind and shows that onychomycosis trichophytina can be found without there being other places of infection on the body, and that this condition exists a long time.

The assertion of Zinssers,[3] that tinea tonsurans of the nails never occurs unless preceded by attacks of the same in other parts of the body, falls to the ground.

ETIOLOGY.

It is easy to understand that any one who is affected with trichophyties of the body, and more especially of the beard and of the scalp, by scratching with his finger-nails, gets the spores of the fungus underneath the nails, and so the nails are infected.

To this class of cases is to be referred the case of Bosc and Galavielle[4] in a man who was suffering with an extended attack of trichophytosis of the body, and consequently showed alterations of the finger-nails, which microscopically and through culture revealed the presence of the fungus.

The presence of the trichophyton in the nails without any previous attack of trichophyties in other parts of the body gave to Hirtz and Jacquet[5] the idea that in these cases the fungus does not produce the disease primarily, but only secondarily, as a consequence of trophic disturbances of the nail. They reported two cases of trophic alterations of the nails, which showed great similarity, and in one they found the presence of trichophyton, while in the other it was absent.

I thoroughly agree with Krzystalowicz,[6] who maintains that, in order to establish the diagnosis of onychomycosis trichophytina, there must be found the fungus under the microscope.

Recently in my practice I have had two cases of onychomycosis, which are interesting to consider, one after the other, on account of their different clinical and pathologic features.

Case 1.—*History.*—A man of 54, of splendid physique, married, had always enjoyed good health. In himself and his family no history nor trace of syphilis, psoriasis nor eczema could be found. He had been suffering for over twenty-years with his finger-nails and toe-nails, which did not cause him pain, but only discomfort. He was by occupation a flour merchant, and when he began to notice his finger-nails rough and diseased, he was under the impression that it was produced by an insect called "weaver," which is found in the flour. The first finger-nail to be affected was that of the second finger of the left hand. At the time I saw him it had completely disappeared and was replaced by a thin, atrophic and somewhat irregular scar. Some time later the nail of the third finger of the same hand was affected and there remains (Fig. 1) only a thin atrophic peeling. Gradually every nail showed signs of disease by losing its brilliancy, getting chalky, scaly and irregular. The nails were easily broken, causing inconvenience in the use of the hands. Some time afterward several toe-nails were equally affected. In all these years the patient never had any reproduction of trichophytics in any other part of the body. He had in the meantime consulted several physicians and many remedies had been given. The only benefit the patient had ever obtained was from bathing the fingers in a solution of bichlorid of mercury.

Examination.—A few months ago the man called on me to see if something could be done. On the first examination, the long standing of the affection, the absence of any ringworm attack in any part of the body, were against the possibility of trichophyton infection. Every nail of the fingers and toes was affected in a different degree according to the time of its infection, so much so that while in the second and third fingers of the left hand the nails had been entirely lost, in the other fingers they were affected in different degrees. The nails were somewhat thick, opaque; their surface rough, uneven and showing longitudinal folds. The nails kept on breaking and splitting in longitudinal direction, and pieces of nail were hanging on the nail-bed. Where the nail had fallen or had been removed, as on the thumb of the left hand, an ugly irregular surface of the nail-bed remained, looking as if riddled by small holes. In order to establish the diagnosis a piece of nail was taken from the thumb of the left hand, it was softened in a solution of potash and then examined under the microscope. The fibers of the nail-plate contained spores and mycelia of trichophyton, which were arranged in rows between the edges of the epidermic cells forming the structure of the plate of the nail. Another piece of nail was washed in alcohol, crushed

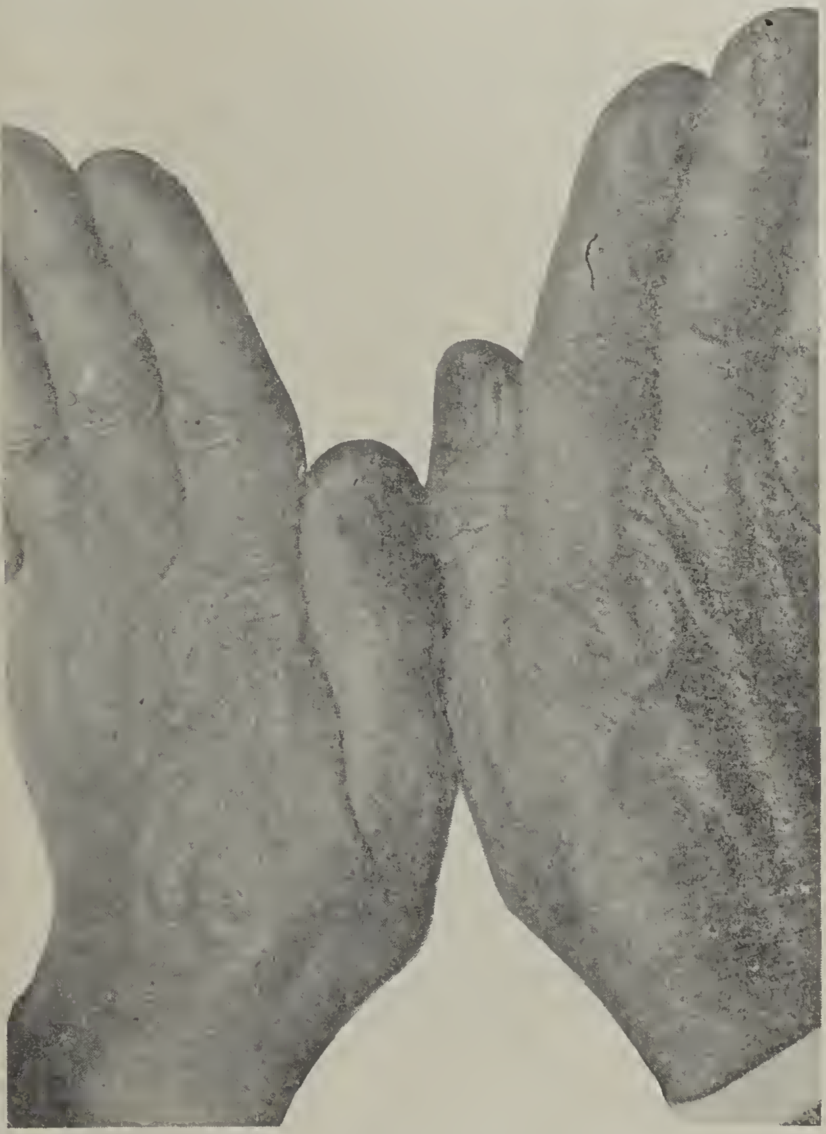

Fig. 1.—Hands of patient in Case 1, showing destruction of nails.

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[2] Berlin. Dermat. Gesellsch., January, 1899; ref. Archiv f. Derm. und Syph., xlviii, 136.

[3] Encyklopedie der Haut und Geschlechtkrankheiten, 1900, p. 225.

[4] Onychomycose trichophytique, Arch. f. Derm. und Syph., xli, 419.

[5] Hysterotoxla, Onychomycose trichophytique, Arch. f. Derm und Syph., li, 447.

[6] Die Pathogenen Haarpilze. Poln. Zeitsch. f. Derm. und Ven. ref. Monh. f. Pract. Derm, xlii, 428.

and was dropped into a culture medium of maltose-agar. After eleven days, around the piece of nail there appeared a light whitish area, which gradually extended by peripheral progress until it had invaded the whole surface of the culture. Some of the vegetation of the fungus was examined under the microscope, it proved to be a clear specimen of the ordinary trichophyton. The diagnosis was confirmed as that of onychomycosis trichophytina.

It was difficult, however, to conceive how it was possible that nails could get infected without any other point of the body ever having shown trichophyties, and that the toe-nails could also be infected without producing ringworm infection in other parts of the body. The explanation has to be found in the anatomic structure of the nail-plate and in the way that the fungus vegetates therein.

The photomicrograph (Fig. 2) shows the fungus penetrating between the interstices of the nail-plate, and the nail fibers separated just as we see it occur in the hair. In order that the vegetating fungus may be introduced in the interstices of the nail fibers, there is necessary a trauma of the nail. This patient used to trim with thin scissors the affected nails and then with the same scissors the other nails. It is clear that with the scissors he carried spores of trichophyton from one nail and inoculated them deeply into the structure of the other nails.

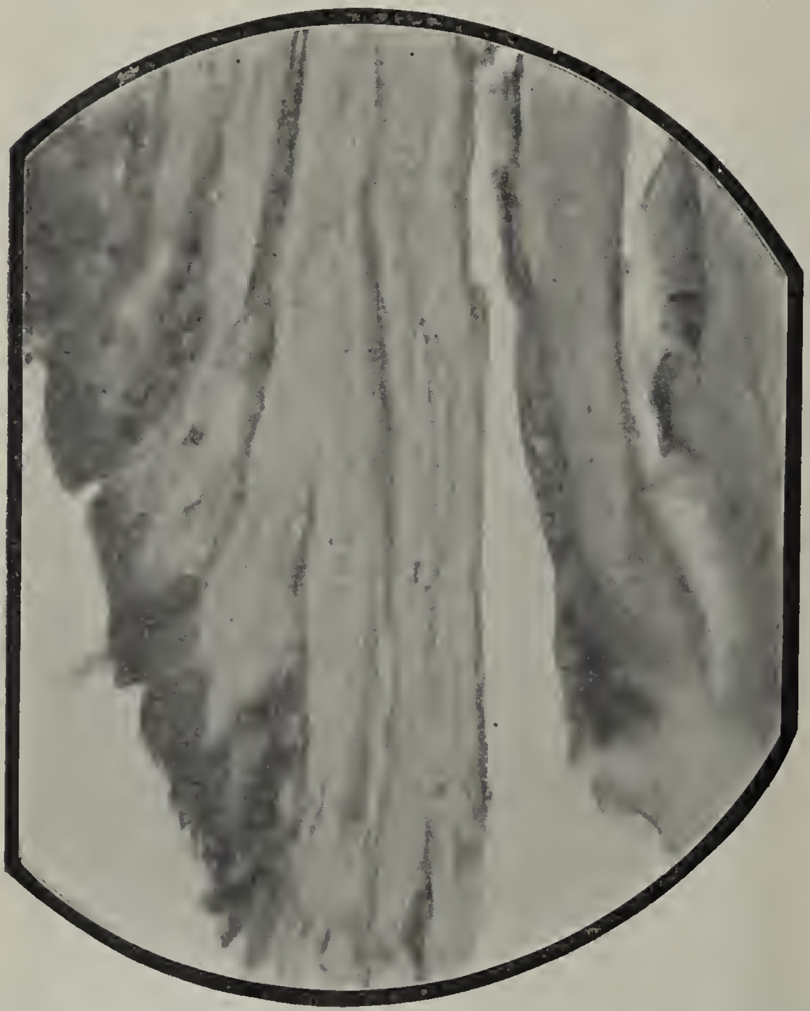

Fig. 2.—Photomicrograph of nail-plate of patient in Case 1, showing fungus penetrating between the interstices of nail-plate. Bausch and Lomb 1/6 in. objective.

The fungus vegetating inside of the fibers of the nail is protected and can not easily be transported to other parts. This satisfactorily explains how the trichophyton could remain for so many years in the nails without being conveyed to other parts of the skin.

It will now be of some interest to make a brief comparative study of the other case of onychomycosis, where the scalp had been affected with tinea trichophytina.

Case 2.—*History.*—In this case a few weeks after the patient had the affection of the scalp three finger-nails of the right hand became badly infected. The nails were of those three fingers which he used in scratching his head to relieve the itching. The occipital region of the scalp was covered with large irregular trichophytic patches (Fig. 3), evidently the result of several round spots coalescing. The spots were partially bald, studded with stumps of hair, covered with thin, dirty, adherent scales, showing the clearest features of the trichophyties of the scalp. The nails were inoculated a short time afterwards and Figure 4 shows that the appearance of the affection consisted in a more acute process, and the injury produced in the nails was much more perceptible. Indeed the nails were entirely of a dirty yellow hue, chalky, thin and atrophic towards the matrix, and thickened and irregular towards the free edge of the nail-plate. The surface showed holes and crevices in the nail substance and large pieces of the nail were breaking and detaching themselves in a transverse direction. This is easily explained when we remember that in this case the fungus had not been brought to the internal structure of the nail-plate, but it had been placed on the surface of the nail in its eponychium, hyponychium and in the subungual epidermic layer. Consequently the fungus had to work its way through, so as to reach the laminar structure of the nail.

This is well proved by the microscopic examination and by the photomicrograph (Fig. 5) which was made by my assistant, Dr. George H. Werk.

The action of the fungus on the epidermic structure, according to Leslie Roberts, is that of digestive power on the horny tissues. It penetrates into them, making them its habitat. It detaches the epidermal cells one from another, and by digesting the hard membrane appropriates their plasma as nutrition and consequently the epidermal cells die.

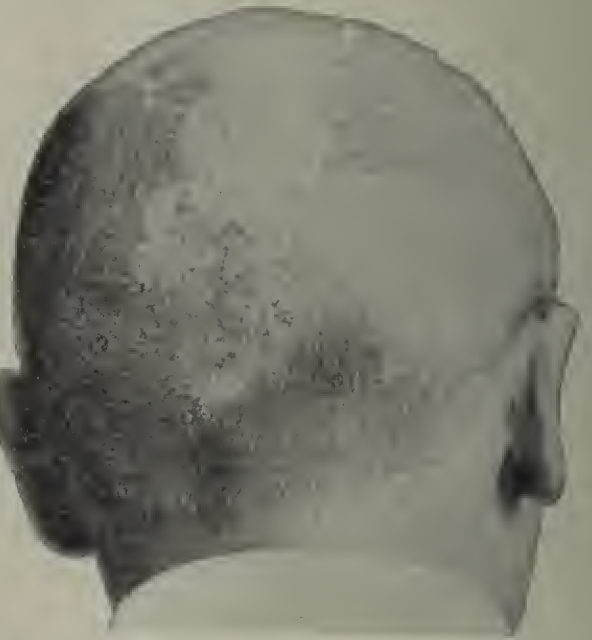

Fig. 3.—Scalp of patient in Case 2, showing large trichophytic patches.

In the first case where the nail-plate had been primarily affected, the resulting alterations were somewhat different. The fungus with its spores and mycelia was disposed in long rows between the epidermic fibers composing the nail-plate, just in the same way as it is disposed in the cortical layer of the hair. Consequently the fibers composing the body of the nail were torn one from the other and the nail was breaking in a longitudinal way, according to the direction of the fibers. In the second case where the fungus from the eponychium had invaded the nail superficially, the nail had shown a tendency to break irregularly in large scales and more often transversely.

In order to ascertain whether the difference of the alterations could be produced by different kinds of trichophyton I resorted to the culture. Maltose-agar was used as a culture medium in the Erlenmeyer bottles. One culture medium was inoculated with a piece of nail of the patient in Case 1, and in the two others one was inoculated with scales of the scalp and the other with a piece of nail of the patient in Case 2. In all positive results were obtained. The culture medium inoculated with the epidermic scale of the scalp showed, four days after the inoculation, a whitish, dusty halo around it, which gradually began to spread peripherally. The nail culture of the second patient showed the same condition after six days, while the nail culture of the first patient did not show signs of any result until after eleven days. The result of the culture was the same in every one, consisting of an abundant whitish, purulent, thin growth of the fungus, trichophyton megalosporon endo-ectothrix, with large spores of the common kind often taken from domestic animals.

The cultures proved that the fungi were the same, but this did not furnish any explanation in reference to the difference of the pathologic alterations. The only explanation I find is in the way of the introduction of the trichophyton into the nail structure. In the first case it was inoculated by the scissors in cutting and trimming the nails, and the spores were introduced into the interior structure of the nail-plate. In the second case the spores had been deposited in the eponychium and in the subungual layers, and consequently they had attacked the nail from the outside toward the inside of the nail-plate.

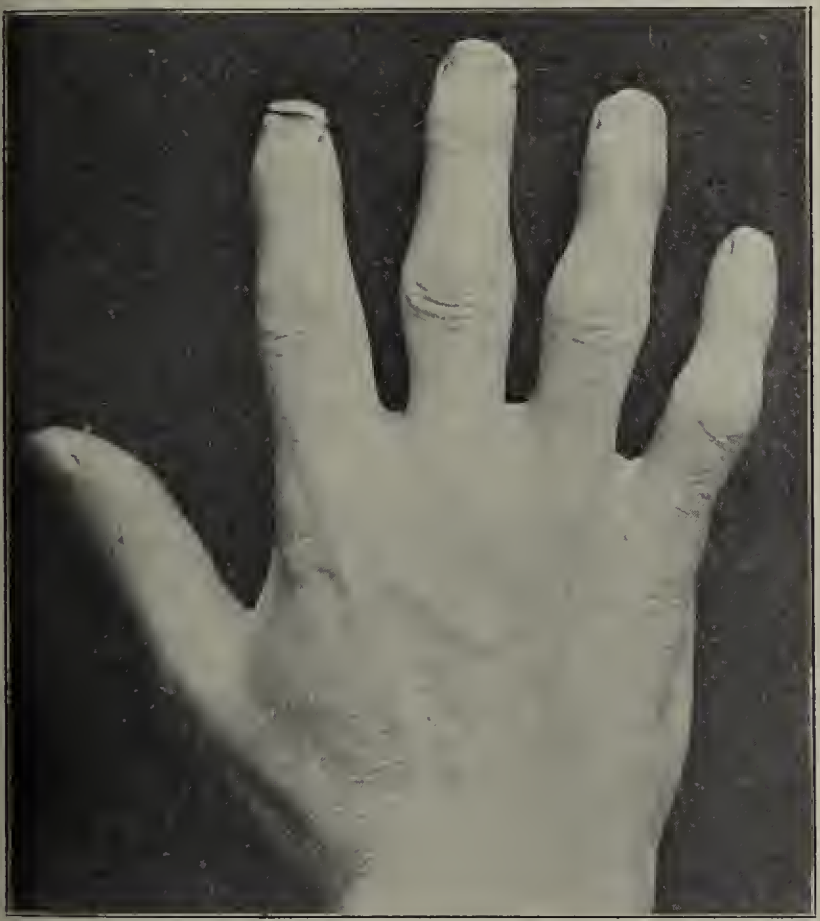

Fig. 4.—Showing infection of nails in same patient as Fig. 3, due to scratching of scalp.

The distribution of the fungus in the superficial layers of the nails, or in the intimate structure of the nail-plate, is a sufficient reason for the difference of the course in the two cases. In the first case the disease lasted for over twenty years without giving a chance to the infectious spores to be transported into any other part of the body. The spores growing between the interstices of the fibers forming the nail-plate are protected, and it is not easy for them to be transferred to other parts except by cutting the nail. While in the second case where the parasite was vegetating on the eponychium and in the subungual folds of the finger, the nail was attacked from the external layers towards the internal. The distribution of the parasite explains how easily the spores of the trichophyton can be transferred from the nails to other parts of the body.

In my cases the ultimate result of the fungus on the nails has been that of causing complete atrophy. My experience is more in accordance with that of Kaposi,[7] who maintained that in the trichophytic affections the nail disappears by atrophic process. Censi,[8] however, referred to the possibility of the hypertrophy of the nail in form of onychogryphosis and made a variety of onychogryphosis trichophytina. I believe, however, that in those cases the alterations of the nails were not due entirely to the parasite, but the distrophic conditions were due to other causes and the trichophyton was of later occurrence.

PROGNOSIS.

In cases in which the parasite is hidden in the interstices of the cells of the nail-plate, it can be reached only with great difficulty, and the obstinacy of the case, lasting for over twenty years, shows that the prognosis is bad. In the cases in which the fungus is on the surface of the nail-plate, however, it can be reached and the fungus can be destroyed, and with constant treatment we are rewarded by seeing the nail grow free from the disease.

TREATMENT.

In the case of the first patient it appears, from the condition of the nails, that anything which was used brought only a temporary relief, while in the case of the second patient with constant applications of Wilkinson's ointment the patient obtained perfect recovery within four months. This shows that in one case the spores were protected in the interstices of the cells forming the plate of the nail, and can be reached only with great difficulty. It is difficult, indeed, to bring a case of onychomycosis of the first type to recovery, so much so that in many cases it has been necessary to remove the nails. The affected finger is wrapped up in lint, well saturated with salve containing a large percentage of pyrogallic acid so as to produce an inflammatory condition of the nail, an artificial paronychia. In this way the nail is detached from the surrounding epidermis and it can be removed. This method is rather severe and not all patients are ready to submit to it.

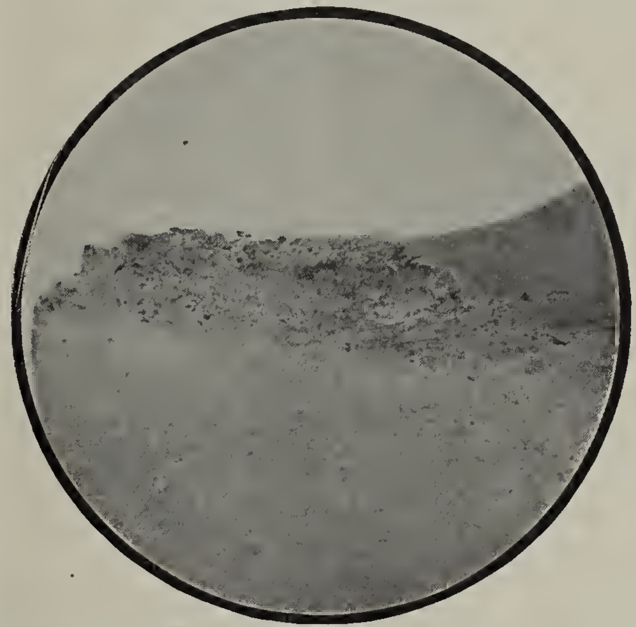

Fig. 5.—Photomicrograph showing spores and mycelia of trichophyton invading substance of nail.

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[7] Die Patologie und Therapie der Hautkrankheiten, Vien.

[8] L'onicogrifosi Tricofitica; Giorn. Ital. delle malattie veneree e della pelle, xxxiii, 5.

My patient, when the pyrogallic acid began to inflame the skin, stopped its application and discontinued treatment.

Pellizzari[9] reported one case of onychomycosis as cured by means of the Roentgen rays. He claimed that nine exposures of ten minutes each were sufficient to effect the recovery. It was my intention to apply the rays, but the patient did not come back.

The other patient was kept in the hospital and was put to work as an orderly in the ward. Good results were obtained from the application of unguentum Wilkinson to his scalp and fingers. I ordered his scalp and his fingers to be scrubbed with pure green soap once a day, and then rubbed and covered with the ointment. When he left the hospital the trichophytic patch of the scalp was perfectly healed, and the nails had all grown out new, showing no signs of alterations. The patient, so far, has not returned, which I consider a proof of permanent recovery.

DISCUSSION.

Dr. J. B. Kessler, Iowa City, said that six or seven years ago a farmer reported having barn itch. He had a fungoid eruption on the back of the hand, and its inflamed, elevated border contained pus. Accompanied by a veterinarian, Dr. Kessler visited this farmer's place and found about the noses and necks of the calves circles that looked like asbestos. These lesions were scraped close to the roots of the hair, where numbers of trichophyton fungi were found. Several calves and one horse were affected. Farmers thus infected are very apt to carry the infection to the barber shop. Dr. Kessler considers this the most common method of spreading the disease. It is a curious fact that, as soon as spring time comes and the farmer turns his calves out to pasture, they recover very rapidly from this affection, and when they are again confined to the pens during the cold weather they again contract the disease. Those who do not live in a farming district will probably find, on investigation, that trichophytosis is spread in the barber shops from human to human, and that this type of disease is comparatively easy to cure, but when a patient is thoroughly inoculated from a calf, the affection is much more virulent and more difficult to eradicate.

Dr. M. L. Heidingsfeld, Cincinnati, said that he is firmly of the opinion that the infection of the trichophyton does not take place directly in the nail substance, but in the tissues from which the nail is originally formed. It is difficult to conceive how a hard, non-succulent substance like nail, after it has once been perfectly formed, can be a culture medium for any form of infection. Products like the nail and hair once removed from the body show no effect after inoculation with fresh, active cultures. The infection of the trichophyton occurs primarily in the nail-fold and extends thence to the matrix, which becomes inflamed and so pathologically changed that any nail substance which is subsequently formed is rough and irregular in outline, opaque in appearance and contains areas of cells corresponding to layers of imperfect keratinized cells, derived from the matrix. These round, imperfect keratinized cells are the round bodies which Dr. Ravogli has mistaken for spores. These conclusions were drawn by Dr. Heidingsfeld in a paper presented to this Section some seven or eight years ago. That nail substance when placed on culture media should grow fungus, possesses no significance inasmuch as contamination of this character occurs from almost any substance under similar conditions.

Dr. Granville MacGowan, Los Angeles, Cal., agreed with Dr. Heidingsfeld that the infection in these cases takes place in the nail-bed. It is an exceedingly disagreeable affection, particularly in women, whether they be servants or in the higher walks of society. Dr. MacGowan has seen a number of these cases during the past five or six years, and has been rather at a loss what to do for them in order to get a speedy recovery, until he happened to think of the old remedy common among farmers and known as "sheep dip," or Vleminckx's solution, which is practically a solution of calcium sulphid, in which they soak their hands at night. He has found this very efficacious as a temporary expedient, while for permanent relief he prescribes an ointment of the oleate of tin, which, together with the x-ray, proves most satisfactory.

Dr. M. L. Heidingsfeld, Cincinnati, expressed the opinion that the best results of treatment are obtained if attention is directed to the nail-fold and not to the nail itself. The remedy he has found most efficacious is a 1 per cent. solution of corrosive sublimate in ether and alcohol.

Dr. A. Ravogli, Cincinnati, said in regard to the non-inoculability of the nail to trichophytosis, that the presence of the trichophyton in the nail tissue has been successfully proved by inoculation on culture medium. The spores can not be so well shown in the microphotograph on account of the difficulty of staining them.

TWO CASES OF TUMOR AT THE PONTO-CEREBELLAR ANGLE WITH AUTOPSIES.

THEODORE DILLER, M.D.
Neurologist to the Allegheny General Hospital, Visiting Physician to St. Francis Hospital (Psychopathic Department).
PITTSBURG, PA.

In presenting these two cases no attempt will be made to review the literature of the subject of tumors at the ponto-cerebellar angle, which has now become quite extensive. They are recorded as a contribution to the subject for what they may be worth as clinical and postmortem records.

Case 1.—*Patient.*—A single man, clerk, aged 29, was admitted to the Allegheny General Hospital on April 18, 1905, in the service of Dr. T. M. McKennan, to whom I am indebted for the early notes of the case and who was first to make the correct diagnosis.

History.—The family history was unimportant. The patient had enjoyed good health up to the time of his present illness. His personal habits had been good. He denied syphilis. The present illness began about a year previously with headache, which soon became of daily occurrence, and grew more and more severe. It was noted about this time that his gait was uncertain, like that of a drunken man. About a month later the patient complained of some failure of vision and also of occasional dizziness. By autumn the uncertainty of gait, augmented by dizziness, had grown to such an extent that the patient was compelled to use a cane in getting about. In November he had some difficulty in speaking and swallowing. Speech was not quite so clear, and an occasional difficulty in swallowing occurred. He masticated with difficulty on the left side; he used the right side exclusively. The head pains became especially severe by December and were localized chiefly in the occiput. About three weeks before admission these pains left him. They were nearly always associated with vomiting, which was sudden and forceful. He had sometimes vomited when he did not have headache. On admission he complained of numb sensation over the right side of the body. He also complained of some dizziness.

Examination.—(Dr. McKennan.) The patient was a strong, well-nourished man. The pupils reacted well to light and accommodation. No satisfactory examination of the eye-grounds. There was slight nystagmus. A slight internal squint in the left eye was present. The tongue was protruded toward the left side. There was no wasting of the tongue or lips. The patient's enunciation was not distinct. His saliva dribbled when he was speaking or eating. The sense of taste was absent over the left half of the tongue, and the sense of touch almost absent. On the right side taste and touch were present, but decidedly impaired. The patient masticated on the right side exclusively. Left masseter weak. With the left ear the patient could not hear the ticking of a watch. With the right ear hearing was better, but impaired. The sense of smell seemed good. There was some enlargement of the post-cervical glands. Thoracic and abdominal viscera were normal. Arteries were normal. Arteries at the wrist were somewhat sclerotic.

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[9] Lo Sperimentale, 1906, lx, 6.

Reflexes: The knee jerks were much exaggerated, equal on both sides. There was a distinct Babinski toe reflex on the right side, but none on the left. No ankle clonus.

Sensation: Contact sense was diminished over the entire right side. Normal on the left.

Pain and temperature senses were normal and astereognostic appreciation was normal.

Motion: Somewhat impaired on the right side.

Gait and Station: The patient could not stand alone, but swayed like a drunken man. When assisted in walking he lunged backward and forward and sidewise in an uncontrollable fashion.

After admission the patient vomited frequently. A month after admission his deafness was nearly complete in both ears. Vision failed rapidly and he became almost blind. The tongue protruded more to the left side. A slight paralysis of the left face was now apparent and also an internal squint of the left eye (abducens palsy).

About May 19 the patient suddenly ceased breathing, became cyanotic and then unconscious. Under artificial respiration he gradually recovered. He suffered from some eight or ten subsequent attacks of a similar character, more or less severe and prolonged. The last occurred Aug. 27, 1905, and terminated his life.

For several weeks before his death he had been free from headache and vomiting; and as noted he had been totally deaf for four months and totally blind for three months immediately preceding death. His staggering was so extreme as to confine him to bed. Mentality remained fairly good to the end, except for two or three periods, when he was for a short time delirious with delusions and hallucinations.

Autopsy.—This was performed by Drs. Willets, Wright, Jones and myself. The brain only was removed. On removal of the brain a large quantity of fluid escaped. The ventricles were considerably dilated and held three or four times the usual amount of fluid. A tumor, about the size of a hickory nut, was discovered apparently growing from the anterior margin of the left cerebellar hemisphere close to and pressing on the pons, which was deeply indented to accommodate it. The upper portion of the oblongata was also, but to a less degree, pushed over and flattened by pressure from the tumor. The tumor was of a firm texture, grayish in color. It adhered to the dura and a small portion was broken off in removing it. Probably the tumor really grew from the dura and later became attached to the cerebellum. Dr. Willets, who has made a section of it, reports that it is spindle-celled sarcoma. It presents the appearance of an endothelioma, as described by Dr. Blackburn in his work on brain tumors. (See Fig. 1.)

In the presence of headache, vomiting, vertigo and staggering a cerebellar tumor was indicated; and it was supposed to be at the left ponto-cerebellar angle because of the involvement of the cranial nerves on the left side from the fifth to the twelfth inclusive. The marked involvement of the left fifth and eighth nerves, together with the cerebellar symptoms, especially indicated this diagnosis.

The situation of the tumor with its direct and indirect pressure readily explains the involvement of the last cranial nerves or their nuclei on the left side. But why the function of the eighth nerve should be totally destroyed and the seventh be only slightly affected, since both nerves arise closely together at the lower border of the pons, is an interesting question which I am unable to answer.

Perhaps bilateral auditory neuritis may be set up by intracranial pressure like optic neuritis, or the bilateral course of the eighth nerve fibers may in part explain the case. For a time the possibility of the pressure of a second tumor was considered as an explanation of the bilateral deafness. But the tumor was finally localized in the exact situation in which it was found at the autopsy.

The right-sided paresis, Babinski toe reflex and loss of contact sense are readily explained by the pressure which the tumor exerted on the motor and sensory (left pyramidal and fillet) tracts before their decussation.

The question of the operation was considered by Dr. McKennan and myself, but neither felt like advising it, despite the few reports we have of partial success following attempts at removal of tumors on this situation.

Case 2.—*History.*—A woman, married, aged 42, the mother of four children; previous history not important. Her illness began over three years ago with what was then thought to be hyperacidity of the stomach, which was rather a troublesome symptom. Six months later she went to a sanitarium where she remained four months. The findings here were a lack of acid in the stomach, according to the patient's report. While at the sanitarium, she had an attack of unconsciousness, which lasted from 8 a. m. to 4 a. m., twenty hours. The next day she returned home, weak, emaciated and not improved. An examination by a competent gynecologist showed her pelvic organs to be normal. Since the beginning of her illness the patient had been troubled with frequent attacks of vomiting, from which she had never been free for more than a few days at a time. This vomiting occurred at any time, whether the stomach was full or empty. It often occurred soon after awakening or before food was taken. It was usually accompanied by or preceded by some nausea, not a great deal. She often vomited many times a day.

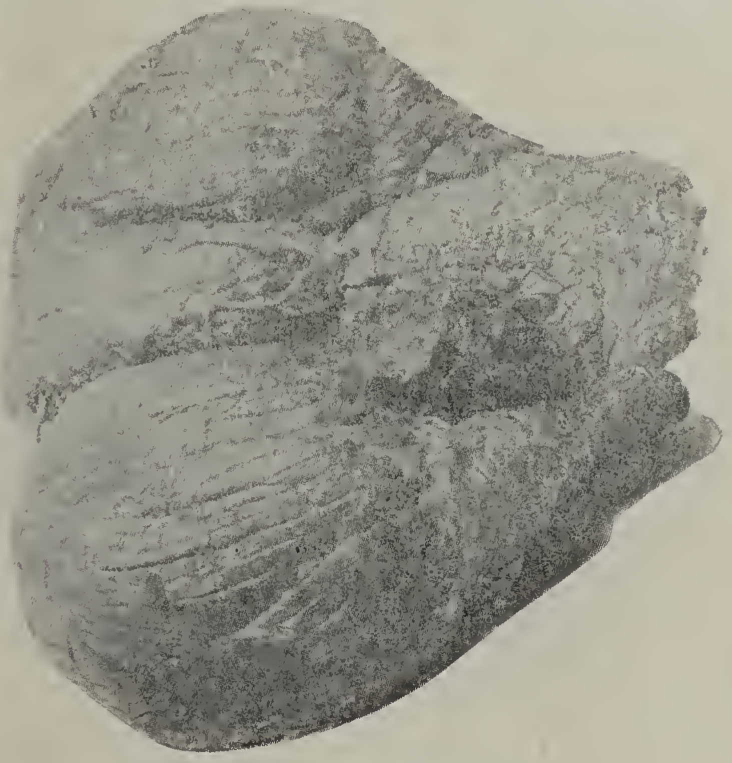

Fig. 1.—Tumor in Case 1.

For two and one-half years previously she had been subject to headaches, which were not so severe at the time I saw her as formerly. They were most severe eighteen months previously, and especially so for a period of four months, immediately following the prolonged attacks of unconsciousness referred to. She located the headaches at first chiefly at the top of the head and later in the upper frontal region; they were not localized on one side especially. Following the attacks the patient had frequently fallen into spells of unconsciousness, which, however, were always of short duration, lasting from six to eight minutes. These attacks were frequently, not always, accompanied by jerking; and this jerking was most frequently seen in the left arm and left leg, but the right arm and right leg also were affected. Sometimes jerking was confined to left arm and left leg. Unconscious spells occurred without any jerking; and jerking spells occurred without loss of consciousness. Such spells often occurred while the patient was walking on the street, and her husband was compelled to support her to prevent her from falling.

Early in the spring before I saw her she noticed a defect in her vision. Two months later examination by Dr. Wile demonstrated double optic neuritis. The discs were swollen and showed many hemorrhages. Following this a degree of optic atrophy developed and the vision rapidly failed; the patient when seen was nearly blind, having only light perception. For a period of four months the patient was under Dr. Day's treatment on account of deafness of the left ear; she had never had running at the ears. No improvement followed the treatment. The patient had much vertigo at the beginning of her illness, but this did not persist.

Examination.—On Aug. 28, 1906, the patient was very weak and emaciated. Her mental condition was normal. She was nearly blind and was deaf in the left ear. Sensation was normal and there was no true palsy of any kind; the knee jerks were very sluggish. Examination of the eyes showed the pupils widely dilated. The eye-grounds showed extreme double optic neuritis, with many hemorrhages. The patient was seen by me but once, and because of her weak condition the examination was made as brief as possible.

Diagnosis.—Tumor of the brain; location undetermined. The patient was advised to go to a hospital for observation, and for the performance of an operation, for the removal of the tumor if it could be located in a region accessible to the surgeon, or else for a decompression operation for the relief of optic neuritis and other symptoms. She did not go to the hospital, but rapidly failed, and died about three weeks later (September 17).

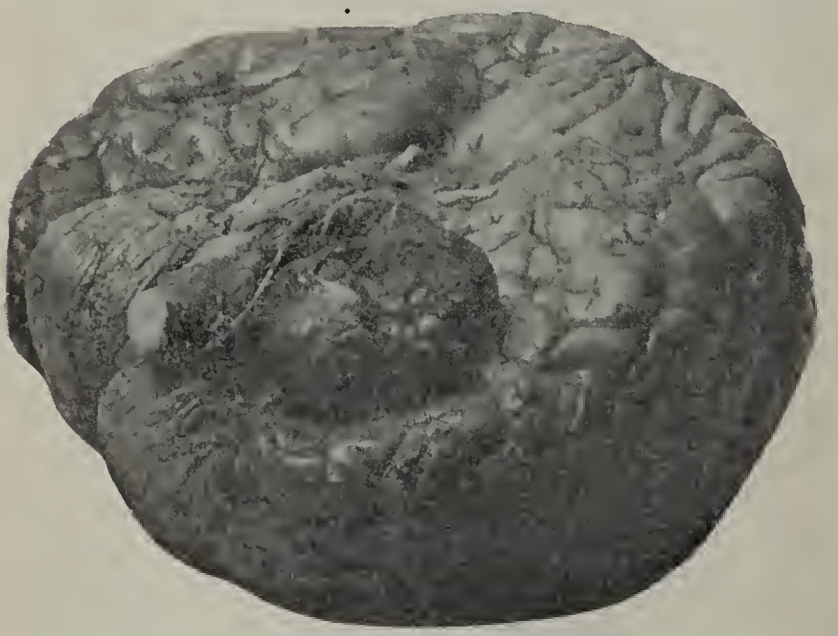

Fig. 2.—Tumor in Case 2.

Autopsy.—This was performed by my assistant, Dr. George Wright, and Dr. Steinmetz, and revealed a tumor the size and shape of a hulled walnut at the left ponto-cerebellar angle. (Fig. 2.) It was firm in consistency, loosely attached to the pia mater, free and not imbedded in the brain deeply as was the tumor in Case 1.

As before stated, this patient was seen by me only once, and while the diagnosis of brain tumor seemed plain enough, the evidence gained from the history and from my examination did not to me indicate its location. I subsequently learned from Dr. Day that at the time of his study of the case he had concluded that the left-sided deafness was central in origin. Had I possessed this knowledge and been privileged to have studied the case further, I think it is not unlikely that the tumor might have been localized. In the light of subsequent events it is highly improbable that an operation after I saw the patient would have been successful in either removing the tumor or in relieving symptoms and prolonging life. But the size and character of the tumor and its very loose attachments all point to the view that it would have been a peculiarly favorable one for removal by operation, as compared with other tumors in this situation, had it been localized at a much earlier stage of its development. I do not, of course, mean that this would have been an easy matter, for, as is well known, all operations for removal of tumors at the ponto-cerebellar angle are extremely hazardous.

On the other hand, the removal of the first tumor, deeply imbedded as it was in the pons and oblongata, would have been more difficult, if not impossible, notwithstanding the fact that it was exactly located.

Westinghouse Building.

CARCINOSIS OF BRAIN AND SPINAL CORD.*

WALTER TIMME, M.D.
NEW YORK CITY.

This case is of rather more than usual interest inasmuch as no diagnosis of the true lesion in the brain had been made before death. Five or six eminent neurologists at various times saw and carefully examined the patient in the course of the last two years, and their diagnoses varied from a "pure hysteria" to "neuritis based on morphinism." Only in a single instance did the opinion come near the truth. This was at a consultation about two years ago, at which it was maintained that the patient suffered from a metastatic tumor of the cord. It is only just to state that this latter diagnosis was, I believe, arrived at by exclusion and not directly from any symptoms. Nothing was stated of any possible brain involvement at any time. When it is seen how greatly the cerebral cortex had been interfered with, one can but wonder at the paucity of signs and symptoms presented during life.

In the following history I am largely indebted for the data to Dr. Bernard Zweighaft, who had the patient under his careful supervision for some years, and to Dr. Robert Abbe, by whose means the autopsy was obtained.

Early History.—The patient was a woman, aged 43, at death, married, the mother of several healthy living children. In 1899 an ulcer of the leg made its appearance which resisted all forms of treatment for about a year until it was treated specifically. Under dram doses of potassium iodid it healed in a few weeks. Syphilis was denied. In 1901, the patient consulted Dr. Abbe with a typical scirrhus carcinoma of the left breast. She had had sharp pains in the left breast and arm for the past year. The complete operation was done by Dr. Abbe; breast pectoral muscles and axillary lymphatics were removed. One year later, November, 1902, the patient was examined and found perfectly healthy both as to scar and to side. After the lapse of still another year, namely in October 1903, the scar was still perfect but the patient complained of neuralgic pain at the site of the right fifth and sixth intercostal posterior roots, and pain around the side. Health otherwise was good and the lungs were normal. At this time, the diagnosis of spinal metastases of dura and roots was made by Dr. Abbe. It was necessary to give morphin for pain. Otherwise there were no local signs. There were symptomatic pains of neuralgic and rheumatic type in the fibrous and muscular distribution of her side. At this time a plaster jacket was applied with the patient in suspension. Relief followed for three days, after which the jacket was removed, the pain having recurred. It was again replaced but without relief. During all this time the patient was not bedridden, but morphin and anodynes were constantly necessary.

Condition in 1904.—One consultant after another was called in. None agreed with the first diagnosis of spinal metastasis.

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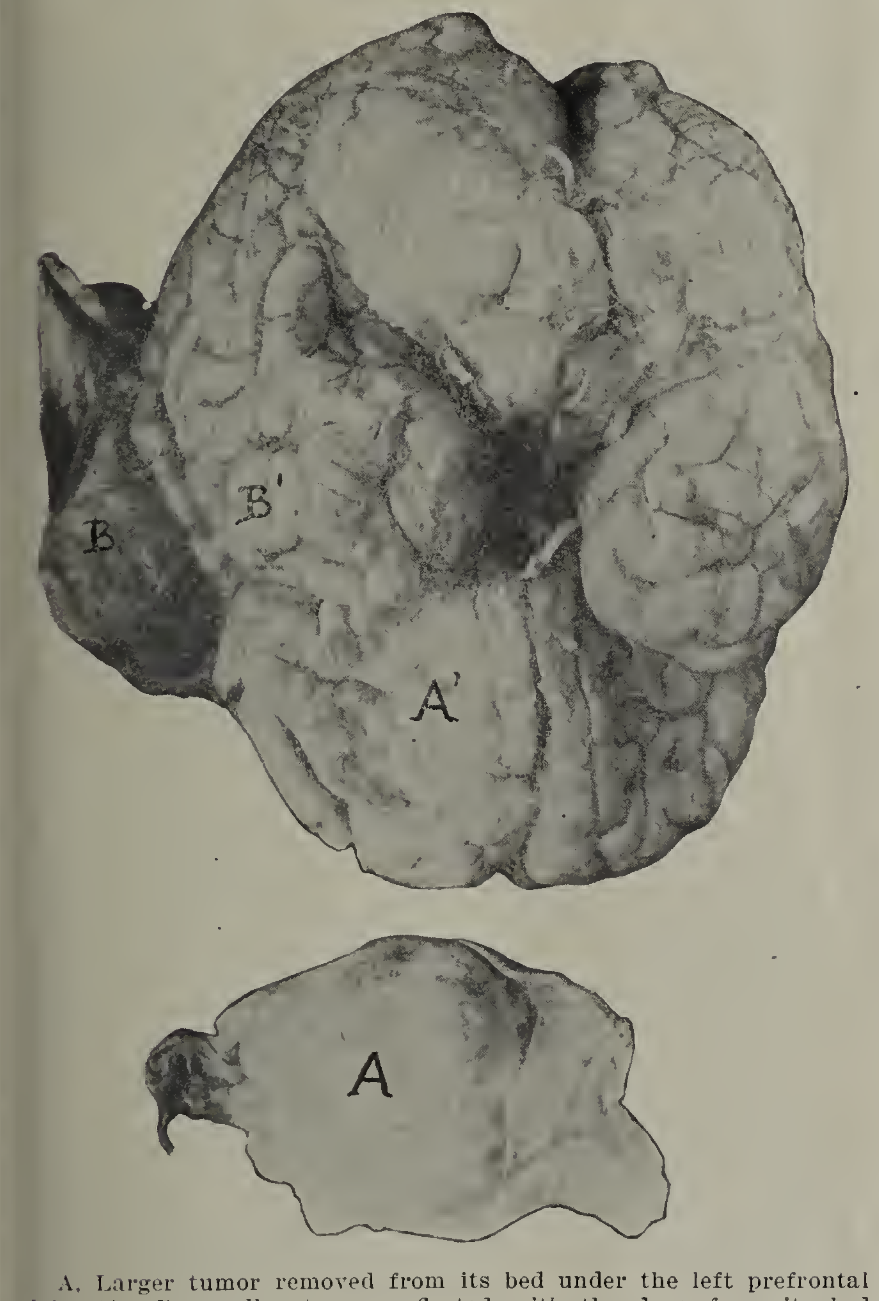
* Read before the New York Neurological Society, February, 1906.

It was now either a pure neuralgia, neuritis, hysteria, neurasthenia, or a combination of these. The patient developed a slight convergent squint. After the administration of morphin, this was accentuated. The fundus was normal. There was also a slight deflection of the tongue to the left. The patient could however, straighten it when asked to do so. There now developed shooting pains in both legs. Her gait became uncertain. Knee jerks were normal or slightly exaggerated. There was no change in the pupil. There was intense hyperesthesia of spine. A consultant at this stage declared that he could make no diagnosis satisfactory to himself. So far as treatment was concerned during this time, Roentgen ray treatment was carried out by Dr. Zweighaft, with little relief to the patient. Also, Dr. Abbe was kind enough to allow the use of one of his radium tubes for some time. The application of both of these agents was to the spine at the level of the fifth and sixth dorsal vertebræ. Morphin was constantly resorted to, although in small doses. The coal-tar derivatives likewise were occasionally used with temporary relief.



A, Larger tumor removed from its bed under the left prefrontal lobe A'. B, smaller tumor reflected with the dura from its bed at B'.

Present History.—The patient was first seen by me Sept. 2, 1905. Her general condition was good; she seemed well-nourished. Her facial expression gave one the impression of real physical pain being endured. The one thing that she wanted relief from was the pain. This was of the nature of an intense rachialgia at the base of the spine, thence radiating for a short distance up the spine and downward along the course of both sciatic nerves. She complained of practically nothing else. A minute after a hypodermic injection of morphin she was free and smiling. There was no headache, nausea or vomiting and no vertigo. Appetite was fair. Mental condition was excellent. A point I should like to bring out here is that menstruation had ceased about 6 months previously. I have heard it stated that premature cessation of menstruation frequently points to brain tumor.

Physical Examination.—The patient was stout generally, with the exception of both legs, which seemed atrophied and the skin of which was glossy. There was a Roentgen ray burn at the level of the fifth and sixth vertebræ which needed daily dressing. There was an area of alopecia on the left side of the head about 3 cm. (1⅛ in.) in diameter. This later was found to correspond exactly with the position of one of the tumors lying directly underneath that part of the vault. The skin of the entire body had imbedded in it discrete non-inflammatory masses, about the size of a hazel nut. The scar of the operation was in perfect condition, and no glandular enlargements were demonstrable. The heart, lungs and other organs seemed normal as to size and function. The urine was normal except that the phosphates were largely in excess.

Special Symptoms.—1. The entire spine was hypersensitive. At the levels of the fifth, sixth and seventh vertebræ the pain on pressure was excruciating, eliciting shrieks of pain. This one symptom remained constant. 2. There was a band of anesthesia around the abdomen varying in width and in position daily. On either side of this band was an area of paresthesia. 3. There was a loss of knee jerks. Both pupils were contracted, though they were not of the Argyll-Robertson type. 4. The left eye showed some nystagmus. 5. There was ptosis of the left lid, and a slight convergent squint. 6. The tongue deviated markedly to the left, though the patient could somewhat correct this on trial. 7. The temperature of the right hand was always 2 degrees higher than that of the left hand. The left averaged 96 F. 8. There was a slight thickness and slowness of speech reminding one of the speech of beginning bulbar palsy. 9. Deglutition was slow and necessitated effort. 10. Although I have stated that there was no headache, it may be said that on several occasions, the patient complained of a frontal headache which was relieved at once by cold compresses. 11. Almost all the usual symptoms of hysteria were engrafted on the foregoing, thus the globus, the insensitive corneæ, the craving for sympathy, the hysterical crying, all were present. Opposed to these positive signs and symptoms there were the following negative conditions: There was no ataxia. Although the gait was slightly unsteady, yet this seemed to be due more to muscular weakness through non-use than to disease. While in bed, the patient could move her legs and feet in any direction, the muscular, tactile and temperature senses also seemed perfect. Control of bladder and rectum was unimpaired. There was no tremor of hand, tongue or facial muscles. The mental condition was excellent, there being no aphasia, agraphia or other memory fault. As said before, there was no vertigo, no nausea and practically no headache.

Treatment.—It seemed to me that the most rational way of beginning treatment at this stage was to consider the case one of specific origin. I therefore ordered mercurial inunctions administered together with large doses of potassium iodid extending over a period of three weeks. There being no improvement this treatment was discontinued. For the pain I endeavored to substitute hyoscin and the coal-tar derivatives for the morphin, but to very little purpose. It was necessary to give a minimum of from ⅛ to ¼ grain a day. Several sterile-water hypodermatic injections were also given during each day with frequently very good result. But without opiates it was almost impossible to control the patient. A consultation at this time brought out the suggestion, that the patient was suffering from a neuritis due to the long-continued ingestion of morphin and that there was also a condition of hysteria. It was further suggested that she be treated away from home, that codein and finally bromids be substituted for the morphin; and the promise of ultimate cure was held out. These directions were carried out. The patient, after the first few days of extreme agony following her deprivation of morphin, began to show signs of improvement. Thus, she complained much less of her backache; she appeared brighter, conversing with spirit and showing but little of her old-time depression. However, her speech became somewhat thicker and deglutition rather more difficult. On October 12, she was so much better that with a little assistance she was able to get about her room. On October 13, she sat up for meals. She was now taking no medicine at all. Suddenly, on the night of October 14, her breathing became labored. Her temperature rose rapidly to 103 F. In spite of all measures, the breathing became worse and the next morning cyanosis developed. The temperature, which had fallen to 101 F. again rose gradually. The patient could now be roused with difficulty. Respirations were 72 and the rectal temperature rose to 107 F., 108 F. and finally to 109.5 F. A specimen of urine obtained by catheter showed the presence of sugar for the first time. The patient rapidly sank, the coma became more profound; edema of the lungs set in; the pulse rate rose to 150 and weakened until it became imperceptible, and death soon supervened. There was no convulsive seizure at any time.

AUTOPSY REPORT.

Mrs. C. S., October 17, 1905, by Dr John H. Larkin.

External Examination.—Body of a well nourished woman, pale fat tissue abundant; no postmortem lividity or rigor. Left breast had been removed and large scar remained of operation site. Skin was firmly bound down to chest wall by firm cicatrix. There were multiple nodular masses scattered over the body, varying in size from a pea to a hazel nut. The larger masses were umbilicated and all the nodules were in the skin proper. There was a Roentgen ray burn over the seventh dorsal vertebra.

Internal Examination.—Lungs were free in pleural cavity. The pleural surfaces of both lungs were studded with smaller and larger masses which could easily be traced along the lymph spaces on the pleura, giving the pleura a peculiar net-like appearance. On section of the lung these same metastatic nodules were seen. There was no pneumonia. The bronchial lymph nodes as well as the mediastinal lymph nodes were not involved. The parietal pleura was greatly thickened and studded with numerous metastatic masses. The heart was normal in size. Valves and heart muscle were normal and the blood vessels were normal. The liver was normal in size and there was no involvement by tumor growth. The kidneys, pancreas and suprarenals were normal. The right ovary contained a carcinomatous mass. The uterus and tubes were normal. The mesenteric lymph nodes were moderately enlarged and on section the larger ones were found involved by the carcinomatous growth.

Brain and Spinal Cord.—Brain; There was a tumor on the inner surface of the dura pressing on the left cortex. The tumor was about 3.2 cm. (1¼ in.) in diameter. It was situated above the Sylvian fissure and on the posterior upper part of the inferior frontal and the lower posterior part of the middle frontal and on the inferior part of the post-central and of the anterior central gyrus (Fig. 1, B).

A larger tumor, 6.4 cm. (2½ in.) in diameter, on the base of brain extended from the left frontal region posterior to the orbital plate (Fig. 1, A). This tumor mass had involved the bone in the immediate vicinity. Both tumor masses had indented the brain tissue by their constant growth.

Spinal Cord.—The spinal cord from the fourth cervical vertebra to the cauda equina was much compressed by a metastatic growth which extended along the dura mater spinalis. The vertebræ in several places were infiltrated and spongy by infiltration of the growth. The nerve roots were involved, especially in the upper dorsal region, by carcinomatous infiltration.

Microscopic Examination.—The skin nodules showed carcinomatous characteristics. The nodules in the lung, pleura and lymph nodes were also carcinoma, and the tumor of brain and spinal cord showed carcinoma.

Anatomic Diagnosis.—Secondary general carcinomata of brain, spinal cord, lungs, ovary, skin and vertebræ.

The larger of the two tumors of the brain, namely, the one under the frontal lobe of the left side, must have interfered in some way with the higher functions of cerebration. On rehearsing all the symptoms which were displayed during the case, I recall distinctly the odd wit and humor which, even during her greatest paroxysms of pain, the patient often indulged in, relapsing quickly to her former state. This was made much more effective by the contrast of the two conditions and at first seemed uncanny, reminding one of a paranoiac state. I believe that German observers have noted this condition in abnormal states of the prefrontal lobes and call it *"Witzelsucht."* It certainly was present in this case. Did the marked hysterical exaggeration also arise from the same source?

In the progress of such a case as this the so-called consultation is unfair, unwise and illogical. Many important cases thus are lost to later discussion and dissection simply because in a consultation, held at one particular instant of a moving, fleeting series of pictures one sees but one of this series, and that one presenting so many seeming contradictions that the condition naturally is dubbed "hysteria." Everything arising thereafter is complacently put to the credit of this medical scrap heap, and when the patient dies it is of an endocarditis, or a pulmonary edema, or an apoplexy, all arising suddenly and all extremely unexpected. It is only occasionally that one of these cases gets to autopsy, the end having been so clear.

I believe that in neurologic consultations we should proceed somewhat as follows:

The consultant should see the patient as at present, get all the general data from the attendant physician, examine the case and then place it in some general class, without attempting to diagnose it more specifically at that time. He should then instruct the attendant physician, preferably with written suggestions, to continue the observations in a logical manner and to transmit daily reports of the progress along the particular lines indicated. At the end of a week, or at any other convenient time, he should again see the patient, previously armed with the statistics requested, and then finally pass on the case. In the meantime he will have digested thoroughly every phase and can come to a determination in the quiet of his library instead of in the anxious atmosphere of the sick-room. I further believe that this entire procedure should be considered as one consultation. As a result of such methods, I believe we will get far better results than is the case at present, also that there will be fewer cases of hysteria among our history cards.

158 West Ninety-fifth Street.

OPSONIC THERAPY IN SKIN DISEASES.*

H. R. VARNEY, M.D.
DETROIT.

It is now a universal belief that a number of diseases owe their origin to the invasion of the body by specific micro-organisms, and the true etiology of a class of affections of the skin is based on this belief. Hence the most successful treatment has been the application of that which would kill the invading microbe—without injuring the skin structure. The skin is constantly being invaded by micro-organisms which produce disease when the patients are physically below normal, and, to combat these infections more successfully, constitutional treatment has been found necessary.

All this was realized, but until Leischman, in 1902, gave to the profession his method of measuring phagocytic activity the progress of the treatment could be noted clinically only. Sir A. E. Wright and his associates, Leischman and Douglas, demonstrated by a series of experiments, based on the theory of phagocytosis, that there are properties in the blood serum which he calls "opsonins." The substances act by chemically uniting with the invading bacteria and so change them that the leucocytes are able to phagocyte the bacteria. These substances do not in any way affect the leucocytes. They are supposed to be specific for each micro-organism, though much remains to be known concerning them. When an infection occurs the relative resistance or the relative opsonic power of the blood is lower than normal.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Although the reports to date have been confusing and unattractive, the fact that we, as clinicians, regard of value is that we are given not only a relative means of determining the resisting power of the patient toward an invading microbe, but also a method of raising his resistance by bacterial vaccinations.

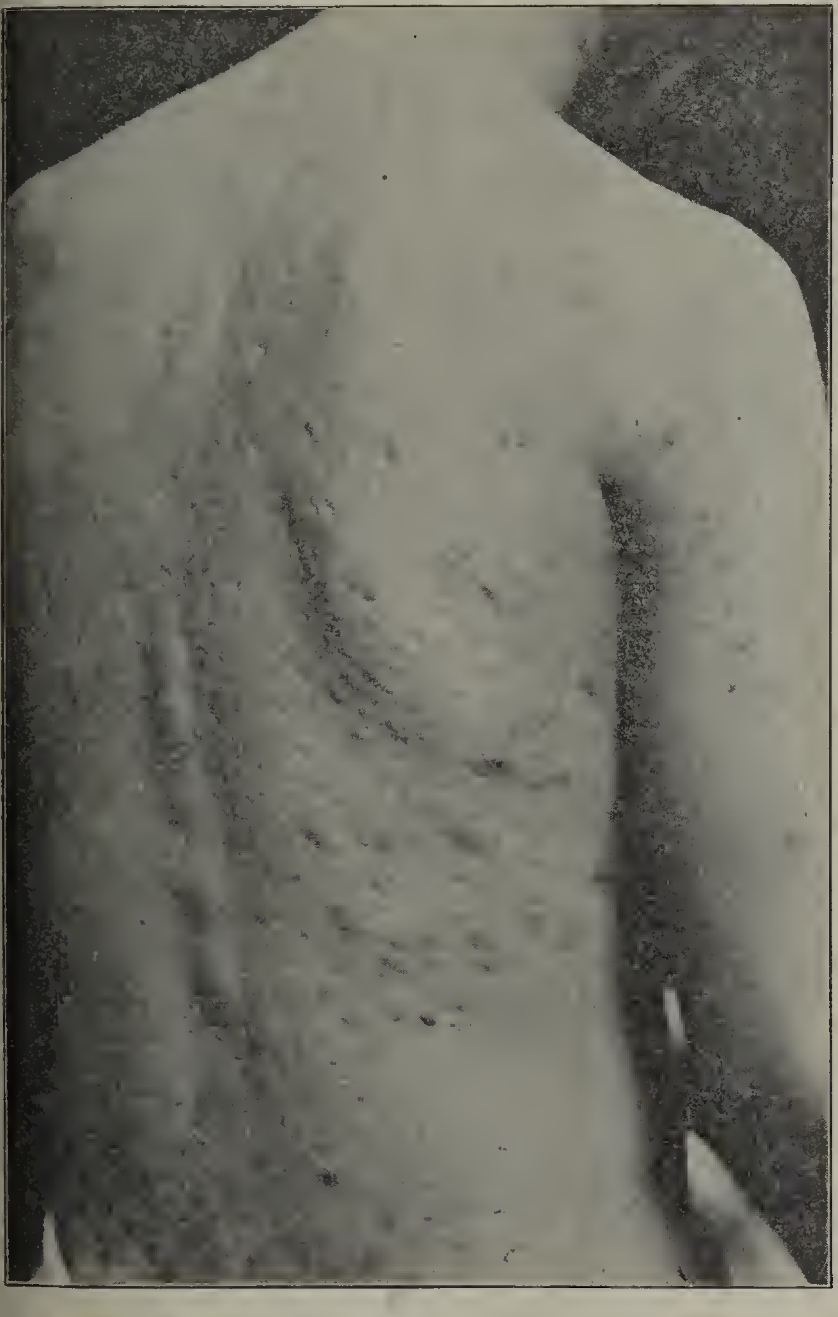

Fig. 1.—Acne vulgaris; before vaccination.

More than four years have elapsed since Wright modestly made known his theory and practical results with bacterial vaccinations. Wright has classified diseases due to bacterial infection into three groups; the first only being of special interest to us, as dermatologists, is as follows:

> Diseases in which the bacterial process is strictly localized or shut off from the lymph and blood circulation, as acne, furunculosis, sycosis and lupus. In this class the opsonic index is persistently low, owing to the absence of immunizing stimuli.

This lowered resistance may be more or less localized, due to an abnormal condition in the skin structure and its functions, or there may be a general lowered resistance toward a given micro-organism. It is with this class of disease that bacterial vaccinations offer most in permanency of cure. In those due to abnormal conditions, unless these conditions are corrected by accompanying treatment, recurrence takes place.

The localized microbic diseases of the skin furnish the most satisfactory class for the application of this treatment, as the diseased condition may be so accurately observed and the invading micro-organism easily located and there is absolutely no danger to be experienced from inoculations of vaccine made from these bacteria.

It is my intention to present the results of my personal experience in the therapeutic application of bacterial vaccinations, controlled with and without opsonic readings, in a class of chronic, rebellious, localized infections of the skin, due to the staphylococcus pyogenes, including acne-vulgaris, sycosis and multiple furunculosis, and I would hesitate to report them at this time were they not similar to those of earlier investigators along this line.

The principles of this treatment can more readily be understood by referring to charts of selected cases from each group of disease mentioned. They have been carefully observed during the treatment according to prescribed methods. The technic used is that prescribed by Wright and his followers, with a few slight modifications.

1. A pure culture, the causative micro-organism, or, if a mixed infection, the micro-organisms, was isolated. 2. Estimate was made of the opsonic power of the patient's blood to this micro-organism before any vaccination was given. 3. A vaccine was prepared and standardized from the micro-organism. 4. The patient was inoculated with this vaccine, with varying doses at indicated intervals, determined only by systematic estimations of the opsonic contents of the patient's blood. The special technic for measuring the resisting power of the patient, or to discover the opsonic index, is familiar to all and will warrant omission here.

This method of obtaining the opsonic index, that is, estimating the amount of opsonins in the blood, is, as yet, very inaccurate, and can be obtained only relatively, as phagocytic action may be easily influenced in so many different ways. Therefore, to attain to any degree of accuracy during a series of readings, each step of the technic should be taken each day, at the same hour of the day and under as nearly as possible the same existing conditions.

While Wright's method of estimating the resisting power of the blood is a decided advance in medical science and the only fairly accurate means as yet, it is open to many objections, though of unquestionable value as a guide in the therapeutic application of bacterial vaccinations.

PERSONAL CLINICAL EXPERIENCE.

In reporting the results of the therapeutic application of this treatment in a series of about forty cases, twenty-seven of which were dermatologic, I feel that time will permit only a summary of the interesting features of each group of diseases. At present this new theory is limited almost wholly, in results thus far reported, to chronic, localized infections, and even in these conditions its field of usefulness can be widened by combining it with other methods.

ACNE.

This group included rebellious, long-standing cases, and, in justice to Wright's methods and principles, no other treatment was used, so that a fair test was given them. These patients came daily to the laboratory and their opsonic indices were determined, the average of three readings being taken. These were the results of comparing the patient's blood each time with a normal pool made up of several healthy persons' bloods.

Autogenous vaccinations were then given, the vaccines being carefully prepared and standardized. Experience convinces me that in some of my early cases too large doses were administered. The dose to be selected is one that will cause no constitutional disturbance, only a short negative phase and a prolonged positive phase. The first dose always should be small, because the opsonic rise is often greater after this vaccination than after the second or third. If too large a dose is administered this pronounced rise in resistance will be shortened, and this also shortens the duration of improvement clinically.

With increased opsonic power, which is increased phagocytosis, clinical improvement begins and continues as long as the patient's index stays near or above the normal blood. Whenever the patient's index drops within a point or two of its original mark fresh outbreaks of the disease appear, clinical improvement going hand in hand with opsonic rises. In the treatment of acne it has never been my privilege with other forms of treatment to see or to obtain such rapid improvement as that following the first forty-eight hours after the first vaccination in selected cases. This improvement continues from five to seven days; at that time the patient's index will have dropped down to near its original mark. Generally, with careful readings, we are able to determine when to vaccinate again before a fresh outbreak occurs; or before the index is allowed to drop too low; the object being to increase gradually the patient's resistance and fortify the preceding vaccination by revaccinating.

In an attempt to shorten the technic, seven cases, after indices were determined, were vaccinated with stock vaccine or that made from acne cases similar in type. The positive phases were as pronounced and clinical improvement as encouraging after the first vaccination as in those who were given autogenous vaccinations; yet after a series of from three to five properly-spaced vaccinations the improvement, though great, seemed to remain at a standstill after the third vaccination, and there was not a permanent cure of one of the group.

In a series of five cases autogenous bacterial vaccinations were administered, vaccinations being given when clinical observations showed new lesions, the first three vaccinations being given about one week apart. Four of these cases have been discharged cured, demonstrating that autogenous vaccinations are productive of better results than those from stock vaccines. The only short route, therefore, in the technic is in omitting the opsonic estimations.

Out of a group of twenty-one cases, nine of the most extensive, long-standing cases were given autogenous vaccinations, revaccinations being governed by the patient's opsonic indices. Six have been discharged, cured by this method alone; one discontinued treatment, and with two patients it was necessary to combine other treatment with bacterial vaccinations to obtain a cure.

FURUNCULOSIS.

This group included five cases of multiple furunculosis, three of which were of months' standing. One patient, female, presented fourteen active furuncles on the arms, wrists and hands. These followed an attack of la grippe, which was accompanied by an abscess of the frontal sinus. After two autogenous vaccinations the patient made a complete recovery, no new lesions developing after the first vaccination and the old lesions disappeared rapidly. Another case of multiple furunculosis followed a series of four abscesses about the rectum, with no apparent cause other than lowered resistance. No furuncles or abscesses have appeared since autogenous vaccinations were given.

The third case was that of a man who had had multiple furunculosis of the hands, and also chronic, papular eczema which had existed two years continuously in spite of careful treatment. After three autogenous vaccinations there were no new furuncles, and the eczema has since subsided.

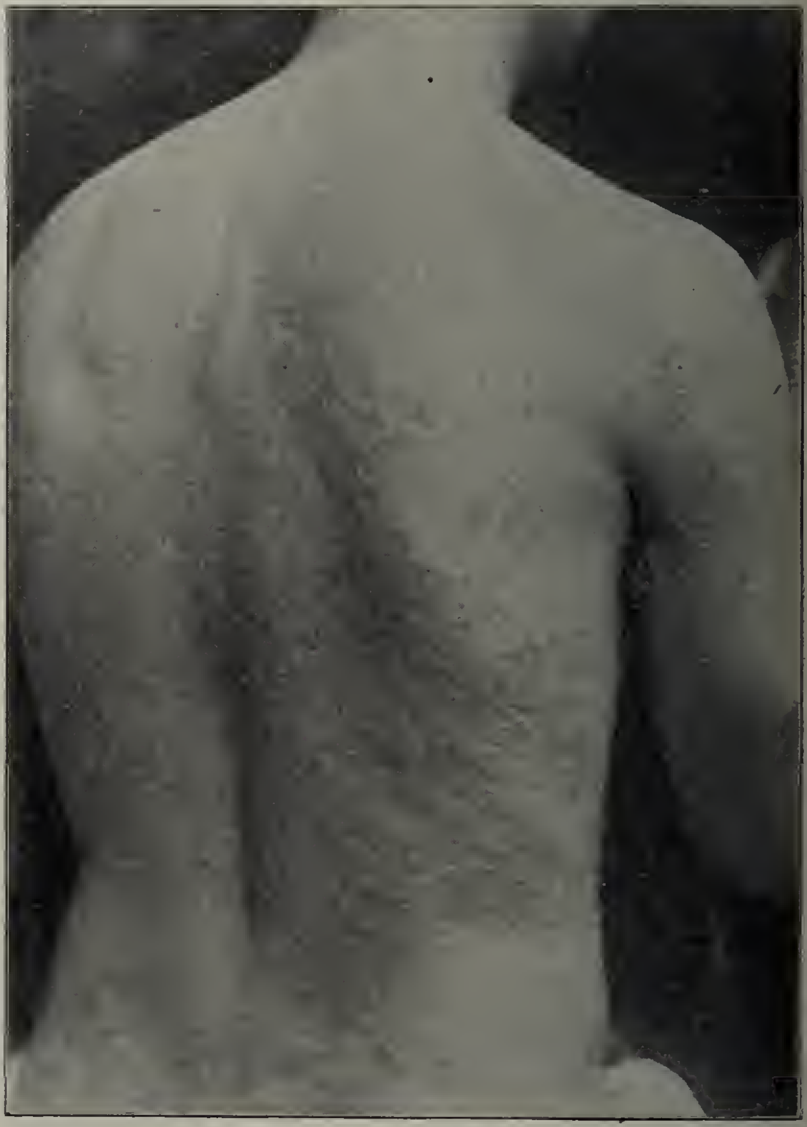

Fig. 2.—Acne vulgaris; after vaccination.

The other two cases in this group responded in equally as gratifying a manner, and there has been no recurrence of the disease after several months, when the patients were discharged. No other treatment whatever was given. In this most troublesome condition to both patient and physician no uniform treatment has been successful. The spontaneous disappearance of furuncles, occurring long after the patient's faith in drugs has been exhausted, may be explained by the fact that Nature prepares by a sudden setting free into the circulation certain bacterial toxins which act as a vaccination, thereby increasing the opsonic resistance of the patient, and recovery results. The mechanical means in bringing this condition about, such as the poultice of an old lady, Bier's passive hyperemia, and the Roentgen ray and Finsen light, all assist in auto-inoculating the circulation with bacterial products, thereby raising the resistance, by increasing the opsonins, when recovery takes place.

SYCOSIS.

In two cases of coccogenous sycosis, that had existed two and six years respectively, the patients were given autogenous vaccinations controlled by opsonic indices. After a series of vaccinations covering a period of ten weeks the first patient became disheartened and discontinued treatment, the disease being only slightly improved. This patient presented a history of multiple abscesses, which necessitated hospital treatment for five months. His resistance to the invading germ was unusually low, so that the opsonic rises were only slight. He was among the first on whom the treatment was administered, and greater experience has taught me that the first doses were larger than those which have since been used with better results. On the administration of 600,000,000 germs the patient's negative phase was most marked and he suffered constitutional disturbances —headache, langor and general malaise. I, therefore, feel that this failure was probably due to too large a dose at the onset.

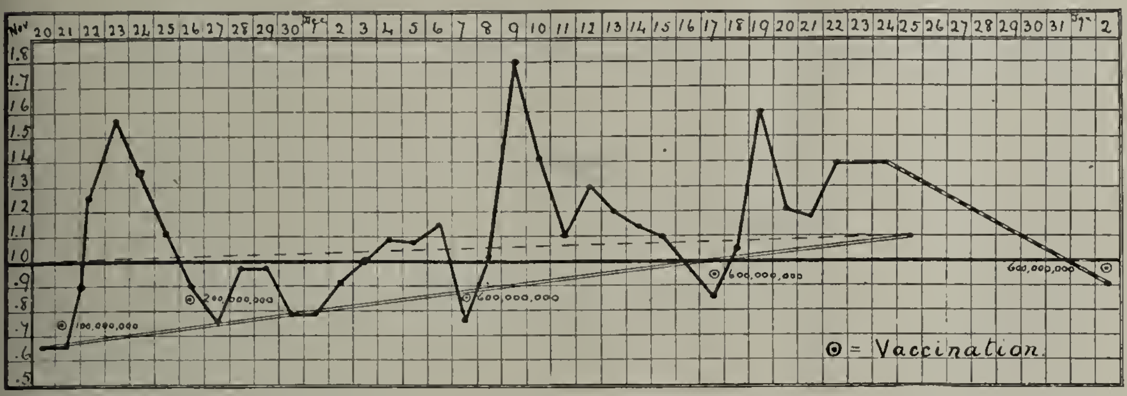

Chart 1.—Acne vulgaris: Solid line, opsonic index; broken line, increase above normal double line, improvement curve.

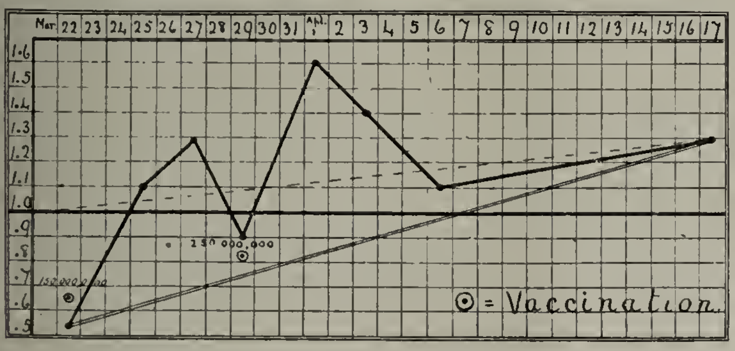

Chart 2.—Furunculosis: Solid line, opsonic index; broken line, increase above normal; double line, improvement curve.

The other patient presented a condition that had been rebellious to all forms of treatment for a period of six years. After a series of five autogenous vaccinations the disease entirely disappeared and the patient was discharged. Following the first dose there was a cessation of fresh outbreaks, and no further activity of the disease was again apparent until the index reached its original point. During the treatment of this patient there was an illustration of the effect of loss of sleep and alcoholic stimulant. This effect was a decided and prolonged drop of the patient's index or resistance.

This same influence on the resistance was shown under similar circumstances in patients who were so treated for acne. Excessive fatigue and menstruation, also lower the index. It is, therefore, most important that patients while receiving this treatment be warned against those things which are decided handicaps to the treatment. The physician should know the physical condition of each patient before he administers a bacterial vaccination so that no vaccination will be given when the resistance is abnormally low.

CONCLUSIONS.

I am convinced that in bacterial inoculations we possess a therapeutic agent with a specificity of great merit. Wright's method of obtaining the resisting power of a patient is also of unquestionable value as a guide to determine what will raise the resistance. Vaccines made from the patients' own invading micro-organisms (or autogenous vaccinations) produce better results than those made of stock vaccines. These results can be obtained with or without opsonic readings, but they will be uniformly better if the vaccinations are controlled by frequent estimation of the patient's resistance.

I believe that proper autogenous vaccination, administered in appropriate doses, when the patient's index indicates the necessity for revaccination, is a harmless, quick and efficient treatment in certain chronic localized infections yet to be classified.

DISCUSSION.

Dr. Jay F. Schamberg, Philadelphia, thought that opsonotherapy ought to be of value in a small number of cutaneous diseases, characterized by circumscribed infectious foci in the skin. He has treated seven or eight cases by this method, most of them sycosis or acne. In a case of long standing, rebellious sycosis, there was a striking improvement from the date of the very first injection, the pustules drying up and disappearing. Two injections were given and a cure effected. In other cases there has been an improvement, although in some of them relapses have occurred. One very severe case of indurated pustular acne has improved somewhat under this treatment, but the improvement has not yet been striking. Despite the successful results obtained by Dr. Varney and others, Dr. Schamberg thought it questionable whether acne in most cases will be amenable to this treatment. The staphylococcus is certainly not the cause of acne. If acne is to be treated by increasing the defensive power of the system and weakening the invading organism, that organism must be used which is really the cause of the disease. Staphylococcic in-

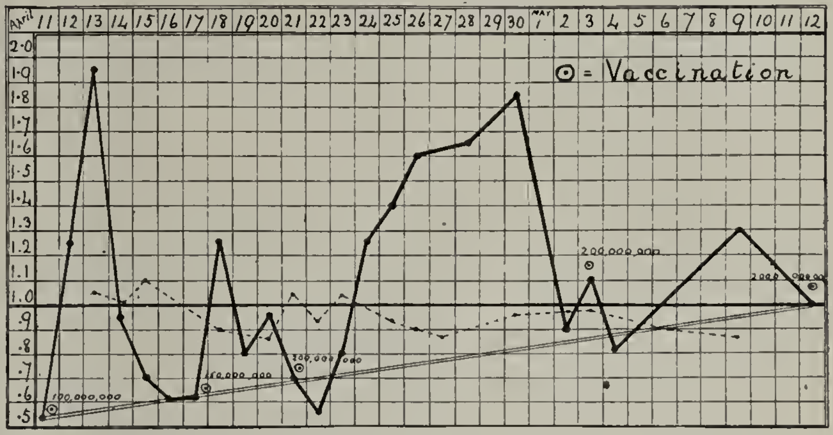

Chart 3.—Sycosis (coccogenic): Solid line, opsonic index; double line, improvement curve.

jections in acne may, however, lessen or prevent secondary pustulation. Dr. Schamberg has treated one patient with a papular vesicular eczema, complicated by the subsequent development of pustules and a few furuncles. One injection seemed to effect a cessation of the pyogenic complications and was followed by a distinct improvement in the eczema. Much has been said concerning the actual value of the opsonic index. At present there is great unreliability in the determination of these indices and it is to be hoped that it will in the future be unnecessary to employ them, thus simplifying the technic. He believes the use of the word vaccine to designate bacterial emulsions should be strongly deprecated. Apart from the fact that it is etymologically impossible, the word being derived from "vacca," a cow, it is unnecessary and confusing.

Dr. R. A. McConnell, New Haven, Conn., thought it incredible that acne can be benefited by the opsonic therapy without reference to the probable cause of the disease. He has never seen a case of chronic acne cured without a proper regulation of the patient's diet, and he has never seen a case that was not materially helped by proper regulation of the diet. The injection of anything which will raise the patient's opsonic index seems to be with a hope which is not justified.

Dr. L. Heidingsfeld, Cincinnati, stated that the subject of opsonins as yet presents many technical difficulties which seriously preclude its practical application in general practice. Yet he is convinced that a great deal of useful and practical knowledge will be derived from the studies and investigations which have been achieved in the past and will be carried on in the future. The greatest obstacle thus far encountered is the technical difficulty in determining the indices, and if this feature can be eliminated, or materially modified, it will mark a great advance in the serum and antitoxic therapy of the future. The good which will come from these investigations can well be illustrated by the fact that the opsonic studies have demonstrated that the opsonins must not be injected on a rising index; that the index must first be allowed to rise to its highest point, and reach a period of decline before further inoculations are made, otherwise they are apt to precipitate a falling index, which will continue to fall farther and more rapidly, the more frequently the inoculations are made. This fact was forcibly brought home to him in connection with some ten or twelve cases of lupus, which he was treating some two or three years ago with tuberculin after the method of McCall Anderson. He obtained marked improvement in all the cases for a short time. After four or five injections of tuberculin were given, some of the patients failed to show any improvement and steadily became worse. This continued until fewer and fewer patients responded favorably to the treatment, and he was obliged to withdraw the treatment before a satisfactory result was obtained in a single case. The opsonic investigations led him to believe that he had been injecting the tuberculin too frequently on a rising index, and about six months ago he again reverted to the tuberculin treatment in a number of the same and additional cases, and obtained a marked and satisfactory improvement in every case thus treated by giving a smaller amount of tuberculin and at less frequent intervals. He believes that the further study of opsonins will give a clearer insight into the serum treatment in all forms of infectious diseases, and that it will be of material aid in the evolution of this important field of therapy of the future. He has also achieved excellent results in a few cases of lupus of the skin and tuberculosis of the genito-urinary tract with the new anti-tuberculous serum of Marmorek, and strongly urged its tentative application in this class of affections.

Dr. Joseph Zeisler, Chicago, stated that, as long as the technic of the opsonic treatment is as complicated as it is now, laboratory aid is absolutely essential, and this, to a great extent, will prevent the measure from becoming popular for the general practitioner. He hopes that the large laboratories, with the necessary equipment and facilities, will try to give, as soon as possible, stock toxins for injection which can be used in a routine way. If it is necessary each time to determine the opsonic index, the method will remain impractical and beyond the reach of the ordinary physician.

Dr. W. H. Mook, St. Louis, thought the time not far distant when it will be possible to demonstrate that diet has absolutely no influence on the treatment of acne vulgaris, which Engman and he consider to be local. The acne bacillus of Unna-Engman has been demonstrated in a number of cases, and it is along this line that a cure for acne vulgaris will be found. In the St. Louis Skin and Cancer Hospital they are getting cultures of acne bacilli and are working along this line in connection with the opsonic index, and he believes that curative results will only be obtained with vaccines made from cultures of acne bacilli.

Dr. M. B. Hartzell, Philadelphia, said that the most we can say, from the evidence at hand regarding opsonic therapy, is that it is encouraging; the number of cases reported as actually cured is very small as yet. The present method of obtaining the opsonic index is clumsy and unreliable, and stands in the way of a more general adoption of the method. Furthermore, the rise is followed shortly by a corresponding fall, so that the injection must be repeated. Does this mean that the treatment must be kept up indefinitely? Do the injections raise the patient's powers of resistance only temporarily—not permanently?

Dr. H. R. Varney, Detroit, in reply to Dr. Schamberg's query as to the true etiology of acne, said that, although it is still a disputed subject whether the lesions are due to the pyogenous micro-organisms or to the acne bacillus, his investigations thus far have indicated that, whenever bacilli are present, autogenous vaccines made from a mixed culture are productive of better results than vaccines made from the predominating micro-organism. It is, therefore, most important, before preparing the vaccine, to obtain cultures from several lesions, so as to determine not only the predominating micro-organism, but also what micro-organisms exist. Then a mixed vaccine should be made.

The importance of diet in the treatment of acne is recognized by all. In many of his cases of acne the localized infection was without doubt secondary to other existing conditions, both general and local, and unless these conditions are corrected, recurrence is likely, even though an apparent cure has been brought about by vaccinations. In treating acne, the patient should be made to understand that whenever there is the first evidence of a fresh outbreak of the lesions he should return for a revaccination. In this series of cases reported by Varney, about every seven days the index had apparently dropped, and revaccinations were given. In spacing the first three vaccinations, without opsonic readings, once a week is an average interval; after which revaccinate whenever there are clinical evidences for its necessity. Revaccinations are always given during the negative phase, but it should never be allowed to drop below its original condition. If such a condition occurs, it would be best to wait and allow the patient's index to rise before revaccinating. For the first twenty-four hours after revaccination, a slight negative phase always follows, and if the patient's index is allowed to drop too low before revaccinating, a fresh outbreak occurs. In administering Koch's T. R. we have all realized the deleterious effects of too large doses, and in Dr. Heidingsfeld's cases this was no doubt the reason for the cessation in improvement. Rather than increasing the opsonins in the blood, they were probably exhausted by over-doses, and an increased toxic condition was produced. Much also depends on the general condition of the patient at the time the vaccination is given. It is far better to wait until after menstruation than to vaccinate twenty-four or forty-eight hours before. As to continuing the revaccinations indefinitely, as referred to by Dr. Hartzell, he would say that if the case is one in which bacterial vaccinations will be of value, and the proper vaccinations have been given, the patient will not only be cured, but will be more or less immunized against the invading micro-organism of that particular disease, even though his index gradually falls.

Nourishment.—The number of people who do not get sufficient nourishment is large, not because they have not the means to procure the nourishment, but because they are incapable of taking it, either from lack of appetite or lack of the power of digestion or assimilation. In order to eat well one must have sufficient rest and sufficient life in the open air. —*Journal of the Outdoor Life.*

SIGNIFICANCE AND TREATMENT OF ITCHING.*

L. DUNCAN BULKLEY, A.M., M.D.
Physician to the New York Skin and Cancer Hospital, Consulting Physician to the New York Hospital.
NEW YORK CITY.

Itching, or pruritus, is an unpleasant sensation which most individuals have undoubtedly experienced at some time, and yet which it is difficult to describe, any more than pain can be described. But all recognize and know that as a sensation in the skin it may be very disquieting, and that it is one often urgently calling for relief; at times also it may be so distressing that the sufferer will submit to almost anything in order to be freed from it, and will frequently claim that any amount of pain would be preferable.

Nature's treatment of itching is by scratching, and in the effort to get relief from intolerable itching animals and human beings, the latter especially, will often indulge in this, even until great injury, followed by much pain, is inflicted on the delicate tissues of the skin, as is especially seen in infants with eczema. But this alleviation is generally only temporary, while the real trouble may be greatly aggravated by the scratching. Fortunately, however, science can come to the aid of the sufferer, and by discovering and removing the cause of the sensory disturbance more permanent relief can usually be effected. I will endeavor to mention briefly and to analyze the causes of pruritus, or itching, which may be connected with and dependent on many disordered and diseased states of the skin and general system, and will also consider some of the measures best suited to reach the different conditions.

Itching, or pruritus, varies greatly in different individuals, partly according to the cause and partly also in proportion to their varying nervous sensibility. It is variously described, sometimes as a creeping or crawling sensation, as of insects beneath the skin, calling for simply mild touching, pinching or rubbing the surface; or it may amount to a deep stinging, pricking or almost burning feeling, urgently demanding severe scratching or even digging into the tissue to reach the seat of the difficulty. Between the extremes of mild and severe pruritus there may be every possible degree of nervous excitation, and the agony occasioned by violent paroxysms of itching, both in infants and adults, is sometimes distressing to witness. In some instances, however, as in mild scabies, the sensation of itching and its relief by slight scratching is said to be rather agreeable; but in the main pruritus is always a disagreeable symptom, and is a clinical sign of something wrong, either in the skin itself or elsewhere in the system; for the healthy subject should be as unconscious of the skin as of the stomach, heart or other organ.

The external signs of itching, largely the result of scratching or rubbing, also vary greatly in different patients, partly according to the nature of the trouble and cause of the pruritus and partly according to the individual affected. Thus the long scratch marks often seen across the backs of those suffering from pediculosis are entirely different from the isolated, scratched lesions seen in another parasitic disease, scabies, and are sometimes almost pathognomonic. In mild, chronic, more or less generalized eczema, there are often long lines left by the finger nails, which are quite different from the separate, torn papules generally seen in urticaria, made by the same means.

But it is often remarkable how few external signs may be presented, even when the patient complains bitterly of the distress caused by itching; this, however, is commonly due to the self-restraint of the individuals, or to the really mild character of the pruritus, which may seem to them greater than it actually is. In many cases, on the other hand, the results of scratching will seem to be out of all proportion to the severity of the exciting cause.

The locality of the itching will also often be a significant feature and contribute to the correct determination of the nature and cause of the trouble: thus, itching on the extensor surface of the extremities would suggest pruritus hiemalis, while itching across the abdomen and upper thighs often indicates scabies or pediculosis pubis, both of which latter are occasionally met even among those well up in the social scale.

The number and variety of different skin affections which may present itching as a more or less prominent feature are so many and varied that it is, of course, unwise to lay much stress on this symptom for diagnostic purpose, for even syphilitic patients may sometimes complain of pruritus. In this latter case, however, there is commonly some other skin condition which will account for it, although occasionally syphilitic lesions will itch more or less.

This emphasizes the necessity of studying carefully the whole of the surface when itching is complained of; one can not be too careful in making an accurate diagnosis in affections of the skin, for lamentable results are constantly met as a result of an erroneous diagnosis, or often from no definite diagnosis at all.

Coming now to the causes of itching we find that they can conveniently be arranged under three general categories: 1, external; 2, idiopathic, and, 3, constitutional. Some of these need to be again divided and subdivided, so that the whole subject may be fairly well presented in the following table:

CAUSES OF ITCHING.

1. External	Miscellaneous	Mechanical. Toxic. Climatic.
	Parasitic	Microbic. Vegetable. Animal.
2. Idiopathic	Neurotic	Reflex. Functional.
	Senile.	
3. Constitutional	Autotoxic	Acute. Chronic.
	Dermato-pathologic.	

Let us examine this table a little and briefly consider the various conditions of the skin manifesting itching as related to it.

I EXTERNAL CAUSES OF ITCHING.

Here we find two main groups: 1, Miscellaneous local irritation, and, 2 parasitic, each of which have several subdivisions:

1. Under miscellaneous local irritants there appear three groups, representing very different conditions: (a) Mechanical; (b) toxic; (c) climatic.

(a) Caused by mechanical irritants, we find the irritability of the skin often occasioned by harsh underwear;

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some persons experience much trouble when they first put on woolen undergarments, and some think they can never wear them on account of the itching they excite. Also the itching which most of us have experienced at some time on undressing at night, and the irritation which some will occasionally suffer from after a hot bath or a Turkish or Russian bath.

(b) Under local toxic irritation to the skin we have that occasioned by poison ivy and some other plants, also by poisonous dyes in the underclothing; the itching, often very severe, after the internal use of opium, is really a local toxic irritation, although operating from within.

(c) Climatic effects are seen in pruritus hiemalis, which in some patients will return with each advent of cold weather and continue more or less severely during the same. The effects of heat are frequently seen on the skin in the way of prickly heat, miliaria or lichen tropicus; the itching accompanying this is often very great.

2. Parasitic irritants to the skin may also be divided into three classes: (a) Microbic; (b) vegetable; (c) animal.

(a) Thus far we know relatively little in regard to the effect of microbic elements on the skin, but seborrheic eczema, or dermatitis seborrheica, is commonly recognized as such, and at times may be attended with very considerable itching, and it is more than probable that the ordinary microbes found on every skin may contribute a share of irritation resulting in itching.

(b) Vegetable parasites do not, as a rule, occasion much itching on the skin, but ringworm of the scalp will sometimes itch considerably, while eczema marginatum, which is really a tinea of the crotch and genito-anal region, will generally be attended with an excessive amount of pruritus. And it is very important to recognize the true nature of the disease in this locality, for ordinary antipruritic remedies or those for eczema will be of little avail, while proper parasitic treatment will arrest the itching and remove the trouble promptly.

(c) Animal parasites are well known as exciting agents of irritation of the skin, and first among these to be mentioned is scabies, which is constantly overlooked. Even in the best walks of society one continually finds cases of scabies, which have been long neglected, or treated ineffectually for long periods with internal remedies and mild applications, which are quickly cured by proper local treatment. Pediculosis of the scalp, body and pubis is also occasionally seen in private practice, and often will exist a long time unrecognized, the pruritus persisting until suitable measures are employed. All are familiar with the itching occasioned by the bites or stings of various insects, and must always be prepared to recognize that even fleas and bedbugs may be a cause of itching in persons in the best circumstances of life.

II. IDIOPATHIC CAUSES OF ITCHING.

This group is also divided into two main classes: 1, Neurotic, and, 2, senile, the first of which is again subdivided.

Itching of the skin which seems to be wholly neurotic occurs as (a) reflex and (b) functional.

(a) Reflex irritation of the skin is seen in the itching of the nose, and also often of the anus, from the presence of intestinal worms.

An interesting point comes up here in regard to reflex itching, which is of importance, as it relates to the production of skin lesions by scratching in many cutaneous disorders, and to which I called attention some years ago.[1] This refers to the reflex excitation of the sensation of pruritus in a distant part by scratching or pinching in another locality, either for the relief of itching or experimentally at a healthy point.

Among a considerable number of observations extending over some years on my own person, I found that, while this result could not always be produced, it was by no means uncommon to have it occur, and that the reflex irritation or itching occurred almost invariably on the same side of the body to which a greater or less amount of cutaneous stimulation was applied. In this way is explained much of the itching in such a disease as scabies, in which the insects may be located in very few points, and yet excite reflex itching elsewhere, and as a result of the scratching a large amount of artificial eruption may be excited, with pus infection; the same is true of eczema, in which isolated patches will give rise to itching elsewhere, and as a result of the scratching fresh patches will develop; and the same pertains to other eruptions.

(b) Functional irritation is manifested by the well-recognized disease, true pruritus, more commonly generalized, occasionally local, and also, as I believe, also by dermatitis herpetiformis. Pruritus as a disease is independent of local skin lesions, except those occasioned by scratching, and should be clearly distinguished both from true prurigo and also from the pruritus or itching which is a symptom of so many skin affections. Undoubtedly true pruritus may possibly come from many causes which we do not now know, but so far as can be observed it seems to arise independently, it being another expression of nerve disorder, akin to idiopathic neuralgia, which latter may also affect the skin as dermatalgia. The neurotic manifestations of dermatitis herpetiformis are so pronounced and often so severe that I believe we will find its true cause in a nerve derangement, either in the spinal cord or conducting nerves; there will often be intense itching when there are very few or no cutaneous lesions. In a recent case in the New York Skin and Cancer Hospital the itching, which had been terrible, entirely ceased, and the eruption, which was profuse and very characteristic, practically disappeared for several days after a spinal injection of cocain, which was given to produce anesthesia for an operation on inguinal hernia.

2. Senile pruritus stands alone, as a condition probably due to alterations in nerve structure in common with other degenerations belonging to old age.

III. CONSTITUTIONAL CAUSES OF ITCHING.

These fall into two groups: 1, Autotoxic and, 2, dermato-pathologic, or those relating to itching caused by or attending the presence of pathologic changes in the skin, mainly of inflammatory nature.

1. The autotoxic causes of itching may be divided into (a) acute and (b) chronic.

(a) Although some of the cutaneous affections to be mentioned under the next heading have undoubtedly more or less of an autotoxic element, there is one disease, urticaria, which manifests this relation to itching so peculiarly that it is placed especially here. All are familiar with the intense pruritus attending this affection and recognize that, while in many cases it may be impossible to trace its cause to any special article of diet, it is constantly seen in violent form after the ingestion of certain articles of food or drink, and its autotoxic etiology from intestinal indigestion and fermentation is well recognized.

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[1] Clinical Notes on Pruritus, Jour. of Cutan. and Ven. Dis., December, 1887.

There is also a mild form of occasional itching, occurring irregularly in many regions, which may be observed in those exhibiting an acid or gouty state of the system. These little itchy points or places are very fugitive, and the irritation readily subsides with a slight amount of scratching; but when the acidity of the system is excessive they may prove to be more severe and persistent and prove decidedly unpleasant, requiring treatment.

(b) Chronic autotoxic irritation of the skin is constantly seen in the intense pruritus of chronic urticaria and that which often accompanies jaundice and frequently occurs in connection with glycosuria. In chronic Bright's disease it is not uncommon to have a considerable amount of pruritus, either persistent or at intervals.

2. Itching due to dermato-pathologic causes, or that which is associated with or dependent on active disease of the skin itself, generally of inflammatory nature, stands prominent among the most distressing and often rebellious forms which are met. And yet the number of these eruptions, which are often attended with much itching, is relatively small, only about half a dozen need be mentioned.

Eczema, of course, comes first, and pruritus is one of the prominent symptoms of the eruption; it may almost be said, without itching no eczema. The severity and character of the itching of eczema, as all know, may vary greatly. At times it amounts to an uneasy tickling, while in some cases with a chronic eruption the intensity of the agony seems sometimes almost beyond endurance. In acute cases the sensations are often spoken of as of a prickling or burning character, as well as itching, and the suffering may be very acute.

Erythema multiforme, during its developing period, is sometimes attended with very severe itching, which becomes more of a burning feeling if bullæ are formed.

Lichen planus is commonly accompanied with considerable itching during its early stages, and chronic patches have also some pruritus, but seldom so severe as in eczema.

Dysidrosis, or pompholyx, causes great discomfort from itching while the lesions are forming deep in the skin, and, indeed, commonly lasts until exit is given to the fluid which presses on the terminal nerves.

Prurigo is always attended with a fierce itching during its entire existence, causing the patient to scratch furiously. But true prurigo is exceedingly uncommon in this country, and need hardly be taken into account; many cases thought to be such prove to be chronic papular urticaria.

The itching attending the healing of ulcerations may properly be placed in this group. The sensation may sometimes be rather severe, and is due to the involvement of terminal nerves in cicatricial tissue before they have become accustomed to their new surroundings.

It will be thus seen that pruritus is associated with very many conditions of the skin of different character, and arises from many different causes. In every instance, however, the real nature of the difficulty is probably the same, namely, an irritation of terminal nerve filaments distributed in the skin. Whether these relate to the finer branches of the nerves or to the tactile corpuscles of Meissner or of Wagner, or the corpuscles of Krause, or Merkel's touch cells, can not yet be determined. It is only known that the skin is most abundantly provided with nerve elements, which when disturbed give their danger signal in the way of itching more commonly than by pain.

An important feature to remember in regard to much of the itching that is complained of is that it is generally spasmodic or paroxysmal in character, and that, in many instances, if self-control is exercised, and if the part is not touched, scratched, rubbed or pinched the unpleasant sensation will cease spontaneously. Hence it is often desirable to inculcate self-restraint, and in the case of infants or some others to employ mechanical restraint, as will be mentioned later; for scratching is known not only to aggravate almost any eruption, but even to be the exciting cause of many of the new lesions, in certain affections of the skin.

But, however much self-control is urged, it is futile to expect that it can be practiced in connection with all diseases of the skin. As patients will tell you, the desire to scratch is at times irresistible, and sensible men and women will say that they would rather die than be prevented from scratching when a very severe paroxysm of itching comes on. The frantic efforts to get relief which are sometimes witnessed would be ludicrous if they were not so pathetic. And I may add also that the frantic efforts of the physician to afford medical relief are also sometimes ludicrous, because they are so pathetically unscientific.

Itching, or pruritus, therefore, should always receive the careful attention of the physician, and every effort should be made to determine the true cause or the nature of the difficulty behind it; for, as already hinted, it is Nature's signal that something is wrong, either with the skin itself or in some portion of the economy. He, therefore, poorly does his duty medically who, when consulted in regard to itching, simply prescribes a lotion, or an ointment, or an advertised remedy, instead of patiently ascertaining by careful examination the true condition of all the skin, and then seeking to determine and reach and remove the real cause of the trouble. How many cases of scabies are scattered through communities by failure to recognize and check the trouble early?

An interesting consideration in regard to itching relates to the well-known tendency to increased trouble at night. The reason for this appears twofold, relating (1) to the condition of the person and (2) to outside influences.

1. By the close of the day a certain amount of nervous energy (of which we know so little) has been expended, and a consequent exhaustion of nerve fiber and power, which is ordinarily renewed by sleep, "Nature's sweet restorer." It is quite natural, therefore, that at that time the exhausted nerves should give their cry of distress at any violence or injury that is done to them by pathologic alterations of the cutaneous structure to which we give the names of various diseases. The terminal nerves are naturally more readily irritated by the effused products of many skin lesions pressing on them, or even by the bites of insects, as in scabies, etc. In the case of idiopathic pruritus, without apparent alteration in the skin, the itching is, as has been before remarked, simply the cry of distress of the debilitated terminal elements in the skin tissue, as a neuralgia is the nerve cry of larger conducting nerves.

As a result of the day's activity the blood is also more filled with the products of catabolism, which are removed by the emunctories during sleep, and which naturally irritate sensitive nerve fibers; as, when there are gross errors of metabolism the brain cells are irritated, causing dreams, even to nightmare and "night horrors." Bouchard[2] has shown a marked difference between the urine secreted during sleep and that of the waking hours. He states, as a result of his experiments: "What is certain is that during the day the body forms a substance which, when accumulated, would induce sleep, and that during the sleep it elaborates, instead of this narcotic substance, a convulsive substance which, when accumulated, could produce muscular twitchings and induce waking."

Another personal reason for greater suffering from itching at night, as sleep comes on, is found in the "subsidence of the higher cerebral functions," whereby the individual loses control of the active powers of the mind and body, allowing physical infirmities to assert themselves. Thus we find rheumatic and neuralgic pains often more severe in the night and itching as well. Moreover, not being occupied with mental or other activity, even the same or a less amount of itching is more noticed and gives greater annoyance by disturbing the equilibrium when one desires to sleep.

2. Outside influences have also something to do with recurrent or increased itching at night. The irritation of the skin caused by undressing and by exposure to the air, which is generally cooler than the surface has been when fully clothed, are efficient causes. Many a patient may be comfortable during the day, but when ready for bed may suffer greatly from itching, which will delay or prevent sleep. These patients will also suffer when warm in bed, partly from a reaction after chilling the surface in undressing, partly from too warm covering and partly from friction incident to moving about. Often patients will get up at night to make fresh applications or dressings, but my constant advice is so to dress and treat the affected parts before retiring that this shall not be necessary; and, if possible, that they shall make any additional applications under the bedclothes so as not to expose the surface again to the chilling effects of the atmosphere.

TREATMENT.

Coming now to the treatment of itching or pruritus, it will be seen that this is a large subject, covering many points, and even reaching far into general medicine. Naturally it can not be expected that the whole ground will be covered, for that would involve the complete treatment of the many different diseases which have been mentioned. There is only time to classify the subject-matter and to direct attention to the lines along which treatment must be pursued, giving some practical suggestions regarding certain points.

Treatment obviously divides itself into: I, Constitutional and, II, local, under each of which heads there are several points to be considered.

I. Constitutional Treatment.—This includes: 1, Dietary and, 2, medicinal, both of which, of course, relate to only a share of the cases, but which should always be borne in mind.

1. Dietary measures certainly are of importance in the class of autotoxic and nervous cases, and also more or less in those of the last class, in which the itching is due to active skin lesions. This need not detain us, for it is based on principles well known to the profession, and which I have often dwelt on at length.

2. The internal medicinal treatment of itching may be considered under four heads: (a) General; (b) neurotic; (c) analgesic; (d) hypnotic.

(a) General treatment naturally does not relate to instances of itching from purely local causes, although even in some of these cases a thoroughly proper general medical treatment will often render the skin less sensitive to local irritants; for it must be remembered that lowered general and nervous vitality predisposes the skin, as any other organ, to disorder and disease. Many a case of dermatitis seborrheica will manifest itching of the scalp or elsewhere on each occurrence of dyspepsia, and prickly heat occurs only when the patient is in a deranged condition of health.

But in regard to a large number of patients complaining of itching, belonging to the last two groups in the general classification presented, internal general or special medicinal treatment is of advantage in removing the systemic or organic difficulty causing the unnatural sensations in the skin. This, of course, relates to the proper treatment of the various diseases attended with itching, and can not be entered on here, but it is hardly possible to emphasize this too strongly.

(b) In neurotic patients general treatment is often of the greatest service and absolutely necessary in many cases, for it must be remembered that, as neuralgia is a nerve cry, indicating a lowered vitality in some portion of the nervous system, so itching may often be a signal of diminished nerve resistance to external or other irritants, calling equally loudly for help. In aggravated or prolonged itching, therefore, great attention should always be paid to therapeutic measures which restore the nervous system to a normal state and maintain it so. Arsenic may sometimes be of value in connection with other remedies, but alone it is powerless to allay itching. The various proper nerve tonics, iron, strychnin, quinin, preparations of phosphorus, cod liver oil, etc., may each and all of them alone and combined be needed in many cases to effect the desired result. Electricity in the form of static or galvanic current is also of value when properly utilized, and x-rays are sometimes of value in arresting itching.

(c) Analgesic internal medication at times may be of great value in the treatment of itching, but is also very often greatly abused, especially when employed empirically or without the use of proper measures to remove the cause of the pruritus. It is well known that opium and morphin are worse than useless, for while insensibility to the suffering may be produced thereby they really aggravate the cutaneous irritability and in the end do much harm; if sleep is thus induced the patient scratches while asleep, and on awakening experiences even more pruritus.

In very rare cases a whiff of chloroform has been of service in producing insensibility, so that other measures can act; but in the end, if repeated, this also does harm.

Many of the recent coal-tar and synthetic products have been recommended to give relief from itching, and frequently they will have a more or less beneficial effect: but they must be used with great caution, and frequently the subsequent results are unsatisfactory and even harmful. Many times I have seen cases in which the use of trional had certainly aggravated the real trouble, and I have thought that the same was true after some of the other so-called analgesics which have been used of late years.

Veronal, however, seems to be an exception, and I have used it, often in repeated doses, with good effects, and apparently also without subsequent harm. In a number of cases I have enabled the patient to obtain very satisfactory sleep from repeated doses of phenacetin.

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[2] Bouchard: Auto-intoxication in Disease, Philadelphia, 1896, p. 41.

A combination of chloral and bromid of potassium, with a little aconite added, will often act well.

Some years ago I wrote favorably in regard to the use of the tincture of cannabis indica in controlling itching, and if judiciously used it is often of value. I have also advised tincture of gelsemium, repeated every hour or even every half-hour, for three or four doses, and have very frequently seen perfect rest secured by it; I have also given it with other mixtures during the day, with good effect, but once, from an overdose, I had very startling and unpleasant effects, even temporary blindness, produced by it.

II. Local Measures.—The local measures which may be employed with advantage for the relief of itching belong to two classes: 1, Hygienic, and, 2, medicinal.

1. The proper hygienic treatment of a skin affected by itching is very important, and, unless correctly attended to, the condition may not yield even to otherwise good treatment. From long observation I am convinced that many, who have the facilities for it, bathe the skin far too much and often keep up a pruritic state. The normal, healthy skin should have a certain amount of greasy or oily secretion, and when this is too frequently removed by bathing and free use of soap the surface becomes dry and harsh, and its abundant nerves are thereby irritated. Unless caution is given and full directions are insisted on, those in the better classes of society will surely transgress in this particular. Also in drying after bathing, patients will exercise too much friction, and then the overstimulated and excited skin will give occasion for more or less scratching, and the trouble is prolonged in spite of the best treatment. I frequently direct that the skin be dried, whenever a bath is allowed, by soft old hand towels, not ordinary bath towels, a number of them being used, which have been thoroughly heated.

The kind of underclothing is also sometimes of consequence, although I think that its importance is frequently overestimated. I believe that most skins are better with pure woolen garments next to them if the texture is fine and unirritating, although I find that a number do well with the linen mesh undergarments. Cotton is undesirable, and I do not ordinarily favor silk. But I constantly find that if all other treatment is correct, and the skin properly cared for, many persons can wear woolen underclothing who previously thought it impossible.

Restraint from scratching comes properly under this head and is, of course, particularly desirable in the case of infants with eczema. For this purpose I have for many years employed the very simple device of putting the child inside a small pillow case, the head protruding through a hole made in the closed end. This is pulled down to the shoulders, and the arms are secured at the sides by means of several strong safety pins, and one pin is also fastened between the legs, so that the whole wrapping can not be raised. Time and again mothers have expressed the warmest appreciation of this device, which has completely controlled the child, and allowed proper applications to cure the eruption. It is well to remember here, what was previously said in regard to the spasmodic character of itching, that it often ceases if the part is not touched or scratched. A good apparatus has also been put on the market under the name, I think, of "Scratch not;" this consists of celluloid sleeves, to be fastened at the shoulders, which prevent the child from bending the arm and reaching the face. Another patented affair is sold under the name, I think, of "Hold hand," which consists of perforated aluminum balls, into which each hand is placed, with a sleeve attached, which latter is pinned to the clothing. This is also valuable to prevent thumb sucking.

Even in adults it is sometimes necessary to devise means to prevent scratching, such as gloves, etc. I have sometimes tied tape to the wrists and had it passed beneath the back, so that the effort to reach the face, or the other part affected, will waken the patient.

2. The medicinal means which have been recommended at one time and another and used locally for the relief of itching are so numerous and varied that any attempt to classify or even to mention them seems almost hopeless. From the multiplicity and variety of remedies proposed it is readily understood that there is no one single efficient means at our command to stop itching. This, of course, follows from what has been said in regard to the different causes which may produce pruritus. Each case has to be studied by itself and suitable measures employed to combat the real disease present. Carbolic acid alone stands pre-eminent, and when rightly employed is certainly a valuable remedy and is a constant addition to many applications for the relief of pruritus.

The external applications which more or less control pruritus as a symptom may be divided into those which are: 1, Soothing and, 2, analgesic; both of these are used in the form of lotions and of ointments.

The calamin and zinc lotion, so widely known, is one of the best, mild, soothing applications in many pruritic conditions. The formula which I employ is composed about as follows:

℞.	Phenol (acidi carbolici)	ʒss-ʒi	2-4
	Pulv. calamin. prep.	ʒi	4
	Zinci oxidi	ʒii	8
	Glycerini	ʒiii	12
	Aquæ calcis	℥i	30
	Aquæ rosæ q. s. ad.	℥iv	120

M. Sig.: To be sopped repeatedly over the surface.

Ichthyol is a very valuable remedy, and in from 10 to 25 per cent. solution, in water or oil, will often act very efficiently; it is also very valuable in ointments.

The liquor picis alkalinus, which I introduced some years ago, is also serviceable. It is made as follows:

℞.	Picis liquidæ	ʒiv	15
	Potassii causticæ	ʒii	8
	Aquæ	ʒx	40

M.

The potash is dissolved in the water and rubbed up with the tar in a mortar until perfect solution is effected. This is to be diluted in varying strength, one part to ten or to twenty of water, and bathed over the surface, a suitable ointment being applied afterward.

Lead and opium wash is often employed and occasionally will be found effective, but, as a rule, it does not answer so well as other remedies.

Ointments are constantly employed to relieve itching, and if properly constructed and efficiently applied answer well, although often annoying to the patient. For rather mild general itching a carbolized compound lanolin ointment, such as I have often designated "skin food," is valuable, made as follows:

℞.	Phenol (acidi carbolici)	gr. xx-xl	1|30-2.60
	Lanolin	℥i	30
	Boro-glycerin	ʒiv	15
	Unguenti aquæ rosæ..................	℥iii	90
M.			

This is applied with the palms of the hands and gently rubbed in until about all is absorbed.

A mixture of camphor and chloral is a very efficient antipruritic, made thus:

℞.	Chloral hydrate		
	Camphor gum, of each..............	ʒss-ʒi	2-4
	Rub together until liquid and add:		
	Compound lanolin ointment (as above) ..	℥i	30
M.	Sig.: To be gently rubbed in.		

If there are any raw surfaces this will sting considerably, but on the unbroken skin it is very comfortable and allays itching greatly.

Many skins do better without any greasy application, and the glycerite of starch can be substituted in the above ointments for the fatty base.

Tar and the tarry preparations, oil of cade and oleum rusci, are also valuable antipruritic remedies, and may be freely used without danger of absorption.

Much more could be given in this same line of local therapeusis, but the object of this paper is not to detail the method of treating itching; it is rather to direct serious attention to the many causes of itching and to the necessity of studying all cases very carefully, and by accurately determining and reaching the cause to give relief to the symptom, itching.

531 Madison Avenue.

DISCUSSION.

Dr. W. T. Corlett, Cleveland, O., said that he understood Dr. Bulkley to say that true prurigo is a very rare affection in this country. Dr. Corlett said that he has seen several typical cases of prurigo, as described by Hebra, and, so far as he has been able to observe them in Cleveland and elsewhere, he believes that, if less common, they are quite as typical here as in Vienna. Dr. Zeisler, some years ago, called attention to cases of prurigo seen in Chicago, which, Dr. Corlett thought, were said to be like those observed abroad.

Dr. George T. Jackson, New York City, remarked that a very severe type of itching is not infrequent at the menopause. Senile pruritus is due not only to changes in the nerves of the skin, but to changes in the skin itself. It becomes thin and dry, and there is an absence of the natural oil, probably due to changes in the sweat glands. These patients sometimes find great relief in simply oiling the skin with cocoa butter.

Dr. L. Duncan Bulkley, New York City, said that, in his experience, prurigo differs in different parts of the country. Many cases of supposed prurigo in the Skin and Cancer Hospital eventually prove to be urticaria. Dr. Bulkley said that he has used aspirin, which is supposed to be an anti-icid, and that he agrees in regard to the value of oily applications in certain forms of pruritus. Some of these people bathe too frequently and thus remove the natural oil of the skin; some patients say that their itching is much less troublesome while they are traveling and deprived of their usual baths.

Prevention of Dust.—The Stuttgart Medical Society recently appointed a committee to discuss the question of the prevention of dust and the advisability of a municipal ordinance forbidding the trailing of skirts on the street. The committee report referred to this as unessential, as the automobiles and tramways are responsible for whirling up most of the dust. If the streets are kept carefully cleaned, the report continued, there will be no dust to be set whirling, consequently the measures advised are, prevention of spitting on the street, selection of pavements only after study of their dust producing properties, and warning notices in regard to the dangers of dust to be placarded by the board of health.

INDICATIONS FOR THE EMPLOYMENT OF ADRENALIN CHLORID, IN CONJUNCTION WITH COCAIN, IN OPERATIONS ON THE EYE.*

SAMUEL THEOBALD, M.D.
Clinical Professor of Ophthalmology and Otology in Johns Hopkins University.
BALTIMORE.

For several years, as a matter of routine, I have been employing adrenalin chlorid in conjunction with cocain in many operations on the eye. At first this was done solely to lessen hemorrhage, but for some time I have used it not only for this purpose but because it soon became evident that through its action the anesthetic effect of the cocain was definitely increased.

In operations on the cornea and conjunctiva the anesthesia produced by cocain is, as a rule, so complete as to leave little to be desired, but this can not be said of certain other operations, notably those on the ocular muscles, on the lacrimal apparatus, and those done for the cure of chalazion or other tarsal cysts. Here, where much is to be desired in the direction of more perfect anesthesia, adrenalin has proved of undoubted value.

That adrenalin used in conjunction with cocain facilitates, in a mechanical sense, the passage of probes through the occluded lachrymal duct has not been evident to me, but that it renders the introduction of the probes, as well as the slitting of the canaliculus, less painful is hardly open to question. There can be as little question, I think, that chalazion operations in like manner are made much more tolerable than are those in which cocain only is used.

In tenotomies of the ocular muscles the hemostatic action of adrenalin is of great advantage, though it must be confessed that it does not always as effectually control hemorrhage from the divided tendon as it does from the conjunctival incision. In addition to this effect, however, I am sure that it makes the operation—especially the cutting of the tendon and the manipulations with the strabismus hook—decidedly less of a tax upon the fortitude of the patient.

In operations involving the making of a corneal section, especially cataract extractions and iridectomies, with the exception of iridectomy done during an attack of inflammatory glaucoma, experience has taught me to be rather chary in using adrenalin. For, though I have employed it several times in cataract extraction with no ill effect, I have felt more than once that the operation was complicated by its use. Particularly was this true of one case in which, immediately after the completion of the section, the cornea lost its transparency to a remarkable degree and collapsed in crater-like fashion, the further steps of the operation thereby being rendered decidedly more difficult. In such operations, too, there seems to be no definite reasons for employing adrenalin, since the anesthesia from cocain alone is usually satisfactory.

This last observation does not apply, however, to iridectomies performed for the control of inflammatory glaucoma. Here, as is well known, the anesthesia from cocain is often far from satisfactory. For this reason, and because, moreover, the astringent effect of adrenalin is decidedly helpful, I have preferred to use it under such circumstances. It is interesting to note that Professor Fuchs, of Vienna, has been led by his experience to a similar conclusion.

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

In operations for pterygium, adrenalin seems to me to be contraindicated, because its blanching effect renders the outlines of the growth difficult of recognition, and, besides, the anesthesia from cocain alone is all that could be wished for.

Dr. J. Elliott Colburn[1] has pointed out another valuable indication for the use of adrenalin in conjunction with cocain. In several cases of ocular traumatism the instillation of adrenalin, by checking hemorrhage, greatly facilitated the detection and removal of foreign bodies which were imbedded in the superficial structures of the eye.

Although I have usually employed adrenalin in full strength (1:1000 solution), and, especially in probing the lachrymal duct, have applied it to the same eye repeatedly and freely, I have never seen any untoward consequences—except such as I have referred to—from its action. I have also found that its sterilization, by brief boiling in a Florence flask, in nowise impairs its efficiency.

There seems to be good authority for the claim that the toxicity of cocain is markedly lessened through the action of adrenalin, but in the eye surgery this is not a matter with which we are much concerned.

In conclusion, I may add that as a therapeutic agent, *per se,* in the treatment of inflammatory conditions of the eye adrenalin in my hands has not proved efficacious.

DISCUSSION.

Dr. S. L. Ziegler, Philadelphia, said that the conjunctival ischemia caused by adrenalin prevents the absorption of cocain, and thus causes the anesthetic to act more efficiently on the peripheral nerve filaments in the superficial tissues. This enhances the anesthetic value and at the same time prevents the possibility of cocain toxicity, which, although rare, has occurred once in his practice. While its action is most excellent on mucous surfaces, it is occasionally followed by suppuration when injected into the tissues of the lid. He has seen one case of this kind and another where cellulitis followed its use. It may be instilled freely in tear duct cases and in minor operations. It often proves most excellent in iridectomy for glaucoma, and in Saemisch incision, where the anterior segment of the eye is liable to become greatly engorged after the opening of the eyeball is completed. Here it may have slight analgesic effects by preventing this filling up of the vessels. Its effect is manifested somewhat superficially, and therefore incision into the deeper structures is often followed by hemorrhage, as in tenotomies and the excision of small growths. Used in weaker solutions it often relieves the congestion of conjunctivitis, and other mild disturbances. The strength is preferably very dilute, 1 to 16, which is about one dram of the normal strength (1 to 1,000), added to two ounces of water. The long continued use of adrenalin may result in painful ocular irritation, but the weaker solutions do not cause this vascular relaxation so markedly, although this possibility should be borne in mind. Dr. Ziegler said that recently he had been substituting suprarenalin for adrenalin in eye work. It appears to be less liable to septic decomposition, and less irritative to the eye. Suprarenalin is made from the fresh gland and oxidizes more slowly than adrenalin, which is made from the dried gland. Adrenalin, however, acts better in the nose than in the eye, although it is somewhat more irritating to the sensitive tissues of that organ.

Dr. C. A. Veasey, Philadelphia, said that while he fully agrees with Dr. Theobald, he wished to warn against the too free use of the drug in the eyes of patients affected with arteriosclerosis. Three times he has had the misfortune to see the anterior chamber fill with blood shortly after instillation of solutions much weaker than those recommended; if such severe hemorrhage can be produced in the anterior segment of the eyeball, there is no reason why it may not also be produced in the posterior segment. The drug is a good one, and for several years he has been employing it as Dr. Theobald recommends, and it is certainly of the greatest value when it is necessary to anesthetize a markedly inflamed eyeball such as exists in inflammatory glaucoma; but he is also sure that there is a certain class of elderly patients with blood vessels more or less brittle in whose eyes its use should be extremely restricted, if used at all.

Dr. John E. Weeks, New York City, said that he had been using adrenalin for a number of years—in fact, he used the infusion before the adrenalin chlorid was on the market—and he still uses it extensively. He uses it as a routine measure in cataract extractions and has done so for several years, and has yet to see any bad results from its use as he employs it. The cocain anesthesia is commenced some time before the adrenalin is instilled. A solution of 1 to 1,000 adrenalin chlorid is used, one or two drops instilled before the operation. He does not permit its employment for any length of time before commencing the operation, nor does he use it after the operation is begun. He uses it indiscriminately in young or old. One operation in which he does not employ it is that for pterygium, because in this condition it reduces the volume of the pterygium too much. He has found that its continued use as a therapeutic measure is deleterious. There is a relaxation of the blood vessels of the conjunctiva following its continued use even in greatly reduced strengths; there is a dilatation of the vessels and the production of thickening and roughening of the conjunctiva which is not desirable. In not a few cases he has had to tell the patient not to use the collyria that have been prescribed by his colleagues because of the presence of adrenalin. The irritation of the conjunctiva for which it has been prescribed continued and on discontinuing the adrenalin recovery took place promptly. It is a valuable remedy in the treatment of disease of the tearduct.

Dr. George H. Price, Nashville, Tenn., said that if the remedy is used to prevent hemorrhage it should precede the use of cocain, and consequently when the object is to reduce the amount of hemorrhage, it is best to use the adrenalin first. It also limits the action of the cocain as to space; prevents too free absorption and carrying away the anesthetic to adjacent tissues. If used in the strength of 1 to 1,000, it must be applied to the point where the effect is desired. If simply dropped into the eye in this strength, and repeated frequently at short intervals, the patient gets a peculiar, dull, heavy pain in that eye, which persists until relaxation of the vessels takes place. In its use about the lachrymal apparatus, he said, it brings about a shrinkage more or less of the tissues, but it should be applied directly to the parts, the tearduct, and not simply dropped into the eye. He uses it when he operates in cases of pterygium, because it reduces the hemorrhage, especially in those fleshy varieties. If used prior to the cocain it reduces liability of hemorrhage and may limit internal hemorrhage. In those conditions where we wish to bring about a lessened amount of blood in the iris tissue itself, he has found it an excellent remedy. He rarely uses it stronger than 1 to 8 in 10,000, except when he wants to use it about the lachrymal apparatus to limit the action of cocain.

Dr. Samuel Theobald, Baltimore, said that he has used adrenalin in the strength of 1 to 1,000 freely. The plan he follows is to instil cocain, then adrenalin, then cocain, etc. Possibly he has used it too freely. He said that the suggestion that it should not be begun too early is a good one and he will bear it in mind. He has never known pain to follow its use. In regard to the added anesthesia from adrenalin, it is in tenotomies that this is especially marked. The conjunctival cutting and the snipping of the tendon are commonly not painful, but the manipulations with the hook are what is apt to produce pain, and this is decidedly lessened by the addition of the adrenalin.

Medical Education and Psychiatry.—It is little short of calamitous that American medical education has not equipped the general practitioners to recognize the early symptoms of insanity.—Frank Billings, M.D., in *Charities and the Commons.*

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[1] Clin. Rev., July, 1901.

Clinical Notes

GENERALIZED BLASTOMYCOSIS.

REPORT OF A CASE WITH RECOVERY.

JAMES B. HERRICK, M.D.
CHICAGO.

The following case is reported because it is, I believe, the first instance recorded of recovery from generalized blastomycosis. It is worthy of note also that the patient was a woman and of the better class. Blastomycosis in women is apparently a rarity. The patient was under the care of Dr. A. C. Garvy, with whom I saw her many times. This preliminary report is made with the kind consent of Dr. Garvy, who will later present a more detailed history of the case. It should encourage one in the persistent treatment of blastomycosis even of the generalized type, as it shows that a certain percentage, probably a small one, may terminate in healing.

History.—The patient was Mrs. O., 24 years of age, for at least 15 years a resident of Chicago, of healthy, well-to-do parents, and with no severe preceding illness except the usual diseases of childhood, and nervous disturbances, largely hysterical, in 1899. She had been married eighteen months and was the mother of a healthy child three months old, which she was nursing at the time she was taken ill.

April 24, 1904, the illness began, to quote her own words, "with spots like hives and pains like rheumatism." The first lesions were noticed over the left gluteal region. There was no fever at first, at least none that attracted attention, and the general health was not impaired for several weeks. The illness lasted for two years, and during this time there were seventy-nine distinct lesions. These varied in size from those 1 cm. in diameter to areas 8 cm. or more broad. They started as slightly reddish or purplish spots, showing through the skin or felt deep in the subcutaneous tissue. They gradually became more prominent, somewhat hard and tender, and a pseudofluctuation or a genuine fluctuation appearing, the lesions would break through the skin, discharging a thick, yellowish pus, or they would be opened by the physician; in a few instances spontaneous resolution without rupture occurred. After the evacuation of the pus a somewhat indolent granulating ulcer would be left, and there was often an extensive undermining of the skin, with burrowing of the pus. This was particularly marked over the left gluteal region where the deep situation of the abscess and its great size necessitated a drainage operation under anesthesia, which was done by Dr. J. B. Murphy, May 12, 1905. This abscess had its origin in the deeper structures, apparently in the pelvis. The lesions in some instances, as on one of the fingers, destroyed the bone. On healing they left comparatively slight scars that in their parchment-like feel somewhat resembled those of lues. Lues in the husband as well as in the patient was carefully excluded.

Course of the Disease.—The general condition of the patient during the two years of illness varied very materially. Most of the time there was a slight temperature, with occasional exacerbations, when it would reach 102° or 103°. The pulse was generally rapid, a hemic murmur present and the spleen palpable. Early in the illness there was a cough, and Dr. Garvy thought he detected signs of slight consolidation at the right apex. When I saw her I could make out no evidence of pulmonary lesion; at this time there was no cough. The urine showed an occasional trace of febrile (?) albumin. There was marked loss in weight and a secondary anemia. The hemoglobin at one time was as low as 50 per cent; an increase in the leucocytes was commonly present. At the time of the operation by Dr. Murphy the condition was so aggravated that it was thought she would die upon the table. There was generally more or less disturbance of the stomach. At times the pain was extreme and the patient was always decidedly neurotic and even hysterical. This interfered very much with her sleep.

Treatment.—The medication consisted of iodid of potassium, often in increasingly large doses. This seemed to benefit her decidedly, but there was never a complete healing of all the lesions, and the iodid often had to be stopped because of gastric distress occasioned by its prolonged use. The sulphate of copper was tried internally and locally, but with very doubtful benefit. Tonics and sedatives were given as indicated, the latter being of necessity used with a free hand.

Recovery.—In February, 1906, the patient left for California, weighing about 100 pounds instead of her original 130 pounds or more. There were still thirty-one sores on the body. The patient became quieter and less nervous, lived much of the time out of doors, began to sleep well, to improve as regards appetite, and there was soon a very decided tendency to healing of the sores. No medicine was taken after March 23, 1906. In August, 1906, the last sore had disappeared. I have seen the patient several times since and she is apparently, at the date of this writing, July 12, 1907, in perfect health. She writes me under recent date—"I am better now than I have ever been in my whole life, and can endure anything and never have an ache or pain."

Diagnosis.—The diagnosis of blastomycosis was made, not only on the clinical symptoms, including the naked eye appearance of the lesions and the exclusion of other diseases, tuberculosis, syphilis, etc., but by the microscopic examination of the pus from the wounds with a cultural development of the blastomyces. The culture experiments were made by Dr. Oliver Ormsby. The patient was seen at various times by Drs. James Nevins Hyde, Joseph Zeisler and J. B. Murphy. These agreed in the diagnosis of generalized blastomycosis.

IMPORTANCE OF SUPERVISION OF APPARENTLY CURED TUBERCULOSIS PATIENTS AFTER THEY LEAVE SANATORIA.

FREDERICK I. KNIGHT, M.D.
BOSTON.

The proper and satisfactory control of tuberculosis in the future will involve a continued knowledge on the part of some authority not only of the individuals infected, but of their families and all surroundings.

In my opinion, this duty should be assigned not to local boards of health, who would not have the time to devote to it, and sometimes not the interest to do the work thoroughly, but to special local boards, who should gain the desired results with as little publicity as possible. These local boards should be composed of persons really interested in the subject, who should work cautiously and be sufficiently discreet not to create a panic in the local neighborhoods.

One of the functions of such a board should be to supervise patients who, apparently cured, return home from treatment at sanatoria or elsewhere. The better class of patients will usually consult their physicians after leaving the cure, and arrange some hygienic mode of life for the immediate future; but the poorer class are sent out with some good general advice as to outdoor life, employment, etc., but with no idea how to obtain them. It is patients of this class that need to be received at once and guided. In the first place, it should be made sure that they do not go back to an infected house or shop, nor, if it can be avoided, to any unhygienic conditions. This, of course, will include not only the conditions of the home and shop, but also the character and hours of their occupation. Another very important point to be attended to is that they should have proper food, and, without guidance and sometimes help, they may fail to obtain this.

Patients with arrested disease often have a little morning cough, and tubercle bacilli in the sputum. These should be warned to maintain the same care with this which they have learned in the sanatorium, both on account of the danger to others and also to themselves from reinfection.

Though they may be free from cough and expectoration, and have no physical signs in the lungs, they may have tuberculous glands, bronchial or elsewhere, which, on the occurrence of acute affection or as soon as the vitality of the system is depressed, will reinfect the lungs.

One of the most promising ways of helping to maintain the health of those restored at sanatoria is by the establishment of labor or farm colonies, where gardening, farming, raising of chickens, keeping of bees, cultivation of flowers, etc., can be carried on, with gradually increasing hours and severity of work, under medical supervision. This can be done at some of the sanatoria, where they have land enough, or at special farms devoted to the purpose, like convalescent homes. In fact, many patients could and would be better for doing some work of this kind during a part, or in some cases all of their time at the sanatoria, provided there are grounds enough to set up such régime at the institution.

Woodcock,[1] of Leeds, dwells on the injury to patients from idleness, and gives an account of his investigation of the possibilities of labor colonies. He reports that at Kelling, in Norfolk, at Dr. Fanning's Sanatorium, which is practically a farm, all patients work; even those unable to leave the shelters, carve wood and make mats, and their work is sold. Seven hours is the maximum for work, and three the average. The colony does a large business in eggs and poultry, and the carpenter is kept busy all day making egg boxes. At Kelling they have an "after care" committee, which concerns itself with getting suitable situations for discharged patients. Dr. Fanning spoke enthusiastically of his results. He considers that patients who work five hours a day bring in a profit to the institution of four shillings per week. He had been very successful in obtaining employment for his patients, and sends a circular to employers, offering to take back at once any patients who relapse while in employment. He is not against suitable indoor work. Dr. Fanning believes that idleness is the worse curse to the consumptives.

Boncard, of Cannes, at the same congress, insisted that a part of the millions appropriated for the erection of sanatoria be used in establishing farm colonies, and that, while, as Dr. Panwitz says, nine-tenths of the patients refuse to do the ordinary chores about a sanatorium, they would be glad to learn the care of bees, raising poultry, etc., which would give them suitable occupation when they leave the institution.

POISONING BY PRIMULA OBCONICA.

E. A. SWEET, M.D.
Assistant Surgeon, U. S. Public Health and Marine-Hospital Service.
FORT STANTON, N. M.

While so much is being written of the dermatitis caused by the brown tail moth and other agents, a narration of the following case may be of slight interest:

The patient was Mrs. R., 59, married, the mother of four children. While in attendance for an attack which proved to be appendicitis, I noticed a suffusion of the face and made inquiry thereto. She gave a history of having suffered from a most obstinate dermatitis for three years, with occasional exacerbations and remissions. Itching and burning were intolerable and at times a severe conjunctivitis was also present. She had consulted various physicians, together with one or two specialists, and had persistently followed the usual course of treatment with salines, ointments, and alteratives, until finally some one had introduced her to the term "dyscrasia," which she had seized avidiously, becoming resigned to her fate. Accompanying her husband on his annual trips to Hot Springs she had each time been free from any irritation, only to have it immediately recur on her arrival home. This fact, together with a similar occurrence on the patient leaving to have an appendectomy performed, led me to believe that the causative factor was within her own household, and although no gastro-intestinal or nervous symptoms were present it seemed to me most likely that arsenic was at the bottom of the trouble. While making an analysis of the wall paper to determine this point, the timely arrival of a nurse, a friend of the family, interrupted all proceedings. She at once descended on Mrs. R.'s eastern window and, selecting one of the handsomest plants therein, declared it was the cause of the difficulty. It was soon banished from the house and no further trouble has ever been experienced.

Primula obconica is a cultivated plant of the primrose or cowslip family and is closely related to *Primula sinensis* (Chinese primrose) seen so commonly among lovers of plants. The flower is lilac or purplish and usually droops. The leaves are radical, apparently springing from the root, the shape being ovatecordate. Innumerable sharp hairs are attached to the leaves and these constitute the irritating-poisonous principle. As in rhus poisoning, susceptibility varies greatly, and, although not positive concerning the point, I believe that in these people actual contact is not necessary.

Removal of Tumor in Hypophysis Through Nose.—H. Schloffer of Innsbrück was recently called on to relieve a patient who presented symptoms indicating a tumor in the hypophysis (pituitary body). The patient was a tailor, 30 years old, who had suffered from recurring headache since 1900, with loss of nearly all his hair, hemianopsia, occasional vertigo and syncope, etc. Roentgenoscopy revealed a tumor, presumably in the hypophysis, and it was removed by turning back the nose to the right, excising the turbinated bones and septum and the inner wall of the left orbit and maxillary sinus and part of the left upper jaw. The ethmoidal cells were opened and evacuated and the sphenoidal sinus opened. The difficulty was to determine the exact location of the sella turcica. Roentgenoscopy showed the distance from the root of the nose to be 6 cm.; this was computed to represent 5.3 cm. in reality, and a soft friable tumor was found at this point. Nearly the whole was removed with a flexible lead spatula, without injury to the dura. The adherent portions were left undisturbed, possibly a fifth of the entire tumor. The large cavity in the sella turcica was tamponed with gauze dipped in Peruvian balsam, and another tampon was applied to the base of the skull, the ends of both brought out through the nose which was sutured in place. The operation lasted an hour and a quarter, and there was comparatively little hemorrhage. Cerebrospinal fluid dripped from the nose for several days, a drop falling every few minutes, but except for a mild intercurrent erysipelas recovery proceeded rapidly, and the patient was free from all disturbances and clinically cured by the end of a month, with the exception of the persisting hemianopsia. The hair of the beard has sprouted again. The operation proved simpler and easier than expected, and no signs of meningitis developed. The case is described in detail in the *Wien. klin. Wochschr.* for May 23, 1907, xx, p. 621.

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[1] Congrès International de la Tuberculose, Paris, 1905.

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SATURDAY, JULY 27, 1907.

SURGICAL INJURY OF THE PARATHYROIDS.

In 1880 Sandstroem for the first time accurately described the "glandulæ parathyroideæ," and although his report was so thorough that little has since been added to our knowledge of their gross and microscopic anatomy, yet it was not until 1895 that any further consideration was given to these important organs. Since that time articles in plenty have appeared, discussing the functions of the parathyroids and their relation to disease, particularly during the past few years, which have helped to clear up many confused ideas concerning the thyroid as well as giving us positive information concerning the glandules themselves. For a long time the parathyroids were generally considered to be but modified forms of accessory thyroids, with no independent function of their own; and this view is still held by some, although such a position is scarcely tenable in view of the numerous reliable studies which show the anatomic and physiologic individuality of these organs. Gley seems to have been the first to recognize the possibility that the tetanic symptoms that followed total removal of the thyroid were due to the loss of the parathyroids rather than to loss of the thyroid itself, and although much opposition to this view was soon raised, there now seems to be no reasonable question of its correctness. Apparently the developmental and metabolic disturbances following removal or disease of the thyroid depend chiefly on the absence of the internal secretion of this gland itself; whereas the acute nervous manifestations, often with the typical picture of tetany, that may follow operative injury of the thyroid depends on interference with the function of the parathyroids.

Any one who reads the illuminating report by Halsted[1] of his experience with a patient suffering from the effects of operative injury of the parathyroids, will appreciate the absolute necessity of familiarity with these minute and deeply-hidden organs by every surgeon who attempts to operate on the thyroid, and, furthermore, he will be ready to concede to the parathyroids a physiologic function which is peculiarly their own. Halsted's patient was operated on for the removal of the right lobe of the thyroid for a growing goiter, the left lobe having been removed two years previously for the same condition. Although in both operations every precaution was taken not to remove the parathyroids, yet in the second operation the right lower gland was injured by the knife. The resulting symptoms, as graphically described, were impressively violent and characteristic, but were promptly, although incompletely, relieved by administration of beef parathyroid by mouth. At the end of a year the patient was still an invalid, with what may be called a condition of "cachexia-parathyreopriva."

According to Halsted, the tetany which follows operative removal or injury of the parathyroids is becoming a more frequent occurrence, because of the frequent radical operative intervention in exophthalmic goiter. When total excision of the thyroid was practiced for the cure of ordinary goiters operative tetany was comparatively common; then for twenty-five years little was heard of it, as operators abandoned total thyroidectomy; but now, with the prevalence of operative treatment of exophthalmic goiter, in which loss of parathyroid tissue seems to be poorly sustained, the condition is being frequently observed. Probably tetany results in many cases without the parathyroids having been removed along with the thyroid, simply because of interference with their circulation during operative manipulations, hence avoidance of excision of the glands is not a guarantee of safety from tetany. Furthermore, it would seem that, at least in some patients, injury to even one of the parathyroids (there are usually four) may lead to evidences of postoperative parathyroid insufficiency, and Halsted advises very careful avoidance of the tissues in their immediate vicinity.[2]

Administration of parathyroid tissue does not seem to compensate fully for loss of the function of these organs, although it is undoubtedly of value. Possibly in the future it will be found practicable to implant parathyroids, this having been once done with good results by von Eiselsberg[3] in a patient with operative tetany of twenty-seven years' duration. Halsted has, on several occasions, transplanted back into remaining portions of the thyroid parathyroids whose nutrition had been cut off or imperiled during partial thyroidectomy. He believes that the spleen will be found a suitable site for implantations of parathyroids, its vascularity affording exceptional nutrition for the grafts, as Payr first pointed out.

PATHOLOGY OF DREAMS.

Whether or not we shall accept the explanation that sleep is due to brain anemia is one of the questions that is still obscured in the physiologic psychology of the future. Sleep still maintains much of its mystery in spite of scientific advance. Dreams have not lost their occult character entirely, notwithstanding all the progress that has been made in psycho-physics and the related sciences. One thing seems sure: dreams constitute a manifestation of intellectual life and require the exertion of a certain amount of brain force or mental energy. As far as possible, then, they are to be avoided. Every one knows how tired one is who arises after having dreamed much during the night and, on the contrary, how recuperative is dreamless sleep. It is well understood that the reason why an excess of sleep, instead of being restful to intellectual energy, is rather exhaustive, is that, after a certain amount of sleep, even though the body continues to be somnolent, the mind awakes and, in the midst of the undirected, rapidly varying mental excursions which follow, as much nerve force and mental energy is expended as would be necessary for the more continuous thinking of regular intellectual work.

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[1] Amer. Jour. Med. Sci., 1907, cxxxiv, 1.

[2] Plates showing the common location of the parathyroid, as well as an excellent résumé on their anatomy and function, will be found in an article by R. L. Thompson, Jour. Med. Research, 1906, xv, 399.

[3] Wiener klin. Woch., May 23, 1907, 645.

In spite of this harmfulness of dreams and dreaming, there is a definite tendency in the present day to cultivate habits of mind which rather encourage their frequent occurrence. It is a well-known fact that the telling of dreams tends, by impressing their details on the mind, to bring about a reproduction of similar spontaneous mental divagations during the sleep of subsequent nights. Listening to the tales of the dreams of others is said, at least, to have the effect of producing dreams. Children are especially affected in this way, and there seems no doubt that many of the illustrated supplements of our Sunday newspapers, which are gotten up more especially for children than adults in recent times, cultivate the tendency to dream. Artists find it easy to let their imaginations run riot over the many curious things that occur in dreams and these, luridly colored, are presented to children on Sundays and conned over with an avidity that every one knows, though not every one bewails. If this supplement is working harm to the already much worn nervous systems of our American children, it is time to call public attention to it.

An editorial in a recent number of *The Independent* (New York) recites the fact that some physicians are inclined to think that one of the reasons why "night terrors," which are really over-vivid dreams, are likely to occur more frequently on Sunday and Monday nights, is only partly because children are apt to be more tired on these nights after the freedom of the day, but at least partly because they have been recently indulging in the imagination-intoxicating colored supplement with its horrors and its dream suggestions. Although there are notable exceptions, the majority of these pictures are such that no particular good can be expected from their study by the young, while the possibility of harm seems very clear. Elements like this in the education of children often mean even more than the formal factors of school work in their effects on the nervous system. The main effort of parent and physician must be to keep children's imaginations from running riot and exhausting vital nerve energy. Children might just as well become interested in a better class of pictures and would find quite as much attraction in them if only they told a story.

In general it may be said that, in both adults and children, the cultivation as far as possible of dreamless sleep is an ideal to strive for. Many neurasthenic patients would suffer much less from the tired feeling which is always so prominent a part of their symptoms, especially in the morning hours, if there was not that partial wakefulness during the night which is indicated by the tendency to dream. The mental side of therapeutics for these cases would involve a deliberate curtailing of any indulgence in reading or gazing at pictures which might tend to increase dreamfulness. This is as important an adjunct to the treatment of such patients as the cutting off of stimulants, tea, coffee, drugs, alcohol and the like, as may disturb their nervous systems. As a matter of fact, the reading habits of most nervous patients need quite as much supervision as their dietetic habits. This is a matter which has not always been appreciated, but which completes the rational therapeutics of these cases and which is especially valuable in both adults and children, because it constitutes a valuable addition to the most important and helpful side of practical medicine—prophylaxis.

A NEW CUTANEOUS REACTION IN TUBERCULOSIS.

It sometimes happens that in a person who has already been vaccinated successfully against smallpox revaccination will give rise to definite reactions within twenty-four hours. This observation led von Pirquet[1] to look for a similar precocious reaction in other infectious diseases. He has found that if tuberculin is introduced into the skin of a tuberculous child there will appear at the point of inoculation a small papule not unlike the papule of vaccination, at first bright, later more dark red, and lasting about eight days. A small quantity, about two drops, of diluted tuberculin (old) is placed on the skin and a small scarification is made with a sterile lancet right through the drop. Von Pirquet has made 500 tests and obtained a positive reaction in nearly all the cases of clinical tuberculosis in infants. It was not absent in any case of miliary tuberculosis, or of tuberculous meningitis in the last stage, or in infants markedly cachectic. The most characteristic reaction was obtained in cases of tuberculosis of the bones and glands. The reaction possesses diagnostic value principally in the case of patients in the first year of life, and here it may prove of great value in the diagnosis of tuberculosis.

Vallée[2] has studied the reaction in animals and found that in healthy cattle, horses and guinea-pigs there is no reaction after scarification as described. In tuberculous animals the reaction is positive and distinct in twenty-four hours after the inoculation. The phenomenon consists in an edematous infiltration of the part scarified,

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1. Berl. klin. Wochschr., May 20, 1907.
2. Compt. rend. Acad. Sciences, 1907. 144, 1243.

which swells into a somewhat painful, grayish-red nodule. The lesion increases for a few hours and reaches its maximum of intensity in about forty-eight hours, remaining then quite distinct for four or five days. This cutaneous reaction is not accompanied by any marked changes in the temperature. The reaction appears equally as distinct in cattle affected with recent and discrete tuberculosis as in those with extensive and old tuberculous lesions. It is not distinct in those subjects which received, at the same time as the scarification, tuberculin injections hypodermatically, but it appears rather well-marked in animals which previously received tuberculin subcutaneously and without any difference whether one or several injections had been given. Vallée has also obtained satisfactory results in a series of cases of glanders.

These are the bare facts so far available. No doubt further observations will add much to the results already at hand. As yet no very serious attempt appears to have been made in order to supply a satisfactory theoretical explanation of the phenomenon, which may be regarded as indicating an increased degree of sensitiveness of the skin to infectious material on part of those suffering at the time with actual infection by the corresponding microbe. Undoubtedly much use will be made of this reaction in the study of various infectious diseases, and the outlook promises interesting developments.

A LESSON IN MALARIA PREVENTION.

When there is a jump in the number of cases of typhoid fever in any locality, the health officer at once proceeds to look for its cause, which, under ordinary circumstances, it is usually easy to find, and the spread of the disease is checked. This would have been deemed impossible a half century ago, and looked scarcely more than a bright dream even a generation ago. Now we have come to realize the real cause of malaria, yet the old doubts that used to exist with regard to the possible limitation of typhoid are prone to have a place, and people can not be quite persuaded that the malaria statistics are as well under the control of health officials as those of typhoid fever. A rather striking example of how much can be accomplished by watchfulness and proper command of such resources as are necessary to prevent the spread of malaria can be obtained from an incident in the sanitary history of Panama during the past spring. At the beginning of March, as during the preceding weeks, an average of five cases of malaria a week were reported at Forty Mile Camp in the Pedro Miguel, where the average population is something under 750. About the middle of March, however, the number of reported cases of malaria increased suddenly to twenty in the week. The conclusion was at once reached that there was some collection of stagnant water in the neighborhood which was breeding mosquitoes of the anopheles type and which needed looking after. After a few days, the inspector found what he was looking for in the shape of an old scow left over from the days of the French in Panama and which had been completely overgrown by the tropical forests in its neighborhood and so had escaped notice. This was at once emptied of water, and the larvæ of the mosquitoes destroyed. At the end of three weeks the number of reported cases dropped again to less than five, and the mosquito theory as the sole source of malaria and its possibilities in modern sanitation was once more vindicated, while another lesson in disease prophylaxis had been quietly given to the world.

TAXING HOSPITALS.

Hospitals that receive pay patients are subject to taxation in Illinois, according to a recent judicial decision. In other words, any institution that takes any support other than from taxation must be fully taxed, no matter how much of its service is given gratuitously to the public—a single paying patient makes all the difference. There is apparently no provision for any reduction for the amount of charity work done. This will be a very inconvenient addition to the already heavily burdened budgets of many of these institutions. The rank injustice and bad public policy of thus taxing the charitable institutions, which are themselves founded to relieve public burdens, is evident, but that is seemingly not a consideration to legislators and officials. In fact, a very respectable proportion of the members of the medical profession give the larger part of their services gratuitously to their needy fellow-citizens, even in states and municipalities where they have to pay a heavy occupation tax for the privilege of thus working for the public. There is no other profession that is thus doubly taxed, but we submit to it and it is perhaps good for our souls, though its temporal disadvantages are obvious. Private hospitals that are run for profit or to accommodate a profitable practice may justly be taxed like any other property, but those that are mainly supported by private endowments and contributions and that receive charity patients to an appreciable amount have a right to demand public support, at least to a proportion of the extent to which they relieve public burdens, instead of being taxed in addition. In many states such a ruling would find few public general hospitals exempt. How much the public charges would be increased if the community had to depend on the exempted hospital alone is a subject for the imagination.

NOISES AND THEIR SUPPRESSION.

A proposition that will receive cordial endorsement of medical men has been made to arrange for "zones of quiet" in our large cities, in the neighborhood of hospitals, etc., where the ordinary and extraordinary street noises will be hushed and invalids and nervous individuals be relieved from their constant irritation. The idea is an excellent one; the trouble is that it not more generally practicable. Many of our city noises are needless and should be suppressed; others are almost unavoidable and their general suppression out of the question. As cities grow, care may be taken to divert traffic and noise-making factories from the vicinities of hospitals, and further to locate new institutions so that the problem of noise can be controlled perpetually.

PHIMOSIS AND CONSTIPATION.

Phimosis has been incriminated so often as a reflex cause of remote disease that it seems almost unnecessary to refer to it anew. A recent study of Witzenhauser[1] refers to a rather important effect of phimosis which may be overlooked, as it occurs in very young children, and as it is not associated in the mother's mind with any urinary disturbance. This author states that he has been consulted by mothers in a number of instances with regard to small boys in whom the main symptoms were obstinate constipation with cramps, great restlessness, and, as a result, gradual deterioration of the general health. When the mother was questioned as to urinary disturbances she generally denied their occurrence, answering that the child urinated very freely. Witzenhauser found in many such patients that the constipation was associated with great dilation of the bladder from phimosis, with a retention overflow, and as a secondary result pressure on the bowel with constipation. Circumcision quickly removed the cause and likewise the symptoms.

THE THERAPY OF WORK DENIED.

The enforcement of idleness among the inmates of charitable institutions will be the result of a recent decision barring the inmates of Illinois state charitable institutions from manufacturing articles to be used by these institutions. It should be remembered that the employment of such persons is not so much of economic value as it is a necessary remedy for their diseases. The danger of a slight disturbance of the market or competition with free labor should not be allowed to interfere with the proper treatment of disease. As *Cooperation*[2] remarks, the same logic would prevent the culture of vegetables, which furnishes opportunity for health-giving out-of-door work. Our contemporary very pertinently says: "It seems a pity that a legal technicality must make us overlook the mountain of benefit, to see only the tiny molehill of harm in the system. If it is the law, the law should be changed."

Medical News

COLORADO.

New Society at Lamar.—The Prowers County Medical Society was organized July 4 at Lamar and a constitution and bylaws adopted. The following officers were elected: President, Dr. J. S. Hasty; secretary-treasurer, Dr. Elmer E. Bartelt, both of Lamar.

Personal.—Drs. Bernard Oettinger and Samuel D. Hopkins, Denver, have been appointed examiners in lunacy to the County Court of the City and County of Denver.——Dr. Solomon Kahn, Leadville, was thrown from his buggy July 7 and seriously injured.——Dr. Henry L. Richardson, Colorado Springs, has been appointed coroner of El Paso County, in the absence of Dr. D. B. Laws.

CONNECTICUT.

Investigate Tuberculosis.—The general assembly has authorized Governor Woodruff to appoint a commission of nine to investigate the prevalence of tuberculosis in the state.

Personal.—Dr. S. J. Goldberg, Hartford, has been appointed assistant to Dr. Lyman at the Gaylord Sanitarium for Tuberculosis.——Dr. Frederick Powers has been appointed health officer of Westport.——Dr. Charles F. Congdon, Salem, fell from a ladder recently and was rendered unconscious, but escaped serious injury.

Mortality for June.—The secretary of the State Board of Health reports 1,211 deaths during June. This was 118 less than in May and 37 less than for the corresponding month of last year. Two cases of smallpox were reported during the month and two of cerebrospinal fever. Infectious diseases were reported as follows: Measles, 327 cases in 45 towns; scarlet fever, 108 cases in 30 towns; diphtheria, 120 cases in 33 towns; whooping-cough, 66 cases in 25 towns; typhoid fever, 39 cases in 25 towns, and tuberculosis, 36 cases in 22 towns.

DISTRICT OF COLUMBIA.

Personal.—Dr. Reid Hunt sailed for Europe, July 19.

Health Report.—The mortality report for the week ended July 13 shows the effects of the continued hot weather, especially in deaths from diarrheal diseases among infants. The total deaths from this cause during the week were 35; of this number 31 were among children under 2 years of age, and of these 17 were colored. There were 75 deaths among the colored population, equivalent to an annual death rate per 1,000 of 40.5. Some of the principal causes of this heavy mortality among the colored population were: Diarrheal diseases, 17; heart diseases, 6; kidney diseases, 5; pneumonia, 5; apoplexy, 4; influenza, 3, and typhoid fever, 2. The principal causes of death in the general mortality were: Diarrheal diseases, 31; heart diseases, 17; kidney disease, 12; apoplexy, 8; tuberculosis, 8; pneumonia, 7; infantile convulsions, 2; typhoid fever, 2. The death rate among the white population amounted to 16.5 per 1,000. A classification of the total mortality as to age shows 48 deaths under one year, and 68 between the ages of 20 and 69, inclusive.

ILLINOIS.

Personal.—Dr. Rosalie M. Ladova, Chicago, was thrown from a buggy at Winona Lake, Ind., and sustained a Pott's fracture; she was taken to St. Luke's Hospital. She sustained no internal injuries, as was reported.——Dr. Carl H. Rembe, Lincoln, sailed for Europe July 16.

Chicago.

The Week's Health Bulletin.—Seasonal advice on typhoid prophylaxis is contained in the bulletin of the Chicago department of health for the week ended July 20, 1907. It calls attention to the fact that each year in August there is an increase in typhoid fever and that investigation shows that about one-fourth of all Chicago cases are contracted in the country where the victim has been spending his summer vacation. Warning is therefore given against the use of polluted water from lakes, streams and infected wells. Care should be taken also regarding the use of milk, ice and raw vegetables.——The deaths for the week ended July 20 numbered 500, equivalent to an annual death rate of 12.37 per 1,000. The July death rate promises to be a low one. During the first twenty days of the month the annual death rate was 11.86 per 1,000 of population. The lowest rate previously recorded in thirty years was 11.95 in July, 1904.

INDIANA.

Personal.—Dr. Wilfred Manwaring, head of the department of pathology in the Indiana University, sailed July 14, to spend two years in research in European laboratories, under the auspices of the Rockefeller Institute for Medical Research, New York City.

Tuberculosis Dispensary.—On July 10 the Indianapolis City Dispensary opened its turberculosis department under the direction of Dr. Edward F. Kiser. The consulting room will be open every afternoon between 4 and 6 for tuberculosis patients.

Communicable Diseases.—On the petition of the business men of Whiting, Dr. J. N. Hurty has made an investigation of the typhoid epidemic which is said to exist in that city.——It is reported that Cromwell has an epidemic of scarlet fever and that public meetings have been prohibited.——Logansport is now said to be free from smallpox.——In the settlement near Arthur 19 cases of smallpox were discovered July 9.——Five well-developed cases of smallpox were discovered July 8 in Monroe Township.——The board of health of Laporte has notified parents that no children will be admitted to public or parochial schools of the city without a certificate of vaccination signed by a member of the board of health.——Smallpox is reported near a camp-meeting ground in Randolph County, near Jay County.——Three cases of smallpox are reported in one family at Salem.——Seven cases of smallpox are reported in Hamilton County.

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[1] Münch. med. Wochschr., May 28, 1907.

[2] Cooperation, July 13, 1907.

IOWA.

Hospital for Mason City.—The physicians of Mason City are organizing to erect a hospital which will cost from $40,000 to $60,000. They expect to secure the cooperation of the sisterhoods at St. Paul and Dubuque to aid in the project.

Medicine Venders Must Be Licensed.—At the request of the State Board of Health, the attorney general has given an opinion as regards licensing of itinerant physicians. The board has no option in the matter and must issue a license when the applicant has complied with all the requirements of the law, but advises the board that it is warranted in going to the extreme in the question of satisfying itself that the applicant does comply with the law. The applicant must have a physician's license before he can obtain a license as an itinerant, and furthermore must satisfy the board as to his competency and morality.

KENTUCKY.

Fresh Air Home.—Forty children from Louisville are enjoying the country at the Fresh Air Home for Children, established at Camden. Dr. Irvin Lindenberger has been appointed physician and will visit the home three times a week.

Vacations.—The following Louisville physicians have gone abroad for their summer vacations: Drs. J. Garland Sherrill, Lewis S. McMurtry, Joseph M. Mathews and Samuel G. Dabney.——Dr. Henry E. Tuley has gone to Lake Cisco, Mich., and Dr. Charles W. Hibbitt to northern Michigan on a fishing trip. Dr. James S. Chenoweth spent part of June and July in Nova Scotia.

Appointment of Physicians.—Acting on the suggestion of the mayor of Louisville, recently appointed by the governor, the Jefferson County Medical Society selected a committee, composed of the president, Dr. S. J. Meyers, and Drs. William Bailey and John J. Moren, to confer with the mayor in regard to the appointment of a health officer and superintendent of the City Hospital. At this meeting also four additional delegates were elected to the state association meeting in October, the county society at present being entitled to eight delegates.

MARYLAND.

Personal.—Dr. William D. Corse, Gardenville, is reported convalescent after being struck by lightning and rendered unconscious, July 18.——Dr. Jackson Piper, Towson, is seriously ill.

State Society Meeting at Jamestown.—The Medical and Chirurgical Faculty will hold its semi-annual session at Jamestown, from September 11 to 13. A boat has been chartered to carry the members down, and the total cost per member will be $15.

College News.—The following changes are reported in the faculty of the University of Maryland: Dr. Charles W. McElfresh, professor of clinical medicine; Dr. Walter H. Mayhew, lecturer on histology and embryology; Dr. Irving J. Spear, lecturer on neurology and psychiatry; Dr. William H. Smith, instructor in clinical medicine; Dr. John H. Smith, Jr., assistant demonstrator of anatomy and prosector to the professor of anatomy; Dr. J. W. Pierson, assistant demonstrator of anatomy. The fees of the medical school have been raised to $150.——Drs. Stephen H. Watts, resident surgeon, and Harvey B. Stone, assistant resident surgeon, of the Johns Hopkins Hospital, will reorganize the Medical School of the University of Virginia and found a large clinic at Charlottesville, modeled after that of the Johns Hopkins Medical School.

Baltimore.

Vacations.—Dr. G. McLane Tiffany is at Manchester-by-the-Sea, Mass.——Dr. Clement A. Penrose is at Siasconset, Nantucket Island.——Dr. John W. Chambers is at Mount Clemens, Mich.——Dr. Edward L. Mellus is spending the summer at Dublin, N. H.——Dr. Joseph T. Smith is in Europe.

Personal.—Dr. William G. MacCallum sailed for Europe July 16.——Dr. Henry M. Fitzhugh has moved to Westminster.——Dr. J. H. Hartman was badly bruised and narrowly escaped serious injury on South Mountain, near Hagerstown, recently, when the brake on his automobile broke on a steep hill.——Drs. J. Frank Crouch, William W. Ford, Henry O. Reik and John Ruhräh sailed for Europe July 18.

MASSACHUSETTS.

Personal.—Dr. Augustine L. Chase, Randolph, has been reappointed a member of the State Board of Registration in Medicine.——The governor has nominated Drs. Arthur T. Cabot, Boston; William D. McFee, Haverhill, and Albert C. Getchell, Worcester, as trustees of the three state tuberculosis sanatoria to be established.

Jewish Sanatorium.—A meeting of all the Jewish physicians in Boston was held July 11 to organize a medical staff and form an advisory board to cooperate with the Hebrew Ladies' Helping Hand Association in the supervision and maintenance of a sanatorium for Jewish consumptives.

Bequests.—By the will of the late Henry Mulliken, of Boston, Waltham Hospital is expected to receive a bequest of about $300,000.——Francis D. LeCompte has given $50,000 to establish a professorship of otology in Harvard Medical School in memory of the late Dr. Walter Augustus LeCompte.

MICHIGAN.

Off for Europe.—Dr. Emil Amberg, Detroit, has gone to Europe.——Dr. and Mrs. Henry R. Harrower, Battle Creek, sailed for Quebec July 12.——Dr. Frank A. Millard, Detroit, sailed for Europe July 15.

Communicable Diseases.—Measles is reported to be epidemic in Vassar and Holland.—Four cases of smallpox are reported from North Plains Township, north of Hubbardstown.——The thirteenth death from typhoid fever occurred in Calumet July 3, and the authorities say that the epidemic is well in hand.

Personal.—Dr. Walter F. Parker, professor of ophthalmology in the University of Michigan, has resigned, and will devote himself to private practice in Detroit.——Dr. Orton Clark, Kalamazoo, has been appointed division physician for the Grand Rapids & Indiana Railroad, vice Dr. John W. Bosman, absent in Europe.——Dr. George F. Britton has been appointed resident physician at Harper Hospital, Detroit.——Dr. Robert B. Howell has been appointed assistant medical superintendent of Wayne County, vice Dr. W. B. James, resigned.——Dr. Howard Osborn, Detroit, has become a member of the staff of the Eastern Michigan Insane Hospital, Pontiac.——Dr. C. T. Newkirk, assistant surgeon, M. N. G., and in charge of the hospital corps of Bay City, has been placed on the retired list.

MINNESOTA.

Do Not Wish Names Mentioned.—The Blue Earth County Medical Society, at a recent meeting, adopted a resolution asking the press to refrain from mentioning the names of members of the profession in connection with operations, consultations, cases of sickness or professional visits.

Alumni Meet.—At the thirteenth annual meeting and banquet of the alumni of the School of Medicine of the University of Minnesota the following officers were elected: President, Dr. Harry P. Ritchie, St. Paul; vice-presidents, Drs. Jennings C. Litzenberg, Minneapolis, and G. C. Sheppard, Kimball Prairie, and secretary-treasurer, Dr. Herbert W. Jones, Minneapolis.

NEW HAMPSHIRE.

Sanatorium to Close.—The Pembroke Sanatorium for Consumptives has been closed and will hereafter be conducted as a summer resort.

Personal.—Dr. Harold C. Goodwin, Concord, assistant superintendent of the Concord State Hospital, has been elected superintendent of the Albany (N. Y.) Hospital, vice Dr. Simon F. Cox.——Dr. and Mrs. Oswald Maynard, Nashua, have returned after a year abroad.

Trustees Elect Officers.—The trustees of the State Sanatorium for Consumptives, at a recent meeting, elected Dr. Ezra Mitchell, Lancaster, president; Dr. Samuel R. Upham, Claremont, vice-president; Charles G. Sheed, Keene, clerk, and Dr. Irving A. Watson, Concord, treasurer.

Hospital Notes.—The corner stone of the Laconia City Hospital was laid June 28, with appropriate ceremonies. The building, when completed, will have cost more than $30,000.——The Littleton Hospital, work on which was begun late last summer, was dedicated June 27.

NEW JERSEY.

Typhoid in Insane Hospital.—It is reported that more than 50 cases of typhoid fever, with several deaths, have occurred in the State Hospital for the Insane at Trenton since April 1, and that the epidemic is due to the insanitary condition of the institution. Dr. Henry Mitchel, secretary of the State Board of Health, has submitted a report on the conditions existing in the hospital. Dr. Mitchel gives as the probable cause of the epidemic the pollution of a spring from which the hospital receives its drinking water. He intimates that the sanitary conditions of the institution are very bad and due to neglect by the authorities. A thorough investigation is to be made.

NEW YORK.

Personal.—Dr. Ida C. Bender will attend the International Congress of School Hygiene, to be held in London, August 5-10, as Buffalo's official representative. An endeavor will be made to have the next congress meet in Buffalo.

Public Health Defense League.—The Public Health Defense League of New York City, which is doing excellent work in exterminating charlatans, abortionists and their kindred, has opened a branch in Buffalo and many physicians and laymen are enlisting in this good work.

Products of State Hospitals to Be Reported Monthly.—Governor Hughes has approved the bill of Senator Armstrong providing that the proceeds of the sales of the manufactures and products of the state hospitals be reported monthly to the State Treasurer by the State Lunacy Commission.

Milk Commission Appointed.—The personnel of the recently appointed milk commission of the Medical Society of Monroe County is as follows: Drs. Richard M. Moore, Rochester; Lewis W. Rose, Rochester; Paul D. Carpenter, Pittsford, and John R. Williams, Rochester, who is secretary of the commission.

Smallpox.—A case of smallpox developed in a clerk employed in a railway office. He was taken to the Quarantine Hospital, Buffalo, which has half a dozen patients.——At present smallpox is epidemic in Erie County. The health commissioner has ordered several small towns quarantined and has forbidden them to send milk to Buffalo.

Oleomargarine at Coney Island.—Through the activity of the State Department of Agriculture residents of boarding houses and patrons of restaurants at this popular resort will be spared from further consumption of oleomargarine. One arrest has been made and the offender held for General Sessions under $500 bail. Further arrests are expected. Although the federal government permits the sale of oleomargarine under proper license, the State of New York absolutely prohibits it.

Polluting the Oswego.—The State Health Department, in its bulletin, announces that it has informed the public officials of the municipalities in the Oswego River watershed that it will hereafter require that no sewage shall be discharged into any of the waters of the Oswego River without preliminary treatment. The degree of purification required by the health department will depend on local and other conditions affecting the public health and comfort of the residents who dwell in the vicinity of these streams or receive their water supplies from them.

Conference of Sanitary Officers.—Dr. H. D. Pease, director of the State Hygienic Laboratory, visited Buffalo to make arrangements for the coming convention of the New York State Conference of Sanitary Officers, which will bring 1,200 sanitary officers to Buffalo, October 14-19. The conference this year will be the largest of its kind ever held in America. A new state law compels every village and township to pay the expenses of its health officer to this gathering, and that will mean that over 1,200 will attend. Governor Hughes will address the body. All questions relating to public health will be discussed and the meetings will be open to the public. Experts from Washington, Chicago and New York will address the conference on the subjects of tuberculosis, pure milk, water filtration, sewage disposal, child labor, tenement-house problems and other topics. One of the features will be the tuberculosis and hygienic exhibits which illustrate what is done by New York state for the treatment of tuberculosis. Miniature tuberculosis camps will also be shown.

New York City.

Hoffman Island Improvements.—Governor Hughes approved the bill appropriating $20,000 for improvements at the Hoffman Island quarantine station.

Scores Prostrated by the Heat.—July 17 and 18 were the hottest days of the year and kept the ambulances and surgeons busy. When night fell at Coney Island more than 5,000 men, women and children were sleeping on the beach.

Personal.—Dr. and Mrs. Harold Barclay and Dr. and Mrs. John H. Claiborne sailed for Bologne and Rotterdam, July 17.——Dr. George A. Taylor sailed for Plymouth, July 18.——Nathan Straus has gone to Europe to attend the second international milk congress at Brussels in September.

Spreading Knowledge of Tuberculosis.—The reverse side of the transfers used on the various surface lines in this city contain, on certain days, instructions to consumptives and the addresses of the various tuberculosis dispensaries. The privilege is a courtesy from the business firm which usually advertises there.

Bequests.—The will of Isidor Wormser, the banker, gives to Mount Sinai Hospital and the Hebrew Orphan Asylum $2,500 each; to the United Hebrew Charities Association, $2,000; to the Home for Aged and Infirm Hebrews, the Montefiore Home for Chronic Invalids, the Roman Catholic Orphan Asylum and others, 1,000 each.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended July 13, 413 cases of tuberculosis, with 170 deaths; 514 cases of measles, with 29 deaths; 361 cases of diphtheria, with 31 deaths; 274 cases of scarlet fever, with 15 deaths; 49 cases of typhoid fever, with 12 deaths; 35 cases of whooping-cough, with 5 deaths; 16 cases of cerebrospinal meningitis, with 9 deaths, and 37 cases of varicella, a total of 1,699 cases and 271 deaths.

Consumptives' Boat.—Moored at the dock at the foot of West Sixteenth Street, on the North River, is the old Staten Island ferryboat which is now used as a day camp for consumptives. Patients are sent to the boat after being examined and passed by the doctors in charge of the Associated Tuberculosis Dispensaries. They remain on board until 5 o'clock, when they return to their homes. During the day they are given from three to eight eggs, and from three to eight glasses of milk. They supply themselves with other food, except coffee, tea, bread and butter, etc. John A. Bensel, commissioner of the department of docks and ferries, is a helpful ally.

OHIO.

The Unfortunate.—Dr. Henry A. Tobey, formerly superintendent of the Toledo State Hospital for the Insane, is seriously ill at his home in Toledo.——Dr. Abraham M. Kyser, McComb, is still ill as a result of a fall several months ago at Bluffton.

To Establish Tent Colony.—Dr. Albert Faller, physician to the Branch Hospital for Consumptives, Cincinnati, acting in the interests of the Anti-Tuberculosis League, has invited all the organizations of the city to establish tent colonies on the new hospital grounds for the treatment of their members suffering from tuberculosis. The Central Labor Council, on behalf of the trades unions of the city, immediately accepted the invitation and will at once establish and equip two large tents, adding others as they may be needed.

Illegal Practitioners.—C. A. Detmering, Lorain, charged with having practiced osteopathy without having taken out a license in compliance with the law, was found guilty, June 22, and fined $30 and costs.——Ed Pfeiffer, Columbus, known as the "German doctor," was found guilty of the unlawful practice of medicine, June 26. Sentence was suspended pending a motion for a new trial.——Carey S. Ferris, an irregular practitioner of Cleveland, on July 4 was deprived of the right to practice in Ohio by the State Board of Medical Examination and Registration.——Information has been filed in the Probate Court of Toledo by the public prosecutor against George Halbman, who describes himself as an expert herbalist and centaur doctor, charging him with practicing medicine without a license.——Emil Justin Rose, Columbus, has secured an injunction temporarily restraining the State Board of Medical Examination and Registration from examining witnesses against him or revoking his license.

PENNSYLVANIA.

Contract Practice Prohibited.—At the regular meeting of the Montgomery County Medical Society, held in Norristown, May 22, a resolution was adopted which compels each member to give up all contract work, including lodge and society work. Members who continue to do contract practice are to be expelled.

Philadelphia.

The Alvarenga Prize.—The Alvarenga prize of the College of Physicians of Philadelphia, for 1907, has been awarded to William Louis Chapman, M.D., Providence, R. I., for investigations on "Postoperative Phlebitis, Thrombosis and Embolism."

Bequests.—The will of the late Edwin C. Weaver bequeaths $1,000 to the Children's Aid Society and the Northern Home for Friendless Children. A provisional bequest of $5,000 to the Pennsylvania and Episcopal hospitals is also contained in the will.——The will of the late Caroline Wolf bequeaths $200 each to St. Vincent's Orphan Asylum and St. Mary's Hospital, and $100 each to the Red Bank Sanatorium and to the society to protect children from cruelty.——By the will of the late Patrick McNulty the Little Sisters of the Poor receive $1,000.

Personal.—Dr. Frederick Dunlop, resident physician in St. Joseph's Hospital, was thrown from the ambulance July 17 and sustained an extensive laceration of the scalp and severe body contusions.——The following physicians have sailed for Europe: Dr. L. J. Lautenbach, July 15; Drs. J. S. Borsch and F. Borsch, July 16; Dr. and Mrs. J. William White, and Dr. L. Webster Fox, July 18; Dr. E. F. Pettingill, July 19.

Heat Prostrations.—As the result of the exposure of many thousands of people to the sun on an unusually hot day, during a parade, July 18, an unprecedented number of heat prostrations were reported. It is estimated that over 3.000 people succumbed to the excessive heat and 4 deaths were reported. The hospitals throughout the city were overcrowded and many emergency institutions were established for the treatment of the victims.

Health Report.—The deaths reported for the week ended July 20 aggregated 499. (It is an interesting point that for the same week 500 deaths were recorded in Chicago.) This is an increase of 31 over the number reported in the previous week, and an increase of 71 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 9; pertussis, 4; meningitis, 6; tuberculosis, 62; cancer, 22; apoplexy, 19; heart disease, 33; tetanus, 2; acute respiratory disease, 14; enteritis, 92; Bright's disease, 36; congenital debility, 15; accidents, 24; heat stroke, 4; marasmus, 11, and unknown causes, 15. One hundred new cases of contagious disease were reported, with 12 deaths, as compared with 122 cases and 8 deaths reported in the preceding seven days.

Pure Food Rules.—Dr. Neff, director of the Department of Health and Charities, issued stringent rules July 9 for the government of slaughter-houses and other establishments where meats, poultry and fish are prepared for use as food. He prescribed strict cleanliness and particular attention to drainage, the disposal of offal and ventilation. The employés of these establishments will be subjected to the same rigid inspection as the establishments themselves, and even their physical condition and habits while on duty are to be looked after. Dr. Neff orders that the conveying of dressed carcasses through the streets exposed to view is to be prohibited, and that articles of food, if found to contain coloring matter or preservatives, are to be seized and destroyed. The rules laid down by Dr. Neff are very stringent and if properly enforced will no doubt help to maintain the present good health of the community. They are very stringent and detailed.

TENNESSEE.

Addition to Vanderbilt Medical School.—A hospital ward will be added to the Vanderbilt Medical School to give students practical clinical instruction.

Measles Epidemic.—The health officer of Nashville reports measles epidemic in that city. In spite of the ordinance requiring physicians to report cases, he is of the opinion that the reports include only a small proportion of the actual cases that exist.

Commencement.—The annual commencement exercises of the Medical College of the University of Nashville were held June 28, when a class of forty-one was graduated. The doctorate address was delivered by Dr. Joseph P. Keller, and the degrees were conferred by Chancellor James D. Porter, A.M., LL.D.

Personal.—Dr. Charles P. McNabb, president of the Tennessee Medical College, Knoxville, has resigned after fourteen years' service in that institution.——Dr. Thomas F. Staley, Bristol has returned after an extended trip to China, Japan and Corea.——Dr. William L. McCreary, Nashville, has been reappointed a member of the State Board of Medical Examiners.

TEXAS.

State Health Officer, Not Surgeon General.—The attorney general has handed down an opinion in reply to an inquiry from the adjutant general, that the state health officer is not ex officio surgeon general with the rank of colonel. During the days of the volunteer guard this rank was given the state health officer, but under the present organization of the National Guard it does not obtain.

Personal.—Dr. Joseph R. Stuart, Houston, has resigned as a member of the State Board of Health.——The following have been nominated as members of the Board of Health of Dallas, Drs. Jesse M. Pace, John O. McReynolds, and Samuel E. Milliken.——Dr. B. O. McLean, Caldwell, has resigned as health officer of Burleson County and Dr. Gause W. Covington, Aspermont, has been appointed his successor.——Dr. Robert L. Hall has been appointed a member of the Board of Health of Terrell.

Hospital Notes.—The Physicians' and Surgeons' Hospital, Hillsboro, has been incorporated with a capital stock of $3,000.——The Del Rio Hospital has been incorporated, with a capital stock of $15,000.——Dr. James G. Boyd, Houston, has purchased the E. P. Turner homestead for $25,000 and will convert it into a sanitarium.——The new addition to Saint Joseph's Infirmary, Fort Worth, erected at a cost of $85,000, was dedicated July 7 with impressive ceremonies. The new building contains 110 rooms, 60 of which are private rooms for patients, and 12 wards, capable of accommodating six patients each.——The contract for the addition of ten rooms and basement to the King's Daughters Hospital Temple was let July 4 for $10.000. The building is to be completed by November 1.

VIRGINIA.

Medical Man Fined.—Thomas B. Bollen, a negro "medicine man" of Danville, was arrested and arraigned in the mayor's court on the charge of practicing medicine without a license, and is reported to have been fined $30 and costs.

Personal.—Dr. Paul B. Barringer, of the Faculty of Medicine of the University of Virginia, has been elected president of the Virginia Polytechnic Institute, and will assume the duties of his new position September 1.——Dr. Douglass Vanderhoof, Richmond, has had the degree of Master of Arts conferred on him by Dartmouth Medical College, Hanover, N. H.

Smallpox in Richmond.—The chief health officer of Richmond, Dr. Ernest C. Levy, announces that gross neglect of vaccination is responsible for the outbreak of smallpox in the city. Of the more than 70 cases of smallpox in the Isolation Hospital during the last year, only one man, about 70 years of age, had been successfully vaccinated, and he when an infant.

Want Tax Removed.—The physicians of the state intend to renew their fight, at the next session of the state legislature, to have the state tax on physicians abolished, on the grounds that the physicians of the state are doing a vast amount of charity work by preventing an increase in the almshouse population of the state, thus enabling those who would otherwise be charges on the state to earn their own livelihood.

Society Meeting.—The annual meeting of the Northern Neck Medical Association was recently held at Hague, when the following officers were elected: President, Dr. Walker; vice-presidents, Drs. Fisher, Newbill and Loren E. Cockrell, Reedville; secretary, Dr. Robert O. Lyell, Warsaw; treasurer, Dr. Walter N. Chinn, Hague, and librarian, Dr. Harrison. Irvington was selected as the place for the next meeting, which will be held December 5.

UTAH.

Personal.—Dr. Joseph Milleron, Salt Lake City, charged with violating the city laws in not reporting two cases of smallpox to the health authorities, was found guilty, but was discharged, as the judge stated that he believed the defendant had done nothing but what he believed to be right.——Dr. and Mrs. Arthur F. Rykert, Salt Lake City, are expected soon to return from Paris.

Medical Quarterly.—The Third Councilor District Medical Society began in July the publication of a quarterly called the *Physician's Bulletin*, which it is hoped will be of more benefit to the society than the circular letter ordinarily issued. The first number gives the regulations regarding the registration of certificates; notice of the first summer meeting; notes of the meeting of the American Medical Association and county medical society; state notes and Third District clippings.

WASHINGTON.

Hospital Notes.—The health authorities of Spokane have arranged to erect a building for the housing of poor consumptives, which will contain accommodation for twenty patients.

Smallpox.—Dr. Phillip Frank, North Yakima, health officer of Yakima County, has found seven well-developed cases of smallpox in Wapato. Of the seven patients, three have mingled freely with other people, and an epidemic is feared.

State Board of Election.—At a meeting in Seattle last week the State Board of Medical Examiners elected Dr. James B. Eagleson, Seattle, president; Dr. George W. Overmeyer, South Bend, vice-president, and Dr. Caspar W. Sharples, Seattle, secretary.

Personal.—Dr. Maurice C. Robins has resigned as city bacteriologist of Spokane and has accepted the medical directorship of the Western Union Life Insurance Company in that city.——Dr. James C. Snyder, Seattle, has returned from Europe.

Less Influenza Among Indians.—Dr. Charles M. Buchanan, superintendent of the Tulalip Indian Agency, in a letter concerning a statement in The Journal, June 15, states that there have been eight deaths on the reservation from influenza in the year and that there have not been 100 deaths from this cause on the reservation during the last five years.

Indians Ask for Physician.—The Indians from the Quinault Reservation are making complaint to the government that they are not allowed a physician as provided in their treaty. The agent is not versed in the knowledge of medicine and, although a large drug store is maintained on the reservation by the government, they will not use the medicine because of their doubt of the medical ability of the agent.

GENERAL.

Life Insurance Examination Fees Restored.—As we go to press we learn that the Mutual Life Insurance Company of New York has restored the original fee of $5 for its medical examinations. This means that others of the old line companies, which cut their fees some two years ago, will do likewise.

Contagious Diseases in the Philippines.—The health report of Manila shows that no smallpox, cholera or other contagious disease was present during the past semester. This is said to be the first time in the history of the Philippine Islands that such a condition has existed.

Leper Maternity Hospital.—The Board of Health of Hawaii is about to build a maternity hospital and nursery at the Leper settlement at Molokai. The plan is to provide a hospital, open to all women of the settlement, and a nursery where infants can be taken at once and cared for, thus removing them from the danger of infection.

Health Statistics of Havana for June.—The total mortality of the municipal district of Havana in June, 1907, was 558, with a daily mortality of 18.60, equivalent to the annual death rate of 24.25 per 1,000 inhabitants. The diseases that caused the greatest number of deaths are as follows: Circulatory system, 97; enteritis (under 2 years), 86; tuberculosis, 84; simple meningitis, 43; cancer, 24; congenital debility, 24; acute bronchitis, bronchopneumonia and pneumonia, 21; enteritis (in children of 2 years and over), 17; typhoid fever, 16; cerebral congestion and hemorrhage, 14; Bright's disease, 13; influenza, 8; encephalitis, 6; cirrhosis of the liver, 6; hepatitis, 6; senile debility, 6. No case of acute quarantinable disease was reported during the month.

Society Meetings.—The thirty-fifth annual meeting of the Tri-State Medical Association of Michigan, Ohio and Indiana was held in Detroit July 9, when the following officers were reelected: President, Dr. Charles D. Aaron, Detroit; vice-president, Dr. Theo. G. Wood, Angola, Ind.; secretary, Dr. William F. Shumaker, Butler, Ind., and treasurer, Dr. Joseph A. Weitz, Montpelier, Ohio.——The eighth annual meeting of the N. S. Davis District Medical Association was held July 9 in Keokuk, Iowa. The following officers were elected: President, Dr. Charles H. Magee, Burlington; vice-presidents, Drs. Elmer E. Sherman, Keosauqua, Iowa, and William L. Downing, Moulton; secretary-treasurer, Dr. Oscar F. Pile, Memphis, Mo. (reelected), and board of censors, Drs. J. C. Taylor, Hamilton, Ill.; George W. Jones, Keokuk, Iowa, and Frank B. Hiller, Kahoka, Mo.——The twentieth annual meeting of the Medical Society of the Missouri Valley will be held in Council Bluffs, Iowa, September 5 and 6. In addition to the regular program, the visiting physicians will be the guests of the Carnival Association, which gives its annual fair at this time.

CANADA.

Osteopathy in New Brunswick.—The New Brunswick Medical Association is waging war against osteopathy in that province and has started a test case to establish the legal position in regard to its practice in that province.

The Alberta Medical Practice Act.—The supreme court of Canada having declared the Alberta medical act *ultra vires* and having reversed the judgment of the supreme court of the Northwest Territories, the Alberta Medical Council will decide whether or not to admit to practice those medical men who registered between the passing of the act and the judgment of the supreme court of Canada.

Death Rate in Montreal.—In the three summer months of 1906 over 1,500 children under 5 years of age died in Montreal. The city annuallly pays $30,000 for the care of contagious diseases, but nothing like that number die therefrom. As the mortality of the present summer bids fair to surpass that of last year, the hygienic committee is waging a spirited educational campaign in an endeavor to stay the present high infant mortality in that city.

Hospital News.—The Alexandra Contagious Diseases Hospital, Montreal, is crowded with patients (48), while the St. Paul's Hospital, which treats the French-Canadians, has but very few (10). French-Canadians object to sending their children to hospitals. The situation is said to be peculiar, as the city has arranged to give each hospital a specified grant per annum, though the Alexandra Hospital does the bulk of the work.——London, Ont., is to have a new isolation hospital at a cost of $50,000. There will be an administration department and wards for scarlet fever and diphtheria patients to accommodate 120 patients. The Ontario government's new Hygienic Institute will be located near this hospital.

Personal.—Dr. Andrew Macphail, editor of the *Montreal Medical Journal*, is in Europe.——Dr. H. B. Anderson, associate professor of medicine in the University of Toronto, has returned from Germany.——Dr. Allan Kinghorn, a graduate of the University of Toronto, 1904, is one of the members of another Liverpool expedition to study sleeping sickness in Africa.——Dr. William Bayard, St. John, N. B., still visits patients, although in his ninety-third year. He is about completing his seventieth year in practice.——Dr. Walter H. Moorhouse, dean of the Medical Faculty of the Western University, London, Ont., has resigned, owing to ill health, and has been suceeded by Dr. F. R. Eccles of London.——Mr. Anthony McGill has been appointed chief dominion analyst at Ottawa.

FOREIGN.

Ninth French Congress for Internal Medicine.—This will be held at Paris, Oct. 17-19, 1907. The principal topics to be discussed are: Treatment of simple ulcer of the stomach; pathogenesis and treatment of exophthalmic goiter; hemophilia.

Personal.—Dr. Edwin Klebs, formerly professor in the University of Zürich, who is now residing in Charlottenburg, has lately celebrated the fifty year jubilee of his doctorate, and has received from the Berlin Medical Faculty an honorary diploma.

Society Meetings.—The Anglo-American Medical Association of Vienna held its last meeting before the July and August vacation, June 28. Prof. Dr. Tandler addressed the society on "Forms of Coadaptation of Organs, with Special Reference to the Liver."——The International Medical Association of Mexico will meet in Monterey; November 18-21.

Study Trip by German Physicians.—The annual excursion of German physicians for purposes of study begins September 1, with an inspection of the Berlin hospitals, after which the participants take a steamer chartered for the entire trip and visit the east sea watering-places as well as Rügen, Wisby in Gotland, Stockholm and Copenhagen, returning to Stettin, September 16. The expense of the journey is about $65.

Fake Writers Blacklisted.—At its meeting last year the German Association of Medical Editors decided to prepare a list of authors, who are accustomed to furnish, for pay, articles recommending new remedies and the preparations of chemical manufacturers. Their articles are neither to be published nor abstracted in the journals of the members of the association. After the most thorough sifting of the evidence, which was made possible by the cooperation of the large chemical manufacturers, a list of this character has now been completed and distributed. The association hopes, through common effort, to eliminate a canker from which the German medical journals and through them, the physicians, have suffered in late years.

LONDON LETTER.

(*From our Regular Correspondent.*)

London, July 15, 1907.

Hospitals in Great Britain.

Hospitals in Great Britain, as a rule, are in a similar situation as regards funds as are institutions of the same nature in the United States. London hospitals especially appear to suffer from a chronic lack of money. University College Hospital in London has issued recently an appeal for further support, stating that since the beginning of last year, the committee has been compelled to sell over $60,000 worth of stock to meet pressing tradesmen's bills. Few, if any, of the large London hospitals are sufficiently prosperous to keep all their beds going, while some of these establishments are almost in a bankrupt condition.

Prevention of Hospital Abuse in Liverpool.

A conference is to be held by the principal Liverpool hospitals with the object of attempting to prevent the abuse of charity by persons able to pay for medical treatment. The idea of the conference will be to discover whether there be an abuse of charity and, if so, to what extent.

National Conference on Sweated Industries.

A national conference on sweated industries is to be held in Glasgow, October 11 and 12. The matter is one of such supreme importance that it is to be hoped that some effective means of coping with the evil may be suggested.

Cerebrospinal Fever in Belfast.

Cerebrospinal fever in Belfast shows few signs of improvement. The public health committee held a meeting recently, when it was reported that there had been 17 cases of the disease during the week ending June 15, as compared with 13 for the previous week. During the same period 15 deaths occurred.

Sanatorium for Consumption.

The Brompton Hospital for Consumption, the largest hospital in Great Britain for diseases of the chest, has established a large sanatorium near Frimley, some 400 feet above the sea level, sheltered on the north and east by pine woods. The cost of the site, buildings and equipments amounts to $350,000. It is the largest sanatorium in the kingdom, stellate in form, two stories high, and contains 108 beds. The patients are put to such useful work as they are capable of performing and by a system of graded labor, are restored to their full working capacity. In 1906, 110 patients were discharged with "total arrest" of the disease. Of these 93 are at work as against 5 who are not, while 12 have failed to report. Of 21 patients discharged as "much improved," 10 are at work. Of 25 patients discharged as "improved" 10 are at work.

A Tragedy of Tuberculosis.

Dr. J. Macdonald, health officer for Invernesshire, has reported the extinction of a whole family by tuberculosis without anything to explain such extraordinary virulence. A crofter lived in the same house for 21 years and acted as a "beater" or ghillie in the summer season. His family, consisting of himself, wife, five daughters and seven sons, ranging in ages from 2 to 21 years, had always been healthy. In April, 1906, the eldest girl, aged 21, who had been in domestic service, returned home suffering from a suppurating finger. Phthisis developed and she died of tuberculous meningitis, May 26. In November another daughter, aged 14, was found to be suffering from well-marked phthisis. She died Jan. 8, 1907. While she was ill the father began to suffer from cough, and the mother complained of pain in the abdomen and left ankle. Two daughters, aged respectively 10 and 20, also complained of cough, and the baby, aged 2, who was anemic and emaciated, also had a cough. Examination showed that the mother was suffering from tuberculous disease of the ankle and there was reason to suppose that the abdomen was also affected. The father, the two daughters and the baby showed signs of pulmonary phthisis. The baby and the daughter, aged 10, both died Jan. 10, 1907. The father died soon afterward. In March a boy, aged 15, was found to be suffering frmo phthisis. The mother died of tuberculous peritonitis. The following points are noteworthy in connection with this outbreak: 1. There was an entire absence of any family history of the disease on either side; 2, for 21 years the family had occupied the same house and enjoyed good health; 3, the acute onset of the disease and rapid progress in most of the cases. The house was of the ordinary type of crofter's dwelling, consisting of two apartments with stone walls, thatched roof, clay floors and very damp. The people were particularly clean and tidy and kept the house in excellent condition.

Antityphoid Inoculation in the Army.

Favorable results are reported from antityphoid vaccination in the army. The vaccine is prepared after the method of Sir A. E. Wright, its author, but in the light of research work continuously carried on at the Royal Army Medical College in the last two years modifications have been made in a few particulars. A non-virulent strain of typhoid bacilli is used, but the relative value of virulent and non-virulent cultures has not been definitely settled. The bacilli are grown in broth at a temperature of 37° C. for 24 to 48 hours and then sterilized by a temperature of 53° C. This was much lower than the temperature formerly used, which was 60 to 65° C. Experiments have shown that the lower temperature maintained for an hour is sufficient to insure sterility, and that unnecessarily high temperatures seriously impair the efficacy of vaccine. A dose of 500,000,000 bacilli is administered and ten days later a dose of 1,000,000,000. The blood of vaccinated persons shows evidence of higher bactericidal activity than normal and of the presence of agglutinins as long as six years after inoculation, but whether this is sufficient to prevent typhoid fever is not known. The latest clinical observations are as follows: In August and September, 1905, 150 men of the Seventeenth Lancers were inoculated, but of these 23 refused to accept a second dose. The regiment reached India September 28. About the end of October typhoid fever broke out and in the few months following 63 cases were observed. With two exceptions they occurred in the uninoculated portion of the regiment, and both these exceptions were men who refused the second inoculation.

London's Milk Supply.

A conference on the source, surroundings and distribution of milk was held July 1 at the Incorporated Institute of Hygiene, London. Dr. A. W. Mayo Robson presided, and in his opening speech said, in part, that the children killed by poisonous milk would, if they grew up, constitute a large army; the number of those who grow up and suffer from the poison might be counted in our hospitals and prisons. The transmission of tuberculosis by milk has been definitely settled by the Tuberculosis Commission. Typhoid and scarlet fever, sore throat and diarrhea are also transmissible by the contamination of milk. Dr. Thresh proposed the compulsory veterinary inspection throughout the kingdom of all cows whose milk is sold for human consumption, and advocated that veterinary inspectors should have the power to isolate a diseased cow and prevent the sale of its milk, to see that all cow sheds were properly constructed, with proper water supplies, and to serve notices, not only on the tenant as now, but also on the owner. Dr. Carpenter, editor of the *British Journal of Children's Diseases,* said there should be one law for the kingdom, and the local government board should be the central and superior authority. He moved a resolution dealing with a system of annual licenses to dairymen and with periodical microscopic and bacteriologic, as well as chemical examinations of milk

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Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

The Strength and Purity of Important Drugs.

The necessity for drugs and their pharmacopeial preparations to be up to the standard of strength can not be emphasized too many times.

A brief reference to this subject in Dr. Joseph D. Bryant's presidential address in The Journal, June 8, 1907, is not out of place when we consider the caution therein contained, viz., that we must know, and it is our duty to know, and the patient pays the physician to know, that the drug he is taking is of the strength and character prescribed. The department of health of New York City has recently ascertained that many times the tinctures and preparations of the most active drugs of the Pharmacopeia are at variance with the Pharmacopeial standard required. If such preparations are too weak they may be useless in the doses ordered. If, for any reason, they are too strong, they may be dangerous. Hence it behooves the general practitioner to see that his prescriptions are filled by druggists in whom chemically, pharmacally and ethically he can rely. It can be no excuse that a druggist offers a tincture of an active preparation which he has bought at wholesale and does not know the strength. He should analyze it and see that it is up to the prescribed standard. If it is not up to the standard, he is criminally negligent.

The Value of Placebos.

While it is often not necessary to write a prescription at the first visit to a patient, it may be necessary to satisfy him or his family with some simple preparation that will in no way modify the development of the objective or subjective symptoms of his disease. Many times troublesome symptoms are present that can be corrected with advantage and without interfering with important symptoms that are awaited or expected. The use of a placebo should certainly supersede any active medication such as quinin, antipyretics, morphin, salicylic acid, or any other active drug unless a diagnosis has positively been made or unless the symptoms calling for some such treatment are acutely present. It is not necessary, as so ably discussed by Dr. James B. Herrick of Chicago in his oration on medicine (THE JOURNAL, June 8, 1907), always to wait for laboratory confirmation of the clinical diagnosis; in fact, it should be remembered that these findings are many times subservient, secondary or confirmatory to careful clinical findings. Careful study and observation of a patient and his history will generally in two or three visits, if not before, clear up the diagnosis of his disease or abnormal condition, especially if combined with laboratory investigations. Until such diagnosis is made, prescriptions that can be translated as instances of "drugging" should not be written. The only prescriptions written should be those which will correct abnormal conditions or which by their very simplicity can be termed "placebos."

Convulsions in Children.

CAUSES.

1. High temperature.
2. Intestinal colic.
3. Anemia of the brain from profound depression, due to profuse diarrhea, inanition, etc.
4. Reflex disturbances (painful eruption of teeth, adherent or elongated prepuce, pinworms or other intestinal parasites, foreign bodies in the ears or nose).
5. Injuries to the head.
6. Cerebral lesions caused by hemorrhages, as from whooping-cough, etc.
7. Epilepsy.
8. Tetanus.
9. Nephritis.

TREATMENT.

1. Strip a child in every case and seek all external reflexes. If any are found, correct them if possible.
2. If the cause is high temperature due to the beginning of any disease, reduce the temperature by frequent (every two hours) tepid sponging and the administration of one dose of antipyrin (5 centigrams, or 1 grain, for every year of the child's age), and a dose of calomel (from 3 centigrams to 10 centigrams, ½ grain to 2 grains). An ice cap should be applied to the head for short periods, but not continuously.
3. If there is gastrointestinal disturbance, a dose of castor oil is perhaps often better than calomel.
4. If the convulsions are due to depression, the body should be surrounded by dry heat, and a few drops of brandy, in water, given every hour, and such warm nutriment as is possible.
5. If there is much nervous excitation, bromid of sodium (5 centigrams, or 1 grain, for every year of the child's age), every two hours until there is sleep.
6. If there is severe pain, deodorated tincture of opium (½ a drop for a child from 1 to 5 years) should be given every hour till sleep occurs or the pain ceases.
7. Repeated convulsions generally require chloroform inhalations, and if persistent, chloral hydrate (5 centigrams, or 1 grain, for each year of the age) given once, and repeated if needed, although the warm bath may be tried.
8. Of course, the subsequent treatment depends on the cause of the trouble.
9. The urine should be examined in every case as soon as it can be obtained.

Injection Treatment of Syphilis.

This method is strongly advocated by Dr. William S. Gottheil, of New York (*New York Medical Journal*, June 26, 1906), and receives support by Dr. W. H. Palmer, of Providence, R. I., (*Boston Med. and Surg. Journal*, Oct. 25, 1906. Abstract in *Merck's Archives*, April, 1907).

Besides "the advantages of the absence of gastrointestinal disturbances, less frequent administration, and less frequent symptoms of mercurialism," the above writers agree on the following: They think the best preparation for injection is a 10 per cent. suspension of the salicylate of mercury in liquid petroleum, as it rarely produces an abscess.

℞.	gm. or c.c.
Hydrargyri salicylatis	5|
Petrolati liquidi	50|

M. Sig.: For hypodermic injection.
½ c.c. = .05 gm. of the mercury.
10 m. = 1 grain of the mercury.
5 m. = ½ grain of the mercury.
This must be thoroughly shaken before using.

The placing of a considerable quantity of an insoluble salt subcutaneously permits of its uniform conversion into a soluble compound with a consequent uniform absorption. Treatment so administered may be given at intervals of four, five or more days. The kind of syringe is not essential, though the "all glass" variety with asbestos packing possesses some advantages. It should, however, be kept for this use and not used for anything else. It is not necessary to sterilize the injection fluid, provided ordinary care is observed in keeping it from contamination. The needles should be of almost 21 gauge, from 1¼ to 1½ inches long, and should be carefully sterilized after using. This is best done by letting them lie in ether or alcohol. The site of injection should be about half-way between the intergluteal fold and a line running parallel to it and dividing the buttocks into halves. The injection should be made on alternate sides, dividing each buttock into three injection sites, and governing the point of the next injection by palpating the tissues, i. e., if a nodule is felt, place the injection in another spot. The horizontal position with the patient face downward is preferable for the injection, as in this position the muscles are relaxed. The skin is cleansed in the usual manner and the needle of the syringe filled for injection thrust in practically its entire length. If this is done rapidly there is almost no pain. The syringe should then be detached from the needle, which should be watched for an instant to see if any blood exuding from it indicates the puncturing of a vein. If not, replace the syringe and proceed with the injection. "Sealing" the injection puncture is regarded as an unnecessary refinement of technic. The first injection should be 5 minims of the above prescription, i. e., ½ a grain (.03 gm.) of the mercury. Two days later this dose should be increased to 7 minims, representing 2/3 of a grain (.04 gm.) of mercury, and four days later the injection should be of 10 minims, representing 1 grain (.065 gm.) of mercury. From this time the average case requires about 1½ grains (.10 gm.) of mercury, viz., 15 minims (1 c.c.) of the solution every seven days. Some cases, of course, require more mercury and some cases less, but the duration of the treatment should be two years.

Dr. Gottheil's article, read at Atlantic City, June, 1907, and the discussion thereon, will appear in THE JOURNAL next week.

Infantile Scurvy.

Dr. L. E. La Fétra of New York, in the *American Jour. of Med. Sciences*, June, 1907, has the following to say:

"Treatment: Only a word needs to be said. The cause is to be removed. We are to stop the use of devitalized food, and to give fresh milk, fruit-juice (orange, grape or pineapple), beef-juice, raw egg albumin and purée of potato, according to the child's digestive capacity. In infants over a year old purée of potato and of green vegetables is especially satisfactory. To discontinue the sophisticated food is often all that is necessary, but cure is more rapid when the fruit-juices are added.

"Scurvy in adults is now almost a curiosity of medicine; it is dying out because understood. Its causes and treatment are recognized by the laws of all maritime nations, so that nowadays the disease is seldom seen even in the great seaports of the world.

"A similar history of infantile scurvy is likely to obtain and only sporadic cases appear almost as curiosities. This will not occur, however, until that distant day when infants are no longer fed on patent foods, but on fresh cow's milk that has been produced under ideal hygienic conditions. We shall still have cases of infantile scurvy until physicians, as well as the laity, realize that heating or boiling milk is not a physiologic but a therapeutic measure. To sterilize milk is often necessary, but it should be adopted rather as a mode of treatment than as a method of feeding; and it should not be continued indefinitely any more than should arsenic, on the ground that it is a special form of food for the nervous system."

The Treatment of Phenol (Carbolic Acid) Poisoning.

Sodium sulphate has been considered an antidote to phenol 30 grams (1 ounce) dissolved in a glass of water and the entire amount administered at once. The stomach should then be washed out with one part of alcohol to three parts of water. If alcohol is not at hand, use whisky and water, equal parts.

As this poisoning causes profound depression, the patient should be put into bed and surrounded by dry heat. A hypodermic of 1/20 of a grain of strychnin sulphate and 1/100 of a grain of atropin sulphate should be given. If there is still depression, 1 c.c. of adrenalin or suprarenalin solution (1 to 1,000) should be given intramuscularly. If the circulation tends to fail in spite of the above, intramuscular injections should be given of a saturated solution of camphor in olive oil, giving a syringeful every half-hour for two or three doses. If the patient revives, the mucous membranes of the throat, esophagus and stomach should be soothed with some demulcent liquid, as milk, egg albumin water, starch water, or cold flaxseed or slippery elm tea.

All emetics and oils are contraindicated. Also the patient must make no exertion for hours lest sudden collapse should occur.

Future complications that may occur are nephritis, gastritis and subsequent stricture of the esophagus or stomach.

Pharmacology

A State Society President on Proprietary Medicines.

In another department of this issue appears an abstract of the presidential address of Dr. William W. Golden, retiring president of the West Virginia State Medical Association. Dr. Golden's remarks on the proprietary medicine question are so apt that it seems advisable to quote this portion of his paper in full. Dr. Golden said:

Inquiry brings the information from all parts of the state that physicians are gradually getting out of the habit of prescribing proprietary medicines indiscriminately. The extent to which this practice has been carried for so many years was a matter of deep regret to some of us. Up to very recently, the druggists' files showed that by far the largest number of prescriptions written called for proprietary medicines, and the shelves of the dispensing physician were largely laden with this class of drugs. As the matter stood, it seemed as if the teaching of materia medica and therapeutics in our medical schools was a mere formality, similar to the donning of a cap and gown at the graduation exercises, and, like them, never to be used again. The detail men of the manufacturers of nostrums became frequent visitors to the physician's office, and their voluminous free literature supplanted on his desk all books on materia medica and therapeutics. Apart from the fact that this tended to blight all ambition for scientific practice, the recent disclosures of the fraudulent character of many of these proprietaries would make one believe that the least to which some of us are to plead guilty is that we have followed the expectant plan of treatment to a much greater extent than we knew.

I care not to dwell on the positive harm which must have come to many a patient from the use of presumably safe nostrums, such as certain antipyretics, anodynes, and hypnotics, which in the light of recent investigation were proved to contain well-known dangerous drugs; the thought of it is sickening. I have preached against this practice ever since I have been in this state, and as early as twelve years ago, in a paper with the title, "The Evils of Proprietary Medication—The Responsibility of the Medical Press," I argued that it was against the financial as well as the clinical interests of the physician to prescribe nostrums. The millions of dollars which the manufacturers have gained from the sale of these nostrums must have come from the pockets of the physician, and if of the patient, the physician was still necessarily affected by it, though indirectly. At that time my knowledge of the affairs of the profession outside of this state was limited, and I presumed that the great extent to which the prescribing of proprietaries was done was peculiar to this state. But when, shortly after the meeting at which this paper was read, I sent copies of it to several journals, the editors of which expressed a desire to publish it (the title of it only being known to them at first), and they were returned to me with the statement that publication was impossible on account of advertising contracts on hand, my eyes were opened to the omnipresence of this evil, and I saw more clearly than ever the effective muzzling under which the so-called independent medical press was laboring. Instead of being one of many thousands who were not using this kind of medication, as I surmised in that paper, I found myself belonging to a very small minority.

As years went on, it looked as if this state of affairs had come to stay. The nostrum manufacturers were fattening fast and were turning the weight of their opulence on the side of further entrenching themselves in the physician's daily practice. The detail men were becoming offensively common and the reading matter of many of our medical journals became a mere appendix to the numerous pages of nostrum advertisements, and this was done in such a way that one was often at a loss to differentiate between what was advertisement and what proper reading matter.

It was at this stage of the evolution of this disgraceful state of affairs that the Council on Pharmacy and Chemistry of the American Medical Association came to our rescue, to the rescue of scientific medicine, and to the rescue of our sick. If the American Medical Association had never done anything else, outside of creating and maintaining this Council, it would have more than earned a claim for its existence. The falling off in the use of proprietaries is directly traceable to the work of this Council and influence of the greatest of medical weeklies on earth, THE JOURNAL of the the American Medical Association. Let us uphold this good work and give the men at the head of it our undivided support to extend this useful work further, and support to withstand the expected attacks made on them by the manufacturers and their press hirelings. In addition to the publication of an account of such proprietaries as are deemed worthy of use, the Council, through THE JOURNAL of the A. M. A., frequently makes public and exposes such of the worthless nostrums, the manufacturers of which are ignoring in their advertising literature the commonest decencies of trade. I recommend that our committee on publication be instructed to publish exposures in our journal in condensed form.

Organic and Inorganic Iron.

An article by Dr. R. Laspeyres of Bonn (*Med. Klinik*, May 26, 1907, page 599), indicates the propriety of placing a higher value on the so-called inorganic compounds of iron than has lately been accorded to them. In the desire to approach the supposed method of Nature in the administration of iron, there has been a tendency to take up with the complex organic preparations, nearly all of which are proprietaries, to the neglect of those simple official preparations, which were estimated so highly in the past, such as reduced iron, Blaud's pills and other ferrous and ferric salts. The numerous synthetic preparations bearing special names, suggesting their close relation to the iron of the blood, as if by that means their efficacy were greatly enhanced, have obscured the official remedies, which proved reliable in the hands of a previous generation. It has been shown that a certain amount of iron must be assimilated in order to achieve the desired results in the treatment of anemia. Since experiments have shown that inorganic iron is absorbed in the same form as the iron of the food, stored up in the organs, and used when the supply of organic iron is insufficient for the purposes of blood building, the ferrous and ferric salts, including ferrum reductum, Blaud's pills and the official peptonate of iron furnish the most convenient and economical way of supplying iron to the organism. The daily dose of iron, according to Quincke, should be at least 0.1 gm. (1½ grains) of metallic iron, and this makes it difficult or inconvenient to depend on the organic iron compounds to obtain so large a supply. While the ordinary salts contain from 10 to 30 per cent. of iron, as Laspeyres says, the amount found in hematogen, for instance, would require a daily dose of 142 gm. (nearly 5 ounces). Hemoglobin contains about 0.4 per cent of iron and consequently must be given in doses of at least 25 gm. (385 grains) daily in order to reach the amount considered essential for the successful treatment of anemia.

In general, it may be said that the doses of most of the proprietary iron preparations, said to contain iron derived from blood, should be from 20 to 50 times as large as they are to give the requisite amount of iron. These preparations may do good on account of the alcohol or bitters contained in them, but as iron preparations they are largely unsuitable (*ungeeignet*) and superfluous. The matter of expense is not to be altogether overlooked in regard to these preparations. Organic iron preparations are usually expensive, while the corresponding inorganic compounds are very cheap. Laspeyres goes on to say that it is surely justifiable to exclude these factory-made preparations, whether they are called hematogen, hemalbumin, iron wine or what not, from the prescriptions of physicians for the industrial insurance companies as has already been done in Bonn.

Correspondence

A Continent Without an Orphan Asylum or an Orphan.

Chicago, July 20, 1907.

To the Editor:—I have just finished reading with unusual interest a little book of one hundred and fifty pages by Catherine Helen Spence on the "State Children in Australia." This little narrative gives an account of the history of the care of the destitute children in Australia, Tasmania and New Zealand. It is written by one of the pioneers in the abolition of orphanages and other means of exploiting destitute children. Since my first acquaintance with this wonderful work in saving children which came through its presentation at the World's Congress in 1893, I have repeatedly presented the subject in the medical journals, incorporating as the motive the figures of the annual reports of the Children's Council of South Australia.

There is no such thing as an orphan in Australia because the Children's Council becomes at once father and mother to the destitute child. He is taken by the police officer to the home of some respectable and experienced woman who at once furnishes the necessary care, food and shelter, and obtains as complete a history as possible. In a day or two the officer and the woman, who acts as agent for the Children's Council, take the child to the children's court, where all the information is made a matter of record and the child is legally committed to the care of the Children's Council. With this order and information the council selects from the many applicants for children from the farmers of the state a home which it thinks most suitable to this particular child. After satisfactory correspondence with the proposed foster home and a satisfactory arrangement in regard to the price of board and other details, the child is sent to this family in the care of one of the traveling officers of the Children's Council. If the child is of suitable age he is carefully instructed in his rights and duties and his relation to the Children's Council and the family in which he is placed to board. Some officer of the council becomes his special preceptor. His stay with the foster family is at first probationary. Personal likes and dislikes are taken into serious consideration. It often happens that a refractory or spoiled child tries two or three foster homes before one is found in which the adoption is successful. Only rarely, so the statistics show, is it necessary to send a ruined and spoiled boy or girl to the reformatory.

As soon as the child arrives at the home of the foster parents he is placed on the same footing as the other children in the family. He is required to do certain chores and learn the ways of the farm. He goes to school and is introduced to the teacher by his preceptor, and any matters in the history of the child relevant to his education or discipline are made known to his teacher. From that time on his attendance and deportment, as well as his scholarship and general culture, are reported at regular intervals to the council by the schoolmaster. The police officer or constable of the community is also made acquainted with the child, and his relation to the state and the foster family. It becomes his duty to report at once any irregularity which may come to his notice and to make regular reports to the Children's Council of the conduct and development of the child. Every community in which children are placed out to board by the council has a voluntary aid society, usually composed of women. The secretary of this society has previously recommended the home of this foster family to the Children's Council, and now undertakes to supervise, in a friendly way, the settling of the child in the home and the adjusting of any minor unpleasantnesses or irregularities occurring between the child and the members of the foster family. One of the officers of this voluntary aid society is an unpaid officer of the council, and is in a position to meet any unusual emergency. The child is also introduced to the official doctor of the community who becomes at once sponsor for the health of the child. He reports on the sanitary conditions and any sickness which he may be called on to attend in the foster family or of the child himself. It would seem that this was a sufficient safeguard to the interests of the child, but at regular intervals he is visited by his preceptor who learns verbally and by observation what the development of the child has been and what his needs are. Jealous neighbors also watch the interests of the child and frequently send anonymous letters giving information which is afterwards confirmed or disproved by open investigation.

The amount paid for the care of the child varies with his age. Nursing children naturally require more care and a higher weekly board is necessary. Until 13 the child is kept at the expense of the state. At that time he is hired out, usually to his foster parents, and continues to work until 18. During the last two years he provides his own clothes. Three-fourths of his wages until he is 16 and afterward a smaller portion is deposited in the postal savings bank. The balance is paid monthly to the child. The wages begin at one shilling ($0.24), board and clothes, and rise to six shillings ($1.44) or more a week.

When the child is of age, or when a girl marries before she is of age, or when a boy wishes to learn a trade or go to school in town, his savings are given to him under the advice and direction of the council. The advantage which these children receive from the home in which they are placed depends very largely on the age of the child when he comes into the care of the council and the character of the surroundings from which he is rescued.

The Children's Council also has the care of the institution in which delinquent and defective children are treated who are not orphans or dependent. The adoption of children under the care of the council is not encouraged. When it is permitted supervision does not cease until the child is mature. Parents who would farm their children out are not permitted to do so except to those who receive a license which costs a shilling a year and are under as strict supervision as that which prevails with orphans. No person who is receiving aid from the state or who is desperately poor can receive a license, and under no circumstances is a woman allowed to take more than one baby. The regulations in regard to feeding and caring for the child are reasonably strict. Discreet, friendly and indefatigable supervision is furnished by the council. No difference is made between legitimate and illegitimate children.

This system has prevailed in South Australia for thirty years or more, and yet this is too short a time to demonstrate the end result of placing children in the natural surroundings of a home instead of the unnatural and dangerous surroundings of the orphanage. It is a matter of every-day observation that institutional children are physically, mentally and morally poorly adapted to the life of the world. Dr. Ward, who investigated the physical condition of the children in the English parish orphanages (Report of the Bureau of Education for the year 1897, page 230) made a report which ought to shake to the foundation every institution in which children are huddled together and unfitted for life and happiness.

The building of orphan asylums and the huddling together of children without the care, affection and interest of a family, is destructive to the health and evolution of the child and unfits him for independence and usefulness, by robbing him of the essential elements of social development. The death rate in baby farms and orphanages is notoriously high, not because the buildings are insanitary or the feeding inadequate, but because the dangers of contagion are multiplied and maternal care is impossible.

The placing out of children, with or without compensation, with or without adoption, where constant, intelligent and permanent after-inspection is not carried out, is unreliable, unsatisfactory and cruel and is unworthy the effort of the devoted and misguided enthusiasts and supporters of the homing societies.

The punishment of baby farmers, lying-in institutions, cruel foster-parents and other exploiters of children, is far less efficient and far more expensive than an intelligent, humane and alert inspection and supervision. The former cultivates and engenders wrong, ire and hate while it spoils the child. The latter curbs evil, encourages fair play and kindness and saves the child. The former is penal and destructive; the latter is educational and constructive. Bayard Holmes, M.D.

The Bactericidal Values of Some Widely Advertised Antiseptics.

Detroit, July 10, 1907.

To the Editor:—In The Journal of the American Medical Association, June 29, there appears an article with the above title by F. H. Verhoeff, M.D., and Edward Keith Ellis, M.D., Boston.

In our opinion the article is unscientific; it gives a false impression as to the value of the antiseptics tested and places the manufacturers of these antiseptics in a false light. The only conclusion that a reader of the article, not versed in the testing of antiseptics, could draw would be that the manufacturers have made false claims for their preparations. Had the title of the article been: "The Bactericidal Values of Some Widely Advertised Antiseptics Under Certain Conditions," less fault could have been found with it. It is a matter of common knowledge to those who have given thought to the testing of antiseptics and germicides that under certain conditions they are relatively inefficient, but to conclude from this that they are practically of no value to the practitioner would be entirely erroneous.

We recall that our Dr. McClintock, along with others, as Geppert, Abbott, etc., pointed out some fifteen years ago that under certain conditions 1:1,000 or even saturated solutions of mercuric chlorid failed to destroy bacteria in feces in twenty-four hours, and yet he stated "it is not to be concluded from this that mercuric chlorid is not a valuable germicide."

Without going into any great detail in regard to the article we may say, first, that the method of testing was faulty and not at all comparable to the practical use of antiseptics. They take 1 or 2 c.c. of the solution of antiseptic and to this add a relatively large quantity of the germ to be tested. Now, antiseptic or germicidal action is chemical, the antiseptic is used up in its work, and to expect 1 c.c. of a very dilute solution, in the case of germicidal discs containing 1:1,000 to 1:5,000 mercuric iodid, to destroy a large number of bacteria is without any warrant. No one attempts to destroy a drop of pus with one or two drops of an antiseptic solution, so, in their tests with hydrocele fluid or saturated solution of albumin, to add equal volume of dilute antiseptic to infected hydrocele or saturated solution of albumin is wholly unfair to the antiseptic and not at all comparable to any method that would be used in the practice of medicine. So much for their method.

Now, as to their conclusions and inferences. They state that the culture used was not only very resistant, as it was killed by exposure of one minute to a 1:1,000 solution of mercuric chlorid or to a 2 per cent. solution of phenol; that 90 per cent. alcohol will destroy this organism in twenty seconds; further, that the antiseptics mentioned in the second table, including lysol, cresylone, trikresol, acetozone, creolin, sublamine, etc., do not destroy this culture in two hours when acting in the presence of an equal volume of hydrocele fluid, hence the inference that any average reader of the article would draw, namely, that these substances will not do in two hours what mercuric chlorid or carbolic acid will in one minute. Whereas, many obeservers, competent bacteriologists, have pointed out that a number of these substances are much stronger germicides than either carbolic acid or mercuric chlorid. Any standard work on disinfection, such as Rosenau's, will cite many authorities bearing out the above.

In referring to acetozone the only inference to be drawn from their statements is that these substances will not destroy typhoid fever germs in twenty-four hours' exposure in the strength recommended by the manufacturers, and yet so good an authority as Professor Novy states that acetozone solutions will destroy all non-spore-bearing germs within one minute. He further states somewhere, although just at this time we can not lay our hands on the report, that with acetozone solutions he has a number of times produced an entirely sterile condition in the alimentary canal of rabbits.

In regard to one of our preparations, germicidal discs, they state that the mercuric iodid in these is inactivated by serum. While it is true that the presence of albumin lowers the germicidal value of mercuric iodid, as it does practically any antiseptic, the statement that it is inactivated is false.

Again, they state that 1:5,000 solution of mercuric iodid requires over thirty minutes to kill the *Staphylococcus aureus*. Now, in an exactly similar preparation, the presence of alkali in combination with mercuric iodid in our germicidal soap, we have reports of tests made by the Columbus Medical Laboratory, of Chicago; Dr. Novy, of the University of Michigan; Dr. Coplin, of Jefferson Medical College; Dr. Russell, of the University of Wisconsin, all stating that this combination in 1:5,000 is equal to 1:1,000 mercuric chlorid, or 1 per cent. or stronger of carbolic acid, most of them stating that it will destroy *Staphylococcus aureus* in from one to five minutes. See copy of report herewith.

We repeat that the article is unscientific in that the work reported does not bear out the statement in the title of the article; further that the methods are most faulty; further that the conclusions are unwarranted and the inferences false; further that it is a gross libel on the manufacturers.

Parke, Davis & Co.,
E. G. Swift, General Manager.

[Comment:—That acute observer of human nature, Walter Bagehot, once wrote: "Once submit a subject to the ordeal of discussion, and you can never withdraw it again; you can never again clothe it with mystery, or fence it by consecration; it remains forever open to free choice, and exposed to profane deliberation." One is tempted to ask whether the singular irritation, shown in recent days by the manufacturers of substances used by physicians, has its foundation in an obscure realization of the truth of this saying. Has the sacred veil been lifted? Why is the medical profession not willing to accept with docility the claims of manufacturers and the interpretation placed by them on results of scientific experimenters? Are we really fair to discuss such a subject as the value of antiseptics without due regard to "vested interests"?

Let us see just what is involved in the above objections made by Mr. E. G. Swift, general manager of Parke, Davis & Co., to the article by Drs. Verhoeff and Ellis. In the first place, we are told that, in the opinion of the general manager the methods employed by the investigators were most faulty and that the tests are unscientific, for the reason, if we understand him correctly, that so many bacteria were introduced that the antiseptic solution was exhausted. But this position hardly seems tenable in view of the fact that control experiments showed that some of the antiseptics acting alone were perfectly efficient. As a matter of fact, we believe that any competent bacteriologist would admit that the methods of Verhoeff and Ellis are good and that the conditions under which their tests were made are clearly stated. The assertion that the experiments were "wholly unfair to the antiseptic and not at all comparable to any method that would be used in the practice of medicine," seems to miss or to avoid the whole point of the article in question and, indeed, that of all experimental work.

We believe also that too much importance should not be attached to the kind of inference that, in the opinion of the general manager of Parke, Davis & Co., "any average reader of the article would draw." On examining the wording of the article with some care we are unable to discover any warrant for any reader assuming that lysol and trikresol "will not do in two hours what mercuric chlorid or carbolic acid will in one minute." In regard to acetozone, furthermore, it does not assist the average reader to an understanding of scientific data to have the general manager postulate that a conflict of authority exists between experimenters working under quite different conditions. Such imaginary inferences of imaginary readers are well known rhetorical devices; we can hardly be asked to mistake them for arguments or for statements of fact.

What, after all, is the real point of the paper by Verhoeff and Ellis? Simply this: It emphasizes the restraining or inactivating influence of albuminous matter on antiseptic substances. There is nothing wholly new in this. It has long been matter of common knowledge that some substances that are powerfully germicidal for bacteria suspended in aqueous solution are, as Rosenau ("Disinfection and Disinfectants," p. 148) says of bichlorid of mercury, "totally inapplicable to the disinfection of albuminous matter." The article in question, however, does call attention in a practical way and by simple and well chosen experiments to the fact that destruction of bacteria by chemical antiseptics within the tissues, and probably also within the intestine, is not likely to occur; that, in fact, serum renders all antiseptics practically useless. So far as the imitation of natural conditions is concerned, we have only to ask whether physicians and surgeons employ antiseptic substances, as a rule, in the presence or absence of albuminous substances. If an antiseptic be used strong enough to destroy bacteria, then the tissue cells themselves will almost certainly be injured. Our knowledge of the properties of living matter in general is quite in accord with the opinion expressed by Verhoeff and Ellis that the reason why any given antiseptic is "non-irritating" is that its action is interfered with by the tissue fluids and, therefore, it is inert for bacteria and tissue cells alike. It does not necessarily follow that every albuminous substance will interfere with the action of antiseptics in the same way and to the same degree as blood serum, nor do we understand the authors of the paper under discussion to claim that this would be so. But there is no escape from the conclusion that they have shown with great clearness that there are substances present in the body fluids that prevent antiseptics from being effective within the tissues, however useful the latter may be as surface disinfectants.

One word more may be added. The assumption by some manufacturers of drugs and antiseptics that physicians are unwilling or incompetent to weigh evidence and that they will accept without scrutiny or question whatever general managers choose to state, is, we believe, not warranted. Specifically, in this case of antiseptic action, what ground have we, or has any one outside of the vested interests, for maintaining that non-irritating chemical antiseptics will kill bacteria within the tissues of the human body, when all the facts of observation and experiment are against this view? Is there really any good reason why we should extend to the "germicidal discs" of Parke, Davis & Co., a consideration not afforded to mercuric chlorid or other well known and commercially, relatively unprofitable, chemicals?—Ed.]

Exploration of Both Kidneys Before Nephrectomy Through a Double Lumbar Incision—Question of Priority.

Copenhagen, July 12, 1907.

To the Editor:—In a paper entitled "Exploration and Decapsulation of the Other Kidney Before Completing a Nephrectomy" and published in The Journal, June 1, 1907, Dr. George M. Edebohls describes as his own a method to expose and examine both kidneys through a double lumbar incision, which, since 1893, I have had in use and recommended in cases where it was impossible by other means to decide if a single or both kidneys were affected by a disease which required extirpation.

Dr. Edebohls now proposes "that no nephrectomy should be completed without examination and decapsulation (!) of the remaining kidney." I do not fear that any surgeon who skilfully masters modern diagnostic methods will follow Edebohls' ultramontane proposition and perform such a lot of superfluous lumbar incisions, and therefore, I should have remained quiet if Dr. Edebohls had not forced me to speak by the following astonishing affirmations: "This method of procedure in nephrectomy was, as above pointed out, first practiced and published by me, although Rovsing (*Arch. f. klin. Chir.*, 1904-5, lxxv, 867-895) mistakenly claims priority in the matter more than six years after my publication. Rovsing bases his claim on an operation performed by him in 1894. . . . Nor do any of Rovsing's writings between 1894 and 1904, although many of them deal with nephrectomy as such and detail cases of nephrectomy at great length, contain any mention whatsoever of the procedure under discussion."

All these affirmations are wrong. I have never "claimed priority," simply because nobody formerly, so far as I know, had expressed a doubt thereon, before Dr. Edebohls—mistakenly—claimed the priority for himself. As Dr. Edebohls declares himself that he first practiced the method in 1894, but first published the same in 1898, the following facts will very easily make his mistake evident:

My first operation was performed June 26, 1893, on a 50-year-old man, who suffered from sarcoma of the left kidney, and who is still living, 14 years after the nephrectomy. This case was published and the method very minutely described, discussed and recommended for certain difficult cases in my paper, "Diagnosis and Treatment of Malignant Tumors of the Kidney," which appeared in *Hospitalstidende* May 16, 1894, and in *Archiv. f. klin. Chir.*, 1895, xlix, pp. 406-450. Between 1894 and 1904 I furthermore described or mentioned the method in the following works: 1895: "Surgical Diseases of the Kidney and Ureter." (Volume I of my "Treatise of the Surgical Diseases of the Urinary Organs," published in Danish.) 1897: "Report of Ten Cases of Malign Tumor in the Kidney." (Trans. of the Third Scandinavian Surgical Congress at Helsingfors, *Hospitalstidende*, No. 36, 1897.) 1898: "Mysterious Hemorrhage from a Single Kidney and Its Cure by Nephrectomy." (Read at the British Medical Association meeting at Edinburgh; published in *British Medical Journal.*)

Thorkild Rovsing, M.D.,
Professor of Clinical Surgery at the University in Copenhagen.

Loss of Hair After Radiotherapy.—Hallopeau (*Bull. de Derm. et de Syph.*), that a child was cured of ringworm by Roentgen treatment, but that the exposed parts of the skull have assumed a cicatricial appearance with entire loss of hair. Balzer has observed a similar case in a man given Roentgen treatment for an affection of the beard. After a month of severe Roentgen dermatitis the lesions healed, but left a bald patch of pigmented scar tissue.

Book Notices

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Materia Medica and Therapeutics in Jefferson Medical College, assisted by H. R. M. Landis, M.D., Visiting Physician to the Tuberculosis Department of the Philadelphia Hospital. Vol. II. June, 1907. Paper. Pp. 381. Price, $6.00 per annum. Philadelphia and New York: Lea Bros. & Co., 1907.

In this volume Dr. William B. Coley reviews the literature on hernia for the past year. Dr. E. M. Foote discusses the surgery of the abdomen, devoting considerable space to the surgical treatment of gastric cancer and postoperative gastric paralysis; in fact, the entire literature on surgical diseases o. the stomach and intestines is gone over. The liver and biliary tract, the spleen and pancreas, also receive their share of the discussion. Dr. John G. Clark devotes considerable space to discussion of cancer of the uterus, presenting a very complete review of current literature on this subject, as well as on fibroids and uterine hemorrhage. He touches on enteroptosis, menstruation and on a number of gynecologic operations. Dr. A. Stengel takes up diseases of the blood and ductless glands and constitutional diseases, while Dr. Edward Jackson writes on ophthalmology.

Technic of Operations on the Intestines and Stomach. B. M. Einhorn, M.D., Professor of Clinical Medicine at the New York Post-graduate Medical School and Hospital, etc. Fourth Edition Revised. Cloth. Pp. 559. Price, $3.50 net. New York: William Wood & Co., 1906.

This work is an anatomic and experimental study of operations on the stomach and intestines. The repair of intestinal wounds, as described in the opening chapter, is made the basis of the technic of the various operations described in the subsequent chapters. The experimental work has been done thoroughly and conscientiously and the conclusions conservatively drawn. Not all of the recognized operations have been described in the technical part, but sufficient of them to enable one to meet practically any condition which is likely to arise. The numerous illustrations are well executed and clearly depict the points to be brought out. The descriptions are clear and concise, and one can not read the book without being impressed with the fact that the author has done a very creditable piece of work which will be of much value to all who are doing gastrointestinal surgery.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Toxicology in Cornell University, and Tracy C. Becker, A.B., LL.B., Counselor at Law, Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. With the Collaboration of Others. Second Edition. Volume II. Cloth. Pp. 1008. Price, $6.00. New York: William Wood & Co., 1907.

The second volume continues the subject of forensic medicine. The thanatologic division of the subject is completed by the consideration of death from wounds, electricity, suffocation, submersion, and the determination of survivorship. The biothanatologic division of the subject is taken up, including abortion and infanticide, the consideration of pregnancy, sexual incapacity, sexual crimes and railway injuries. This last title introduces a considerable treatise covering 215 pages, discussing this subject in all its relations. The same thoroughness of treatment marks this volume as that found in the first. The subject is fully illustrated by the use of drawings, of which three are colored plates, and by numerous illustrative cases.

Epilepsy. A Study of the Idiopathic Disease. By William Aldren Turner, M.D., Edin., Fellow of the Royal College of Physicians of London. Cloth. Pp. 272. Price, $3.25 net. London and New York: Macmillan & Co., 1907.

Though starting with what seems to us a defective definition of the disease, making loss of consciousness its essential feature, this is an excellent monograph on the subject of epilepsy. The scope of the book is somewhat limited, but the more important facts are most satisfactorily handled. Turner considers epilepsy a sign or stigma of a neuropathic inherited disposition, based on certain well defined structural defects. All the usually recognized etiologic factors are discussed, but the author does not give the importance to parental alcoholism that is attributed to it by French authors. The psychic features of the disease are well discussed and the general epileptic character is recognized as not solely a consequence of the seizures but an expression of the same nervous constitution which gives rise to the convulsion. Mental failure is not itself an essential feature of the disease. As regards the pathologic anatomy, the actual causal lesions are, he thinks, to be looked for in the intravascular clottings or thrombi which are found in these defective brains, the other lesions are secondary. Certain types of epilepsy may also be attributed to autointoxications. As regards prognosis, he sees little difference betwen hereditary and non-hereditary cases as regards complete arrest of the attacks, but the latter are more amenable to improvement.

Treatment of Disease. A Manual of Practical Medicine. By Reynold Webb Wilcox, M.A., M.D., LL.D., Professor of Medicine at the New York Postgraduate Medical School and Hospital. Cloth. Pp. 911. Price, $6.00. Philadelphia: P. Blakiston's Son & Co.

Special emphasis is given in this work to diagnosis and treatment. In the preface the author expresses the view that this is what the practitioner especially desires, and this desire he has undertaken to satisfy. Examination shows that this part of the work has been well done. Still it can not be said that other subjects have been neglected, and the book appears to be well up to date. The therapeutic recommendations are mostly illustrated by official drugs, and where proprietaries are mentioned the systematic chemical name is usually given. A cursory examination shows an apparently unnecessary specification of certain proprietary intestinal antiseptics and hematinics, which are evidently the author's favorites.

Essentials of Medical Electricity. By E. R. Morton, M.D., C.M., Trinity University, Toronto, with eleven plates and seventy illustrations. Cloth. Pp. 192. Price, $1.50 net. Chicago: W. T. Keener & Co., 1905.

The first chapter of this compact handbook is devoted to the first principles of electricity, and thence the student is led to the consideration of sources of supply, medical batteries and accessories, and a special study of the constant current and its modifications. The remaining chapters are assigned to physiology, diagnosis, electric surgery, and general and special therapeutics. The book contains eleven plates and seventy illustrations. The subject of the Roentgen ray is not dealt with by the author, who considers the *x*-ray not electricity in the ordinary acceptance of the term, but rather a form of radiant energy with properties peculiar to itself.

La Tubercolosi. By Mario Valtorta and Gino Fanoli. Con Prefazione del Prof. Augusto Murri. Manuali Hoepli. Con 11 tavoli. Pp. 64. Cloth. Milan: Ulrico Hoepli, 1907.

This is a brief and satisfactory little treatise on tuberculosis covering the subject, in the main, very completely.

Queries and Minor Notes

PETROLATUM AND VASELIN IN CONSTIPATION.

New York, July 12, 1907.

To the Editor:—Is liquid vaselin useful as an intestinal lubricant and disinfectant; and in what doses? Are there any unfortunate results from the continued use of a preparation? K. C. B.

Answer.—Vaselin, petrolatum and liquid paraffin have been recommended by A. Schmidt (*Muench. med. Wochsch.*, No. 41, 1905) for the treatment of habitual constipation. He administers capsules each containing 3 gm. (45 grains) with 10 per cent. of cascara extract. Of these capsules 6 to 8 are needed daily for the relief of the constipation. H. C. Wood states that petrolatum and liquid petrolatum, when taken internally in doses of a dram to an ounce, exert no influence on the system, but act locally on the mucous membrane of the alimentary canal, allaying irritation and provoking soft fecal discharges. There is little, if any, evidence that petrolatum has any disinfecting power. Petroleum containing the lighter paraffins, such as are found in gasoline, has been the cause of poisoning, but the higher paraffins seem to be inert, so that it is not likely that purified petrolatum would give rise to any injury if used in moderate doses. The use of petrolatum for constipation has the disadvantage that a considerable amount would have to be administered in order to be effective. If used as a laxative, therefore, it should be combined with some mild laxative with which it would act as an adjuvant. It should be remembered that liquid vaselin is a trade-mark name for which the official petrolatum liquidum is an efficient substitute.

PRACTICE IN ARGENTINE.

LaMoure, N. D., July 16, 1907.

To the Editor:—I would like to find out what are the opportunities for the practice of medicine in the Argentine Republic, South America. Can you give me the names of any American physician to whom I might write? Any other information will be greatly appreciated.
G. B. Riddle.

THE ALEXANDER TREATMENT FOR CANCER.

——, Iowa, July 16, 1907.

To the Editor:—Anent your editorial on the so-called Alexander treatment for cancer, I have received a circular in which they give the following as a "formula": "The fluid which forms the basis of the Alexander treatment is a new compound derived from a union of hydrocarbons, forming a chemical solution represented by the following formula: $C_{27}H_{17}O_2$, to which are added essential oils." Will you give me your opinion regarding their statement as to the composition of their nostrum?
X. Y. Z.

Answer.—The statements made in regard to the composition of the remedy are meaningless. They are made with the evident intent to mislead, to give the impression, by the use of chemical terms and phrases, that, as a result of much original research, an entirely new chemical substance has been isolated. Fortunately for the profession (unfortunately for the promoters) the circular contains such evident ear-marks of quack literature that few will be humbugged by it. To a chemist the "formula" of the supposedly "new compound derived from a union of hydrocarbons" is sufficient evidence of the nature of the stuff, for to him $C_{27}H_{17}O_2$ spells "impossible." One of the fundamental laws of chemistry, the "law of even number of atoms," says that in carbon compounds "the sum of the atoms with uneven valency (hydrogen, the halogens, nitrogen, phosphorus, etc.) must always be an even number." Compounds having the formula $C_{27}H_{18}O_2$ may, and do, exist, but much evidence would be required to prove the existence of a compound having the formula $C_{27}H_{17}O_2$. The "formula" is a fake.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 20, 1907:

Kieffer, C. F., surg., relieved from treatment at Army General Hospital, Washington Barracks, D. C., and ordered to Army General Hospital, Presidio of San Francisco, for observation and treatment.

Ekwurzel, G. M., asst.-surg., relieved from duty at Fort Meade, S. D., to take effect at such time as will enable him to comply with this order, and report at the proper time for duty with the Sixth Cavalry, en route to the Philippine Islands, and on arrival at Manila will report in person to the commanding general, Philippines Division, for assignment to duty.

Keller, W. L., asst.-surg., relieved from duty at Fort Douglas, Utah, to take effect at such time as will enable him to comply with this order, and will proceed to San Francisco and take transport to sail from that place on or about September 5, to the Philippine Islands, and on arrival at Manila will report to the commanding general, Philippines Division for duty.

Richard, Charles, surg., in addition to his other duties, is announced as assistant to the Chief Surgeon, Headquarters Department of the East, Governor's Island, N. Y., and in the absence of the chief surgeon, will perform his duties.

Hess, L. T., asst.-surg., detailed to attend the encampment of the Third Brigade, National Guard, State of New York, to be held at Felt's Mills, near Watertown, N. Y.

Hathaway, L. M., asst.-surg., leave of absence extended fifteen days.

Kieffer, C. F., surg., granted fourteen days' leave of absence.

Murtagh, J. A., asst.-surg., ordered to report to the commanding officer, Seventh Cavalry, for duty to accompany that command to Fort Riley, Kan. On the completion of this duty to return to his station, Fort Mason, Cal.

Buck, C. D., asst.-surg., ordered to report to commanding officer, Seventh Cavalry, for duty to accompany that command to Fort Riley, Kan. On arrival at Fort Riley, granted seven days' leave. On expiration of leave to return to station, Army General Hospital, Presidio of San Francisco.

Fisher, H. C., surg., assignment to duty at Fort D. A. Russell, Wyo., revoked, and instead ordered to Fort Logan, Colo., for duty.

Bourke, James, asst.-surg., ordered to report in person on Aug. 15, 1907, to Major W. H. Arthur, surg., president, examining board, at Army Medical Museum Building, Washington, D. C., for examination to determine his fitness for advancement.

Crosby, W. D., surg., detailed member Army Medical Examining Board, Army Medical Museum Building, Washington, D. C., vice Major J. D. Glennan, surg., hereby relieved.

Appel, A. H., dep. surg. gen., will, on arrival at San Francisco, proceed to Fort D. A. Russell, Wyo., for station and duty.

Glennan, J. D., surg., relieved from duty at Fort Myer, Va., and will proceed to San Francisco and take transport to sail from that place about Oct. 5, 1907, for the Philippine Islands, and on arrival at Manila, report in person to the commanding general, Philippines Division, for assignment to duty.

Hoff, J. Van R., asst.-surg. gen., ordered to report in person to the commanding general, Philippines Division, for duty as chief surgeon of that division.

Kennedy, J. M., surg., detailed member examining board at Army General Hospital, Presidio of San Francisco, vice Major W. Stephenson, surg., hereby relieved.

Snyder, C. R., asst.-surg., on arrival at San Francisco, will proceed to Fort William Henry Harrison, Mont., for temporary duty.

Lewis, W. F., asst.-surg., will report in person Aug. 12, 1907, to Lieut. Col. G. H. Torney, dep. surg. gen., president examining board at Army General Hospital, Presidio of San Francisco, for reexamination to determine his fitness for promotion.

Hall, J. F., asst.-surg., assignment to duty in the Philippines Division revoked, and instead ordered to Fort Gibbon, Alaska, for duty.

O'Connor, R. P., asst.-surg., relieved from duty at Fort Leavenworth, Kan., and ordered to the Philippine Islands for duty instead of to Fort Gibbon, Alaska.

Patterson, E. W., cont. surg., leave of absence extended nine days.

Stanton, S. C., cont. surg., returned to attending surgeon's office, Chicago, from leave of absence.

Chase, C. L., cont. surg., ordered from Middlebury, Ind., to Fort Rodman, Mass., for duty.

Lincoln, H. F., cont. surg., ordered from Fort Leavenworth, Kan., to Fort Meade, S. D., for temporary duty.

Stallman, G. P., dental surg., ordered from Fort Logan H. Roots, Ark., to duty at Fort Sam Houston, Texas.

Navy Changes.

Changes in the Medical Corps, U. S. Navy:

For the week ending July 13, 1907.

Miller, J. T., asst.-surgeon, to the *Rhode Island*.

Grayson, C. T., asst.-surgeon, ordered to the Bureau of Medicine and Surgery, Navy Department.

Rixey, P. M., medical director, commissioned medical director from May 7, 1907.

Holcomb, R. C., surgeon, commissioned surgeon from Dec. 17, 1905.

Kennedy, J. T., surgeon, commissioned surgeon from May 7, 1907.

Munson, F. M., P. A. surgeon, commissioned P. A. surgeon from April 5, 1906.

Heiner, R. G., P. A. surgeon. commissioned P. A. surgeon from Dec. 26, 1906.

Brown, H. L., P. A. surgeon, commissioned P. A. surgeon from April 12, 1907.

Mink, O. J., P. A. surgeon, commissioned P. A. surgeon from June 7, 1907.

Huffman, O. V., asst.-surgeon, ordered to the Naval Hospital, Boston.

Trible, G. B., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va., July 30.

Garrison, H. A., asst.-surgeon, ordered to the Naval Hospital, Newport, R. I.

Rose, M. E., asst.-surgeon, ordered to the Naval Hospital, New York.

Lumsden, G. P., medical inspector, detached from the naval recruitng station, Indianapolis, and ordered to command the Naval Hospital, Pensacola, Fla.

Nash, F. S., surgeon, detached from command of the Naval Hospital, Canacao, P. I., home and wait orders.

Bishop, L. W., P. A. surgeon, detached from the *Iowa* and granted leave for one month.

Zelesky, W. J., P. A. surgeon, detached from duty with the third torpedo flotilla, on board the *Stringham,* and ordered home to wait orders.

Manchester, J. D., P. A. surgeon, detached from the Naval Hospital, Philadelphia, to the Naval Hospital, Pensacola.

Baker, M. C., acting asst.-surgeon, detached from the *Franklin* and ordered to Midway Islands, sailing from San Francisco about July 25.

Casto, D. H., acting asst.-surgeon, ordered to the naval recruiting station, Indianapolis.

Donelson, A. A., surgeon, ordered to duty with the third torpedo flotilla, on board the *Stringham*.

Chappelear, F. D., acting asst.-surgeon, detached from the Naval Hospital Pensacola, and ordered home to wait orders.

Wickes, G. L., asst.-surgeon, detached from the *Wilmington* and ordered to the *Cincinnati*.

Sellers, F. E., asst.-surgeon, detached from the *Cincinnati* and ordered to the *Wilmington*.

Waldner, P. J., pharmacist, appointed pharmacist from July 3, 1907.

For the week ending July 20, 1907:

McClurg, W. A., medical director, commissioned medical director from June 16, 1907.

Wieber, F. W. F., surgeon, detached from command of the Naval Hospital, Pensacola, and ordered to command the Naval Hospital, Canacao, P. I., sailng from San Francisco about August 8.

McConnon, G. H., asst.-surgeon, resignation accepted to take effect Aug. 1, 1907.

Alderman, C. G., asst.-surgeon, appointed asst.-surgeon from July 9, 1907.

Campbell, R. A., acting asst.-surgeon, detached from duty on the Midway Islands and ordered home to wait orders.

Hough, F. P. W., and McGuire, L. W., acting asst.-surgeons, appointed acting asst.-surgeons from July 12, 1907.

Baker, M. C., asst.-surgeon, appointed assistant surgeon from July 12, 1907.

McConnon, G. H., asst.-surgeon, detached from the *Missouri* July 25, and ordered home to wait orders.

Jones A. McK., acting asst.-surgeon, orders of June 12 revoked; detached from the naval recruiting station, Chattanooga, Tenn., and ordered to the naval medical school hospital, Washington, D. C., for treatment.

Hermesch, H. R., Boland, M., Dollard, H. L., Huff, E. P., Smith, H. L., Steadman, W. G., Jr., Donelson, M., Curtis, E. E., Casto, D. H., asst.-surgeons, appointed asst.-surgeons from July 12, 1907.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ended July 17, 1907:

Kerr, J. W., asst.-surgeon general, granted leave of absence for 20 days from Aug 12, 1907.

Mead, F. W., surgeon, directed to proceed to Point Pleasant, N. J., for the purpose of examining keepers and surfmen of the Life-Saving Service, on completion of which duty to rejoin his station.

Kallock, P. C., surgeon, granted leave of absence for 7 days from July 15, 1907.

Wertenbaker, C. P., surgeon, directed to proceed to Ocean City and other points along the Chesapeake Bay, for the purpose of examining keepers and surfmen of the Life-Saving Service, on completion of which duty to rejoin his station.

Stansfield, H. A., P. A. surgeon, relieved from duty at Havana, Cuba, effective July 11, 1907.

Bahrenburg, L. P. H., P. A. surgeon, granted leave of absence for 7 days from July 15, 1907, under Paragraph 191, Service Regulations.

Herring, R. A., asst.-surgeon, granted leave of absence for 8 days from June 30, 1907, on account of sickness.

Kastle, J. H., chief Division Hygienic Laboratory, designated to attend the 11th annual convention of the Association of State and National Food and Dairy Departments at Jamestown, Va., July 17-19, 1907.

Cleaves, F. H., acting asst.-surgeon, granted leave of absence for six days from July 15, 1907, under Paragraph 210 Service Regulations.

Foster, J. P. C., acting asst.-surgeon, granted leave of absence for 27 days from July 20, 1907.

Foster, S. B., acting asst.-surgeon, granted leave of absence for 6 days.

Safford, M. V., acting asst.-surgeon granted leave of absence for 4 days from July 10, 1907, under Paragraph 210 Service Regulations.

Townsend, W., acting asst.-surgeon, granted leave of absence for 7 days from July 14, 1907.

APPOINTMENT.

Dr. Louis A. Thunig, appointed acting asst.-surgeon, for duty at Stapleton, N. Y.

RESIGNATION.

The resignation of Asst.-Surgeon E. M. Steger was accepted, by direction of the President, to take effect July 14, 1907.

BOARDS CONVENED.

A board of medical officers was to meet at Baltimore, July 24, 1907, for the physical examination of certain officers of the Revenue-Cutter Service. Detail for the Board: P. A. Surgeon J. T. Burkhalter, chairman; Acting asst. surgeon J. LaB. Ward, recorder.

A board of medical officers was to meet at San Francisco, July 24, 1907, for the physical examination of certain officers of the Revenue Cutter Service. Detail for the board: Surgeon H. W. Austin, chairman; P. A. Surgeon J. D. Long, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 19, 1907:

SMALLPOX—UNITED STATES.

California: San Francisco, June 22-July 6, 2 cases.

Illinois: Chicago, July 6-13, 3 cases; Galesburg, June 29-July 6, 1 case.

Indiana: Elkhart, June 29-July 6, 1 case; Indianapolis, June 30-July 7, 1 case.

Kansas: Kansas City, June 29-July 6, 3 cases.

Louisiana: New Orleans, June 29-July 6, 6 cases, 1 death.

Michigan: Detroit, June 29-July 6, 1 case.

Mississippi: Natchez, June 29-July 6, 2 imported cases.

Missouri: St. Joseph, June 30-July 6, 3 cases; St. Louis, June 30-July 6, 1 case.

New York: New York, June 29-July 6, 1 case.

North Carolina: Wilmington, July 10, 2 cases (1 imported).

Tennessee: Nashville, July 6-13, 1 case.

Virginia: Richmond, June 29-July 6, 2 cases.

Washington: Spokane, June 29-July 6, 10 cases (5 imported).

Wisconsin: Milwaukee, June 29-July 6, 3 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, May 25-June 1, 3 cases.

SMALLPOX—FOREIGN.

Brazil: Para, June 22-29, 3 cases, 1 death.

Canada: Halifax, N. S., June 30-July 6, 1 case; Sherbrooke, Que., June 1-30, 2 cases.

Chile: Iquique, June 15, present.

France: Paris, June 22-29, 12 cases.

Germany: General, June 1-8, 4 cases; supplemental, June 15-22, 6 cases.

Great Britain: Manchester, June 15-23, 1 case.

India: Bombay, June 4-11, 2 deaths; Calcutta, May 25-June 1, 26 deaths; Madras, June 1-7, 2 deaths.

Italy: General, June 20-27, 27 cases; Florence, June 16-30, 3 cases.

Japan: Yokohama, May 20-27, 1 case.

Java: Batavia, May 25-June 1, 2 cases.

Madeira: Funchal, June 15-30, 100 cases, 25 deaths.

Mexico: Augas Calientes, June 22-July 6, 15 deaths; Mexico City, June 8-22, 16 deaths; Monterey, June 23-30, 1 death.

Panama: Colon, June 30, 1 case on steamship.

Portugal: Lisbon, June 15-22, 7 cases.

Russia: Batoum, May 1-31, 2 cases; Odessa, June 15-22, 3 cases; Riga, June 15-22, 4 cases; St. Petersburg, June 1-22, 11 cases, 3 deaths.

Siberia: Vladivostok, May 14-21, 1 case.

Spain: Barcelona, June 10-20, 3 deaths; Madrid, May 1-31, 3 deaths; Valencia, June 15-30, 32 cases, 3 deaths.

Straits Settlements: Singapore, May 25-June 1, 1 death.

Turkey: Constantinople, June 16-23, 2 deaths; Damascus, June 8-15, present.

YELLOW FEVER.

Brazil: Manaos, June 15-22, 1 death; Para, June 22-29, 4 cases, 4 deaths.

Ecuador: Guayaquil, June 15-22, 3 deaths.

West Indies: Trinidad, June 15-22, 2 cases.

CHOLERA.

India: Bombay, June 4-11, 3 deaths; Calcutta, May 25-June 1, 32 deaths; Kashmir, May 26-June 3, 1,447 cases, 771 deaths.

PLAGUE.

Africa: King Williams Town, May 26-June 1, 1 case.

Egypt: Alexandria, June 13-27, 7 cases, 3 deaths; Assiout Province, June 13-27, 2 cases, 6 deaths; Behera Province, June 13-27, 3 cases, 9 deaths; Beni Souef Province, June 13-27, 1 death; Kena Province, June 13-27, 11 cases, 12 deaths; Minieh Province, June 13-27, 2 cases.

India: Bombay, June 4-11, 39 deaths; Calcutta, May 25-June 1, 100 cases, 100 deaths; Rangoon, May 25-June 1, 44 deaths.

Japan: Yokohama, June 13-21, 4 cases, 4 deaths.

New Zealand: Auckland, May 1-15, 2 cases, 2 deaths.

Peru: Callao, May 31-June 6, 2 cases; Chiclayo, May 31-June 6, 1 death; Lima, May 31-June 6, 5 cases, 3 deaths; Mollendo, May 31-June 6, 2 cases, 2 deaths; Paita, May 31-June 6, 1 case; Trujillo, May 31-June 6, 10 cases, 5 deaths.

Russia: Astrachan Province, June 20, 3 cases.

French Indo China: Cholon, May 3-10, present; Saigon, May 3-10, present.

Turkey: Djeddah, May 30, 1 case, 1 death.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

An Able Leader.

At the last meeting of the West Virginia State Medical Association Dr. William W. Golden, the retiring president, delivered an address of more than usual importance. Dr. Golden was elected president of the state association last year after having served as secretary, with unusual efficiency for a number of years. He has, consequently, been closely identified with the state association during the most important formative period of its existence. His views on medical organization and the future of the state association are, therefore, in every way worthy of consideration.

THE STATE JOURNAL.

In his address Dr. Golden first considered the question of the state journal—a subject of especial interest in West Virginia, since the first year of the existence of their state journal had just terminated. On this subject Dr. Golden says:

> Our future historians will have no difficulty in designating the fortieth year of the association's existence by the establishment of our state journal. The absence of a journal has taxed some of us enormously; for immediate personal effort shrinks into insignificance when compared with the power of the press. The journal remains a necessity of the future. It is, therefore, a matter of congratulation that it has been established and that it has already passed the stage of experiment.

NEW MEDICAL LAW.

Regarding the adoption of the new medical practice act in West Virginia Dr. Golden says:

> The medical laws passed at the last legislature are of greater credit to our association than those which were enacted through its efforts before. Henceforth our state will cease to be a dumping ground for the "flunks" of boards of examiners of neighboring states. Medical diploma mills will no longer be able to point to West Virginia as a place where their impecunious matriculates can practice and gather enough money for the payment of their tuition fees. The osteopath will no longer be a menace to the health and lives of our citizens, for, before he can practice, he must qualify as one able to diagnose and differentiate diseases. The clause providing for reciprocity is a direct benefit for every one of us and in its enactment we have cause for rejoicing. The victory is due to the extent and efficiency of organization which the West Virginia State Medical Association has achieved this year. The earnestness with which medical legislation was discussed at our annual meeting in 1906 foreshadowed success. Every one present left that meeting feeling a double responsibility in the matter. The subsequent discussion of it in the meetings of the component societies caused its importance to be felt among the rest of the profession and, through them, among the entire profession of the state. This made agitation among

the thinking classes of our people fairly easy and the readiness with which they signed our petition to the legislature was remarkable.

It is interesting to note, in view of some criticisms which have been made, that, after a year's experience as president and several years' experience as secretary of the state association, Dr. Golden recommends the abolition of the present custom of auditing the books of the association by a committee appointed at the annual session and the substitution therefor of a regular auditing by an expert accountant after the present custom of the American Medical Association. He also recommends that the president be elected a year in advance in order to allow him to acquaint himself with the duties of his position. After emphasizing the disinterestedness and unselfishness of the true doctor's work, Dr. Golden says:

> As a society, let us grasp every opportunity to show the public our genuine interest in their welfare. Every epidemic of disease, the sanitation of our school houses and other public buildings, the purity of our water supply, the effectiveness of our sewage system and the dissemination of correct information about the social evil, are examples of golden opportunities for this purpose. With a thoroughly organized profession, constantly broadening in its scope and influence, amplifying and holding steadfastly to the commendable things already achieved, let us continue to give the best of our intellectual and physical efforts for the advancement of all the essentials that make not only for the health and well-being of the individual as a unit, but also in a broader sense for the advancement of the race.

Restrict Distribution of Objectionable Literature.

The *Bulletin of the Iowa State Board of Health* for July announces that the city council of Iowa Falls has passed a resolution forbidding the distribution from house to house, or the displaying in public places and on the streets, of samples of nostrums and literature referring to private diseases or other subjects that may have a tendency to corrupt the minds of the young. Such police regulations are thoroughly within the jurisdiction of city government, and it is a matter for congratulation that communities are waking up to the dangers that should be avoided. Iowa Falls has gone further than is usual in its regulation of literature as well as samples, and it is to be hoped that many of our cities will follow her example.

New Practice Law in Missouri.

The *Journal of the Missouri State Medical Association* comments editorially, in its July issue, on the new medical practice act which became effective in that state June 15. Under its provisions no one but graduates of medical colleges may appear before the board. Physicians who graduated previous to 1901 must have had four years of college training; those previous to that time must have had two years. The minimum requirements recommended by the Council on Medical Education have been adopted by the board. County societies are authorized to lodge information with the county prosecuting attorney against violators of the law. The provisions of the law make successful prosecution of illegal practitioners possible.

Marriages

John W. Woodman, M.D., to Miss Edna Wheeler, both of Baltimore, July 10.

Hilda A. Simon, M.D., and Byron M. Swingler, both of Spokane, Wash., July 7.

Chester Lea Magee, M.D., Los Angeles, Cal, to Miss Ednah Cole Ballantyne, June 20.

George Edward Norton, M.D., Cambridge, Mass., to Miss Nellie M. O'Connor of Baltimore, July 10.

David Halliday Moffat Gillespie, M.D., New York City, to Miss Lilian Brechemin, in London, July 20.

John Archibald Stewart, M.D., Portland, Ore., to Miss Nell Israel Junkin of Fairfield, Iowa, July 10.

Houston B. Hyatt, M.D., Clinton, N. C., to Miss Kathleen C. Sadtler of Baltimore, at Washington, D. C., July 8.

Milton Underwood McIntyre, M.D., Smithfield, W. Va., to Miss Marguerite Fullerton of Huntington, W. Va., July 11.

Guy V. Rukke. M.D., assistant surgeon, United States Navy, to Miss Ellen Shaffer of Ann Arbor, Mich., at Huntington, Ind., July 9

Deaths

William T. Bolton, M.D. Jefferson Medical College, Philadelphia, 1882; a member of the Medical Society of the State of California and Los Angeles County Medical Society; formerly of Batavia, N. Y., and at one time secretary of the Genesee County (N. Y.) Medical Society; died suddenly at his home in Los Angeles, Cal., July 12, aged 48.

C. Benjamin Stephenson, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1891; of Charlotte, N. C.; a member of the Medical Society of the State of North Carolina and Mecklenburg County Medical Society, died suddenly at a sanatorium, after a long period of invalidism, aged 46.

William Mazyck, M.D. Medical College of the State of South Carolina, Charleston, 1900; a member of the South Carolina Medical Association and Charleston County Medical Society, and for four years city physician of Charleston, died at his home in that city, July 10, after an illness of one week, aged 31.

Frederick R. Weber, M.D. University of Munich, Germany, 1890; a member of the American Medical Association; pathologist to the Milwaukee County Hospital; professor of clinical medicine in the Milwaukee Medical College, died at his home in Milwaukee, July 17, after an illness of one week, aged 43.

Edward Joseph Gallagher, M.D. Bellevue Hospital Medical College, New York City, 1887; of New York City; a member of the American Medical Association, and the Celtic Medical Society; visiting physician to the House of Calvary Hospital, was killed in an automobile accident, July 21, aged 51.

William E. Pittman, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1868; a member of the American Medical Association; a Confederate veteran and a prominent physician of Lynchburg, Va., died at his home in that city, July 10, from heart disease, aged 66.

Jeremiah Gilbert, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1872; a member of the American Medical Association; of Shaw, Miss.; died at a sanatorium in that city, July 8, as the result of an operation performed two weeks previous, aged 59.

John F. Rudell, M.D. Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1882; for several years a member of the school board of Louisville, died at his home in that city, July 13, after an illness of five months, from nephritis, aged 59.

Frank Henry Watkins, M.D. Medical College of Ohio, Medical Department University of Cincinnati, 1864; a member of the Ohio State Medical Association and Miami County Medical Society, died at his home in Peru, Ind., May 28, after an illness of six months, aged 70.

Forrest Leon Estill, M.D. Washington University Medical Department, St. Louis, 1903; a member of the Colorado State and El Paso County medical societies; died at his home in Colorado Springs, Colo., July 15, after an illness of three weeks, aged 27.

Henry L. Furbeck, M.D. Albany (N. Y.) Medical College, 1881; of St. Johnsville, N. Y.; a member of the Medical Society of the State of New York and Montgomery County Medical Society, died at the Albany Hospital, July 11, aged about 49.

John Ray Bare, M.D. University of Louisville (Ky.) Medical Department, 1852; assistant surgeon and surgeon during the Civil War; the oldest practitioner of southern Indiana; died at his home in Salem, July 8, from senile debility, aged 86.

John Henry Criswell, M.D. Cincinnati College of Medicine and Surgery, 1896; a member of the state legislature from Marion County; died at his home in Marion, Ohio, July 14, as the result of a fall sustained eighteen months ago, aged 56.

Thomas Moore Livingston, M.D. Bellevue Hospital Medical College, 1872; a member of the American Medical Association, and at one time president of the board of health of Columbia, Pa., died at his home in that city, July 13, aged 63.

James Edwin Russell, M.D. New York Homeopathic Medical College and Hospital, New York City, 1880; died at the Harlem Hospital, July 21, as the result of an attack reported to have been made on him by robbers, July 19.

August J. Radike, M.D. Ensworth Medical College, St. Joseph, Mo., 1894; a member of the Vermont State and Chittenden County medical societies, died at his home in Burlington, Vt., July 19, after a long illness, aged 51.

Washington Gay Elliott, M.D. Western Reserve University Medical College, Cleveland, 1849; assistant surgeon of volunteers during the Civil War, died at the home of his son in Holly Springs, Miss., July 16, aged 83.

William C. Stewart, M.D. Baltimore Medical College, 1901; of Johnetta, Pa.; a member of the Armstrong County Medical Society, died at his home in that place, July 12, from diabetes, after a lingering illness, aged 36.

James H. White, M.D. Starling Medical College, Columbus, Ohio, 1870; a pioneer physician of Delaware County, where he had practiced for 50 years, died at his home in Delaware, July 14, from paralysis, aged 90.

Simpson R. Denton, M.D. Bellevue Hospital Medical College, New York City, 1882; a member of the Illinois State and Hancock County medical societies, died at his home in Elvaston, Ill., July 10, aged 53.

Christian M. Hoffman, M.D. Jefferson Medical College, Philadelphia, 1862; for 45 years a practitioner of Sinking Spring, Pa., died at his home in that place, July 6, after an illness of one year, aged 73.

Charles M. Johnson, M.D. Jefferson Medical College, Philadelphia, 1863; formerly of Watertown, N. Y.; died at his home in San Diego, Cal., recently, as the result of a fall from a street car, aged 67.

Carl D. Stone, M.D. College of Physicians and Surgeons, Chicago, 1898; of Chicago, died at the Michael Reese Hospital, in that city, July 18, from typhoid fever, after an illness of one month, aged 35.

Isaiah Henry White, M.D. University of Virginia Department of Medicine, Charlottesville, 1861; of Richmond, Va., died at his home in that city, July 15, after an illness of over a year, aged 69.

Angus K. McNair, M.D. New Orelans (La.) School of Medicine, 1861; a surgeon in the Confederate army during the Civil War, died at his home in Fayette, Miss., June 29, aged 70.

William Miller, M.D. University of Iowa, College of Homeopathic Medicine, Iowa City, 1881; of Davenport, Iowa; died at his home in that city, July 6, from cerebral hemorrhage, aged 59.

Robert O. Craig, M.D. Albany (N. Y.) Medical College, 1855; a pioneer practitioner of Watseka County, Minn., died at his home in Janesville, Minn., July 13, from senile debility, aged 74.

Elmore Y. King, M.D. Bellevue Hospital Medical College, New York City, 1865; died at his home in Richwood, Ohio, July 11, from paresis, after an illness of a few months, aged 70.

William Le Grange Ralph, M.D. College of Physicians and Surgeons in the City of New York, 1879; of Washington; died at the George Washington University Hospital, July 8, aged 56.

William W. Robinson, M.D. Missouri Medical College, St. Louis, 1898; a member of the American Medical Association; died at his home in Loveland, Colo., from asthma, July 12, aged 36.

J. W. Jenkins, M.D. Beaumont Hospital Medical College, St. Louis, 1888; formerly district surgeon for the Iron Mountain Railway; died at St. Louis, Mo., July 5, after a long illness.

William Todd Smith, M.D. Jefferson Medical College, Philadelphia, 1854; of Springfield, Ill.; died at his home in that city, July 6, from senile debility, aged 84.

Edward F. Kelley, M.D. New York University Medical College, New York City, 1873; of Pulaski, N. Y., died at the home of his son-in-law, July 15, aged 63.

George A. Sweeney, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1898; died at his home in Chester, Pa., July 8, aged 33.

Joseph A. Krieger, M.D. Missouri Medical College, St. Louis, 1888; of St. Louis; died at the City Hospital in that city, July 12, aged 43.

Sidney Arthur King, M.D. Medical Department, Victoria College, 1867; died at his home in Kingsville, Ont., July 8, from nephritis, aged 65.

James B. Kennah, M.D. Albany (N. Y.) Medical College, 1889; died at his home in Saratoga, N. Y., July 11, after a prolonged illness.

Charles William Cunnion, M.D. Long Island College Hospital, Brooklyn, 1895; died at his home in Brooklyn, July 5, aged 34.

Death Abroad.

Sir William Tennant Gairdner, M.D. Edin. and Dub., K.C.B., J.J.D., F.R.S., F.R.C.P., consulting physician to the Western Infirmary, Glasgow, late professor of medicine in the University of Glasgow, died somewhat suddenly, June 28, at Midlothian, from heart disease, at the age of 82. He was the greatest and most cultured teacher of medicine of his generation in the Scottish schools. In 1848 he was appointed pathologist to the Edinburgh Royal Infirmary and in 1850, at the extraordinarily early age of 26, he was elected a fellow of the Royal College of Physicians of Edinburgh. Three years later he became physician to the Royal Infirmary and extramural lecturer on the practice of medicine and clinical medicine. His reputation as a physician and teacher were so great that in 1862 he was asked by the University of Glasgow to accept the chair of medicine. With this appointment he became ex-officio physician to the Glasgow Royal Infirmary. He was much interested in public health and published an important work on the subject. He was consequently appointed health officer of the city of Glasgow. He effected a revolution in the sanitary condition of the city, which was in a state of dirt and overcrowding such as do not exist in Great Britain to-day. As a teacher his dominating characteristics were originality and independence. He disregarded authority when he could not prove the matter himself. He was deeply religious, realizing that there is no antagonism between true religion and true science. In therapeutics he always insisted on the *vis medicatrix naturæ* and his expectant treatment caused him to be regarded by some as intolerant of drugs. Perhaps his most important piece of work was his opposition to the current treatment of disease by large doses of alcohol inspired by the teaching of Todd. In the sixties, when typhus fever was prevalent, he withheld alcohol from his younger patients suffering from the disease and gave it in only moderate doses to a small percentage of adults. His mortality was only 12 per cent., while that of Todd at King's College Hospital was 25 per cent. Probably he did more than any other man in disabusing the profession of the exaggerated views held as to the value of alcohol.

Society Proceedings

COMING MEETINGS.

Minnesota State Medical Association, Duluth, August 13.
Ohio State Medical Association, Cedar Point, August 28.
Wisconsin State Medical Society, Superior, August 20-22.
Medical Society of the Missouri Valley, Council Bluffs, September 5.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held June 26, 1907.

Dr. Jay F. Schamberg in the Chair.

SYMPOSIUM ON OFFICIAL PHARMACEUTIC PREPARATIONS.

The Lack of Necessity for Proprietary Mixtures.

Dr. S. Solis-Cohen said that the most of the trouble comes from a confusion of terms. The term "proprietary mixtures" does not necessarily mean fraudulent and secret mixtures, for while there are some proprietary mixtures which are fraudulent and secret, there are also those which are straightforward, open and excellent. Speaking of the need for mixtures, in the majority of cases Dr. Cohen thought they are unnecessary because in nearly every case a skilful pharmacist ought to be able to compound any mixture which a physician ought to administer to his patients. The ground was taken that any physician in doubt has before him two methods without resorting to proprietary mixtures: 1. Not to give so many things to the same patient at the same time. 2. Supposing that all the ingredients are necessary, it is still possible to put up a number of separate prescriptions and allow the patient to take them at proper times. A third way out, and one adopted by Dr. Cohen, is to call up a druggist and ask if there is any physical or chemical incompatibility in a certain combination of drugs, and whether the mixture is palatable. In a few cases, however, because of the difficulty of mixing together certain ingredients, on account of the difficulty of obtaining a pure article, or because of the advantage of age in preparation, a mixture which can be obtained ready-made and which is made by a careful manufacturer may be justifiable. The great objection to many of the preparations is that their administration to different individuals becomes mechanical.

Official versus Proprietary Preparation.

Dr. Horatio C. Wood, Jr., divided proprietary preparations into those containing but one chemical substance and those containing several. Those belonging to the first class he occasionally prescribes, but with certain precautions. He believes the world would be better off had scientific chemistry never entered the field of medicine. He bases his objection to proprietary preparations on the impossibility of being certain of their composition, the tendency to increase self-medication, the generally inferior quality of the drugs, and the extortionate prices charged for them. As an evidence of the immense profits made by the drug houses, tables were shown giving the prices charged by wholesale jobbing houses in this country and in England. Because of the peculiar patent laws the prices in America are much in advance of those in England. For example, in England aspirin sells for 58 cents per pound; in America for $6.88. In England creosotal costs $1.98 a pound; in America, $9 a pound. In England dermatol costs 27 cents a pound; in America, $3; while sulphonal, which in England sells for 77 cents a pound, in America sells for $21.60 a pound. As a practitioner of medicine and student of therapeutics, Dr. Wood protests against the use of all ready-made mixtures, especially those controlled by drug houses, as hampering seriously the advance of rational medicine. The symptoms of disease being different in every two individuals, the rational treatment must be modified according to the individual case. He who uses a routine cough syrup is as far astray as the man who has a sure cure for pneumonia or typhoid fever.

Exhibition of Official Preparations.

Mr. M. I. Wilbert thought all would agree from a review of the present status of proprietary articles that there remains plenty of work to be done by the Council on Pharmacy and Chemistry and the individual practitioner. Numerous instances were given of misrepresentation in proprietary remedies. The necessity of the cooperation of the medical men and pharmacists was indicated. Unless this cooperation is entered into the medical men are the sufferers, because in the event of the failure of the patient to receive the expected benefit from the action of the prescribed medicine, the physician's ability is questioned.

Mr. Frank E. Morgan laid stress on the fact that the patient's condition should be diagnosed and the proper remedy provided, rather than that the disease should be adapted to any ready-made formula.

Mr. Joseph W. England said that what is needed to-day is not more ready-made pharmaceutic preparations, whether proprietary or non-proprietary, but a better knowledge of the physical and chemical properties of drugs, and a clearer knowledge of the individualities of the patients that take the drugs, to the end that there may be the best adjustment of the former to best meet the needs of the latter. Individualism in prescription writing, as a part of individualism in treatment, he thought should obtain. The reason that the ready-made formula, as a rule, is not adapted for individual treatment was said to be due chiefly to the fact that it is generally badly "balanced" therapeutically. As striking examples of this were cited the N. F. elixir of phosphorus and nux vomica, and Basham's mixture of the previous edition of the U. S. Pharmacopeia. An equally serious fault with the official ready-made preparations was the small amount of originality shown in the matter of flavors.

Dr. J. C. Cooper thought that the great evil of the question lay in the fact of American haste and American ignorance. Unfortunately, the question too often asked is, "What shall I give in order to get the patient out soon?" The question should be, "What shall I give in order to cure the patient?"

Dr. R. Max Goepp thought there should be some method devised whereby the official names could be made easier for those not so well accustomed to chemistry as they perhaps should be.

Mr. Henry C. Blair spoke of the hundreds of bottles of ready-made mixtures from the druggists' stores necessarily consigned to the refuse pile, from which only a few ounces had been taken. While in some cases these remedies possibly do some good to the patients, in the majority they do not. Admitting that there are a few good proprietary remedies, the greater number were regarded as of no value.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Kentucky State Board of Health, City Hall Building, Louisville, August 1-2. Secretary, Dr. J. N. McCormack, Bowling Green.

California Board of Medical Examiners, San Francisco, August 6. Associate Secretary, Dr. F. Dudley Tait, San Francisco.

Nebraska State Board of Health, State House, Lincoln, August 7-8. Secretary, Dr. Geo. H. Brash, Beatrice.

The Philippine Medical School.—The first annual announcement of the new Philippine Medical School has just reached us. This school is a direct part of the educational system of the Philippine Islands, having been established by the Philippine Commission. The requirement for admission is a high-school education or its equivalent, the candidate being subjected to an examination in mathematics: arithmetic, algebra through quadratic equations and plane geometry; English: grammar, composition and sight reading from standard English works; literature: a knowledge of two books out of five standard works which may be English, French, German or Spanish, as selected by the student; history of the Philippine Islands and general history; Latin grammar and four books of Caesar; physics, chemistry and biology. The medical course will extend over five years, the first two being devoted to practical work combined with demonstrations, recitations and lectures in the laboratories of anatomy, physiology, chemistry, pharmacology and toxicology, pathology and bacteriology. The last three years will be taken up with the clinical branches in hospital wards and dispensaries and will include thorough instruction in hygiene, sanitation and tropical diseases. The first session began June 10, 1907, and will end Feb. 28, 1908.

Connecticut Homeopathic January Report.—Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the special written examination held at New Haven, Jan. 1, 1907. The total number of subjects examined in was 8; total number of questions asked, 70; percentage required to pass, 75. Only one candidate, a graduate of the Hahnemann Medical College of Philadelphia in 1901, appeared for license and was successful.

Connecticut Eclectic March Report.—Dr. Thomas S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports the written examination held at New Haven, March 12, 1907. The number of subjects examined in was 11; total number of questions asked, 10; percentage required to pass, 75. The total number of candidates examined was 7, of whom 1 passed and 6 failed. One reciprocal license was granted at this examination. The following colleges were represented:

College.	Year. Grad.	Per Cent.
PASSED.		
Dartmouth Med. Coll.	(1902)	75
FAILED.		Total number examined.
University of Naples		*6
LICENSED THROUGH RECIPROCITY.		
Eclectic Med. Institute, Cincinnati	(1896)	Illinois

*Years of graduation not obtained.

Connecticut March Report.—Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written examination held at New Haven, March 13-14, 1907. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 19, of whom 14 passed and 5 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.
Baltimore Medical College	(1906)
Johns Hopkins University	(1905)
Dartmouth Medical College	(1907)
New York University	(1892)
Columbia University	(1905)
Bellevue Hosp. Medical College	(1906)
Yale University	(1905), (3, 1906)
University of Pennsylvania	(1899)
Medico-Chirurgical College, Philadelphia	(1904)
University of Vermont	(1905)
Owen's College, England	(1892)

FAILED.

College.	Year. Grad.
Baltimore University	(1900)
Baltimore Medical College	(1906)
Tufts College Medical School	(1905)
College of P. and S., Boston	(1906)
Laval University	(1902)

California April Report.—Dr. F. Dudley Tait, associate secretary of the State Board of Medical Examiners of California, reports the written examination held at San Francisco, April 16, 1907. The number of subjects examined in was 9; percentage required to pass, 75. The total number of candidates examined was 44, of whom 25 passed and 19 failed. The following colleges were represented:

PASSED.

College.	Year of graduation.	Anatomy.	Bacteriology.	Chemistry.	Materia medica.	Obstetrics.	Pathology.	Physiology.	Medicine.	Surgery.	Gen. average.
Calif. Med. Coll.	1906	88	87	72	81	72	75	69	89	77	78.8
Coll. of P.&S., San Francisco	1906	90	86	77	86	83	76	91	79	84	83.5
Coll. of P.&S., San Francisco	1906	98	78	76	84	77	75	88	92	82	83.3
Coll. of P.&S., San Francisco	1906	91	73	82	89	75	72	75	79	75	79
Coll. of P.&S., San Francisco	1906	95	79	80	78	75	60	61	79	75	75.7
Coll. of P.&S., San Francisco	1907	95	70	83	85	78	61	60	93	75	77.7
Cooper Med. Coll.	1906	93	79	78	83	88	84	92	75	95	85.2
University of California	1906	96	70	69	77	83	82	90	93	90	83.3
University of California	1907	90	81	77	80	81	98	75	77	95	83.7
Univ. of Southern California	1905	79	68	71	79	84	76	66	73	79	75
Univ. of Southern California	1906	93	87	72	77	75	70	84	83	78	79.8
Denver & Gross Coll. of Med	1903	98	77	80	87	77	76	87	90	80	83.5
Coll. of P. & S., Chicago	1903	82	72	77	82	75	63	85	90	88	79.3
Coll. of P. & S., Keokuk	1885	94	84	72	83	82	68	75	76	70	78.2
University of Maryland	1887	95	90	73	88	90	64	85	96	80	83.5
Harvard Medical School	1886	87	60	74	81	68	77	65	82	90	76
Harvard Medical School	1892	81	65	63	82	75	79	80	77	75	75.2
Washington Univ., St. Louis.	1906	85	78	78	72	65	82	60	78	89	76.3
Long Island Coll. Hosp.	1901	85	60	84	80	98	60	71	77	70	76.1
Cleveland Coll. of P. & S.	1905	93	75	78	75	74	77	81	86	78	79.6
Eclectic Med. Inst., Cincinnati	1896	88	88	60	84	67	61	78	86	68	75.5
*Columbus Medical College.	1886	85	84	81	96	86	60	89	81	80	82.4
Hahnemann Med. Coll., Phila	1893	78	69	72	91	71	68	63	89	74	75
University of Pennsylvania.	1898	87	69	79	83	76	67	75	69	70	75
St. Bartholomew Hosp., Eng.	1898	84	64	64	68	88	88	75	75	93	77.6

FAILED.

College.	Year of graduation.	Anatomy.	Bacteriology.	Chemistry.	Materia medica.	Obstetrics.	Pathology.	Physiology.	Medicine.	Surgery.	Gen. average.
Coll. of P.&.S., San Francisco	1905	82	44	53	59	25	45	46	65	50	52.1
Coll. of P.&S., San Francisco	1906	78	66	60	66	77	58	50	66	73	66
Univ. of Southern California	1904	76	57	60	80	84	66	70	75	75	71.4
Univ. of Southern California	1906	78	66	61	80	53	73	50	75	75	67.8
Howard U., Washington, D.C.	1887	83	57	74	79	70	75	65	61	70	70.4
Hahnemann M. Coll., Chicago	1895	92	31	72	75	79	58	54	81	68	67.7
Bennett Coll. Ecl. Med.&Surg	1902	79	80	63	86	81	42	55	80	60	69.5
University of Iowa	1890	77	53	66	79	67	68	41	62	70	64.7
Baltimore Medical College	1906	77	48	66	81	75	72	52	72	70	67.1
American Med. Coll, St. Louis	1905	75	76	54	87	68	36	56	82	68	66.8
Kansas City Med. Coll.	1896	68	68	70	77	75	69	48	70	75	68.8
University of Missouri	1897	70	52	69	90	62	75	54	70	76	68.6
Bellevue Hosp. Med. Coll.	1880	58	24	66	75	77	61	20	34	70	53.8
Univ. & Bellevue Hosp. M. C.	1904	81	41	69	67	76	70	60	76	75	67.2
Cleveland Homeo. Med. Coll.	1892	63	19	62	75	68	39	10	88	46	52.2
Medico Chirurg. Coll., Phila.	1904	81	54	73	78	69	62	59	75	75	69.5
University of Pennsylvania.	1906	..	..	..	..	..	26	50	79	90	27.2
University of Athens, Greece	1906	15	31	40	55	43	37	33	55	50	39.8
University of Rome, Italy.	1905	84	71	68	71	65	56	65	88	94	73.2

*Merged with Starling Medical College in 1892.

Georgia Eclectic April Report.—Dr. C. H. Field, secretary of the Georgia Eclectic Medical Examining Board, reports the written examination held at Atlanta, April 3, 1907. The number of subjects examined in was 13; total number of questions asked, 96; percentage required to pass, 80. The total number of candidates examined was 13, of whom 12 passed and 1 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Georgia Coll. of Ecl. Med. and Surg., (1907), the grade of 85 was reached by five, 90 by four, and 95 by two.		
Eclectic Med. Inst., Cincinnati	(1891)	98

FAILED.

College.	Year. Grad.	Per Cent.
Georgia Coll. of Ecl. Med. and Surg.	(1907)	70

Georgia April and May Reports.—Dr. E. R. Anthony, secretary of the Regular Board of Medical Examiners of Georgia, reports the written examinations held at Atlanta, April 30-May 1, 1907, and at Augusta, May 2-3, 1907. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75.

At the examination held at Atlanta, April 30-May 1, the total number of candidates examined was 86, of whom 73 passed and 13 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Howard University	(1906)	84, 86
Birmingham Med. Coll.	(1904)	84
Atlanta College of P. and S. (1901) 86; (1907) the grade of 77 was reached by one, 78 by two, 79 by one, 80 by three, 81 by four, 82 and 83 by one each, 84 by six, 85 by two, 86, 88, 89, 91 and 95 by one each, and 94 by three.		
Medical College of Georgia	(1905)	77
Atlanta School of Med. (1907) the grades of 76 and 78 were reached by two each, 77 and 79 by one each, 80 by three, 81 by one, 83 by two, and 86, 87 and 91 by one each.		
International Med. Miss. Coll., Atlanta	(1907)	84
Tulane University	(1906)	81
Baltimore Med. College	(1906)	82
University of Maryland	(1906)	86
Johns Hopkins Medical School	(1905)	89
St. Louis College of P. and S.	(1898)	77
Leonard School of Medicine	(1906)	76
Medical College of South Carolina	(1897)	86
Meharry Med. Coll., (1902) 78; (1906) 89; (1907) 75, 75, 80, 82, 83, 84, 87, 89.		
Vanderbilt University	(1906)	90
Chattanooga Med. Coll	(1907)	78, 78
University of the South	(1906)	82, 83
University of Virginia	(1907)	82

FAILED.

College.	Year. Grad.	Per Cent.
Atlanta College of P. and S.	(1907)	66, 68, 74
Atlanta School of Med.	(1907)	73
Leonard School of Med.	(1906)	73
Chattanooga Med. Coll. (1896) 60; (1901) 50, 59; (1903) 70; (1907) 66, 73.		
University of the South	(1906)	73
Meharry Med. Coll.	(1907)	73

At the examination held at Augusta, May 2-3, the total number of candidates examined was 23, all of whom passed. Five reciprocal licenses were granted at this examination and two old practitioners were registered under the exemption clause. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Medical Coll. of Georgia (1907), the grade of 77 was reached by two, 78 and 79 by one each, 80 by three, 81 by two, 82 by three, 84, 85 and 86 by one each, 87 by four, and 89 by one.		
Maryland Med. Coll.	(1905)	84
University of Maryland	(1898)	81
Gate City Med. Coll.	(1907)	82

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Louisville Med. Coll.	(1904)	Kentucky
Baltimore University	(1903)	Nevada
University of Michigan (1885) Iowa;	(1895)	Michigan
St. Louis University	(1904)	Kentucky

REGISTERED UNDER EXEMPTION CLAUSE.

College.	Year Grad.
Atlanta Med. Coll.	(1886)
Med. Coll of Georgia	(1888)

Illinois April and May Reports.—Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examinations held at Chicago and East St. Louis, April 17-19, and May 8-10, 1907, respectively. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75.

At the examination held at Chicago, April 17-19, the total number of candidates examined was 40, of whom 31 passed and 9 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Tot. number exam.
Denver and Gross Coll. of Med	(1906)	1
Howard University	(1906)	1
American Med. Miss. Coll.	(1906)	2
National Med. Univ., Chicago	(1907)	2
Northwestern University	(1, 1898); (1, 1906)	2
Rush Med. Coll.	(2, 1906); (15, 1907)	17
Indiana Med. Coll.	(1906)	1
Michigan Coll. of Med. and Surg.	(1901)	1
University of Michigan	(1886)	1
Imperial University, Moscow, Russia	(1898)	1
University of Vienna, Austria	(1902)	1
Uniwersytet Jagiellonski, Krakow, Austria	(1894)	1

FAILED.

College.	Year Grad.	Tot. number exam.
Hahnemann Med. Coll., Chicago	(1899)	1
Jenner Med. Coll.	(1906)	2
National Med. University, Chicago	(1, 1906); (1, 1907)	2
Hospital Coll. of Med., Louisville	(1904)	1
Detroit Coll. of Med.	(1897)	1
Barnes Med. Coll.	(1899)	1
College of P. and S., New York	(1900)	1

At the examination held at East St. Louis, May 8-10, the total number of candidates examined was 104, of whom 97 passed and 7 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Tot. number exam.
Bennett Coll. of Ecl. Med. and Surg.	(1907)	3
Chicago Coll. of Med. and Surg.	(1907)	4
Rush Med. Coll.	(1900)	1
Barnes Med. Coll.	(1907)	17
Homeopathic Med. Coll. of Missouri	(1, 1906); (2, 1907)	3
Marion Sims-Beaumont Med. Coll.	(1, 1906); (24, 1907)	25
Washington Univ., St. Louis	(1, 1905); (1, 1906); (21, 1907)	23
St. Louis Coll. of P. and S.	(1907)	20
Eclectic Med. Inst., Cincinnati	(1907)	1
FAILED.		
Dearborn Med. College	(1906)	1
Physio Medical College of Indiana	(1907)	1
Barnes Medical College	(1, 1903); (1, 1907)	2
St. Louis Coll. of P. and S.	(1, 1906); (2, 1907)	3

Massachusetts May Report.—Dr. E. B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the written examination held at Boston, May 14-16, 1907. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 42, of whom 31 passed, including 7 osteopaths, and 11 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
American Med. Miss. Coll	(1902)	78.3
Baltimore University	(1906)	75
College of P. and S., Baltimore	(1900)	82.9
Johns Hopkins Med. School	(1904)	82.8
Boston University	(1893) 79; (1896)	80.2
Harvard Med. School	(1906)	76.1
Tufts College Med. School	(1906)	76.2, 79.4
College of P. and S., Boston	(1906)	75.2
Dartmouth Med. Coll.	(1901) 76; (1904) 81; (1907)	77, 82.1, 85.1
College of P. and S., New York	(1904) 85.3; (1905)	85
Woman's Med. Coll of Pennsylvania	(1903)	84.5
Univ. of Vermont	(1899) 75; (1905) 79.2; (1906)	84.4
Laval University, Quebec	(1902)	75
McGill University, Quebec	(1905)	84.4
Aberdeen University, Scotland	(1906)	82.2
FAILED.		
Kentucky School of Medicine	(1906)	73.7
Baltimore University	(1903) 55; (1906)	71.9
College of P. and S., Boston	(1905)	65.7
Baltimore Med. Coll.	(1905)	72.6
Tufts College Med. School	(1898)	64.5
College of P. and S., St. Louis	(1906)	54.5
Dartmouth Med. Coll.	(1893)	57
Laval Univ., Quebec	(1904) 56.7; (1905) 56.5; (1906)	59.5

Delaware June Report.—Dr. P. W. Tomlinson, secretary of the Medical Council of Delaware, reports the written examination held at Dover, June 18-20, 1907. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 3 passed and 1 failed. Four reciprocal licenses were granted. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Maryland Medical College	(1907)	81.5
Woman's Med. College of Pennsylvania	(1907)	90.7
Jefferson Medical College	(1907)	81.6
FAILED.		
Maryland Medical College	(1907)	62.5

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Southern Homeo. Med. Coll., Baltimore	(1906) (1907)	Maryland
Jefferson Med. College	(1906)	Maine
Chattanooga Medical College	(1905)	Tennessee

Maryland Homeopathic June Report.—Dr. Joseph S. Garrison, secretary of the Board of Medical Examiners representing the Maryland State Homeopathic Medical Society, reports the written examination held at Baltimore, June 4-5, 1907. The number of subjects examined in was 9; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 15, of whom 14 passed and 1 failed. Three reciprocal licenses have been issued since the beginning of the year. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Southern Homeopathic Med. Coll., Baltimore	(1907)	81.1, 82.7, 84.4, 86.7, 86.8, 89.2, 90.5, 92.2, 93.4.
Hahnemann Med. Coll., Philadelphia,	(1897) 81.4; (1899) 79.2; (1907)	87.3, 91.2, 96.
FAILED.		
Southwestern Homeopathic Med. Coll., Louisville	(1906)	61.2

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Hahnemann Med. Coll., Chicago	(1906)	Illinois
Chicago Homeopathic Med. Coll.	(1889)	Illinois
Pulte Med. Coll.	(1905)	Ohio

Medicolegal

Another Court on Injuries Caused by Fright.

The Supreme Court of Rhode Island says, in the personal injury case of Simone vs. Rhode Island Company, that the question has not heretofore been determined in that state whether there can be a recovery for bodily injury caused by fright when the fright was caused by the negligence of the defendant; where there was no actual physical injury at the time of the accident, but where the fright was followed by a series of physical ills as its natural consequence; where the fright as a cause gave rise to nervous disturbances, and those in turn to physical troubles. The cases relating to this question in other jurisdictions have given rise to widely differing decisions. This court decides it in the affirmative. It says that it is always a question, frequently of much difficulty to be decided in the particular case, whether the injury for which damages are sought is the proximate result of the act or acts complained of. But when it is admitted that in a large class of cases there may be injuries of the most serious character directly resulting from the negligence of the defendant, as a proximate cause, for which the law will afford no remedy because of some probable difficulty or occasional injustice in the administration of a more liberal rule, it appears to the court that the conclusion is quite illogical and is a pitiful confession of incompetence on the part of courts of justice.

Experts May be Asked Leading Questions.

The Court of Civil Appeals of Texas says, in Galveston, Harrisburg & San Antonio Railway Company vs. Powers, that it is ordinarily permissible to ask an expert witness a leading question when his opinion is sought on a matter about which, by reason of his professional knowledge and skill, he has peculiar information.

Evidence That Injury Caused Tuberculosis.

The St. Louis Court of Appeals says that, in the personal injury case of Van Cleve vs. St. Louis, Memphis & Southeastern Railroad Company, objection was made to a physician testifying that the plaintiff had tuberculosis of the lungs, which, in his opinion, was caused by a fall in November, 1902, when he did not see her until Dec. 24, 1904. It was contended that as he did not see her until such latter date, her condition when he saw her was too remote from the injury for him to form any correct opinion, and any opinion he might form would be simply theoretical. But the court does not think that there was any error in overruling the objection. It says that the physician testified that the consumptive condition of the plaintiff's lungs probably resulted from the injury. This evidence, in connection with that of the plaintiff, to the effect that she had been a strong and healthy woman before the injury, had never had lung trouble, and that after the injury she continued to have hemorrhages of the lungs down to the day of the trial, the court thinks tended very strongly to show that, if she had tuberculosis of the lungs, it was a natural and probable result of the injury, and for this reason evidence of her consumptive condition was admissible without being specially pleaded; in other words, that it was a condition which the defendant might have anticipated and been prepared to meet on the trial. If the defendant was in doubt as to what the plaintiff expected to prove under the general allegation of permanent injury, it was its privilege to have called for particulars.

Validity of Laws Providing for Commitment of Insane.

The Supreme Court of Rhode Island says, in re Crosswell's petition, that the petition was for a writ of habeas corpus and for discharge from custody of a patient confined against his will in the Butler Hospital. The commitment and reception of the petitioner at the hospital were under the provisions of the Rhode Island statute that insane persons may be removed to and placed in said Butler Hospital, or in any other curative hospital for the insane of good repute in the state, managed under the supervision of a board of officers appointed under the authority of the state, by their parents, or parent, or guardian, if any they have, and if not, by their relatives and friends; but the superintendent of said hospital shall not receive any person into his custody in such case without a certificate from two practicing physicians of good standing, known to him as such, that such person is insane, and the state shall not be liable for the support of any such person.

The statute, the court goes on to say, does not require that the certificate mentioned should be sworn to or that it should be signed by physicians practicing in Rhode Island, or that they should not be officers of an institution for the care of the insane, or that the removal shall be from another hospital. These objections, urged against the validity of the certificate in the present case, have no basis in the statute. The certificate fulfilled the requirements of the law. The power given to parents or guardians so far as it relates to minors or wards, is only a recognition of the power which Nature gives to the one class and the courts have bestowed on the other.

Furthermore, the court thinks that this statute should be held to include in the word "guardian" those of foreign as well as domestic appointment. Many of the patients in the Butler Hospital are not citizens of Rhode Island, and the court can not narrow the construction of so comprehensive a statute, and construe it so as to require in many cases the appointment of a local guardian before a person needing the care of this institution could be committed to it.

The court finds in this case as matter of fact, on the concurrent testimony of all the expert witnesses, that the petitioner was insane; and, on uncontradicted evidence, that his malady was in its nature progressive, and that it was liable at any time, without warning, to induce in him acts of violence to himself or others. In these circumstances the court says it was clear that for his own good, as well as for the protection of the community, he required restraint and medical care such as the Butler Hospital affords and for the purpose of furnishing which it was incorporated and authorized by law to receive patients.

It seems to the court that much popular misapprehension of this subject grows out of the feeling that constraint of a person as insane is analogous to the punishment of a criminal, and carries with it some stigma; and to this may be added in some minds a repulsion to submitting one's self or one's friend to hospital treatment away from the continued supervision of family and personal friends. But insanity is a disease, and the state has the right to treat one who has the misfortunte to suffer from it, as it does one who has a contagious malady. The exercise of this right of self-protection must be regulated by the circumstances of the case. If it is dangerous to the community that a citizen should go at large, whether because he is liable to spread contagion, or to commit some act of violence, public safety demand that he be immediately confined, either with or against his will, and the extent of his personal right can only be to test by judicial process, at a time when it may safely be done, the propriety of his restraint. The court is of the opinion that the safeguards of this right provided by the statute are ample and just.

The person confined has two methods at his command of invoking the action of the highest judicial authority, and severe penalties are imposed on the managers and guards of the institution if they fail to bring the remedial provisions of the statute to his notice or impede his access to the remedies provided. In addition to this, careful supervision of such institutions is provided for by citizens of character and standing, and the system of operation is so regulated by law as to prevent abuses, or to insure the correction of them, as far as wise legislation can go. It would serve no useful purpose in this case to compare the systems which have been adopted in other states for securing the restraint of the dangerously insane. Many of them were criticised by the plaintiff's counsel as liable to the same strictures which he applied to those of Rhode Island. They are all attempts by different minds to protect the community by such measures as may least infringe the personal liberty of the insane person. The court thinks that the Rhode Island system is a reasonable exercise of the legislative power, and secures to the subject of its restraint all rights which the Constitution of the United States guarantees to him.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

July 13.

1 Treatment of Intracranial Tumor. W. M. Leszynsky, New York City.
2 *Importance in Surgical Cases of Correcting Defective Unstriped Fiber. A. T. Livingston, Jamestown, N. Y.
3 Large Tumor of Laryngopharynx Removed by Subhyoid Pharyngotomy. W. F. Chappell, New York.
4 Case of Typhoid Perforation of Appendix. H. Moffatt, Yonkers, N. Y.
5 *Paraplegia Caused by Aneurism of Arch of Aorta. B. Stow, Blackwell's Island, N. Y.
6 Vaginal Implantation of Adeno-carcinoma of Uterus. Blood Metastases in Recurrent Sarcoma. G. W. Kaan, Boston.
7 *Heart Disease and Blood Pressure. L. F. Bishop, New York.

2. **Importance of Correcting Defective Unstriped Fiber.**—Livingston believes that defective unstriped muscle fiber is the cause of many serious conditions that are met with by the surgeon. If this defective unstriped muscle is taken care of we shall be assured of safety in anesthesia, relief from shock, freedom from pain or its modifications, avoidance of inflammation and repair of injured tissues, and of much increase of comfort and well-being to the patient. The defective unstriped muscle fiber that is implicated is that of the blood vessels especially. Heart weakness is due to the improper distribution of blood in the vessels, resulting from weakness of the blood vessel's muscular coat at some point. Correcting this weakness will equalize the pressure and relieve the heart from undue strain. The means recommended for this correction are massage, dry cupping, electricity in the form of galvanism, cold, and, best of all, ergot. The last should be given cautiously, yet without fear of ergotism. Its use should be hypodermic, with a sterile solution and syringe, and should be rather preventive than curative.

5. **Paraplegia Caused by Aneurism of Aorta.**—Stow describes a case seen by him of large aneurism of the arch of the aorta, with erosion of the second, third, fourth and fifth dorsal vertebræ, in which there was paraplegia. There was concentric hypertrophy of the left ventricle and chronic syphilitic endarteritis, with calcareous degeneration of the aorta. The rupture of the aneurism occurred behind, owing to a pleuritis, which made the anterior walls resistant to the pressure of the tumor.

7. **Heart Disease and Blood Pressure.**—Bishop regards physiologic re-education as of great value in the cure of functional cardiovascular disease. There must be persistent measures undertaken, covering weeks, or even a year; but excellent results may be obtained even where compensation is destroyed. The first thing to accomplish is relief from worry and mental concentration for the patient. Next comes reduction of diet, including taking away of the sweets and red meats. Exercise should be carried on systematically, whether the patient wants it or not, except in those cases in which failing compensation necessitates a short stay in bed.

New York Medical Journal, New York.

July 13.

8 *Subcutaneous Rupture of Spleen. E. Eliot, Jr., New York City.
9 *Acoustic Limitations of Stethoscope and Their Clinical Importance. L. A. Conner, New York City.
10 Pneumothorax. J. G. Beardsley, Philadelphia.
11 Craving for Sweets in Diabetic Patients. A. A. Ripperger, New York.
12 *Incomplete Forms of Exophthalmic Goiter in Relation to Gastrointestinal Disease. J. P. Sawyer, Cleveland, Ohio.
13 *Gastric Cancer Producing Gastrocutaneous Fistula. A. E. Taussig. St. Louis.
14 Diagnosis by the Nose. E. C. Hill, Denver.
15 *Comparative Inocuousness of Foreign Bodies in Three Instances. J. A. McKenna, Lansdowne, Pa.

8. **Subcutaneous Rupture of Spleen.**—Eliot reviews briefly the literature on this subject and reports two personal cases. Splenectomy was done in both cases over a year ago. Both patients are well and healthy.

9.—See abstract in The Journal, May 18, 1907, page 1713.

12. **Incomplete Forms of Exophthalmic Goiter.**—In the last 600 cases observed by Sawyer 54.8 per cent. have shown one or

more of the ocular signs (usually von Graefe's); tremor of the type described by Marie; with tachycardia present and referable to no other cause. or with history of decided palpitation, paroxysmal and disturbing. and the great majority shows either a visible fulness of the thyroid gland or at least a decidedly greater than normal fulness on palpation. In a few cases only was the thyroid not palpable with ease, when the tremor and ocular signs were present. The digestive disturbances were of manifold variety, but in many cases furnished a large part of the patients' complaint. All degrees of disturbed secretion from achlorhydria to high hyperchlorhydria secretion of typical gastrosuccorrheal type were present. Moreover, these patients on repeated tests showed very variable composition of stomach contents as to chemical and ferment activities.

Among the physical signs which Sawyer has noted in these cases quite frequently is a peculiar distribution of hair. In a great number of these cases the eyebrows are very scanty, either throughout their whole extent or especially in the outer half of the brow, lashes scanty, oftentimes the axillæ are more than usually free from hair as also over the legs the usual growth is absent. Moreover, the hair of the head in many of these patients seems to be divided into two zones; and the lower and narrower zone running around the lower edge of the growth of the hair of the temporal and occipital regions is apt to show a gray zone, sometimes a fringe of white, before a change of color is noticeable in the superior zone, or in younger patients, this zone of hair is scanty. In a few patients he has seen this peculiarity of pigment reversed. This one feature has often suggested to Sawyer the probable existence of exophthalmic goiter in the lesser forms and has caused him to look for recognizable signs.

He also calls attention to the importance of the vasomotor disturbances with relation to the surrounding atmospheric conditions, and suggests the likelihood of all the paroxysmal phenomena in a given case being precipitated by the existence of a high relative humidity. Sawyer has employed arsenic, iodids, bromids and adrenalin in the treatment of these patients, but considers such drugs of secondary value when contrasted with physical measures of environment, climate hydrotherapy, electricity and massage. Thyroidectin and the antithyroidin of Moebius he has used successfully in hundreds of cases.

13. **Gastric Cancer Producing Fistula.**—In the case reported by Taussig, the fistula followed an exploratory laparotomy, which was done about a year after the patient noted the first symptom. The case ran the usual course, the patient dying about 18 months after the onset of this trouble. The tumor was an adenocarcinoma of the anterior wall of the stomach.

15. **Innocuousness of Foreign Bodies.**—Three cases in point are reported by McKenna. In the first case a small piece of wood had remained in the socket of the orbit for three months without causing the slightest reaction. It was finally forced to the surface, probably by muscular action, and was removed. The splinter was ⅞ inch long. In the second case a piece of glass entered the neck and remained there for three weeks, until its removal, without causing any discomfort. Each time the patient swallowed, a protuberance on the neck became more marked. This suggested the presence of the foreign body and led to its removal. The glass had entered the neck as the result of an accident. The third patient had swallowed a safety pin some six months previously, which apparently caused no trouble, except that the patient experienced the unpleasant sensation of chronic tonsillitis and a metallic or coppery taste. The tonsils were enlarged, one gland more than the other, and on attempting to remove the larger of the two the safety pin was discovered projecting from behind the tonsil.

Boston Medical and Surgical Journal.

July 4.

16 *Treatment of Retroversion. W. P. Graves, Boston.
17 *Neuralgia of Superior Maxillary Nerve. H. A. Lothrop, Boston.
18 *"Organism X." Probably of the Corynebacterium Group. L. Hoag, Boston.
19 Case of Painless Labor, Due to Destructive Lesion of the Spinal Cord. E. W. Taylor, Boston.
20 Case of Chronic Otitis Media, Hemorrhage into External Auditory Canal and Perforation of Wall of Pharynx. F. L. Jack and F. H. Verhoeff, Boston.
21 *Strange Reason for Persistent Abdominal Pain. F. Cobb, Boston.

July 11.

22 Segregation of Consumptives. J. F. A. Adams, Pittsfield, Mass.
23 Acidosis. E. P. Joslin, Boston.
24 *Nephrolithiasis. R. F. O'Neil, Boston.
25 *Nocturnal Paralysis. I. H. Coriat, Boston.

16. **Retroversion.**—As the result of a careful analysis of the clinical records of 500 consecutive cases of retroversion, and a personal letter to each patient inquiring early into the case, and the results of treatment, Graves concludes that in a case where the uterus can be easily replaced and will remain in position and there is no necessity of inspecting the abdominal cavity, Alexander's operation may be recommended. Where it is desirable to open the abdomen and where there are no excessive adhesions and no marked relaxation of the diaphragmatic support, Mayo's internal Alexander is the operation of choice. In cases of many adhesions and marked retroflexion, or with much sagging of the diaphragmatic support, the uterus should be attached to the abdominal wall in a manner so that it will stay, the exact method of attachment being a matter of choice by the individual surgeon, the question of future childbirths never being disregarded. Attachment of the uterus to the abdominal wall by a suture merely through the peritoneum is an inefficient method of ventral suspension. Intra-abdominal shortening of the round ligaments is an inefficient treatment for retroversion.

17. **Treatment of Neuralgia of Superior Maxillary.**—Lothrop considers only the second division of the fifth nerve for the purpose of suggesting a method of intercepting the nerve supply of the teeth of the upper jaw, when these branches are involved, and it is desired to resort to one of the so-called peripheral operations. The operation can be carried out by means of an incision inside the mouth, which exposes the canine fossa. The only claim made for the operation described is that cases of neuralgia of the superior maxillary nerve in which pain is referred to the teeth, as well as to the face, can be relieved by a superficial route. Two cases are reported in which the operation described was employed and both patients have secured complete relief from the pain. The operation is described in full.

18. **Organism X.**—Hoag describes an organism which closely resembles the xerosis, diphtheria, and other bacilli, which he found a number of times at autopsy, as well as during life; both in pure culture and mixed; in various pathologic lesions, and also when not associated with local disease. It was found conspicuously in the bronchopneumonic lung in the insane, and in pure culture in the sputum from a patient who showed clinical signs of bronchopneumonia. Hoag regards the organism x as a factor in disease, and promises a further contribution on the subject.

21. **Persistent Abdominal Pain.**—In the case reported by Cobb the pain was caused by a pin, which had penetrated the umbilicus and lodged itself in the omentum, causing extensive adhesions.

24. **Nephrolithiasis.**—O'Neil reports the case of a man who had a large-sized calculus in one kidney, without its presence being manifested, and without destroying the kidney. The Roentgen ray and the cystoscope proved invaluable in making a diagnosis in this case.

25. **Nocturnal Paralysis.**—Coriat reports the case of a woman who would awaken during the night and find that she was paralyzed. After a few minutes she would become fully conscious and then the sensation of paralysis disappeared, to be followed by a feeling of exhaustion. She had similar attacks for a month, when they became less frequent and finally disappeared entirely. Subsequently the attacks reappeared. She awakened in the early morning with a choking sensation and a feeling of suffocation, with palpitation of the heart and complete inability to move the body. The hands were usually clasped and extended above the body. During the attacks she was fully conscious, but was unable to open her eyes or move her limbs, even by the strongest exercise of will. There was

no amnesia or haziness of memory after each attack. She would cry out for aid to move her arms or limbs, but until such aid was given she was unable to make any muscular movement whatever. The attacks usually lasted from two to five minutes before aid was given.

Psycho-analytic methods yielded the following interesting data concerning the attacks: They began about three months after the death of her second child, who died on a Monday afternoon under distressing circumstances. This acted as a strong emotional shock. Although the child had been ill three weeks with pneumonia, yet his sudden death was unexpected. On this particular Monday afternoon the patient was alone and was holding the child in her lap. He suddenly reached the arms above the head, showed a general tremor, then became rigid and immediately expired. The position taken by the patient in her nocturnal paralytic attacks exactly resembled that taken by her child at the time of his sudden death, and furthermore, the worst attacks always occurred on Monday, the day of the week on which the child died. It seems, therefore, that this is a recurrent mental state originating in a sudden and distressing emotional shock.

The treatment consisted of waking suggestions, applied by means of a fictitious magnet (tuning fork) and directed toward a complete cessation of the attacks. This was given three times a week, and during the first month only seven attacks of palsy took place, whereas previous to the treatment they had occurred every night. These attacks, too, were much lighter; she was able to come out of each voluntarily and to move the paralyzed limbs. There have been no attacks since, a period of seven months. It can be safely assumed that the patient has entirely recovered.

The Lancet-Clinic, Cincinnati.

July 13.

26 Two Cases of Gallstones. J. H. Barnett, Pikeville, Tenn.
27 Eyestrain. T. W. Floyd, Peoria, Ill.
28 Use of Acetozone in Typhoid. R. T. Trimble, New Vienna, Ohio.

American Journal of Surgery, New York.

June.

29 One Thousand Abdominal Sections. M. I. Rosenthal, Fort Wayne, Ind.
30 Surgical Treatment of Uterine Fibroids. J. W. Barksdale, Vaiden, Miss.
31 *Operation in Appendicitis. H. Lilienthal, New York City.
32 Obliteration of Dead Space Following Perineal Extirpation of Rectum. J. M. Lynch, New York City.
33 Blood Examination in Surgical Diagnosis. (Continued.) I. S. Wile, New York City.
34 *Dislocation of Upper End of Fibula. F. B. Golley, Milwaukee.
35 Gonorrheal Invasion of Uterus and Fallopian Tubes. B. H. Wells, New York City.
36 Surgical Postures. (Continued.) M. W. Ware, New York City.
37 Nephroptosis. R. R. Kime, Atlanta, Ga.
38 Medicolegal Aspects of Ocular Injuries. P. Fridenburg, New York City.
39 Traumatic Neuroses. J. B. Morgan, Augusta, Ga.

31. **Operation in Acute Stage of Appendicitis.**—Lilienthal claims that it is preferable, as well as advisable, to operate during the acute stage of appendicitis rather than during the interval, because by operating on an individual whose appendix is diseased but quiescent, a practically well person is made sick. The system is obliged to array its forces to redress the surgical insult. On the other hand, the individual suffering from the acute disease is in a state of preparation for a more serious battle than that with the surgeon. To such a patient the operation comes as a comparatively little thing, and if no error of technic mars the surgeon's work, relief is immediate and convalescence speedy. Lilienthal says that the interval patient suffers more for the first 36 hours after the operation than does the one who has been operated on during the attack.

34. **Dislocation of Upper End of Fibula.**—Golley adds one case to 25 previously reported in the literature. The patient, a very muscular man, slipped and, after sliding, sprawling and twisting, finally landed in a sitting posture, with the left leg and foot directly under him. On examination Golley found an outward and forward dislocation of the upper end of the fibula, which became displaced as much as, or more than, the width of the bone, whenever the foot was flexed or extended. The luxation was readily reduced and the bones retained in place by means of a plaster-of-Paris bandage.

Northwest Medicine, Seattle.

June.

40 *Dementia Præcox as Defense for Crimes. W. T. Williamson, Portland, Ore.
41 Fallacy of Insanity as an Excuse for Crime. A. P. Duryee, Everett, Wash.
42 *Treatment of Extensive Burn with Rubber Tissue Dressing. P. W. Johnson, Clarkston, Wash.
43 Morphin, Hyoscin, Cactin Anesthesia. F. R. Underwood, Seattle, Wash.
44 Leprosy in Hawaii. P. R. Waughop, Seattle, Wash.

40. **Dementia Præcox as Defense for Crime.**—According to Williamson, the crimes that the dement may commit without responsibility are only those impulsive and unpremeditated acts that project themselves across his mental horizon, bursting unexpectedly out of the darkness, and quickly vanishing in the gloom.

42. **Rubber Tissue Dressing in Extensive Burn.**—After having tried all methods of treatment usually employed in burns of the third degree, without being able to relieve the patient of pain, Johnson finally resorted to the use of rubber tissue, which was made to fit the wound, as nearly as possible, without overlapping the healthy skin. The dressing proved to be even better than anticipated. When it was changed there was practically no pain, and no hemorrhage whatever. The granulations assumed a firm, healthy appearance and healing progressed rapidly. Johnson believes that the rubber tissue dressing prevents exhaustion, and probably eliminates this as a cause of death. Furthermore, there is a small amount of contracture.

Vermont Medical Monthly, Burlington.

June 15.

45 Care of Surgical Cases. H. C. Tinkham, Burlington, Vt.
46 *Commercial Therapeutics and Commercial Therapeutists. G. L. Bates, Morrisville, Vt.
47 *Erysipelas Followed by Confinement. L. J. Pons, Roxbury, Conn.

46. **Commercial Therapeutics.**—There are many points made and touched on in Bates' paper. Among these he mentions the Council on Pharmacy and Chemistry, whose work he commends very highly. The proprietary medicine question is reviewed in the same manner as has been done by many others, and Bates agrees that the cure lies in a better knowledge of materia medica and pharmaceutical chemistry, a more thorough study of the pharmacopeia, and a better knowledge of prescription writing.

47. **Erysipelas Followed by Confinement.**—Pons reports a severe case of erysipelas occurring in a gravida, who was delivered about five weeks after the commencement of the erysipelas, and shortly after recovery from the disease. The labor was normal, and the patient made an uneventful recovery.

Archives of Pediatrics, New York.

June.

48 *Possible Etiologic Factors in Recurrent Vomiting of Children. J. Howland and A. N. Richards, New York City.
49 Tuberculous Cervical Lymph Nodes in Infant. L. E. La Fétra, New York City.
50 *Sacral or So called "Mongolian" Pigment Spots of Infancy, Especially in American Negro. J. Brennemann, Chicago.
51 *Pyelitis in Infancy and Childhood, with Remarks on Urine. L. Fischer, New York City.
52 Spasm of Glottis Complicating Whooping Cough. M. O. Magid, New York City.

48. **Recurrent Vomiting of Children.**—Howland and Richards have made this the subject of careful clinical and experimental study. They conclude that a shock is exerted on an unstable nervous system, and that as a result of this, in some unknown way, a diminished power of oxidation results, and the organism loses the power to detoxify substances absorbed from the intestine, which have been present there in excess. These circulate in the blood exerting their poisonous action and can not be excreted by the kidneys, because they are not brought to them in the proper form. It seems probable that they are excreted and reabsorbed by the stomach and intestine, in the light of which vomiting would appear to be eliminative and thus a protective mechanism.

50. **Sacral Pigment Spots in the American Negro.**—Brennemann reviews briefly the literature of this subject, and records

personal observations on children of the American negro. He examined 40 colored children under one year of age. Of this number 35 showed well-marked areas of bluish pigmentation at the time of examination. He says that these spots can no longer be considered as exclusive race characteristics, and that their presence or absence, in given cases, leads to highly probable but not positive determination as to race or to degree of contamination.

51. **Pyelitis in Infancy.**—A review of four cases reported by Fischer shows that pyelitis presents a variety of symptoms resembling intermittent fever, with marked exacerbations and remissions in the temperature, and that pyelitis is met occasionally in infancy, as an afebrile type. He advises frequent examination of the urine, both morning and evening specimen.

California State Journal of Medicine, San Francisco.

June.

53 Specific Therapy in Tuberculosis. G. H. Evans, San Francisco.
54 Earthquake Shock in Production of Nervous and Mental Disease. J. W. Robertson, Livermore.
55 Analysis of Stomach Contents. B. Reed, Los Angeles.
56 Pure Milk Question in California. G. H. Kress, Los Angeles.
57 Symptoms and Diagnosis of Hip Joint Disease. P. C. H. Pahl, Los Angeles.
58 *Anomalies of Sigmoid Colon Resembling Diverticula. J. C. Blair, San Francisco.
59 Treatment of Neurasthenia. D. R. Smith, San Francisco.
60 Infantile Paralysis. J. T. Watkins, San Francisco.

58. **Anomalies of Sigmoid.**—Blair reports two cases, seen at the postmortem. The first case was diagnosed as one of carcinoma of the liver, but no tumor was found at the necropsy, although the liver was enlarged considerably. At the point where the sigmoid normally begins, the intestine turned abruptly on itself and ran upward toward the transverse colon, then to the right, and down again. The description of both these cases is so full and made in such detail that it is impossible to embody them in a brief abstract.

Iowa Medical Journal, Des Moines.

June.

61 Thrombosis and Embolism. E. B. Rogers, Waterloo.
62 *Surgical Curiosities. F. S. Hough, Sibley.
63 Hydrotherapy for the Insane. R. B. Wright, Chicago.
64 Nuclein. E. S. Heilman, Ida Grove.
65 General Anesthesia. L. P. Piper, Valley Junction.

62. **Surgical Curiosities.**—The first case reported by Hough was one of sarcoma of the spleen, diagnosed as a case of splenic anemia. A splenectomy was done, and the patient did well for a time. Then the tumor recurred, and it was at this time that a correct diagnosis was made. The second case was one of cyst of the pancreas, which for a number of years had been looked on as a case of gallstone disease. The third case was one of gonorrheal arthritis of unusual severity; the fourth, a case of appendicitis in which an enormous abscess formed, which had been diagnosed as ovarian cyst; fifth, a case of large abscess in the upper right quadrant of the abdomen, the result of a suppurative appendicitis; two other cases of appendicitis, in which some rather curious features presented themselves, and the last case was one of axillary abscess, which discharged into the bronchus without the formation of a pleural abscess.

Journal of Infectious Diseases, Chicago.

May.

66 Use of Methylene Blue in Testing Sewage Effluents. E. B. Phelps and C. E. A. Winslow, Boston.
67 Application to Soft-Water Sewage of Direct Processes for Determination of Kjeldahl Nitrogen and Nitrogen as Free Ammonia. H. B. Hommon, Waterbury, Conn.
68 Rapid Detection of Gelatin Liquefaction in Determination of *B. coli.* S. D. Gage, Lawrence, Mass.
69 Use of Lactose-Bile Medium in Water Analysis. D. D. Jackson, Brooklyn.
70 Lactose-Bile Medium for Detection of *B. coli* in Water. L. R. Sawin, Mt Kisco, N. Y.
71 Comparative Results Obtained by the Use of Lactose-Bile and Dextrose-Broth Media for Detection of *B. coli* in Water. R. S. Weston and R. E. Tarbett.
72 Sanitary Chemical Examination of Water Bacteria. A. W. Sellards, Urbana, Ill.
73 *Relative Importance of Streptococci and Leucocytes in Milk. N. M. Harris, Chicago.
74 Leucocyte Standards and Leucocyte Content of Milks from Apparently Healthy Cows. H. L. Russell and C. Hoffmann, Madison, Wis.
75 Comparative Value of Bacterial and Temperature Regulations for a City's Milk Supply. F. H. Slack, Boston, Mass.
76 Comparison Between Bacteriologic Analysis of Air by Plate Method and by Filters. G. A. Soper, New York City.
77 Agglutination Method of Diagnosis in the Control of Glanders. V. A. Moore and W. J. Taylor, Ithaca, N. Y.
78 Growth and Toxin Production of *Bacillus diphtheriæ* on Proteid-Free Media. P. B. Hadley, Boston.
79 Liberation of Formaldehyd Through the Agency of Calcium Carbid. H. D. Evans.
80 Liberation of Formaldehyd Gas from Solution by Potassium Permanganate. G. B. Frankforter, Minneapolis.
81 Sputum Shaking and Sedimenting Apparatus. Rabies Collecting Outfit. B. R. Rickards, Boston.
82 New Mosquito Cage. M. L. Price, Baltimore.
83 Action of Sunlight on Bacteria, Especially *B. tuberculosis.* J. Weinzirl, Madison, Wis.

73. **Importance of Streptococci and Leucocytes in Milk.**—Harris points out that the divergent views concerning so-called bacillus lactis acidi need early adjustment in order to promote settlement of certain phases of the milk problem. Pathogenic and non-pathogenic forms of streptococci in milk are not readily distinguishable by the present methods; pathogenic streptococci certainly grow at times in milk. The contamination then usually arises from cases of mastitis. He also indicates that the significance of the so-called pus cell in milk has been overrated and that the phenomenon of lactic leucocytosis should be given great scientific attention. Furthermore, that the inspection and care of udders demand more attention and that less absolute dependence should be placed on examination of the milk for signs of infectious processes. He advocates throwing open of the whole question for discussion and for framing of new rules.

The Therapeutic Gazette, Detroit.

June.

84 *Treatment of Burns. W. L. Estes, South Bethlehem, Pa.
85 *Id. W. Lathrop, Hazelton, Pa.
86 *Id. A. W. Urmson, Newcastle, Pa.
87 *Id. J. E. Cannaday, Hansford, W. Va.
88 *Treatment of Burns in State Hospital for Injured, Fountain Springs, Pa. J. C. Biddle.
89 *Treatment of Burns and Scalds in Pottsville (Pa.) Hospital. J. H. Swaving.
90 Aural and Laryngeal Complications of Typhoid. L. S. Somers, Philadelphia.
91 Successful Treatment of Pulmonary Tuberculosis in General Practice. K. v. Ruck, Asheville, N. C.

84. **Treatment of Burns.**—Estes uses a warm sterile alkaline solution for the first dressing, or a 2 per cent. solution of carbolic acid, or a 1 per cent. suspension of creolin, followed by physiologic salt solution. He advises dressing large burns in sections rather than to expose the entire burned surface at one time. When a slough is present he has found the application of salicylic acid directly on the slough, gutta-percha tissue over this, and a dry, sterile dressing over all, very satisfactory, both as an efficient disinfectant and as a deodorant. When grafting must be resorted to he uses small bits of a thoroughly cleansed and bleached moist sterile sea sponge, applied in the same manner as a skin graft.

85. **Id.**—For burns of moderate severity Lathrop favors picric acid. For deep burns he uses picric acid, for five or six days, followed by vaselin on lint, with iodoform or acetanilid. Indolent and non-healing surfaces are treated by resin cerate.

86. **Id.**—Urmson also favors a picric acid dressing in burns of the first and second degree. In burns of the third degree picric acid is applied for 24 hours, and then some sterile powder, usually aristol. When there is deep sloughing he employs an immersion bath of a 1 to 12,000 solution of bichlorid of mercury at body temperature. The use of carron oil he has abandoned entirely.

87. **Id.**—Cannaday cleanses the burned area with physiologic saline solution, and then applies sterilized petrolatum and a light gauze dressing. If pus appears it is removed by irrigation, and the part affected is touched with a weak solution of iodin. In the operation of skin grafting, a modified Thiersch method is usually employed. Certain cases of superficial burns are treated according to Sneve's method.

88. **Id.**—Biddle uses a mixture consisting of carbonate of lead, one pound; powdered acacia, 6 ounces; bicarbonate of soda, 3 drams, and a sufficient quantity of linseed oil to make a thick creamy paste. This is spread on lint or Canton flannel, then cut into strips and applied to the burnt surface. After all the blisters have been cut open, the shreds of cuticle removed and the burned area is washed with soap and water. He does not advise frequent dressing, except when suppuration

occurs. The treatment is continued until the surface is covered by granulations, when a petrolatum dressing or powdered stearate of zinc is applied.

89. Id.—No matter how severe the burn, Swaving washes the burnt area with a warm solution of boric acid, salt or sterile water, preferably the latter. Large vesicles are incised and then a picric acid dressing is applied. After all sloughing has ceased he applies an ointment consisting of equal parts of zinc ointment, bismuth formic ointment and petrolatum.

Illinois Medical Journal, Springfield.

March.

92 Perineal Prostatectomy, the Operation of Choice. A. H. Ferguson, Chicago.
93 Exophthalmic Goiter. S. M. Miller, Peoria.
94 *Exophthalmic Goiter. F. Billings, Chicago.
95 *Ocular Signs and Symptoms of Exophthalmic Goiter. C. A. Wood, Chicago.
96 *Neurologic Complications of Exophthalmic Goiter. L. H. Mettler, Chicago.
97 *Medical Treatment of Exophthalmic Goiter. W. E. Quine, Chicago.
98 Rectal Diseases. F. C. Vandervort, Bloomington, Ill.
99 Non-tuberculous Villous Arthritis. E. W. Ryerson, Chicago.
100 *Mastoiditis Following Acute Suppurative Otitis Media. J. Holinger, Chicago.
101 Traumatic Rupture of Abdominal Viscera. D. N. Eisendrath, Chicago.
102 Case of Postdiphtheritic Hemiplegia. D. Hecht, Chicago.

April.

103 New Treatment for Trifacial Neuralgia. H. T. Patrick, Chicago.
104 Defects of Vision and Hearing in the Public Schools. J. W. Smith, Bloomington, Ill.
105 Inflammation of a Gall-bladder and Ducts. H. A. Millard, Minonk, Ill.
106 *Operative Treatment in Fractures Presenting Obstacles to Reduction. W. Fuller, Chicago.
107 Pathology of Vesical Tumors. J. A. Patton, Chicago.
108 Treatment of Congenital Syphilis in Infancy. I. A. Abt, Chicago.
109 *Tubercular Spondylitis in Infancy and Childhood. J. H. Hess, Chicago.
110 Case of Sarcoma in Childhood. W. K. Newcomb, Champaign, Ill.
111 Medical Ophthalmoscopy. J. F. Burkholder, Chicago.
112 *Treatment of Blennorrhea of the Lachrymal Sac. W. O. Nance, Chicago.

May.

113 *Treatment of Acute Mastoiditis Due to Scarlet Fever, Diphtheria and Influenza. W. L. Ballenger, Chicago.
114 *Influenza; Complications of Nervous System with Treatment. W. G. Stearns, Chicago.
115 *Etiology of Scarlet Fever. L. Hektoen, Chicago.
116 *How to Prevent Spread of Infection in Scarlet Fever. H. Spalding, Chicago.
117 *Course, Symptoms and Diagnosis of Scarlet Fever. J. M. Dodson, Chicago.
118 Congenital Stenosis of Pylorus. J. H. Rice, Quincy, Ill.
119 *Vaginal Drainage for Pelvic Pus. H. T. Byford, Chicago.
120 *Abortion, with Special Reference to Incomplete Abortions. A. R. Small, Chicago.
121 *Need of Publicity in Venereal Prophylaxis. D. Lewis, Chicago.

June.

122 *Medicine of the Future (President's Address). J. F. Percy, Galesburg, Ill.
123 *Relation of Tonsillitis to Rheumatism. E. F. Ingals, Chicago.
124 Tubercular Infections of the Faucial Tonsil. C. M. Robertson, Chicago.
125 Case of Acne Varioliformis Treated by Wright Vaccination Method. E. H. Ochsner and H. W. Abelmann, Chicago.
126 Abortion. H. A. Pattison, Benld, Ill.
127 Affections of the Eye in Gastrointestinal Diseases. C. A. Wood, Chicago.
128 Metabolism as Affected by Disorders of the Stomach and Intestines. R. W. Webster, Chicago.

94.—See abstract in THE JOURNAL, Jan. 26, 1907, page 349.

95, 96, 97.—See abstracts in THE JOURNAL, Jan. 26, 1907, page 350.

100.—This article also appeared in the Chicago *Medical Recorder*, Dec. 15, 1906.

106.—See abstract in THE JOURNAL, June 23, 1906, page 1965.

109.—See abstract in THE JOURNAL, June 9, 1906, page 1786.

112.—See abstract in THE JOURNAL, June 23, 1906, page 1965.

113, 114.—See abstracts in THE JOURNAL, March 9, 1907, page 898.

115.—This article appeared in full in THE JOURNAL, April 6, 1907, page 1158.

116, 117.—See abstracts in THE JOURNAL, March 16, 1907, page 969.

119.—See abstract in THE JOURNAL, Jan. 26, 1907, page 351.

120.—This article also appeared in the *American Journal of Surgery* for May, 1907.

121.—See abstract in THE JOURNAL, June 22, 1907, page 2151.

122.—See abstract in THE JOURNAL, June 22, 1907, page 2151.

123.—See abstract in THE JOURNAL, April 20, 1907, page 1372.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

June 29.

1 *Tumors of the Jaws. F. Eve.
2 *New Method of Dealing with Cleft Palate. F. N. G. Starr.
3 *Severe Hemoptysis Treated by Icebag. H. Downes.
4 *Goiter Operations Under Local Anesthesia. A. J. F. Clarke.
5 Eclectic Treatment of Lupus Vulgaris. J. G. Tomkinson.
6 Surgical Tuberculosis and Opsonic Index. J. Stark.
7 Acute Colitis. F. Hernaman-Johnson.
8 Relapses in Enteric Fever. H. C. Hamilton.
9 Sudden Death in Infants. J. A. Smith.
10 Case of Bronchial Diphtheria. G. E. Bellamy.
11 Colocynth Poisoning. T. L. Butler.

1. **Tumors of Jaws.**—Eve has removed the upper jaw in five consecutive cases, with primary ligature of the external carotid and laryngotomy, without a death. One patient died of gangrene of the lung, the external carotid having been tied without laryngotomy. All told, Eve has removed the maxilla twelve times with only two fatalities. In no case was there secondary hemorrhage, either from the cavity in the mouth or the external carotid. The method employed is described in full. Eve says that when, in cases of disease of the maxilla requiring its removal, the mucoperiosteum of the hard palate is not involved, he has with considerable advantage preserved it by carrying an incision along the inner surface of the teeth on the affected side, and reflecting the mucoperiosteum toward the middle line, as was suggested by Watson-Cheyne. The maxilla is then removed in the ordinary way, and the edge of the flap of mucoperiosteum is stitched to the cut edge of the mucous membrane of the cheek. The roof of the mouth is thus restored.

2. **New Operation for Cleft Palate.**—Starr does a modified Langenbeck operation. The first lateral incision is carried well out to the alveolar margin of the hard palate, beyond the anterior extremity of the cleft. The mucoperiosteum is then denuded, and by snipping the palate aponeurosis from the posterior margin of the hard palate the flap is freed from its bony attachments. The same is done on the other side. The edges of the flaps are then paired and the flaps sutured with horse hair, commencing at the anterior angle of the wound. An aluminum splint is wrapped around these flaps and fixed with a few sutures. The splint is left in for eight or nine days, and the stitches are then taken out. The splint relieves the tension on the sutures, prevents the patient sucking the stitches, and minimizes the danger of infection from the mouth.

3. **Icebag in Hemoptysis.**—Downes reports the case of a man who lost 153½ ounces of blood in nine days, the greatest amount in one day being 31 ounces. The usual methods employed for checking hemoptysis proved futile, but immediately on applying an icebag over the suspected lung, all bleeding stopped, and not a single drop of blood was expectorated from then on. All drugs were stopped and the icebag kept in place for six days.

4. **Goiter Operations Under Local Anesthesia.**—Clarke has employed with much satisfaction the Barker method of inducing local anesthesia in the removal of goiters. The solution employed consists of sodium chlorid, 12 grains; beta eucain, 3 grains; water, 3½ ounces. This is boiled and then 10 minims of commercial adrenalin solution are added. The solution is ready for use as soon as cooled. Clarke does not advocate local anesthesia as a routine practice in goiter operations, but only for those patients whose condition makes general anes-

thesia risky, or for those surgeons who shrink from giving general anesthetics to patients of this class.

The Lancet, London.

June 29.

12 Plague. W. J. R. Simpson.
13 *Conservative Surgery of the Abdomen. C. R. B. Keetley.
14 *Influence of School Life on the Spread of Scarlet Fever. B. K. Goldsmith.
15 Rescue Work in Mines. T. Oliver.
16 Cerebral Abscess. J. M. Clarke.
17 Physical and Anatomical Explanation of Grocco's Triangle. F. W. Forbes-Ross.
18 *Loss of Tendo Achillis Reflex and Its Diagnostic Value in "Alcoholic" Failure of the Heart. R. T. Williamson.
19 Case of Splenic Abscess. R. H. Lucy.
20 *Rice and Beriberi. W. Fletcher.
21 The Introductory Gresham Lecture. F. M. Sandwith.

13. **Conservative Surgery of Abdomen.**—Keetley discusses particularly the appendix vermiformis and its relation to the surgical treatment of chronic constipation.. He suggests that the practical treatment for those cases of constipation and the bacterial infection of the large intestine which are grave enough to appeal to surgery, is appendicostomy. He has performed this operation 16 times, 9 times for chronic constipation, in some of the cases amounting to complete obstruction at the time of operation. In no case did death or any apparent danger result from the appendicostomy.

14. **Influence of School Life on Spread of Scarlet Fever.**—This question was looked into very carefully by Goldsmith, the total number of cases involved being 19.219. He thinks there is little doubt that schools do assist in the spread of scarlet fever, although the influence exerted may not be very great. Furthermore, he found that two days is the medium latent period, closely followed by three days.

18. **Loss of Tendo Achillis Reflex.**—As an aid in diagnosis of alcoholic failure of the heart, Williamson found loss of the tendo Achillis reflex one of the first signs of the injurious action of alcoholic beverages on the peripheral nervous system, and that this reflex is often lost long before the knee jerk. In 100 cases of heart disease, not due to alcoholism, the tendo Achillis reflex was present in all but two of the cases, and in these two cases the loss of these reflexes was almost certainly due to early tabes. In alcoholic heart failure the tendo Achillis jerks were lost on both sides in 16 out of 21 cases; on one side in two other cases. They were both present in only three cases. Williamson is of the opinion, therefore, that it may be said safely that the tendo Achillis jerks are present in non-alcoholic heart disease, unless there is some nervous complication, but are usually absent in alcoholic heart failure, if the symptoms are well marked, and if edema and dyspnea are both present.

20. **Rice and Beriberi.**—Fletcher believes that uncured rice is either directly or indirectly a cause of beriberi, the actual cause being either a poison contained in the rice, deficiency of proteid matter, or uncured rice does not form a sufficiently nutritive diet and renders the patient's system specially liable to invasion by a specific organism, which is the cause of beriberi. Among 120 patients fed on uncured rice there were 43 cases of beriberi and 18 deaths. Among 123 patients fed on cured rice there were two cases of beriberi, and these both had the disease on admission. Ten patients suffering from beriberi who were placed on a diet of cured rice all recovered. Of 26 patients suffering from beriberi, who were not put on a cured rice diet, 18 died. Four patients who had been on a diet of cured rice for more than five months, and were apparently healthy, were transferred to a diet of uncured rice. Two of these patients developed beriberi within three months.

Journal of Tropical Medicine and Hygiene, London.

June 15.

22 Notes on Ova and Embryos of Schistosomum Cattoi vel Japonicum. R. T. Booth.
23 Malaria in Madagascar. W. C. Brown.

The Practitioner, London.

June.

24 Valvular Disease of the Heart. R. Crawfurd.
25 *Duodenal Ulcer. B. G. A. Moynihan.
26 *Pretuberculous Stage of Pulmonary Tuberculosis. J. J. Galbraith.
27 *Diagnosis and Cure of Presuppurative Stage of Amebic Hepatitis. L. Rogers.
28 Postpartum Hemorrhage. E. S. Bishop.
29 The Mulkowal Tetanus Case. W. J. Simpson.
30 *Retinal Embolism. C. O. Hawthorne.
31 Treatment of Dropsy by Deprivation of Salt. C. F. Hadfield.
32 Modern Leaders in Medicine. W. Jenner.

25. **Duodenal Ulcer.**—Moynihan's paper is a survey of what he has published elsewhere on the same subject.

26. **Pretuberculous Stage of Pulmonary Tuberculosis.**—Galbraith calls attention to the fact that the early physical signs of pulmonary tuberculosis do not correspond with the commencement of the disease and that for a prolonged period the disease is advancing from a deep-seated lesion and is causing a toxemia, setting up various symptoms and modifying the course of intercurrent diseases. The variety and continuance of these symptoms constitute a clinical picture which, when recognized by experience, should suggest the possibility of latent tuberculosis.

27. **Amebic Hepatitis.**—Rogers is of the opinion that all cases of this disease should be treated with large and repeated doses of ipecac, whenever there is any doubt remaining as to whether suppuration has already taken place or not, before any exploration of the liver is carried out, because this rule will prevent some unnecessary measures. He cautions against repeated puncturing of the liver with large aspirating canulas. He reiterates a belief expressed some time ago that the presence of leucocytosis in a marked degree is generally an indication that suppuration has taken place, and that in the slighter degrees it may be present in acute hepatitis without actual suppuration; further, that in this early stage the disease may sometimese be cured and suppuration prevented by the administration of large doses of ipecac.

30. **Retinal Embolism.**—Hawthorne reports two cases of retinal embolism, in which a normal standard of central visual acuity was retained.

The Clinical Journal, London.

June 12.

33 *Delayed Poisonings by Anesthetics. L. G. Guthrie.
34 Syphilis of Tongue and Cancer. C. Ryall.

June 19.

35 Developmental Disorders in Childhood. F. J. Poynton.
36 *Constipation in Infancy and Childhood. E. Cautley.
37 Treatment of Apoplexy. J. F. Palmer.

June 26.

38 Splanchnoptosis. C. M. Moullin.
39 Hoarseness. S. Thomson.
40 Mechanism of Asthmatic Dyspnea. F. Hare.

33. **Delayed Poisoning by Anesthetics.**—Guthrie summarizes his paper as follows: 1. Operations should be delayed when possible if a fatty liver be suspected. It may be suspected in subjects of rickets and infantile paralysis who have been overfed with fattening food and under-exercised; in cases of sepsis and diabetes, and when a history of cyclic vomiting is obtained. 2. When a child has recently vomited apparently without cause, an intended operation should be postponed. This precaution has been neglected in many fatal cases recorded. 3. When fatty liver is suspected the patient should be kept for some days on a diet restricted in fats. 4. Bicarbonate or citrate of soda should be given meanwhile in order to neutralize fatty acids which may be present. Mild purgation may be beneficial. 5. Starvation will give rise to acute acetonuria, therefore nutrient enemata should be given two hours before and immediately after an operation. 6. Although any general anesthetic may be dangerous in the presence of a fatty liver, chloroform is most dangerous of all on account of its specific action on the liver and kidneys. The treatment of acid intoxication following operations should be by venesection, saline transfusion, and by clysters of solution of bicarbonate of sodium.

36. **Treatment of Constipation in Children.**—The treatment of constipation by purgation at regular intervals is strongly condemned by Cautley. He favors hygienic measures, dieting, habit cultivation, massage, and general and abdominal exercises, assisted, if absolutely necessary, by simple drugs, such as olive oil and cod-liver oil which act mainly as lubricants. He regards as the most useful purges for children castor oil, rhubarb, sulphate of magnesia, jalap, calomel, gray powder or blue pills, and aloes, according to the parts of the intestine which it is especially desired to attack.

Medical Press and Circular, London.

May 29.

41 *Treatment of Pneumonia. J. Barr.
42 Treatment of Albuminuria and Eclampsia of Pregnancy. E. O. Croft.
43 Examination of the Urethra and Bladder by Electric Light. A. Fullerton.
44 *Common Salt-containing Waters in Gout. L. Williams.

June 5.

45 Developments and Dangers of Extrauterine Pregnancy. A. E. Giles.
46 Examination of Urethra and Bladder by Electric Light. A. Fullerton.
47 *Iodized Catgut. P. T. B. Beale and J. Clark.

June 12.

48 Foods and Feeding in Certain Conditions. S. West.
49 Successful Cesarean Section. C. Y. Pearson.
50 Passive Raising of Opsonic Index by Immune Serums. D. M. Paton.
51 Case of Late Rickets. J. A. Coutts.
52 Charcot's Disease of Knee Joint. J. P. Legg.

June 19.

53 Disorders of Micturition in Women. P. Horrocks.
54 Cerebrospinal Meningitis. F. M. Sandwith.
55 *Use of Massage in Treatment of Fractures. C. W. Cathcart.
56 *Cause of Heart Beat. G. A. Gibson.

41. **Treatment of Pneumonia.**—Barr's views on the treatment of pneumonia are so well known that it is not necessary to repeat what is stated in this clinical lecture.

44. **Treatment of Gout.**—Williams believes that chlorid of sodium, so far from being advantageous to the gouty, is liable, even in small quantities, to be very much the reverse.

47. **Iodized Catgut.**—Beale and Clark have used iodized catgut for a period of six months in practically all the surgical operations in vogue at the present time, and in every instance the results have been perfect. Even the skin was sutured with it, and in no case has there been the slightest irritation around the stitches or any of those troubles that are associated with imperfectly sterilized ligatures or suture materials.

55. **Massage and Movement in Treatment of Fractures.**—Cathcart favors massage and movement in the treatment of fractures. It should be done for a few minutes daily, combined with proper fixation, resorting at first to passive and then to active movement. Pain should never be caused. He says that massage hastens bony union, maintains the functional power of the muscles and minimizes adhesions.

56. **Cause of Heart Beat.**—After much clinical observation and pathologic investigation, as well as careful study and analysis of all the important contributions on the subject, Gibson has arrived at the conclusion that the view of Volkmann, that the pulsation of the heart is due to the automatic action of the intrinsic ganglia of the heart, is still a more satisfactory explanation of the facts than any other which has yet been advanced.

Presse Médicale, Paris.

57 (XV, Nos. 32-34, pp. 257-280.) *Fatal Hematemesis in Cirrhosis. (Hématémèse dans la cirrhose.) F. Mouisset and M. Beutter.
58 The Salicylic Ion. (l'Ion Salicylique.) P. Desfosses and A. Martinet.
59 *Acute Malarial Apical Affection. (Pneumopaludisme du sommet.) H. de Brun.
60 *Prolonged Retention of After-birth in Abortions. (Rétention prolongée de l'arrière-faix dans l'avortement.) R. Garipuy.
61 Leukemic Retinitis. (Rétinite leuc.) Rochon-Duvigneaud
62 Superficial Reflexes in Their Relations to the Deep Reflexes in Tabes. (Réflexes cutanés et réflexes tendineux, etc.) Noica and Strominger

57. **Fatal Hematemesis in Cirrhosis.**—A case is reported of the typical syndrome of "anascitic cirrhosis of the liver" described by Gilbert. The patient entered the hospital to be treated for paralytic phenomena due to cerebral hemorrhage. There were no symptoms referable to the digestive tract, but the liver was rather large and hard. The patient succumbed to a sudden fatal hematemesis and autopsy disclosed that the liver was in an advanced stage of cirrhosis. This is the special complication of that form of cirrhosis in which there is scarcely any ascites. The portal hypertension was probably responsible for the hemorrhage. There was no rupture of a large vessel; the hemorrhage was the result of diffuse extravasation from the capillaries.

59. **Acute Malarial Apical Affection.**—De Brun, practicing in Constantinople, has had occasion to observe a number of cases of abrupt onset of a lung affection with high fever, delirium, incessant vomiting, constipation, absence of tympany, but moist tongue and mouth. He describes a typical example. The local findings were restricted to the apex on one side, where there was an area of total dulness with resistance to the finger, but no râles nor friction sounds, nothing to indicate secretion on the part of the epithelium of lungs or bronchi. The patients were generally from a malarial region, and the physician seldom thinks of auscultating, as there is no cough nor expectoration. In the 123 cases observed, 32 of the patients were under 10, 35 between 10 and 15, 21 between 15 and 20, and 32 between 20 and 30, with 3 others up to 65 years of age. Under quinin the symptoms rapidly subside, and it is amazing to witness the prompt softening of the consolidated patch of lung. In a few rare cases the lung changes persist, but as they never induce a febrile reaction nor infectious phenomena, they remain merely as an infirmity of that part of the lung, never becoming an alarming complication in themselves.

60. **Prolonged Retention of After-Birth.**—Garipuy discusses the difficulties of diagnosing retention of the after-birth after abortion, when the placenta is still adherent and thus retains its vitality. The uterus tolerates the placenta in this case as a physiologic element, not a foreign body. The only reliable means of diagnosis is by physical examination. The os in these cases generally is closed, and the uterus does not return to its normal size. This is an important aid in diagnosis if the patient had been examined before gestation, so that the physiologic size of the uterus is known. Examination of the uterus again after a considerable interval will show whether it remains stationary in size or increases or diminishes. This would eliminate the possibility of another pregnancy. In some cases the shape of the uterus may be instructive, although there are many exceptions to the rule that the organ is round only in case of gestation. The special consistency of the walls is important, as the organ is not as hard as a normal or fibromatous uterus, nor is it as soft as a gravid uterus. It will be found between these two conditions. This special consistency may be observed throughout all its walls or only in parts. The organ is not tender. When all other means have failed, then digital examination of the interior of the uterus will not only confirm the diagnosis of retention of the placenta, but will accomplish its removal.

Archiv f. klinische Chirurgie, Langenbeck's Berlin.

63 (LXXXII, No. 1, pp. 1-280.) *Importance of Tuberculosis of the Bladder and Its Curability. (Blasentub. und Heilbarkeit.) T. Rovsing.
64 Preventive Treatment of Tetanus by Antitoxin. (Zur Tetanusfrage.) M. Busch.
65 Traumatic Ossifying Myositis. (Myositis ossif. traum.) Röpke.
66 Thiosinamin in Therapeutics. (Thiosinamin als Heilmittel.) L. P. Wolf.
67 *The Nasopharyngeal Cavity. (Zur Klinik und Chirurgie des Nasen-Rachenraumes.) W. Pincus.
68 Typical Fracture of the Radius. (Klassisch. Radiusbruch.) Lilienfeld.
69 Two Cases of Pseudarthrosis of the Neck of Femur After Fracture in Youth. (Pseudarthrose des Schenkelhalses.) Kotzenberg.
70 Entire Absence of Head and Neck of Femur. (Seltener Befund bei cong. Hüftgelenkluxation.) O. Hartmann.
71 *Acute Pancreatitis. (Sogenannte acute Pancreatitis.) L. Bornhaupt.
72 Importance of the Accessory Mechanism in Injuries of the Extensor Mechanism of the Knee. (Bedeutung des Hülfsapparates bei Verletzungen des Streckapparates des Kniegelenkes.) A. Wedensky.
73 Audible Slipping of the Tendon of the Gluteus Maximus Due to Mechanical Loosening of the Tendon Attachment. (Sehnengleiten durch Lockerung der Sehnenanheftung.) C. Bayer.
74 *Decapsulation of the Kidney. (Entkapselung der Niere.) E. Müller.
75 *Treatment of Bullet Wounds of Peripheral Nerves by Mobilization of the Nerves and Making a New Passage for Them Between Sound Muscles. (Tubulisation und Verlagerung der Nerven.) Hashimoto and H. Tokuoka.

63. **Curability of Tuberculosis of the Bladder.**—See abstract in The Journal, vol. xlvii, page 903, 1906.

67. **The Nasopharyngeal Cavity.**—In this monograph of 54 pages Pincus describes the experiences at von Bergmann's clinic at Berlin. He reviews the differentiating points and indications for operative treatment of the various lesions in this region, and describes 18 cases in which an operation was undertaken. Temporary resection of the upper jaw was necessary in most of the cases to obtain ample access. In 2 in-

stances the lower jaw was temporarily resected, allowing access to tumors not too high up for this measure. By extensive removal of the tumors into sound tissue the tendency to recurrence was effectually combated, even in this comparatively difficult region.

71. **Acute Pancreatitis.**—Bornhaupt reports 2 cases and sifts the literature on this subject. The serious symptoms compelled operative intervention in his cases, but neither patient survived the operation. There was no arteriosclerosis nor gallstone. Both patients were about 60 years old, and the affection developed with a sudden, stormy onset. The pains were localized in the epigastrium, but one patient complained also of pains and tenderness in the ileocecal region. The general appearance was not much altered; there was no fever, and the pulse was good. The tongue was dry and parched, and there was vomiting at first, with loss of appetite, but vomiting did not occur after the first day in one and gradually declined in the other case. This violent bilious vomiting at first, then rapidly subsiding, is a striking sign of the affection in question. Both patients suffered from retention of feces and flatus, although large amounts of fluid could be introduced readily into the bowels without hindrance, indicating the absence of any obstruction low down. In one case it proved possible to induce partial evacuation of the bowels by injection of oil, but after this single stool, nothing further in this line could be accomplished. The abdomen was moderately distendeo, but soft, with complete absence of peristalsis, the intestines, especially the large intestine, were unusually relaxed. The omentum was bunched at a few points, palpated as a "vague resistance"; Doberauer has observed the same with acute pancreatitis. Traces of sugar were noted in the urine in the case, with diffuse changes in the pancreas, and necrotic discoloration of the entire gland. The lack of any specially distended, stiff loop of intestine speaks against occlusion from a tumor or other obstacle. When confronted with the syndrome described, the possibility of acute pancreatitis must not be forgotten. Microorganisms were found in the pancreas itself in only 14 out of the 74 cases collected by Truhart. The amount of hemorrhagic effusion which escapes into the abdominal cavity in some cases and the extent of the fat tissue necrosis are not responsible for the fatal outcome. Death is evidently due to absorption of poisons from the diseased pancreas, and the tension in the retroperitoneal tissue around the pancreas evidently promotes absorption. This fact must be borne in mind in operating, and provision must be made for reducing the tension and for improving the condition of the circulation through the gland. By this means it may be possible to check the poisoning of the organism from the decomposing gland by exposing and draining it directly. It is also possible that immunization with trypsin may prove effectual in treatment of acute pancreatitis or as an adjuvant to operative measures. Guleke and G. von Bergmann's experimental researches have demonstrated that the secretion from a diseased pancreas not only diffuses into the vicinity and splits the fat, but is absorbed by the lymphatics and carried away by them, causing fat tissue necrosis along their route. On this theory they treated dogs with trypsin and found that it was possible to immunize them against fat tissue necrosis by this trypsin immunization. Dogs with fat tissue necrosis, not thus immunized, died in a few hours after implantation of pancreas or injection of sufficient amount of trypsin. If these experiences with trypsin immunization are to be confirmed clinically, an early diagnosis of pancreatitis is imperative.

74. **Decapsulation of the Kidney.**—Müller reports numerous trials on animals of Edebohl's method of decapsulation of the kidney, which he has also applied three times in the clinic. The results were all good, showing remarkable development of vessels in the encircling omentum, and thus ensuring better conditions for the functioning of the organ. He therefore styles the operation as important and useful, actually lifesaving in some cases, but he suggests as a better and more descriptive term "epiplonephroplastics"—the term for omentum in the Latin languages being epiploon.

75. **"Tubulization" Treatment of Injured Nerves.**—Hashimoto and Tokuoka report 2 cases of bullet injury of the nerves leaving persistent pain in the calf in one case and anesthesia and paralysis of part of the hand in the other. In both cases the nerves involved were found embedded in cicatricial tissue. Treatment was restricted to mobilizing the nerve and moving it over to a region where it lay between layers of sound muscle, apart from the injured region. The improvement was evident in a few days, the pains subsided completely in less than two weeks, and by the end of six months function was almost normal—amounting to a practical cure. They have operated on the nerves in 38 cases, using various technics as they describe in detail, but the results were equally as good with the simple displacement of the nerve, related above, as with the more complicated procedures.

Berliner klinische Wochenschrift.

76 (XLIV, No. 18, pp. 553 588.) *Firearm Wounds of Thorax Accompanied by Rigidity of Abdominal Walls Without Injury of Abdomen. (Thoraxschüsse und Bauchdeckenspannung.) O. Hildebrand.
77 *Streptococcus, Erythema and Relation to Scarlet Fever. (Streptokokkenerytheme.) G. Gabritschewsky.
78 Osteomata as Exostoses, Bones in Skin and Tendons. (Haut- und Sehnenknochen, etc.) W. Koch.
79 Typhoid Immunization. (Typhusimmunisierung.) F. Meyer and P. Bergell.
80 Antiagressin Typhoid Serum. (Typhus und Typhusserum.) H. Aronson.
81 *Gastric Cancer and Surgery. (Magenkrebs.) W. Kausch. (Concluded.)

76. **Rigidity of Abdominal Walls with Firearm Wounds of Thorax.**—Hildebrand relates some examples of bullet wounds of the chest in which the rigidity of the abdominal walls suggested injury of the abdomen, when in reality the abdomen was intact. He explains the rigidity in these cases as due to the intermediation of the intercostal nerves, and warns that this sign should not be accepted blindly as an indication of injury of the abdomen.

79. **Streptococcus Erythema and Relation to Scarlet Fever.**—Gabritschewsky announces that his streptococcus vaccine is able to induce an erythema resembling in every respect that of scarlet fever. As the streptococci are killed before the individuals are inoculated, the facts observed demonstrate for the first time the existence of a specific streptococcus toxin. He reports experiences at Moscow with large numbers of children, adding that none of the other curative sera induce the production of the scarlatinal eruption, and still less, the combination of sore throat, vomiting, raspberry tongue, etc., characteristic of scarlet fever, which follow inoculation with the streptococcus vaccine. The "vaccination scarlet fever" is distinguished from true scarlet fever by its milder and more rapid course and by the absence of contagion of others.

81. **Gastric Cancer and Surgery.**—Kausch concludes his study of statistics and the experience of various surgeons, including his own, by reiterating that cancer should be suspected when a patient of 40 or over presents gastric disturbances which do not soon subside and are evidently not of a nervous nature, when the patient is losing weight and looks pale. If there is hyperacidity or reduction of free acid, and if the proportions of acid and ferments grow constantly less on examination at regular intervals, or if lactic acid appears, the surmise of cancer is strengthened, and exploratory laparotomy should follow without delay. Some patients might be thus needlessly operated on and possibly even be harmed by the operation, but incomparably more could thus be delivered from the clutches of malignant disease.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

82 (XXXIII, No. 21, pp. 833-872.) *Septic Affections and Acute Leukemia. (Septische Erkrankungen und ak. Leukämie.) W. Erb, Jr. (Strasburg).
83 *Sensory Symptoms in Cerebral Affections, Especially Temperature Symptoms. (Sensible Reizerscheinungen bei Grosshirnkrankung. insbes. über Kälteanfälle.) M. Lewandowsky.
84 *Arteriosclerosis and Physical Exercise. (Art. und Gymnastik.) K. Hasebroek.
85 *Traumatic Origin and Operative Treatment of Paralysis of the Serratus. (Serratuslähmung.) O. Samter.
86 Plug of Cotton Found in Pus in Appendicitis. (Wattepropf im Eiter bei App.) Ullmann.
87 Regulations for Official Examination of Nurses. (Staatliche Prüfung von Krankenpflegepersonen.) Dietrich.
88 The Regulations for the Army Medical Corps in Austria. (Militärsanitätswesen.) Myrdacz. Id. in Greece, Mermingas. Id. in England, R. H. Firth. (Commenced in No. 20.)

82. **Septic Affections and Acute Leukemia.**—In this last article from the pen of the recently deceased son of Professor Erb of Heidelberg, a case is described in which streptococcus sepsis was combined with lymphomatosis and the lymphemic blood picture. He believed that the septic infection was secondary to the leukemia.

83. **Sensory Disturbances with Cerebral Lesions.**—Lewandowsky describes a few cases of sensory disturbances accompanying organic affections of the brain. In 2 cases the patients complained of pain suggesting migraine, occurring after a hemorrhage in the other hemisphere of the brain. There had been no tendency to migraine before. Another patient with Jacksonian epilepsy had attacks of an intense sensation of cold on the same side as the epilepsy. The sensation of intense cold was sometimes combined with pain, and the attacks recurred once to thrice a day, lasting from a few seconds to minutes. The only accompanying symptom was formication around the corner of the mouth.

84. **Arteriosclerosis and Exercises.**—Hasebroek assumes that the peripheral vessels play an active part in the circulation, and describes the principles by which arteriosclerotics are able to obtain pronounced benefit from apparatus gymnastics. He aims to insure ample exercise without increasing the blood pressure. In an experience of 17 years in a Zander institution he has never witnessed any mishaps from the exercises, even in cases of severe anatomic sclerosis of the aorta and coronaries, the patients always feeling better after the exercises. Climbing stairs is more dangerous for arteriosclerotics than even the active Zander movements. By daily stimulation of the peripheral circulation with these individualized exercises, the functions of the body in general are promoted and waste matters eliminated better.

85. **Traumatic Paralysis of the Serratus.**—Samter found that normal function was restored to the arm after he had transplanted the tendons of the lower half of the pectoralis major into two holes drilled in the lower scapular angle. The raised arm was then immobilized. The patient was a girl of 11 who had fallen on the scapula, with resulting paralysis of the serratus.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

89 (LXXXV, *E. v. Bergmann Festschrift*, pp. 1-812.) Radical Early Resection of Tuberculous Elbow (Frühresektion des tub. Ellenbogengelenkes überhaupt, sowie bes. im kindlichen Alter.) Bardenheuer.
90 Suppuration of Kidney in Pregnancy. (Niereneiterungen in der Schwangerschaft.) Barth.
91 Deforming Inflammation of Hip Joint in the Young. (Arthritis deformans bei jugendlichen Individuen.) Borchard.
92 Two Cases of Brain Tumors. (Hirntumor.) Tilmann.
93 Aphorisms on Appendicitis. (Zur App.) F. v. Mangoldt.
94 Transperitoneal Exposure of Spine. (Transperit. Freilegung der Wirbelsäule bei tub. Spondylitis.) W. Müller.
95 Volvulus of Stomach. (Volv. des Magens.) A. Neumann.
96 Acute Dilatation of Stomach with Congenital (?) Stenosis of Pylorus and Torsion of Distal Two-thirds of Small Intestine. (Akute Magenerweiterung, etc.) K. G. Lennander.
97 Traumatic Extradural Hematoma. (Beitrag zum traum. extraduralen Hamatom.) Enderlen.
98 Operations for Habitual Luxation of Shoulder. (Habit. Schulterluxation.) Perthes.
99 Postoperative Thrombo-Embolism. (Postop. Thrombo-Embolie.) O. Witzel.
100 Finer Structure of Bone Shaft and Its Polarization. (Feinere Struktur der Röhrenknochens und dessen Pol.) Ziegler.
101 Solitary Fibromyoma in Transverse Colon. (Sol. Fibromyom in Quercolon.) C. Lauenstein.
102 Surgical Treatment of Appendicitis in Hernial Sac. (Epityphlitis im Bruchsack.) O. Kappeler.
103 Luxation of Ulnar Nerve. (Lux. des Ulnarnerven.) F. J Rosenbach.
104 Experimental Study of Aseptic Suppurations. (Aseptische Eiterungen.) L. Burkhardt.
105 Dislocation of Toes. (Luxation der Zehen.) F. Klaussner.
106 The "Influenza Knee' as Characteristic as Podagra for Gout. (Influenza-Knie.) F. Franke.
107 Fracture of Neck of the Radius. (Frakt. des Collum radii.) H Flörcken.
108 Acute Intestinal Invagination in Children. (Ak. Darminvagination im Kindesalter.) P. Klemm.
109 Further Experimental and Clinical Study of Torsion of Pedicle of Intraperitoneal Organs and Tumors. (Stieldrehung intraperit. Organe und Geschwülste.) E. Payr.
110 Cause of Deformity from Weight-bearing and Allied Joint Affections. (Belastungsdeformitäten und verwandte Gelenkerkrankungen.) A. Stieda
111 Dressing of Wounds in Battle. (Wundverband im Kriege.) J. Fessler.
112 *Points in Treatment After Sacral Operations for Rectal Cancer. (Nachbehandlung der wegen Rektumcarcinoma sakral Operierten.) J. Hochenegg.
113 Operative Attitude in Respect to Acute, Progressive Infectious Encephalitis. (Op. Stellungnahme zur Encephalitis.) P. L. Friedrich.
114 Diverticula in Esophagus. (Oesophagusdivertikeln.) M. Martens.
115 True Lateral Accessory Thyroid Glands. (Ueber wahre laterale Nebenkröpfe.) E. Payr and A. Martina.
116 Traumatic Aneurisms in Russo-Japanese Campaign. (Traum. Aneurysmen im Jap.-Russ. Kriege.) K. Saigo.
117 *Remote Results of Radical Removal of Cancer of the Lip and Technic of Extirpation of the Glands. (Heilungsergebnisse beim Lippenkrebs.) W. Armbrecht.
118 *Lengthwise Fractures of the Patella. (Längsfrakt. der Pat.) A. Meyer.
119 Case of Accessory Pancreas in Stomach Wall. (Acc. Pankreas in der Magenwand.) Thelemann.
120 Experimental Study of Disturbances in Circulation in Mesenteric Region. (Zirkulationsstörungen im Mesenterialgebiet.) Niederstein.
121 Congenital Hernia of Umbilical Cord. (Angeb. Nabelschnurbruch.) R. Schültze.
122 Localization of Exostoses in Knee. (Lok. der Exostosen im Kniegelenk.) J. Riedinger.

112. **After-Treatment of Rectal Cancer.**—Hochenegg expatiates on the extreme importance of the after-care as deciding the success of radical extirpation through the sacrum. He keeps the patient lying on his side instead of on the back, and arranges the bed so the pelvis is on a lower plane than the abdomen and trunk. This technic is modified only in case of much venous after-hemorrhage and prolapse of intestines against the wound. If there is retention of urine after the operation he does not allow it to go without catheterization longer than twelve hours. If the wound becomes soiled with feces he opens it again, rinses and packs loosely with iodoform gauze. After complete healing the bowels must be thoroughly emptied.

117. **Cancer of the Lips.**—Armbrecht insists on the importance of radical extirpation of the system of glands, and advises doing it before excising the cancer.

118. **Longitudinal Fracture of the Patella.**—Meyer states that although this form of fracture takes long to heal, it has the advantage that it does not entail functional disturbance afterward.

Münchener medizinische Wochenschrift.

123 (LIV, No. 19, pp. 921-967.) *Curative Antimicrobian Serum from Animals Inoculated with Yeast. (Neues tierisches Heilserum.) R. Deutschmann (Hamburg).
124 *Nature of Frostbites and Treatment with Artificially Induced Hyperemia. (Erfrierungen und künstliche Hyperämie.) C. Ritter.
125 *Operations for Gallstone Ileus. (Gallensteinileus.) Brentano.
126 Infection with Strongyloides intestinalis. (Anguillula.) H. Bruns.
127 Probable Negative Action of Stovain on Motor Functions of Intestines. (Stovain in den Lumbalsack.) O. Roith.
128 Fourth Case of Atoxyl Intoxication. (Atoxylvergiftung.) L. Waelsch.
129 Mitten for Electro-Massage. (Elektromassagehandschuh.) G. Arndt.
130 *Duck Cases for 12 Small Sets of Instruments. (Rahmentaschen.) W. Liepmann.
131 Improved Vaginal Speculum. (Modifikationen an einem zweiblätterigem vaginalspekulum.) H. Marcus.
132 Device for Fastening Dressings on Penis. (Fixierung von Verbandstoffen.) P. F. Becker.

123. **Serum from Animals Inoculated with Yeast Effectual Antiserum in Microbian Affections.**—Deutschmann has found that serum from animals inoculated with progressively increasing doses of yeast is proving very effectual in treatment of pneumonia and various streptococcus and staphylococcus affections, and to a certain extent also in tuberculosis. He relates 21 cases of pneumonia treated with it, to illustrate its efficiency in enhancing the resisting powers. The most striking results were obtained with it in infections processes in the eyes. He advocates its use as a prophylactic before operations and in case of accidents to the eyes.

124. **Treatment of Frozen Parts with Artificial Hyperemia.**—Ritter discusses the nature of the process of local freezing of the tissues, and then describes his experiences with artificially induced hyperemia in treatment in 150 cases. They demonstrate beyond question the advantages of the various procedures for inducing local hyperemia. Superheated air acts most promptly and powerfully, and is especially effectual in chronic processes, but constriction hyperemia is best adapted for the acute cases. It is fortunate that there are so many ways of inducing hyperemia to meet the indications of each individual as they arise. Hyperemia is contraindicated in case of general freezing, as general hyperemia drains too much blood away

from the heart to the periphery and heart failure is the result, as in case of extensive burns.

125. **Significance of Facets on Gallstones.**—In the case of gallstone ileus related, a large impacted gallstone was found in one of the lower loops of the ileum. On its upper surface was a circular facet, extending over the entire diameter. The abdomen was sutured, but symptoms recurred, requiring a second laparotomy two weeks later. A gallstone, fully as large as the first, with a circular facet on its lower surface, was found at the point where the intestine had been sutured. Signs of peritonitis were apparent and the patient did not long survive. The second gallstone had worked its way downward to the point where the intestine had been sutured and there was arrested, causing the recurrence of the ileus. Brentano urges the necessity for search for a second gallstone when a facet is found on a gallstone. This is particularly important when the facet is round and large, as it indicates the presence of a twin gallstone. If the facet is on the anal side of the gallstone it is possible that the second gallstone, responsible for the facet, may have already passed on out of the intestine. The incision should be made in the vicinity of the umbilicus in case of gallstone ileus, as this permits a better view, and the stone is generally found in one of the lower loops of the ileum.

130. **Pockets for Carrying Instruments.**—Liepmann extols the advantages of keeping sets of instruments in duck pockets. The duck is stretched over a rectangular metal frame, the cloth extending an equal distance beyond the frame on each side, thus forming four flaps. A few instruments are laid on the duck and the flaps folded over them, with no attempt to hold the instruments in place with straps or other devices. Each pocket is labeled with the special set of instruments contained. The pocket cases are easily washed and sterilized and pile up conveniently in the instrument case or sterilizing box.

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Last indexed, XLVIII, p. 1823.

133 (XLII. *L. v. Schroetter Festschrift*, pp. 1-544.) Compensation in Case of Congenital and Acquired Lung Defects in Respect to Form and Functional Capacity of the Body. (Ausgleich, etc.) C. Bäumler.
134 *Gonorrheal Origin of Vertebral Rheumatism. (Rhumatisme vertébral.) C. Bouchard.
135 Miliary Fever from Anatomic Etiologic and Epidemiologic Standpoints. (Schweissfriesel.) A. Weichselbaum.
136 *Diagnosis and Clinical Significance of Symptomatic Varicocele with Malignant Kidney Tumors. (Sympt. Varikokele bei Nierentumoren.) J. Hochenegg.
137 Study of the Derivatives of Pyrrol. (Pyrazolon Derivate.) B. Kobert.
138 *Operations for Cancer of the Larynx. (Op. wegen Krebs des Kehlkopfes.) O. Chiari.
139 *Importance of Laryngeal Tuberculosis in Treatment of Pulmonary Tuberculosis. (Kehlkopftuberkulose, etc.) H. Burger.
140 Respiratory Movements and Dyspnea in Pathologic Conditions. (Atembewegungen und Atemnot in krankhaften Zuständen des Organismus.) Pieniazek.
141 *Glandular Fever. (Drüsenfieber.) W. Lublinski.
142 *Spasmodic Contraction of the Bronchi. (Bronchospasmus.) M. Grossmann.
143 Chest and Falsetto Voice. (Brust- und Falsettstimme.) J. Katzenstein.
144 Intermittent Fever with Visceral Syphilitic Processes, Especially in the Liver. (Fieber bei viszeraler Syph.) J. Mannaberg.
145 *Severe Intestinal Affection Occasioned by Malaria. (Durch Malaria bedingte Darmaffekt.) G. Kobler.
146 Headache of Nasal Origin. (Kopfschmerz nasalen Ursprungs. L. Rethi.
147 *Multiple Papillomas of Larynx. (Pap. des Kehlkopfes.) E. Baumgarten.
148 *Diagnosis and Treatment of Carcinoma of the Larynx. (Larynxkarz.) J. Sendziak.
149 History of Laryngology in the United States Since Introduction of Laryngoscope. (Geschichte der Laryngologie in den Ver. Staaten). J. W. Gleitsmann.
150 Hernia of the Diaphragm with Roentgen Examination. (Zwerchfellhernie.) R. Kienböck.
151 "Atypical Cases" in Hematology. (Hämatologie.) K. Helly.
152 Palpable and Movable Kidneys in Infants. (Nieren im Säuglingsalter.) K. Leiner.
153 Bacterial Flora of Mouth. (Bakt. der Mundhöhle.) V. Mucha.
154 *Tuberculosis of Kidney and Low Arterial Pressure. (Nierentub. und art. Hypotension.) K. Reitter.
155 Behavior of Blood Pressure After Injection of Tuberculin. (Blutdruck nach Tub-Injektion.) F. Bauer.
156 Interpretation of Arrhythmia of the Heart Shown by Esophageal Cardiogram. (Deutung des Herzarrhythmien.) O. Minkowski.
157 Etiology of Edema of Larynx. (Kehlkopfödem.) P. Heymann and A. Meyer.
158 Spontaneous Cure of Maxillary Sinusitis and Efficacy of Endonasal Irrigation. (Kieferhöhlenempyeme.) A. Onodi.
159 Terminology of Heart Action Before Skoda. (Herzaktion vor Skoda.) M. Sternberg.
160 Changes in Shape of Tubercle Bacillus. (Pleomorphie des Tub. Baz.) A. R. v. Weismayr.
161 Case of Cavernous Lymphangioma of Posterior Wall of Throat. (Lymph. cav. der hinteren Rachenwand.) M. Weil.
162 Carcinoma and Sarcoma of the Gall Bladder in a Case of Cholelithiasis. (Plattenepithelkarz. und Sark. der Gallenblase.) K. Landsteiner.
163 Relations Between Affections of Nose and Eye. (Beziehungen zwischen Krankh. der Nase und des Auges.) P. Reinhard.
164 *Tumors on Auditory Nerve. (Akustikustumoren.) G. Alexander.
165 *Diagnosis and Clinical Course of Mycotic Embolic Aneurisms and Ruptures of Vessels and Influenza Endocarditis. (Aneurysmen, Gefässrupturen und Influenzaendokarditis.) M. Weinberger.
166 Diagnosis of Slow Occlusion of Pulmonary Artery. (Verstopfung der Lungenart.) H. Weiss.
167 Glandular and Other Cysts in Nasal Polypi. (Zysten in Nasenpolypen.) H. Lowy.
168 *Accurate Diagnosis of Tumors in Lung. (Bronchogenes Karz. mit Glykogen-Bildung.) H. v. Schrötter.

134.—See editorial in The Journal, June 1, 1907, page 1870.

136. **Symptomatic Varicocele in Case of Malignant Disease in the Kidney.**—Hochenegg relates a case in which a tumor in the kidney, larger than a child's head, caused no symptoms and was not discovered until its pressure on the spermatic vein caused an annoying varicocele. The symptomatic varicocele differed from the idiopathic variety in that it affected an elderly man, that it developed rapidly, caused no pain, and that change of position and pushing the kidney tumor up or down had no effect on its contents. The tumor in the case described occluded the spermatic vein by direct compression and by proliferation into the lumen of the vein, also by compression from glandular metastases, all of which contraindicated its ablation.

138. **Operations for Cancer of Larynx.**—Chiari states that 6 of the 32 patients treated by simple thyrotomy for removal of the cancer are in good health from one to three years after the operation, and 7 for from three to seven years. In 4 cases the operation was done quite recently. One patient died and recurrence was observed in 12. In 27 other cases, treated by partial extirpation of the larynx, 8 of the patients died within three weeks and 13 have presented recurrence, but 3 were cured for from one to three years, and 2 from three to eight years; in 3 cases the operations were of recent date. In 2 other cases the entire larynx was removed, and one of the patients is still living after three years.

139. **Laryngeal Tuberculosis.**—Burger reports three cases of advanced laryngeal tuberculosis in which the patients were cured by energetic local and general measures, and have been in good health for from eight to eleven years. One of the patients is a clergyman. The voice is now normal in all, and coexisting tuberculous lesions in the lungs healed with the laryngeal process. He curettes or cauterizes and then applies lactic acid, full strength, repeating the procedures again and again. He gives illustrations of the findings in the larynx before and after treatment. One patient was a woman who has since passed through two pregnancies without recurrence, although a circumscribed redness was apparent during pregnancy at the site of the former lesions. Great patience and perseverance are required, and local measures are indispensable. In advising a patient to go to a sanatorium one should be selected where local treatment of the laryngeal lesions can be continued, otherwise the patient is liable to return from the sanatorium with the laryngeal process aggravated, and this in turn is unfavorable for the prognosis of the pulmonary affection. Even palliative surgical measures are often a great relief.

141. **Glandular Fever.**—Lublinski explains the so-called glandular fever as a septic pyemic affection from infection of the upper air passages, not specific in any way. The streptococcus seems to be the chief microbic agent.

142. **Spasmodic Contraction of the Bronchi.**—Grossmann devotes 28 pages to a historical sketch of the subject and then relates the results of experimental research and presents various arguments to sustain the assumption of the contracting power of the musculature of the bronchi and the close functional connection between the conditions in the circulation

and the respiratory conditions. Disturbances in respiration are the result of changes in the circulation in the parts. This applies to asthma as well as to respiratory anomalies in general. Asthma does not differ from them except in the suddenness and intensity of its onset and disappearance. The bronchial muscle can not contract without interfering with the circulation in the parts, but circulatory disturbances can occur without bronchospasm. The degree and rapidity of the onset and disappearance of the circulatory disturbances determine the degree and duration of the respiratory disturbances.

145. **Choleriform Affection Due to Malaria.**—Kobler relates the history of a family in which several cases of a severe intestinal affection simulating cholera were observed. Two persons died in two and seven days and the others were very sick, with bloody stools, etc. The family had just come from a cholera-infected district, and examination of the blood revealed malaria germs, and the patients all recovered promptly under quinin.

147. **Multiple Papillomas of the Larynx.**—Baumgarten mentions that in his experience with multiple papillomas in adults the larynx was always as soft and transparent as a child's larynx. The patients were all blondes. He describes 7 cases in detail and reports a number in children. He removed several hundred papillomas from the throat of a lad of 14, with repeated after-operations in the course of a year. After puberty the lad grew more robust and the tendency to papilloma growth vanished. Almost all children affected with papillomas in his experience lived in poverty. None of these patients was of the scrofulous type. He states that in time the tendency to papilloma production ceases, generally with puberty, but also after a time in adults. On this account it is immaterial whether the growths are removed from within or without, but endolaryngeal operations avoid danger of subsequent stricture, although tracheotomy is sometimes necessary. The greatest danger is when measles is superposed on the papilloma tendency. None of the children survived an attack of measles, although some of them had passed through scarlet fever, diphtheria and other sicknesses without harm. He never applies local caustics and has not witnessed any benefit from iodin or arsenic internally, but extols the Löri operative technic as simple, easy, humane and, even without cocain, scarcely at all painful.

148. **Laryngeal Cancer.**—Sendziak continues his compilation of cases of laryngeal cancer and reviews the present status of diagnosis and treatment. His statistics include 304 cases before 1888 and 571 since. In 54 an endolaryngeal operation was undertaken and recurrence was observed in 37 per cent., with 11 absolute and 10 relative cures. In 227 cases thyrotomy was done, with recurrence in 39 per cent. and 35 per cent. of the patients cured (37 absolute and 42 relative cures). In 218 cases the larynx was partially resected, with recurrence in 32 per cent. and cures in 22 per cent. (27 patients showing absolute and 21 relative cures). In 376 the larynx was entirely removed, and recurrence was observed in 24 per cent.; 19 per cent. of the patients were cured (27 absolute and 43 relative cures). The total is thus 102 absolute and 116 relative cures in 875 cases, a proportion of 25 per cent. cured. The total mortality was 19.5 per cent. In 217 out of the total 875 cases the ultimate outcome is unknown. All this material is tabulated under various headings for comparison. The annual proportion of cures is shown to be constantly increasing while the annual mortality is constantly decreasing. The tables show further that since 1888 thyrotomy has a record of 54 per cent. cured; the endolaryngeal method, 40 per cent.: partial resection of the larynx, 24 per cent., and total, 23 per cent. The mortality with thyrotomy was by far the lowest, only 3.5 per cent. His conclusions are all in favor of this operation as giving better results in comparison to the seriousness of the operation than any other technic. The main point is an early diagnosis, and hoarseness is an important symptom, especially if of long duration. Chronic catarrhal affections of the vocal cords seem to afford a predisposition to malignant disease. Gradually increasing constant difficulty in breathing is also an important sign, also pain in swallowing, especially if it radiates to the ear on the affected side. The dysphagia is more pronounced with solid food, while with a tuberculous process more pain is experienced when fluids are swallowed. Swallowing is difficult, but not so very painful, while with cancer the reverse is observed. A unilateral laryngeal affection suggests cancer, especially when the process is diffusely uneven and the movements of the vocal cord affected are much impaired. In differentiating syphilis by specific treatment, it must not be forgotten that potassium iodid is liable to induce considerable improvement in cancerous lesions. This transient improvement, however, is generally followed by an aggravation of the process. Excision of a scrap for microscopic examination has been known to be followed by aggravation of the process, and hence should not be done unless absolutely indicated. It is not always possible to determine the malignant nature of the process from the scrap excised, and he is consequently inclined to advocate thyrotomy at once as a means for certain diagnosis and as the best therapeutic measure.

154. **Tuberculosis of the Kidney and Low Arterial Pressure.**—See editorial in The Journal for June 1, 1907, page 1870.

164. **Tumors Involving Auditory Nerve.**—Alexander reports two cases, with the findings in the labyrinth.

165. **Aneurisms and Ruptures of Vessels from Embolism.**—Weinberger has had occasion to observe a case in which a carpenter of 45 had suffered from recurring acute articular rheumatism and pleurisy, leaving extreme debility. Not long afterward his right wrist became swollen and a Bier elastic band was applied just below the elbow for twelve hours on two consecutive days. The swelling subsided, but he soon noticed a pulsating tumor which proved to be an aneurism in the radial artery, and signs of endocarditis and nephritis developed, with a fatal termination. Influenza bacilli were found in the endocarditic lesions in pure cultures, and suppurative infarcts elsewhere and ecchymoses testified to a general septic infection. He believes that the aneurism was of mycotic-embolic origin, the result of the endocarditis. The arteriosclerotic changes in the artery and the constriction of the arm may have been predisposing factors. In a second case a patient presented symptoms of severe endocarditis and ileus and died in sudden collapse. The ileus in this case was found to be the result of compression of the descending colon by blood pouring from the splenic artery, which had ruptured in consequence of a mycotic-embolic process. In a third case mycotic embolism of an artery in the brain was observed in the course of an ulcerative endocarditis. The patient was a gardener of 36; the basal arteries and aorta were comparatively sound. These cases emphasize the importance of mycotic-embolic destructive processes in the vessels in the course of endocarditis.

168. **Diagnosis of Lung Tumors.**—In the case described and illustrated, the carcinoma was located with the Roentgen rays and directly inspected by bronchoscopy. It was in the right main bronchus and finally involved the superior vena cava. The histology and histogenesis are analyzed.

Archivio per le Scienze Mediche, Turin.

Last indexed, XLVIII, page 2169.

169 (XXX, No. 6, pp. 551-633.) Localization of Processes of Osteomalacia in White Rats in Relation to the Traction of the Muscles. (Osteomalacia dei topi albini, etc.) B. Morpurgo.

170 Anatomic and Experimental Study of Elements of Spleen. (Elementi costituvi della polpa splenica.) P. Foa.

171 *Routes of Conduction of Emanations of Radium from Eye to Central Nervous System. (Conduzione delle emanazione del radio.) A. Bongiovanni.

172 Study of Superficial Nerves in "*Ammocoetes branchialis.*" (Nervi cutanei e terminazioni nella cute a nella mucosa orale.) R. Fusari.

173 Chromatophile Cells and Langerhans' Cells in the Skin. (Cellule cromatofore e di Langerhans nella pelle.) E. Bizzozero.

171. **Routes of Conduction of Emanations of Radium from Eye to Central Nervous System.**—This article issues from Tizzoni's clinic, where experiments have long been under way in regard to the action of radium on the morbid process in rabies. The radium is generally applied to the eye, and the latest research indicates that the emanations are transmitted to the brain by way of the optic nerve. There does not seem to be any transmission of the emanations after the optic nerve is divided.

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Address

THE STATUS OF THE CHILD.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON DISEASES OF CHILDREN AT THE FIFTY-EIGHTH ANNUAL SESSION, AMERICAN MEDICAL ASSOCIATION, 1907.

J. ROSS SNYDER, M.D.
BIRMINGHAM, ALA.

To all who have given serious thought on conditions of society as they exist in our country to-day, certain changes in our ways of living seem imperative if the integrity of the nation is to be preserved. More and more numerous are the bubbles which, rising on the surface of our civilization, denote the workings of ferments beneath. The nation is already somewhat taxed with the burden of caring for, while protecting itself against, an army of defective, degenerate and unstable citizens.

The rapid increase in such members continuing, society as a whole will be vitiated, and sooner or later our people will be compelled to give way to some newer, cleaner and stronger power. To live unwarned by the experiences of other, older and past civilizations, and to blind ourselves to the evidences of decay within us is not optimism but folly! To insist that if our nation is to endure, further deterioration in the race must be stopped is not pessimism but self-preservation!

Without a stalwart and vigorous citizenship our natural resources, domain, a structural navy and a numerical army will not avail in keeping the nation to the fore among the world's powers. Our people must learn the patriotism, the wisdom and the foresight of so safeguarding our children that an oncoming generation of morally, mentally and physically equipped citizens will ever be assured to the nation.

The dangers in modern society which beset the child are many and various. Some of these are so intimately connected with home life that they will be found easier of correction by education and by wise council than by enactments of law. By virtue of their relationship to the family, physicians, if they but acquaint themselves with certain needs, are in a position to render a great and lasting service to their country. It is then to certain phases of our home life as they reflect on child interests that I wish to invite your attention.

THE UNBORN CHILD.

The position assumed by modern society with reference to the unborn child is a subject which has proved so inviting to sentimentalists that physicians as a rule discuss it reluctantly. But the possible physical effects on our women and our children of a widespread revolt against maternity is a question that medical men, no matter how much against their liking, must consider and answer. A countless number of our young women, even before marriage, are entertaining ideas, notions rather, regarding the hardships and taxations incident to child rearing.

Thousands of them at the time of marriage have these notions still further exaggerated by the intermeddling of mothers and friends. Now, too, a certain kind of instruction is given which, since its purpose is to prevent motherhood, precludes any education that would fit these young women for that motherhood. I know of nothing more nerve-wasting, nothing more cruel, than the way newly-married girls are beset with older married women, bringing ghosts of child-bed and bugaboos of child-care with which to haunt the bridal chamber. Can we wonder that many of them, who were normal, mentally, physically and morally healthy before marriage, are changed into unhappy, discontented, irritable and hysterical wives, fit neither for wifehood nor motherhood?

A great number of women live in a state of uneasiness and of absolute dread with reference to maternity. Restless, they display their activities in various freakish and faddish ways. They are not perverse, but, by contact with distorted ideas concerning their natures they are made selfish and unreliable. There may be some of us who are inclined to believe that under certain circumstances a limited family would solve perplexing problems of existence. But no matter how often offered as pleas, economic and like considerations do not enter into the studied attempts at preventing conception. The woman who practices these modern arts is actuated by personal fear or by personal selfishness or by both. With her it is not a question of limiting the number of children—she wants no child at all.

Can the woman who accepts maternity only when the miscarriage of plans compels acceptance ever satisfactorily perform maternal functions and duties? Is it enough to have the mother become reconciled only when the child is born, and only then to try to do her best? These are not mere academic questions, but are now of such import to the nation that physicians have no right to allow them to be treated only by the mawkishly inclined.

Neither will it do to trust to maternal instinct, whatever that may be, to overcome certain deficiencies in the education and in the preparation of a woman for maternity. An instinct which permits a woman to bestow her affections with equal enthusiasm, if not depth, on a Teddy bear or a poodle dog, and under other circumstances on a baby, is not sufficiently divine to be depended on to offset any great ignorance with which she may be endowed. Maternal instinct can not recover the nerve energy lost "in the fear, the anguish, and the unwillingness with which a child may be conceived." Maternal instinct may create in the woman a desire to nurse her offspring, but it can not produce the life-giving milk in a body which has been abused and maltreated and lent so grudgingly to the purposes of creation. Maternal instinct is a very beautiful, a very poetic thing, but it is neither knowledge, nor nerves, nor nourishment.

THE RIGHTS OF THE EXPECTANT MOTHER.

In our efforts to reduce infant morbidity and infant mortality we do not start far enough back. Physicians, in this country at least, do not give enough consideration to conditions that affect our women as mothers. Time spent in crusading for a cleaner milk supply and in educating mothers how to prepare and how to care for market milk is not to be called wasted. But I am convinced that whenever we shall devote as much time and attention to teaching expectant mothers how best to prepare and how best to live for the performance of natural feeding, then our efforts will be as encouraging as they will be consistent.[1]

Aside from the influence of exaggerations arising in the indelicate interchange between women of confidences relating to domestic and private life, two things tend to make motherhood burdensome and do lend some reality to the hardships of rearing children. The first of these is the very common failure among mothers to furnish a sufficient or a fit supply of natural food. Compared with the lusty, breast-fed baby that spends most of his time in sleep and the remainder in nursing and in playfulness, the puny, never-satisfied, ever-squalling bottle-fed infant is a nuisance; none the less so because the instructions for his feeding have probably been given with such terrifying minutiæ and unnecessary fussiness that the mother can only follow them with uneasiness and uncertainty.

Again—and to this, too, I have already alluded—our women lack any education which would give them an understanding of child needs. Unfortunately the child has certain needs which, misinterpreted or uncomprehended, will characterize his career with events, time-exacting, nerve-trying and heart-distressing. Not to speak of the benefits that would accrue to the child, proper education and proper preparation of the expectant mother would be fairer and would make her later duties less hard.

DIVORCE AND EXCESSIVE LUXURY.

It is not surprising that the larger percentage of divorces occurs in childless marriages. The surprising and distressing feature is that there is still a large number of marriages in which child rights are entirely ignored or are not sufficiently considered to keep the family intact. Without entering into a detailed study of the complex causes that have brought about the wreckage of 1,400,000 homes in the United States within the last twenty years, it is seen at once that a home with "frenzied finance" on the one hand and restless indolence on the other is encompassed by much that is favorable to a history of unhappiness. With divorce so rampant, we do not wonder that patriotic men are aroused and are putting home life to an analysis.

Ex-President Cleveland has recently written this message[2] to the American people:

> We have fallen on a time in our national life when it will be well for us to look to the simplicity of our homes. Of course it will not do to inveigh indiscriminately or in wholesale fashion against our country's legitimate advance, which has greatly increased the comforts and reasonable luxury of domestic life. Our plea should be for the subordination of all this to a standard of simplicity which will safeguard the integrity of the home without curtailing the greater comfort and decent living of latter day changes.

In the British race degeneration for the most part has been the result of poverty and of poor living. The hooligan is the combined product of the factory system and the slums. He is an unmoral rather than an immoral animal. It is his hopelessness and his inertia that make him so absolutely worthless and, therefore, vicious to society.

In America, however, the menacing member of society is not always from the ranks of the poverty-stricken. A large number of unstables and degenerates come from homes of excessive wealth and luxury. In some of these homes parents are too busy in money-making or in giddy social strife to outrank rankness to give either love or heed to the child.

In a larger number, however, parental affection is as deep as anywhere, but parental responsibility seems to begin and end in silly indulgence of the child. First "pap-fed," then pampered and spoiled, the child grows up without discipline to desires and without knowledge of his relations to the rest of society. Thus he is so handicapped by home training, or rather by lack of it, that the chances are against him in attaining good and useful citizenship. He is more likely to become where he dares a bully, but otherwise a weakling on whom is easily fixed, one or all, drunkenness, licentiousness, criminality, insanity and suicide.

ANOTHER KIND OF CHILD LABOR.

Thoughtless care of the child is not confined to any one class of our people. Every stratum of our society shows some of its markings. That boys be educated in thrift and that they be taught to earn their spending money or in part their living money may be well enough, but the kind of employment a child is allowed to accept ought to be selected by parents with care, and the expenditure of his wages ought to be supervised with prudence, though not with niggardliness.

One day last summer I saw an 11-year-old boy, whom I knew very well, entering a house of prostitution. The boy's father, who holds a responsible and lucrative clerical position, was surprised and shocked when informed of this fact. It had never before occurred to him that his boy, in accepting employment with a messenger service during the summer vacation, would be sent to such places.

The man who shoes my horse employs six assistants, owns his home and has a neat bank account. This man permits his 13-year-old boy to work on afternoons and Saturdays in a livery stable in the capacity of a "lead boy." The work itself is easy and healthy. Delivering and returning horses allows him outdoor exercise, has an element of danger that a boy likes and that is just sufficient to cultivate confidence in himself and gives him an insight into the wisdom of treating a dumb animal humanely. But a considerable time still must be spent by the boy in the stable, where his associates are a lewd, profane, drinking and gambling set of negroes who keep out of jail only through the protection of their employers.

A few days ago I saw in a lunch room a nicely dressed little fellow, not a minute past 6 years, sipping a huge cup of black coffee. The youngster was so exceedingly bright and talkative that he attracted attention at once. From one of the waiters I learned that this child, this *baby,* drank as many as three cups of coffee in one afternoon; that he sold papers, and that his customers were

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1. After writing this paper, I found that an English writer, Sykes (Lancet, April 5, 1907), had very similarly expressed these ideas: "For a long time past it has struck me that the promiscuous distribution of leaflets instructing mothers how to hand-feed their infants is beginning at the wrong end, and even prefixing a few words of advice as to breast feeding does not correct the preponderant details of advice as to how to avoid breast feeding."

2. The Honest American Marriage, Ladies' Home Journal, Oct. 1906.

the drummers who patronized a nearby hotel. This little one's father (I made it a point to find out) is an able-bodied carpenter making good wages. He owns a suburban home and hires a cook, although his family is small and his wife is in perfect health.

I have no apology to offer for citing these cases. To me they are of the greatest significance. They are only isolated in the positiveness of my knowledge that these parents in no way stand in need of the wages for which they are willing to expose their children to many obvious dangers.

Last month, in the city of Birmingham, a young man was sentenced to six years in the penitentiary for embezzling a large sum of money from a bank. Ten years before the commital of the crime, when only 15 years old, this boy was employed as a marker in a bucket-shop. In the midst of gamblers and surrounded by their influences he spent his adolescence—that period of life in which impressions sing deepest and in which there is greatest susceptibility to influence. Later he entered the service of a bank, where he was rapidly promoted until he was made assistant cashier and, at the age of 25, stole $200,000. At the trial the young man's lawyers admitted his theft, but plead not guilty "on account of insanity." The only established evidence of his insanity was an irresistible or rather unresisted desire to gamble in the stock market. His father, a leading citizen and prominent attorney, had the temerity to address the jury in behalf of the criminal which he had helped to make by neglect of parental duty.

CHILD LABOR IN FACTORIES.

Philanthropists, humanitarians and others have raised a far-reaching cry against child-labor in factories and in sweatshops. God knows their indignation is righteous enough! The refined barbarity with which these little ones are murdered makes a humane man almost regret the passing from civilization of cannibalism, which, at least, had the comparative virtues of quick and honest dispatch. But the greater number of these children are so born that, even were their liberty uninterfered with by factories, their usefulness to society and to the state would be limited.

In the north they are the children of a class of immigrants that only years of training and of education can make representative in their citizenship. In the southern mills they are the children of a class of people that has lived for a century in contact with civilization without becoming a part of it. Within this class are embraced the "moonshiners," the "feudists," the "white-caps," the "train-wreckers," the "church-burners," etc., who, living at enmity with law, have done so much to bring disgrace on the fair name of the south. Since little has been done to reclaim them, these people, the so-called "poor white trash," are not to be called hopeless, but certainly it will be many years before they will adapt themselves to the greater works of our civilization. Though we work then for humanity and for Christianity in freeing these children from their bondsmen, we can not by that act alone add much to the stability of the nation. Orphans and children deserted or neglected by parents are now being lodged, fed, clothed and educated by society. Crippled and blind children, even those of the poor, are now trained and educated for self-support. Backward and defective children are being humanely placed in separate classes from the better mentally and physically equipped children. They are no longer forced to compete where defeat and humiliation are certain. Youthful criminals no longer have criminality fixed on them by association with older and more hardened offenders. They are now placed under restraint so gentle and are surrounded by influences so uplifting that the best side of their natures is stimulated to outgrow proclivities to evil.

Physicians, since they have aided no little in bringing them about, feel a special pride in these reforms. But if our zeal and our enthusiasm are to end here then it were wiser to revert to the customs of that ancient people who, to guard themselves against deterioration, could hit on no more ingenious plan than to do away with weak and defective children. Let us continue to spend time and money in behalf of these unfortunates, but let us not deceive ourselves into believing that these are the boys and girls who will to-morrow shape the history of the nation.

Not they, but the children we know personally, the children in the homes we visit professionally, are the ones who will become the leaders and the representative citizens of the republic; into their keeping will be placed the destiny of the country. Therefore, let our special care be for them, and let us not underestimate the less glaring dangers that may be threatening them.

I have already mentioned some of the insidious social evils that, creeping on us, are endangering our children. If time permitted there are others of which I should like to speak. Before closing there is one from which I can not withhold brief reference.

Twenty years ago and later obscene literature in every form was debarred, at least from our homes. Even today if it came to us in any other form the obscenity of the modern newspaper would be cast out with crimson indignation. And yet the write-up of a recent notable trial, teeming though it did with nauseating detail of indecent situations, was followed closely by children all over the land, who awaited hungrily and greedily for the next issue.

That old dodge of the press, "We print what the people want," is no more lofty than the defense of dive and brothel-keepers. Examine the Sunday edition, baited for children with comic supplement, and then go make a Fourth of July speech on this glorious country of ours, in which the freedom of press shall never, no never, be restricted, though our children be damned.

Original Articles

TEN YEARS EXPERIENCE IN THE TREATMENT OF SYPHILIS BY THE INTRAMUSCULAR INJECTION OF INSOLUBLE MERCURIALS.*

WILLIAM S. GOTTHEIL, M.D.
Adjunct Professor of Dermatology, N. Y. Post-Graduate Medical School, Dermatologist to the City and Lebanon Hospitals Consulting Dermatologist to the Beth-Israel and Washington Heights Hospitals.
NEW YORK CITY.

The dangers of a premature judgment of the value of a therapeutic method is abundantly proved by the experience of the past few years, and should warn us that excessive optimism may be as harmful as the therapeutic nihilism that was formerly the fashion. Tuberculin, for instance, went up like a rocket and has come down like its stick. The erysipelas toxins cured many diseases at first, but seem now to have lost much of their efficacy. The Roentgen rays were but yesterday the vaunted and unfailing remedy for all manner of recalcitrant affections; to-day they are a therapeutic agent of increasingly limited applicability, and with disadvantages and dangers to which the many suits for damages from burns are attracting medical attention. Conservatism of statement and a judicious reticence are often more valuable than careless optimism.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

It is, therefore, only during the last two or three years that I have said much in public concerning the method of mercurial administration in syphilis that is the subject of this paper. I have used it, however, steadily and almost exclusively, both in public and in private practice, since early in the nineties. In three hospitals in New York it has been the regulation treatment during my terms of service, as also in the various dispensary services that have been under my control. It is safe to say that almost all those who have had opportunity to witness its administration and effects—internes, assistants and visitors—have become its enthusiastic advocates, and its reception by the profession at large during the last two years has been not less cordial. I have even had the satisfaction of hearing many of our older leaders in syphilography state that they have always advocated and employed the injection treatment. For the method is not new, but old; Scarenzio, as long ago as the middle of the last century, injected calomel to cure the luetic disease.

On the basis, then, of a not inconsiderable experience extending over a term of years, I feel justified in publishing the conclusions to which I have arrived. I shall not attempt to give figures as to the number of cases treated or injections administered. Using the method daily, as I do, as a part of the regular office and hospital work, and without any special intentions of publication, such records would be difficult to collect. I average two or three injections every day in private work, and I can safely say that, either personally or under my direction, between one and two thousand injections have been given annually for a number of years past. The conclusions hereinafter detailed are, therefore, neither theoretical nor the result of isolated observations; they are the epitome of daily experience for a long time past, in all manner of patients and under all kinds of conditions.

It is, of course, with the usual ingestion method of administering mercury that the intramuscular injection method must compete. Inunctions have never obtained the vogue here that they have had, and still have, in Germany; they have practically been rejected here as being too troublesome and too offensive for routine treatment. Other methods, such as fumigations, baths, mercolint pads, etc., are either special methods useful only in isolated cases, or therapeutic curiosities that have never obtained any general professional indorsement.

The very first questions to be asked are, therefore, these: Is the method any better than the ordinary one? And if so, are its advantages sufficiently great to warrant the regular employment of a treatment that is a little more troublesome than writing out a prescription? And then follows the query: Should it be used as the regular treatment in all our cases of syphilis? My answer to all three questions is, unhesitatingly, yes; and it is based on the considerations that follow.

The rapidity of action of the drug when administered hypodermatically is surprising, especially on the earlier and acuter manifestations of luetic intoxication. The patient suffering from violent cephalgic or osteocopic pains obtains relief in a very few hours; in fact I have had patients repeatedly affirm that they have felt the good effects of the injection on subjective symptoms of this kind in an hour or two. Objectively there distinct signs of improvement by the second day, or, at most, by the third; general eruptions commence to fade, and broken down lesions, primary, secondary or tertiary, show decided marks of retrogression.

On the later lesions the action of the drug when administered in this way is, of course, somewhat slower, but it is still very much more rapid than when given by the mouth. Gummatous infiltrations of the skin and subcutis, periosteal and bone affections, etc., usually show distinct betterment in a few days and after a single injection. A point of prime importance is the fact that the more obstinate and relapsing of these later manifestations, such as the palmar and plantar syphiloderms, mucous patches, etc., react, and sometimes with surprising rapidity, though they may have proved entirely recalcitrant to mercury administered by the mouth or even to inunctions. Thus I have under my care at the present moment a physician with a very obstinate unilateral plantar squamous lesion, on which mercury by the mouth to any amount, and inunctions to any extent, have no effect at all; yet which commenced to improve at once under the injections. It is worthy of note in passing that this case is the only one that I have encountered in which the patient, before he decided to place himself in my care, administered the intragluteal injections to himself.

As to the employment of the injections in such probably specific affections as tabes and general paralysis, in which Laredde has reaped such promising results, I have little satisfactory to say. These cases generally remain in the hands of the general practitioner or the professed neurologist. Of the few that I have treated some have improved for a time, but I can not claim to have obtained the marked and permanent betterment noted by the French authority.

An important factor in estimating the efficiency of a syphilis treatment is the frequency of the occurrence of what the Germans call "relapses;" does the intramuscular injection of the insoluble mercurials afford any greater certainty of the non-reappearance of active symptoms than the ordinary methods? It is my positive belief that it does. The regular and usual course of the disease—and I make this statement on the basis of private cases that have been carefully watched through the entire three years and more of treatment—is that when once the patient is under the full injection doses there are no further disease manifestations at all. In many cases, and especially when vigorous treatment is begun early, there is a rapid subsidence of the active symptoms, and from then on apparently perfect subjective and objective good health. Joint pains, cephalalgia, pharyngitis, alopecia, etc., are slight and fugitive, if they appear at all, and they yield very readily to a slight increase in the intensity of the medication. The more serious late secondary manifestations, the tubercular and pustular syphiloderms, extensive pharyngeal lesions, iritis, etc., are practically not seen at all in private and carefully treated cases. My records show only one noteworthy exception in which a serious outbreak occurred while the patient was under vigorous treatment. This was in a physician in whom a most obstinate and relapsing iritis persisted during the entire first year and a half of the disease, and which long resisted all the remedial measures that a well-known ophthalmologist, who cared for the case with me, and I could apply. Here I think that the unfavorable influences of overwork and worry, together with the somewhat insufficient treatment caused by the necessarily irregular life of a busy general practitioner, were the direct occasions of the failure. I am fully aware of the fact that the type of syphilis that we see to-day, especially in private practice, is much less malignant than it used to be, and yet the almost complete absence from my records of any of the commoner severer complications of the early luetic infection is noteworthy. So much is this the case that the main practical difficulty that I have found with the treatment has arisen from the fact that it becomes hard, after a time, to convince many patients who feel perfectly well that there is still anything the matter with them and that they still need treatment.

As regards the "relapses" which we class as tertiary in ordinary parlance, we know that they occur in only a small proportion of all cases, and in a still smaller proportion of those that have been properly treated. I do not think that more than 10 per cent. show them, though figures varying from 4 per cent. to 40 per cent. are given by various authorities. Of course no individual observations in a restricted clientele, and for a moderate term of years, can have much weight on this point. I can only say that I have not seen any tertiary manifestations at all in the comparatively few cases that I have had occasion to follow up.

Practically the same is true of hereditary transmission. A number of my cases have married; some have had children. In a few very careful cases the father has been put on a renewed course of treatment during the first year of his married life, and I have treated one or two wives of my old syphilitics during the first gestations, by mouth, and, of course, without their knowing the object of the medication. Neither in these cases nor in the others that have had no subsequent medication has anything occurred to point to persistence and hereditary transmission of the virus. I believe that these patients are safer from dangers of this kind than are those who have merely had the ordinary ingestion treatment. It is certainly rational to assume that a treatment that so quickly removes all evidences of active luetic poisoning, and that so radically prevents the supervention of the usual and more immediate sequelæ of the disease, is just as effective in hindering its hereditary transmission.

Turning now for a few moments from therapeutic to more purely personal considerations, my experience has been almost uniformly to the effect that the patients become ardent advocates of the treatment as soon as they become convinced of its easiness, painlessness and efficiency. They greatly prefer medication that is administered by the physician at not too frequent intervals to one that involves the taking of pills or medicines several times each day. A busy man of affairs is very liable to forget his medication, especially when he feels well. A visit to the doctor's office every ten or fourteen days is a far smaller tax on the patient's memory and time. Besides this the treatment subserves the important consideration of secrecy. Many luetic cases very properly desire to conceal the fact of their affliction from their friends and relatives, and this is difficult to do when medicines must be taken several times a day for long periods of time. On the other hand, an occasional visit to the doctor for medication need excite no notice, and if it does it can be explained. And the treatment, once administered, leaves no trace behind. The loudest in their praises of the method are those who have experienced the inconveniences and the disagreeableness of the other medications.

Properly administered, the injections are almost painless. If the right site in the depths of the gluteal muscles is selected, the skin made thoroughly cold with ether, the puncture and the needle withdrawal made with rapidity, though the actual injection of the suspension be done slowly, the pain is an entirely negligible factor. The gluteal skin is not very sensitive, and my experience is that women stand the injections even better than men, possibly on account of the comparatively large size of these muscle masses in the female sex and the abundant fatty layer that covers them. The exceptions to this are few. Once in a long time one finds a male whose glutei are so small, and whose panniculus is so poorly developed, that it is difficult to get a tissue-mass suitable for the puncture. And exceptionally also one meets one of those neurotic and hyperesthetic individuals who faint on the incision of an acne pustule, and who will complain of suffering greatly from the injection. Both these classes, however, do not in my experience make up more than 1 or 2 per cent. of all the cases treated.

A certain amount of discomfort is felt in the glutei for twenty-four to forty-eight hours after the injection. Its amount varies greatly, of course, with individual susceptibility, but there is no real pain, the patient feeling as if he had received a bruise or kick. It wears off rapidly, and in three or four days there is usually no tenderness even on deep pressure on the spot. The great majority of patients do not mind it at all; many of them, in fact, make no spontaneous reference to it at their next visit.

It is, of course, of the greatest importance for the patient's comfort that the injection should be done properly, and a quick plunge of the needle through the chilled skin and into the depths of the muscle is essential. A hesitating, slow or boring insertion is bound to be painful. Still more important is the selection of a proper site for the operation. It is not wonderful that a patient that I saw a few days ago complained that the injections that his physician had given him had been very painful and had confined him to the house. They had all been made exactly over the great trochanters on each side, in a place where there was hardly any muscle at all, where the foreign mass was inevitably deposited under dense and resistant fascial structures, and where the slightest motion of the thigh disturbed the injured tissues.

Indurations after the injections do not occur, as a rule. They do no harm, and only betoken a slow rate of absorption of the injected material with a rather excessive reaction of the tissues; they are indications, other things being equal, for diminishing the frequency or the amount of the injections. I sometimes prefer on this account to give a 5 or 6-drop injection weekly, rather than one of double the size at fortnightly intervals. Abscesses are, of course, due to faulty technic, and I have found them, even in the hospital and dispensary work done by internes and assistants, very rarely, indeed. I have had the only one in years in my private work this winter, and in this case circumstances compelled me to make a hurried injection and the patient was very uncleanly.

A word as to the danger of embolism of the lungs after the injections. I believe it to be almost illusory.

I have never seen it occur, and in the cases that have been recorded the symptoms have been fugacious and recovery has been rapid. It is difficult to see how it can possibly occur if the precaution that I invariably employ and insist on, of disconnecting the syringe after the needle is introduced into the tissues and watching the lumen for a few seconds before making the injection, is carried out. There is evidence of entrance of the point of the needle into a vein in perhaps one out of twenty-five punctures. This merely entails the withdrawal of the needle and its reinsertion in another spot. The traversing of veins, as shown by the oozing of blood from the puncture after the needle is withdrawn, is of no moment at all and requires only a little pressure to stop it. I have recently had the unique experience of entering a vein in two successive punctures and having to make a third one; luckily it occurred in the person of a physician and required but little explanation.

The possibility of mercurial poisoning is of greater practical importance. Theoretically the deposition of a considerable amount of mercury in the tissues where a minor surgical operation would be required to remove it would seem to be a procedure that might, in some cases, have unpleasant consequences. A special idiosyncrasy to the poisonous effects of mercury does occur, and intoxication may happen as it does from the ingested and inuncted drug. As a matter of fact, however, the drug injected into the muscles seems very much less prone to cause the salivary, gastrointestinal and nervous symptoms of mercurial saturation than when given in other ways. Once in a while I see very mild symptoms of the kind, which subside under the ordinary measures and do not call for any special measures. On the other hand, I have several times given as much as 20 drops of the suspension, or 2 grains of the salicylate of mercury weekly, with rapid absorption and only beneficial effects. In a very few cases I have seen severer intoxication arise. These, however, have either been cases in which the severity and danger of the local lesions have been such as to necessitate and justify most intensive medication, whatever the mode of administration, as when a gumma of the palate has been on the point of breaking through and causing a perforation, or they have occurred in hospital cases in which the injections have been given with the usual routine recklessness of the average staff man. In no case have I found it necessary to cut down on the induration and remove the mass. In all cases, however, when I begin treatment, and the individual reaction of the patient to the drug is unknown, I begin with a small dose, only going up to a full one when I am convinced that it is safe to do so. The exceptions, of course, are the luetic emergencies; when there need be no hesitancy to take the slight risk of a possible intoxication to save the integrity of an important organ or prevent the extension of a specially destructive process.

I need say but little to this audience of the advantages of the injection method of treatment from the personal standpoint of the physician. To conduct the treatment yourself and to control it is certainly better than to leave it practically in the hands of the patient and his druggist. A certain proportion of patients, even in private practice, will neglect themselves after they have remained in apparent good health for a time, but their number is very much less when they receive a definite treatment at regular intervals from their medical attendant than when they are permitted to administer it themselves. The great majority of private patients remain under steady treatment for the prescribed three years. In public practice, of course, the conditions are different. The patients appear for treatment only, as a rule, when symptoms trouble them, and then they often ask for the injections that have done them good before.

144 West Forty-eighth Street.

DISCUSSION.

Dr. Robert W. Taylor, New York City, said that he had always been unalterably opposed to the intramuscular injections of insoluble mercurial salts in the treatment of syphilis, for he regards the method as unscientific, mutilating, uncertain in effect and more or less dangerous to health and even life. He cited many cases from literature in support of his contention that the method is unsafe and unwise.

He said he had used the hypodermic injection of bichlorid of mercury and the bicyanid of mercury in water unremittingly since 1871 (The Treatment of Syphilis by the Hypodermic Injection of Corrosive Sublimate, *Medical Gazette*, May 13, 1871), and whereas at first he advocated it as a treatment of reserve utility and exigency, he now looks on it, in many cases, as highly valuable for routine and methodic treatment, and one of our best measures in general and chronic mercurialization. The idea that watery mercurial solutions pass very rapidly through the system and then leave the patient unmercurialized is a delusion. One or two injections will show chemical traces for a week or two, sometimes for much longer periods. After a course of injections, mercury may be found in the urine for several months.

Intramuscular injection of insoluble mercurials is a method utterly unscientific, mutilating, wholly unreliable as to therapeutic effect, and very often is a menace to limb and life. Absorption of these injections is absolutely a matter of haphazard; we have no control over them whatever. In some cases absorption may occur promptly and produce alarming symptoms, or the injections may become encysted and thus remain for months or years. They really act as foreign bodies. In one such instance, a blow on the buttocks after an injection made several years before produced such an explosion that embolism, stomatitis, general fever and emaciation promptly developed, and if the injected area had not been deeply incised, scraped and cauterized with white heat, the patient would have lost his life The incompatibility of the tissues, subcutaneous or muscular, to insoluble mercurial salts and oily menstrua is well attested by the experience of many observers in thousands of cases; therefore, these injections should never be risked. We can get all necessary mercurial action without injury by means of soluble mercurial salts injected into the connective tissues. Why, then, should we be guilty of surgical vandalism? In all probability, hundreds of damage suits would have been instituted throughout the whole world for injuries inflicted by these intramuscular injections had it not been for the shamefacedness of patients in complaining, and acknowledging that they were victims suffering from syphilitic infection. (Verb. sap.)

Dr. A. Ravogli, Cincinnati, said that he agrees with Dr. Gottheil in saying that to the genius of Scarenzio the world is indebted to a new era in the treatment of syphilis. The injection method has entirely changed the treatment of syphilis. In a great many cases, in spite of all the remedies by the mouth or by the skin or by fumigation, no benefit will result, while, after a few injections, there will be an entire change in the aspect of the disease, even in its most malignant form. Following the teaching of Prof. Manassei, he was among the first to try the injection of calomel in syphilis. The calomel was mixed with a little water and mucilage of gum acacia, and injected in quantities as high as ten grains, then gradually diminishing the dose. The injections of calomel were at times followed by unpleasant consequences, such as diffused abscesses and severe stomatitis; still, in severe cases of syphilis, where the vascular system or the eye, or some equally important organ is threatened, the disease will be seen to yield rapidly to this remedy. Subsequently, he used injections of a 1 per cent. solution of bichlorid of mercury. Good results were obtained from this method, better than from the cyanid peptonate or other mercury salts. He continued

[illegible]

this method of treatment for a number of years, but does not consider the action of the solution of mercury bichlorid as satisfactory as that of the insoluble salts and much more of the metallic mercury. Since he adopted the method of Lange, which is the use of gray oil by the injection method, he has obtained splendid results. When it is better known how the spirochætæ get inside the tissues there will, perhaps, be some explanation of why, with soluble solutions of mercury, we do not get the permanent action that we obtain from the gray oil. The mercury in those cases seems to act, not as a mercury salt, but probably as metallic mercury, and these metallic granules, reduced to their most minute size, probably affect the germs of syphilis and eradicate them. Dr. Ravogli said he is not a firm believer in the efficacy of the soluble salts.

In cases of tertiary syphilis with bone lesions he does not think that mercury exerts the powerful effect that it does during the earlier periods of the disease. In those cases he thinks we must depend on the iodin preparations much more than on mercury. In some of those cases the patients will not tolerate iodid of potassium or sodium by the mouth, and under those circumstances he gives iodipin, a preparation of iodin and sesame oil, one syringeful hypodermically every other day. He has found this method very efficacious in late bone lesions. If he wants to introduce mercury into the blood he resorts to intravenous injections, but he believes that mercury, properly used, should be introduced into the system through the lymphatics, and that there is the place to find the spirochætæ, and to neutralize the poison of syphilis.

Dr. Joseph Zeisler, Chicago, said that he has given thousands of injections in syphilis during the past twenty years and over, exclusively of the soluble salts of mercury; never of the insoluble ones. He had not the slightest doubt concerning the accuracy of the statements made and of the brilliant results of the treatment obtained by Drs. Gottheil, Klotz and others; but so far he has never been called on to resort to any more energetic method of treatment than that which he now employs. Enthusiastic statements, like those of Dr. Ravogli may perhaps lead to the impression abroad that we have in this method an unfailing weapon for the radical and permanent cure of syphilis. We should never lose sight of the fact that our treatment of syphilis is purely symptomatic, and he challenges any one to affirm that he can prevent relapses, whether by the injection-method or any other. If, by the use of the insoluble salts we could prevent relapses and do away with locomotor ataxia and other late evidences of syphilis, Dr. Zeisler said that he would be glad to adopt that method of treatment, but as the matter stands, he agrees entirely with Dr. Taylor, and he feels that one serious accident with this method could not be compensated for by all the good results obtained by it.

Dr. Granville MacGowan, Los Angeles, Cal., said that he had seen most excellent results from the injection method of treatment in many cases where the administration of mercury by the mouth, although not contraindicated, was not practicable. Like Dr. Zeisler, he has been deterred from using the insoluble salts by a knowledge of what has happened to others. In patients who are able and willing to take care of themselves, syphilis is never, practically, a fatal disease. Outside of our great hospitals, with patients who are the victims of alcohol and drugs, and who are intensely anemic, it is rare to see the deformitive kinds of syphilis which were common twenty-five years ago. He has time and again seen people recover from syphilis, get well and do well, when the mercury was taken away from them, and he has also seen people take mercury to the limit without any resulting improvement. In those cases he has found, on making a blood count, that the patients were always excessively anemic, and the first thing to do is to take away the mercury and put them on good food, plenty of fresh air and baths, and the peptonate of iron with manganese. In dealing with a case of syphilis of a malignant type, or in certain emergencies, Dr. MacGowan sees no objection to the use of one of the insoluble preparations of mercury, and for that purpose he would certainly prefer the salicylate.

It makes some difference as to how the mercury is given; whether it is given alone, or in connection with the other drugs. He had in mind two patients, both physicians, who were unfortunate enough to acquire syphilis many years ago. The disease was apparently easily controlled at the time, but it has since recurred in the form of grave bone lesions. In one of them, about two-thirds of the medullary canal of one tibia has been obliterated. Both have taken large doses of potassium iodid, and both have received mercury by inunction. Dr. MacGowan wished to direct the discussion a little toward what would relieve or cure late syphilitic lesions of this kind. These two men are well worth saving to the profession, and if the injection treatment advocated by Dr. Gottheil and others will benefit them, he would be glad to know it. An assurance of that fact would be a personal kindness to him and his clients, as well as to many who depend on these men in their work.

Dr. H. G. Klotz, New York City, said that he has used the injections of the insoluble preparations of mercury for 25 years, and he can confirm everything that Dr. Gottheil has said in regard to the superiority of this method of treatment over others. For a number of years before he tried the injections of the insoluble salts he used the soluble salts by the injection method, and he can positively say that the former are the more effective. He has seen them effective in cases of late syphilis of the viscera or brain where the bichlorid of mercury and similar salts had failed.

One of the advantages of the use of the insoluble salts is the almost entire absence of affections of the mouth following their use. Why that is so he can not say, as he uses scarcely any precautions to prevent them in his private practice. In fact, he has seen an ulcerative stomatitis heal under injections of the salicylate of mercury. Dr. Klotz said he can not understand why the use of the insoluble salts by injection should be termed an unscientific method. Is it more unscientific than the inunction method? He does not think so, nor does he regard it as dangerous as some of the speakers would have us believe. At the same time, he would not say that it is as free of disagreeable effects as Dr. Gottheil has said. Pain occasionally follows the injections to a moderate extent; it is remarkable that some patients invariably experience some pain on one side of the body, while injections made on the other side are absolutely painless.

He has seen syphilitic affections of the bones quickly cured by salicylate injections. He has seen a prominent tophus of the frontal bone disappear after two such injections. This method of treatment may not do good in all those cases, and we have still another old remedy to fall back on, and that is any good preparation of sarsaparilla, which does good sometimes, particularly in those who have taken much mercury. Under its use, he has seen cases yield that have resisted all kinds of inunctions and injections.

Dr. L. E. Schmidt, Chicago, said that after ten years' experience with the injection method of treating syphilis, and after having had ample opportunity to use both soluble and insoluble remedies and the different methods of giving the same, he wished to state that he agrees with the views of Dr. Zeisler. He now practically restricts himself to the use of the soluble salts. For a number of years he made injections of gray oil, calomel and the salicylate of mercury, but he has come to the conclusion that there are dangers which no one can avoid in connection with the use of these insoluble salts. With the soluble salts these objectionable features are rarely met.

Dr. M. B. Hartzell, Philadelphia, said that from the general tenor of the discussion one might suppose that the treatment of syphilis by the use of mercury by the mouth had fallen into "innocuous desuetude," yet we all see a large number of cases of syphilis get well under the use of mercury by the mouth. He is of the opinion that the injection method should be limited to those cases in which for some reason, it is impossible for the patient to carry out the ordinary treatment, or in cases where there is extreme urgency, as, for example, when the disease attacks the central nervous system. He said that he is unalterably opposed to the injection of the insoluble salts. After such an injection, the drug is beyond control. It may be absorbed gradually, with good results, or it may be absorbed *en masse*, with danger to the life and health of the patient. There are many cases where the in-

inunction method can be employed to advantage, and in the vast majority of instances it accomplishes everything that mercury can acomplish in this disease. The drug we give is mercury, whether it is taken by the mouth, rubbed into the skin or injected. The injection method requires frequent visits to the physician's office, and in many instances the injections are extremely painful. He wished to emphasize the fact that the vast majority of the cases of syphilis can be cured by mercury taken either by the mouth or by inunction. He said that Jonathan Hutchinson years ago pointed out that potassium iodid is one of the rare drugs which in small doses is often as effective as in large ones. He has seen large tubercular syphilids disappear under one grain doses of potassium iodid, three times daily.

DR. JAY F. SCHAMBERG, Philadelphia, said that he is in complete accord with Dr. Hartzell. He fully agrees with what has been said regarding the value of the hypodermic treatment as a reserve measure. He has had a small experience with this method, having given about five or six hundred injections, but has limited himself to the use of the soluble mercurial salts. He believes that the number of cases of stomatitis produced by mercurial injections is considerably less than by mercury administered by the mouth. He never sterilizes the needle beyond immersing it in a 10 or 20 per cent. solution of carbolic acid in olive oil after each injection. A small cylindrical jar with a perforated aluminum plate is used for the purpose. He has not found it necessary to sterilize the needle further, and the injections have never produced anything beyond the ordinary inflammatory nodulation. By immersing the needle in oil, it remains untarnished, even though kept for months.

DR. JOHN A. FORDYCE, New York City, said that he is not an advocate of any routine method in the treatment of syphilis. He employs hypodermic medication, inunctions, and mercury by the mouth. In certain cases where the injection treatment has failed to prevent relapses, he has had success with the internal treatment. The objections to the use of the insoluble preparations by injection are generally the result of faulty technic, or are theoretic. He has the same hospital service as Dr. Gottheil, and has never seen an abscess produced by the injection of an insoluble preparation of mercury, nor has he seen any cases of severe ptyalism or any other serious symptoms, and he has come to regard the objections to that method as largely academic, and that the accidents that have been reported following these injections were due to a lack of proper precaution. The fact that we only employ these injections of insoluble salts every fifth, or seventh or tenth day is an argument in favor of their use in preference to the soluble preparations, which must be given every day, or every other day.

DR. WILLIAM H. DAVIS, Denver, said that the use of intramuscular injections should be limited to cases where we do not get the desired effect from internal medication. He has used both the soluble and insoluble preparations of mercury, and the injections are not entirely painless. When a rapid effect is desired, the intramuscular injections or inunctions or the old bath method are most efficacious. With internal medication we sometimes make the mistake of using one preparation too long. He believes there develops in most cases a systemic toleration to a single remedy. As a rule, he changes the preparation about once in thirty days, and thus gets along with a smaller dose.

DR. WILLIAM T. CORLETT, Cleveland, Ohio, said that in the treatment of syphilis the method easiest to administer and most agreeable to the patient is the best. He is not a firm advocate of any one method. In the majority of cases the administration of mercury by the mouth is best, because, as a rule, it is the easiest and most agreeable to the patient. The inunction method is a good one, but is open to objections. The injection of the soluble or insoluble salts of mercury is likewise good, but also has its disadvantages and should be resorted to in certain cases that will not respond well to other methods. He has no objection to the injection method, the main obstacle is the difficulty of getting patients to submit to it. In selected cases he has given the insoluble salts of mercury, especially the salicylate, for many years with excellent results, and in not a single instance has he seen an abscess follow. The injections are followed at times, however, by a certain amount of discomfort, amounting sometimes to pain for a few days.

DR. L. DUNCAN BULKLEY, New York City, said he has had to do with syphilis for thirty or forty years, and during the past ten years his first assistant at the New York Skin and Cancer Hospital has been an urgent advocate of the injection method. He has watched his assistant's cases, and has watched his own, and at the clinic there patients have been shown that were treated by both methods. From the result of his observation, he is not at all convinced of the desirability of the hypodermic use of mercury in syphilis, nor does he consider it preferable to the internal method, providing the drug is properly administered and given with the proper adjuvants, commonly iron. In the presence of syphilitic lesions, he almost always uses potassium iodid. At the hospital, injections have been used in many cases, both of the soluble and insoluble salts, and there have never been any abscesses or other untoward results. The preparation used there is the salicylate. He has never seen any amount of salivation or other unpleasant effects, but in spite of that he believes that he can handle a case of syphilis with satisfaction both to himself and the patient by limiting himself to the internal use of mercury and iodid of potassium. At the same time, he looks out for the general condition of the patient; not simply giving him mercury because he has syphilis, as is so often done, but regarding him as a human being who has syphilis and may also have other ailments. In spite of all he has seen and read, he is not inclined to adopt the hypodermic method of treating syphilis as a routine practice.

DR. W. S. GOTTHEIL, New York City, called attention to the fact that the bad effects of the treatment, of which Dr. Taylor cited instances, were in cases treated years ago, when aseptic precautions were not taken, and when accidents occurred in many similar operations.

DR. TAYLOR said that some of the cases he cited were reported as late as 1903 and 1904.

DR. W. S. GOTTHEIL said that accidents, of course, are liable to occur in some cases, no matter how the mercury is given. Deaths have occurred from the administration of mercury by the mouth in more than one case, and instances of intense salivation by that method are not infrequent. As to the ease with which the injections are given, with him they are a matter of daily routine. The method is not an experimental one: on the contrary, it is older than many of us here. If some of us say that the method is difficult, or that patients object to it, while others say that it is simple and that patients do not object to it, we are simply giving our own experience. It is especially in the obstinate tertiary and relapsing types of syphilis that the injection of the insoluble salts show their good results. He does not know of any other method by which we can prevent the rupture and extrusion of the contents of a gummatous osteitis or a gumma of the palate, and in reply to Dr. McGowan he assured him that if anything can heal these late bony lesions, it is this injection method of the insoluble preparations of mercury. Dr. Gottheil said that his paper dealt only with the administration of mercury. He has found injections of the soluble mercurials extremely effective, but his objection to them is that they are more painful than the insoluble, and that they must be repeated with great frequency—every day or every other day. Patients will not submit to this, and he does not blame them. One of the chief advantages of this method of treatment is that the injections are only necessary at lengthened intervals.

Bequests.—One of our citizens who just died willed more than $40,000 to provide that suffering children in St. Luke's Hospital may hear singing, while other small invalids outside may ride in Central Park. "University builders," says a writer, "have done less for the immediate gladdening of human hearts." This is true, and this is an uncommonly beautiful benefaction, but the universities, on foundations laid by the church, do the work of raising men who will intelligently build hospitals and lay out parks and think of such bequests as these.—*Christian Advocate* (N. Y.).

LIQUID AIR IN DERMATOLOGY; ITS INDICATIONS AND LIMITATIONS.*

HENRY H. WHITEHOUSE, M.D.
NEW YORK CITY.

During the past year or more I have been particularly struck by the divergence of opinion expressed by my dermatologic confrères in New York respecting the value of liquid air in dermatology. In regard to its efficacy in some affections, there seems to be a general unanimity of opinion, while in others our opinions are strikingly at variance. This is the history of almost every new therapeutic agent, especially if it is a little out of the ordinary, and appears to be due, on the one hand, to a difference in the interpretation of its real powers and therapeutic properties and, on the other, to variations in the technic employed.

This is the position in which we find the *x*-ray to-day; there are few who understand it, hence the great difference in the effects produced and the results obtained. Sabouraud can use it in ringworm with a precision and uniform effect which no other can, apparently, approximate; it is possible that others can do better with it in other directions than he. While liquid air is simplicity itself compared to the intricate and complicated *x*-ray, may it not be possible that this divergence of opinion regarding even so simple a remedy is due to the fact that none of us really understands its powers and capabilities nor how to use it?

It is only by recording our personal experiences with a remedy and comparing the results obtained and technic employed that definite and uniform standards can be obtained in any field. It is for the furtherance of this object that I propose to bring to your attention this short study on liquid air, and the experiences I have had with it in both private and hospital practice, during the past four years. Appreciating fully that this short period of time is entirely inadequate to enable one to judge of its ultimate and radical effects, its immediate and moderately remote effects have been so definite, in some instances, that I feel firmly convinced that we have here a remedy of real worth, in a limited field, at least. With it results may be obtained in some conditions that can not be approximated by other means at our command, and in one instance at least it was the means of arresting a malignant process that was destined, in a few months, to destroy the life of the patient. An agent which can do this, if only in one instance, certainly warrants our most careful attention.

Unlike other means at our disposal, unfortunately, it is not always to be had when most needed, and unless it becomes more generally used for experimental or scientific purposes than it is at the present day it can never take a permanent place in our armamentarium. Commercially it has been proved an impossibility, and our future supply for medical purposes must come from technical and scientific schools and colleges, where it seems to be essential, at present, for the proper carrying out of certain lines of investigation.

We will first consider—though in the briefest manner possible, and only such as are essential to the matter in hand—the varied and peculiar general properties of this agent, together with the gross effects observed on the tissues, in the form of a drop, the spray, or by means of the cotton swab.

GENERAL PROPERTIES.

Physical.—Liquid air is a colorless, odorless, effervescing fluid, emitting a vapor which looks like steam, moderate when quiet, but abundant on agitation or stirring. It is very unstable and must be kept in a loosely-stoppered retainer to allow the escape of its component gases. It is of about the same weight as a given volume of water and has a temperature of 312 F. below zero. It feels dry to the touch and leaves no moisture on any surface with which it comes in contact.

Chemical.—Its component parts, chemically, are essentially nitrogen and oxygen, in the proportion, by weight, of about two and one-half parts of the former to one of the latter, together with a variable quantity of carbon dioxid; about one-eighth of 1 per cent. The nitrogen quickly bubbles away, leaving a liquid composed of almost pure oxygen, as demonstrated by its power to support combustion.

Therapeutic.—The effect of liquid air on bacteria was tested by Parks and White[1] in the Board of Health laboratories in New York some years ago both as regards the extreme cold alone, by incasing the germs in small tubes before immersion, and by placing them directly into the liquid air. Typhoid, anthrax and diphtheria bacilli were tested in tubes and were exposed from thirty to ninety minutes, and anthrax bacilli were immersed directly into the liquid air for over an hour. Pure cultures of all these were subsequently obtained from sterilized bouillon.

Huddleston[1] tested vaccine virus in the same manner and found, after fifteen minutes' exposure to the liquid, that its power to produce vaccination was not at all affected.

Parks[2] subsequently made further experiments in this same direction, exposing to liquid air almost every kind of germ life, from hay infusion to anthrax bacilli, in pure virulent cultures, for over two hours. It is reported that he found that liquid air killed 98 per cent. to 50 per cent. of these germs, from the weakest to the strongest. It killed 75 per cent. of typhoid germs, 50 per cent. of staphylococcus and 65 per cent. of diphtheria. He states that a two-hour exposure does not completely destroy the virulence of any pure culture of these germs, but suspends their vitality for a long time, and that "they are only brought back to activity by the most careful handling and under the most suitable conditions."

Macfayden,[3] in 1902, tested its effect on bacteria extending over a period of six months, using for the purpose *B. typhosus, B. coli communis* and *Staphylococcus pyogenes aureus;* in addition to these non-sporing forms he tested a saccharomyces. These were all immersed directly into liquid air and tested from time to time; he found absolutely no impairment of their vitality. The typhoid bacilli retained their pathogenic properties and responded to the agglutination test; the colon bacillus retained its normal properties; *Staphylococcus pyogenes aureus* produced pigment on solid and an active hemolysin in fluid media, while the yeast retained its fermentative powers.

These laboratory experiments, although the results are not exactly uniform, demonstrate pretty conclusively that liquid air is incapable of destroying germ life, and it is reasonable to suppose it is incapable of more than inhibiting the activity of pathogenic organisms in the living tissues.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] White: Med. Record, lvi, 1899, 109.

[2] White: The Journal A. M. A., xxxvi, 1901, 426.

[3] A. Macfayden: (Proc. Royal Soc., Oct. 31, 1902) Abst. Med., News, Dec. 27, 1902, vol. lxxxi, p. 1215.

To explain the therapeutic properties of liquid air we must look, therefore, to changes in intracellular metabolism rather than to any bactericidal effect. Cell life is manifestly impossible in the prolonged presence of this agent, for the two chief essentials to living protoplasm, viz., heat and moisture, are here lacking. The sudden shock of its application contracts the blood vessels to the highest degree, but the normal temperature is soon resumed, although if frequently repeated a most powerful local stimulation is produced and ultimately endarteritis. The intense inflammatory reaction following its application causes a flooding of the lymph spaces with serous exudate, and to this is due its therapeutic effect in cutaneous cancer, some of whose disordered cells lie in these spaces in the periphery of the growth. By constantly inhibiting the activity of bacteria, in conditions known to be due to such invasion, their pathogenic power is nullified, for a time at least, thus allowing the inflammatory exudate to cope with them, the product eventually being carried off in the lymph stream.

It will thus be seen that liquid air is something more than a caustic, in the true sense of the word, for sloughing and sphacelation are not essential to the accomplishment of its therapeutic effects. I have seen this repeatedly exemplified in the treatment of vascular nevi and angiomata, and in new growths covered with a sound epidermis which was free from moisture.

GROSS EFFECTS ON HEALTHY AND DISEASED TISSUE.

With a full appreciation of the foregoing properties of this agent, it is easy to anticipate its gross and ultimate effects on healthy and diseased tissues, and its indications and limitations can be quite accurately defined. A drop on the sound skin causes a sensation of burning and tingling, and, if allowed to remain in contact a moment or two, will cause a blister. In the absence of moisture no slough nor death of tissue takes place, but on a perspiring skin contact immediately ensues, and a blister is quickly formed; on a denuded or moist surface, a slough with loss of tissue follows.

A mild and short exposure to the normal skin by means of the spray produces blanching, followed by a moderate congestion; a longer exposure thoroughly freezes and anesthetizes the part, but if not distally situated, as the ear, toe, finger, etc., the circulation is slowly restored without affecting its integrity. It is surprising to see how deeply and thoroughly a part may be frozen, either by the spray or by the cotton swab, without ultimately causing any injurious effects. It is a well-recognized fact that extreme degrees of temperature, either of heat or cold, produce deleterious effects on the human organism, in proportion directly to the amount of moisture accompanying them. This property of dryness, therefore, explains the difference in effect of liquid air on the tissues, and much lesser degrees of cold as exhibited, for instance, in frost-bite.

In applications with the swab, the resulting inflammatory swelling varies in degree according to the amount used, the pressure employed, and the location and character of the tissues. If these are firm and well nourished it is often very considerable, while if ill-nourished or in a senile condition, irrespective of the age of the subject, a large dose will cause little or no reaction. These observations are important in the practical use of the remedy, for it enables the physician to confidently tell the patient just what he is to expect. All are more or less mystified by this curious fluid and are often much concerned to know just what it is going to do.

The pain accompanying its application is very slight and rarely lasts long, but in some cases, especially when in proximity to the teeth, it will produce excruciating pain referred to the teeth, sometimes enduring for an hour. In pathologic conditions it relieves pain after a few applications and lessens discharge and odor; it likewise diminishes tendency to hemorrhage, although there is always a surface oozing during the congestive stage, when applied to an open surface. Mild applications will encourage healthy granulation, while stronger ones will destroy exuberant growth. It produces very little, if any, reactionary effect on scar tissue, and in consequence of this property I have found it of distinct diagnostic value in epithelioma, an observation which will be referred to more in detail later on.

ITS INDICATIONS AND LIMITATIONS.

From what has gone before it would naturally be supposed that liquid air is destined to have a very wide range of usefulness in the therapeutics of cutaneous disease. If it were not for the fact that we already have means at our disposal which are always accessible, that possess many of the properties of liquid air, and can fulfil its indications quite as well, or even better in many instances, this might be so. For local anesthesia, the treatment of abscess, bubo, boils, carbuncles, ulcers, warts and various other conditions in which extravagant claims were early made for this agent we have other far more convenient methods of equal or greater efficacy.

In pigmentary, hairy and vascular nevi, angiomata, lymphangioma circumscriptum, lupus erythematosus, lupus vulgaris and epitheliomata (unaccompanied by lymph-gland invasion), however, we have in liquid air a remedy which will often give us better results than we have been in the habit of getting by other means. I say often, rather than always, although the difference, I believe, rests wholly on the matter of technic.

TECHNIC.

Herein lies the kernel, as in almost every branch of practical medicine, but, unfortunately, perfection can not be attained. We can endeavor to approach it, however, and the nearer we do so the more uniform will be our results and, I believe, less divergent our individual opinions respecting the value of liquid air in dermatology.

For practical use liquid air is kept in what is called a "Dewar" bulb, which is a double bulb of glass, one blown inside the other, the space intervening being a vacuum. The surfaces of these bulbs are silvered, and this, together with the separating vacuum, retards the radiation of heat; the whole is incased in cotton wool or thick felt to prevent further radiation. These retainers are made in various sizes, but for office use one containing a liter is most convenient, and this amount, in ordinary room temperatures during the winter, will last six days. In summer it will not keep so long, unless it can be kept in an ice chest. A loose wad of absorbent cotton constitutes the cork.

The spray is obtained by inserting a rubber cork pierced by two glass tubes in the manner employed in the ordinary laboratory wash-bottle, the mouth of the entering tube being closed by the finger. I no longer use this method of applying the liquid, for it is difficult to accurately limit the area of exposure, and, furthermore, the field is constantly obscured by the dense and opaque spray, rendering it impossible to judge of the depth of its action.

The cotton swab is applicable to all conditions, and with a little experience can be used with great precision. Pine sticks of sufficient length to reach to the bottom of the retainer can be so shaped that the liquid may be applied in any quantity desired and to any shape or character of lesion. The end, which should be rather firmly wound with absorbent cotton, can thus be made flat, round, pointed or paddle-shape, as desired.

In making all applications the excess of liquid should be first shaken off, scabs should be completely removed from all lesions to be treated, and thin gauze must intervene between the applicator and all mucous or denuded surfaces, otherwise the swab will freeze fast.

The elements governing the effect produced are (1) the degree of saturation of the swab, (2) the accuracy of contact, (3) the amount of pressure exerted, and (4) the duration of the exposure.

On a thorough appreciation of these four elements, coupled with correct judgment respecting the interval allowed between exposures, which is a variable quantity according to the character of lesion and the effect of an antecedent treatment, depends wholly, I believe, our success or failure in treatment. The amount of pressure and its duration, granting the contact is accurate and saturation adequate, seems to be the keynote to the effect produced in any given application. This is the most difficult element to master and it is undoubtedly the most important. Of almost equal importance, however, is the correct judgment of the time to allow between applications; this may be only a few days or several weeks; if made too frequently disastrous results will follow. As a general rule, the slower the method the better the result.

In some conditions, as lupus erythematosus and port-wine mark, a light pressure with the paddle applicator, of relatively short duration to produce a superficial freezing, is indicated. A second application to the same area is not made until the effect of the first has subsided. In this manner both conditions, if not too extensive, can be successfully removed in a shorter time and with a better cosmetic effect than by our old methods. In pigmented and hairy nevi, angiomata, lymphangioma and lupus vulgaris a medium pressure is indicated, and the same rule applies of waiting until the effect of one application is passed before making another; in treating individual nodules in lupus vulgaris, however, rather severe pressure with the pointed applicator is required.

In epitheliomata firm pressure of considerable duration is essential. In those of the ordinary size that occur on various regions of the face the pressure should be exerted at the periphery rather than in the center, or recurrences may be expected; the same interval rule applies here also. Exactly the same indications obtain for the superficial type of rodent ulcer. It is in this connection that the diagnostic value of the agent previously referred to is apparent. Formerly in curetting what seemed to be small pearly nodules at the periphery of a healed patch one frequently found some of them to be firm cicatricial tissue. Firm pressure with the liquid air applicator, covering several such, freezes only the diseased nodules, no visible effect being observed on the others; I have found it a most valuable aid in this capacity.

In treating indolent eroding epitheliomata very firm pressure is required, particularly at the hard rolled edge, and in this type it generally requires several applications at intervals of two or three days before healing begins, but when once commenced the same rule of waiting before making further applications should be observed. In rapidly advancing fungating epithelioma the remedy should be used with a very bold hand until recrudescence begins, after which the interval applications should be adopted.

It is here that I have noted in more than one instance a very peculiar and misleading reactionary effect. In a day or two after an interval application a hard, raised, narrow, circinate and pearly border develops, resembling in every respect a typical active epithelioma. This entirely disappears in a few days and is undoubtedly a linear, hard blister formed at the periphery of an oversaturated swab. Were it not for the very sudden development of this condition one might be misled into making a second application, believing that the preceding one had only stimulated the growth; liquid air will do this, as in the case of ordinary caustics, if too mildly applied. In such an event an immediate severe application will usually arrest its progress at once, but in some cases it must be used in a most fearless manner in order to accomplish this effect.

The technic here detailed, based on and developed from an experience gained in the treatment of a fairly large number of cases, I put forth with a considerable degree of confidence, believing that by its careful observance uniform and satisfactory results may be obtained.

Some personal cases are here appended, a portion only of the total treated, but enough to illustrate the value of liquid air in a limited number of diseases and abnormalities. As nearly half of these were in private practice a good opportunity was offered of following most of them to the present time. Three only are at present under treatment, two hospital and one private case:

Case 1.—*Nevus Pigmentosus.*—J. B., a private patient, a woman aged 50, with a raised, pigmented, non-hairy nevus, elliptical in shape, with dimensions of a half inch by three-eighths, situated on the back of the neck. Three applications with medium pressure successfully removed it, leaving a smooth, whitish cicatrix, scarcely discernible.

Case 2.—*Nevus Pigmentosus.*—A. R., a girl aged 16, another private patient, with a semi-fleshy, elevated, dark-brown nevus, circular, three-eighths of an inch in diameter, and situated on the left chest below the clavicle. One application with moderate pressure almost entirely removed it; a second lighter application completed its removal, leaving only a small pale spot to mark its site.

Case 3.—*Nevus Pigmentosus.*—H. B., a 14-year-old boy in hospital practice, with a raised, dark-brown nevus the size and shape of a "butter-bean," situated on the forehead, a half inch above the outer end of the right eyebrow. As the tissues were dense and resistant, moderately severe pressure was used, which produced a well-marked inflammatory reaction. The lesion scabbed and healed satisfactorily, but required two subsequent milder applications to complete its removal; the resulting scar was not depressed, and was only slightly noticeable.

Cases 4 and 5.—*Nevus Pilosus et Pigmentosus.*—L. G. and P. M., two dispensary cases, one in a young man aged 17, an elongated hairy mole, three-quarters of an inch in length, situated above the beard line on the left cheek; the other, a mouse-skin lesion, not quite circular, but of about the area of a dime, on the right side of the chin, in a woman over forty. The first was removed in five applications with medium pressure, a slight amount of the pigmentation being left, which successfully masked the smooth cicatrix resulting. Three applications, the first two with moderate pressure, the third a very mild one, were successful in removing the lesion on the chin, leaving only a small non-depressed cicatrix.

Case 6.—*Nevus Vasculosus.*—M. G. This was situated on the nose of a woman, aged 40 years, a private patient, and was about the size and shape of a finger-nail. An application was made with sufficient pressure to produce a superficial caustic effect. This was done April 3, 1905, and on the 14th the thin scab that had formed had not fallen, but on the 25th, three weeks after the application, it had entirely disappeared; the scar was smooth and flat. She reported three months later, by request, and there had been no return; the result was apparently permanent.

Case 7.—*Nevus Vasculosus.*—R. C. The lesion in this case was also situated on the nose, the subject being a dispensary patient, a little girl of 11 years. It was irregular in shape and occupied over twice the area of the preceding case, a so-called port-wine mark. The treatment was begun Jan. 16, 1905, with light pressure applications, and eight of these were made covering a period of about two months. The patch became lighter in color after each application, and in less than three months from the beginning of treatment, nothing remained of it. A very superficial atrophic-looking scar marked its site. No change had taken place seven weeks later, when she reported for observation.

Case 8.—*Nevus Vasculosus.*—N. H., a young woman, aged 28, a private patient, with an irregularly shaped vascular nevus, situated partially over the angle of the left ramus and adjacent part of the neck. The upper part had been treated by electrolysis leaving a somewhat pitted scar; the remaining patch measured about one inch in its longest diameter. Applications with moderate pressure were begun July 24, 1904. The first was made next to the old scar, but proved to be of little too long duration, as a superficial slough formed. Five other applications were made over the remaining area, covering a period altogether of seven weeks. At the end of two and a half months, none of the nevus remained. The scar was smooth and superficial; the first part treated was slightly depressed, but was perfectly smooth. The patient was seen two years later and there had been no return; the cosmetic effect was satisfactory.

Case 9.—*Lupus Erythematosus.*—C. S. This patient, a woman, 36 years of age, had been treated at the dispensary for over four months with very little improvement. The disease had lasted three years and consisted of two characteristic patches, one on the left cheek near the wing of the nose, about the size of thumb-nail, the other on the right side of the bridge, a little larger in area. Three applications with mild pressure removed the patch on the cheek, while five or six were required to remove the other completely; the patch on the nose was more deeply infiltrated, being the older of the two. The resulting scars were smooth and quite superficial. She was carefully instructed to return if further troubled. Over a year has elapsed but she has not again reported.

Case 10.—*Lupus Erythematosus.*—T. K., a man, a hospital patient, 42 years of age, with a patch a little smaller than a twenty-five cent piece, situated on the left temple; duration one year and a half. Six application with moderate pressure were made from time to time in this case, and the patch had almost disappeared when the patient was lost sight of.

Case 11.—*Lupus Vulgaris.*—M. F. This was a private patient, a girl of 13 years, with a patch nearly an inch in diameter, situated on the right side of the chin; it began as a small papule three years previously. A fairly severe freezing was done which caused considerable reaction. It sloughed and healed under a scab in about five weeks, but only about half of it had been destroyed. A moderately severe and two milder applications were subsequently made, resulting in its complete removal. The scar in this case was smooth and pliable, though slightly depressed. Over a year has now elapsed without any recurrence being reported.

Case 12.—*Lupus Vulgaris.*—A. M. This is a very old case that I first saw at the hospital Feb. 18, 1895, in a woman then 53 years of age. She had a patch of lupus three inches in diameter on the right cheek, which was then of two and a half years' duration. I scarified it a number of times early in the course of its treatment, and it has been attacked in various ways since. On Jan. 23, 1906, there were five isolated tubercles remaining, the rest of the surface showing a surprisingly small amount of scarring. These were deeply frozen on that day with the pointed applicator; there was a great deal of inflammatory reaction, but they all disappeared. A week ago, sixteen months having elapsed, the patient thought one of the nodules was returning; it has become red and slightly raised, but it is not yet certain if it is diseased; if so, one application will undoubtedly cure it.

In the following series of fifteen cases of epithelioma, eight private and seven dispensary, there were twelve of that type commonly seen on the head and face. The other three were examples of the indolent eroding, superficial rodent ulcer, and quickly spreading fungating forms. They were all unaccompanied by lymph-gland metastases, the only type of cancer in which I consider this remedy is indicated:

Case 1.—B. S., woman, aged 41, private patient. A scabbed quarter-inch size lesion, with pearly rolled edge, situated on the left side of the nose, between the bridge and the inner canthus. It began two years previously, from irritation by the nose-piece of her eye-glasses; there was the usual history of scabbing, healing and progression. One application was made with firm pressure Nov. 16, 1905. The crust fell off and it was healed in a little over two weeks. There has been no recurrence to the present time, over one and a half years; the scar is smooth and flat.

Case 2.—M. M., woman, aged 28, private patient. A lesion of the same character and size as that in the preceding case, situated in the middle of the right side of the nose; it followed the squeezing of a black-head two years previously. Application was made Feb. 27, 1906, and it was entirely healed in three weeks. Thirteen months later, two pin-head size recurring nodules at the lower border of the scar were again frozen. All was healed in ten days, a good flat scar resulting. I attribute this recurrence to the fact that a small piece of the original scab was inadvertently left attached to the lower edge at the time the first application was made.

Case 3.—C. C., woman, aged 26, private case. The lesion in this case was practically a duplicate of the two preceding ones, but was situated on the bridge of the nose, and followed a traumatism three years previously. One application made April 10, 1906, healed it completely in fourteen days, a good smooth scar resulting. No recurrence to date, a period of thirteen months.

Cases 4, 5, and 6.—L. H., M. P. and M. T. These were three hospital patients, women, aged respectively 24, 59 and 44 years, all with lesions located on the nose, varying in size from a quarter- to a half-inch in diameter. The first was between the left inner canthus and the nasal prominence, and was ten months in duration, developing from a blackhead. The second was two years in duration, located on the right nasal wing, and developed from a mole. The third followed irritation by eye-glasses five months previously, and was on the right side of the nose near the inner canthus. They required one, three and two applications respectively, and smooth superficial scars resulted in all of them. They have not been heard from since and are presumably well, as special efforts were made to impress them with the importance of reporting in the event of any change.

Case 7.—H. S., man, aged 40, private patient. The lesion was situated beneath the outer canthus of the right eye, was 15 years in duration, and developed from a flat mole. It was nearly circular, three-quarters of an inch in diameter, was covered with a scab, and had a rolled, hard, pearly edge. Applications were begun Jan. 5, 1904, four treatments being necessary to destroy the growth. It was all healed March 12, 1904, two months later, and has remained well to the present time, over three years; he visited me recently for another trouble and a smooth superficial scar marked the site of the old lesion.

Cases 8 and 9.—M. F. and J. P. These were private patients, a man aged 65 and a woman aged 70, both with lesions about the size of a dime, situated on the right cheek, one near the eye, the other lower down. Both developed from flat senile warts, and were three and two years in duration respectively. One application made July 11, 1905, healed the first completely in about three weeks, and it remains well now, nearly two years later. The second required two treatments, Jan. 6 and 29, 1906; it completely healed two weeks after the second application and has not returned, after a year and a half. Good smooth scars resulted in both instances.

Case 10.—M. R., a man, aged 70, dispensary patient. Lesion behind the left ear, three-eighths of an inch in diameter, six months in duration, and was supposed to have followed the bite of an insect. One severe freezing, April 24, 1905, healed it entirely in less than three weeks. It is now over two years and no relapse has been reported. The scar was a trifle depressed, but smooth.

Case 11.—H. C., a woman, aged 25, a hospital patient. Typical epithelioma, one-quarter by three-eighths of an inch in diameter, situated on the left breast, one inch above and to the inner side of the nipple; it developed from an injury by a safety-pin one year previously. This was frozen twice, Aug. 15 and Oct. 21, 1904, and was entirely healed in sixteen days after the last application; no recurrence to the present time, nearly three and a half years. The scar was very slight.

Case 12.—F. S., woman, aged 60, a charity patient. The lesion is located in the center of the forehead and began in a mole last summer. When the first application was made March 26, 1907, it was three-quarters by one-half inch in size. There are still two or three small nodules on the right side of a smooth scar; the case is awaiting another treatment, which will undoubtedly finish it.

Case 13.—C. M., a woman, aged 72, a private patient, with a rapidly growing fungating epithelioma starting just below the vermilion border of the lower lip, in the median line. It began as a pimple, which was pricked and squeezed, and when first seen, July 20, 1904, six weeks later, there was a round hard growth, a half inch in diameter and elevated the same distance above the surface, slightly ulcerated in the center, with telangiectic vessels coursing over it. This rested on a densely indurated base one inch in diameter, easily felt from inside the mouth. The protruding growth was removed July 25 with acid nitrate of mercury, and the base was exposed to the x-ray two or three times a week, at the hands of another, for four weeks. The patient returned to me August 29, with a fungating growth involving almost the whole width of the lip, and extending inside the mouth. On the same day I applied a large Marsden's paste to the growth below the vermilion line, and the following day another. In seven days the slough came away, leaving a deep excavation. On September 7 the mucous surface was attacked with liquid air, and up to October 22, a period of six weeks, nine severe applications had been made. On October 26 a group of nodules developed on the right side of the chin, at a distance from the original growth; two more applications were made to these and the remainder of the original growth, making eleven in all, the last one being on November 29. On December 20, three months from the first application, all was perfectly healed, with an excellent scar level with the surface. The lip was slightly shortened, but the contour was not affected. She returned on that day to her home in a distant city.

On Jan. 8, 1906, thirteen months from the last application, she returned with a relapsing nodule the size of a pea, on the mucous surface, to the right of the median line. Two applications were made to this, but they were too mild and stimulated it to three times its original size. On January 29 a very severe application was made, freezing the entire thickness of the lip; this was successful, for on March 5 she returned home again, clinically, perfectly well. Strange to say, the contour of the lip was still preserved. There has been no recurrence to the present day, a period of fifteen months, or seventeen since the last application, and the patient is in her 75th year, a fine specimen of physical health.

Case 14.—D. R., a woman, aged 40, a dispensary patient, with an eroding, indolent, and very painful carcinoma of fifteen years' duration, involving the left side of the nose and adjacent cheek and upper lip. The ala and a portion of the tip have been destroyed, the ulceration extending half way up the side of the nose and to the median line. It has a hard everted border and is devoid of granulations. She received the x-ray three times a week for the past four years, with, the patient says, no beneficial effect. Liquid air has been applied four times between Feb. 3, 1907, and April 1, but inability to obtain the agent has delayed its further treatment. The pain, however, is very much less, and the upper one-third has healed. I have every confidence that liquid air will eventually heal it.

Case 15.—S. B., a man, aged 57, a private patient, with a superficial rodent ulcer of about ten years' duration situated on the right temple and forehead. It was successfully healed by the x-ray, but did not remain so, although there is a smooth but thin scar on the temple, three inches in diameter, free from active disease. When first seen, Dec. 5, 1906, the disease was active over the right eyebrow, in the form of a crescentic deep ulceration an inch long, extending parallel to it, and almost exposing the periosteum. There was also an ulcer, three-quarters of an inch in diameter, over the zygoma, and a line of nodular lesions extending anteriorly from this, almost to the outer canthus. A third crescentic ulceration extended upward from this point, almost joining the one above the eyebrow. These have had, altogether, five applications from Dec. 13, 1906, to May 6, 1907, as a result of which all have healed except the ulcer over the zygoma, although this is half gone. The patient is still under treatment and I feel certain one more application will heal the small ulceration remaining. The result to date could have been accomplished in a third of the time had the agent been accessible when wanted and had the patient been more attentive.

It is hoped that the experiences here recorded have justified, in a measure at least, the conviction expressed at the beginning that we have in liquid air a remedy that is not without considerable value in a limited field in dermatology.

The results obtained in the first series of cases, including pigmented, hairy and vascular nevi, lupus erythematosus and lupus vulgaris are certainly better than we have been accustomed to get by our old methods in the same character of lesion. By this method such conditions can be removed with much greater ease and with very little inconvenience to the patient, while with proper care a minimum amount of scarring is produced.

In epithelioma, in the particular class referred to, it must be conceded, I think, that it is distinctly a power for good. It will take time and further experience to determine just all that it is capable of in this direction, but even now, it seems to me, it outranks some of the remedies on which we have placed great reliance. It is generally admitted that excision is not so effective in cutaneous epithelioma as the caustic, or the curette and caustic, for the flooding of the surrounding lymph spaces reaches the outlying cells which the knife can not. It has been shown that liquid air can do more than an ordinary caustic; logically, then, it should take a high place among them.

The x-ray will sometimes heal them, but they are prone to recur, and on a recurrence it is often ineffective. With better technic recurrences after liquid air will be, I believe, less likely, but on these it is as effective as on the primary growth. The cosmetic effect is equally good in both, but it is to be noted that no danger attaches to the use of liquid air either to the operator or to the subject. Finally the matter of time and trouble to the patient should be a consideration, and in treatment by liquid air these are greatly minimized.

38 East Forty-ninth Street.

DISCUSSION.

Dr. H. W. Stelwagon, Philadelphia, said that he had the pleasure, a few years ago, of seeing Dr. Charles T. Dade demonstrate this method in New York, especially in cases of angioma and lupus erythematosus, in both of which affections there is need of new methods of treatment. In the treatment of angiomata, electrolysis has not proved very serviceable; it very often fails, repeated operations are often necessary, and the treatment is very painful. The usual methods of treatment in lupus erythematosus are also unsatisfactory, although in some cases the results are fairly good. Those cases in which we do get results are the ones where the disease has remained stationary, has shown no inclination to spread, and in which one is justified in using superficially destructive applications. In the cases of angioma and lupus erythematosus treated with liquid air, there was very little scarring, which, he said, is also a strong argument in favor of this method of treatment.

Dr. William A. Pusey, Chicago, stated that the effect of liquid air depends on the fact that it produces almost instantaneous freezing. The objections to it are that it is commercially unobtainable, and is difficult to preserve. After witnessing the demonstration nearly two years ago by Dr. Dade, it occurred to Dr. Pusey that a good substitute for liquid air would be liquid carbon dioxid, which is obtainable anywhere. On investigation, he discovered that the commercial liquid carbon dioxid is liquified under a pressure of about 800 pounds, so that it is not in liquid form at atmospheric pressure, and that when it is withdrawn from a drum it evaporates so rapidly that it freezes into a snow very much in appearance like ordinary snow. Liquid air has a temperature of about —180 degrees C., while solid carbon dioxid has a temperature of about —90 degrees C. Liquid air, therefore, is twice as cold, but both will produce almost instantaneous freezing, and Dr. Pusey was not sure that the temperature of carbon dioxid snow is not better for therapeutic purposes than that of liquid air. In his opinion the usefulness of both of these agents depends on the fact that they are destructive agents whose actions are readily controllable. One can produce an inflammatory reaction which will result in sclerosis, or one can produce destruction of the tissues with them; the effect produced depending on the duration of the application and, to a less degree, on the amount of pressure exerted. Dr. Pusey said that he gained the impression at first that one could produce sloughing with liquid air, but he has since learned that either with liquid air or liquid carbon dioxid one can destroy tissue as completely as with a hot poker. By timing the application of liquid carbon dioxid he has found that the effects can be controlled. With ten seconds there is a moderate reaction, with twenty seconds a fairly severe reaction with blister formation, and so on through longer exposures.

Dr. Pusey has used carbon dioxid in many cases of nevi, to a less extent in lupus erythematosus. In small pigmented nevi, his results have been the same as those of Dr. Whitehouse; the nevi have been removed without difficulty, leaving white pliable scars. He has also used it in one case of a very extensive hairy nevus, involving the face and forehead, in a girl 12 years old. In this case the nevus was covered with long hair, which was first removed by the Roentgen rays; then he began to work on the pigmented area with the carbon dioxid, and he has succeeded, practically, in removing the pigment. The case was demonstrated at a meeting of the Chicago Medical Society and the members present agreed that an equally good result could not be obtained by other means. In cases of vascular nevi the results are also good, but the application must be made with great care, because if the freezing process is overdone, it will result in a perfectly white ivory-like scar. In regard to lupus erythematosus, he demonstrated a case recently in which he obtained good symptomatic results. The lesions involved part of the face and forehead, and the treatment resulted in perfectly white, smooth, flexible scars; in fact, hardly scars at all. At one point there still remains a small area of suspicious tissue. Of course, nothing more is claimed than a symptomatic result, for, as is known, lupus erythematosus is an extremely capricious disease.

Dr. Pusey has not tried the method in the treatment of epitheliomata, except the very superficial lesions accompanying senile keratoses. Senile keratoses, and the beginning epitheliomatous infiltrations which occur with them, can readily be removed by liquid CO_2 much more readily than by other methods. Any amount of tissue can be destroyed with liquid air or with liquid carbon dioxid, so that epitheliomata can be treated successfully with these agents, but Dr. Pusey does not believe it is the method of choice.

He has applied liquid air on a few nodules of lupus vulgaris, but not with success, undoubtedly, however, because his applications were not vigorous enough. In short, his experience with carbon dioxid snow corresponds exactly with that of Dr. Whitehouse with liquid air. If there is any difference in the results, he is unable to determine them from his description. Dr. Pusey believes the use of both the agents is distinctly worthy of trial.

Dr. George T. Jackson, New York City, has had a large experience with liquid air at the Vanderbilt Clinic, where Dr. Dade is one of the physicians, and he confirmed the efficacy of this agent, although it is often very painful. He has seen men and women cry with pain during the thawing out of the frozen surface. As regards the methods of applying the liquid air, he has found the swab the most satisfactory, using a sufficient amount of cotton to absorb the liquid. By the applications the tissues are first frozen stiff; then they thaw out and a blister forms which dries up and falls off, leaving a perfectly smooth scar. Liquid air is a destructive agent and will always leave a scar.

In lupus vulgaris he has not had much success with it, but in lupus erythematosus, he thinks it is the best thing we have, in spite of the scar that it leaves. But the disease always leaves scars. In all forms of nevus the result of the treatment has been excellent. In deep-seated angiomata it takes out the color, but does not remove the tumor. In port-wine marks the results have been less satisfactory, on account of the depth of those lesions. In epithelioma he has had practically the same results as those reported by Dr. Whitehouse.

Dr. L. Duncan Bulkley, New York City, has had considerable experience with liquid air. In some of the cases, the scars that were left could, he thought, have been rendered less noticeable with a better knowledge of the technic of the applications, especially in lupus erythematosus. He did not understand how Dr. Whitehouse could refer so lightly to the pain caused by these applications. He has known patients to complain bitterly of the pain after severe applications. With repeated and light applications, however, given at distant intervals, as Dr. Whitehouse recommends, one can readily understand that the pain would be comparatively slight.

Dr. James D. Gold, Bridgeport, Conn., has used liquid air to some extent in private practice. In one case of large vascular nevus in the temporal region and involving half of the eyebrow and both upper and lower lids, he made repeated applications, with very satisfactory results. The treatment has left a smooth white scar in the area where there was originally a large, bright red nevus. The patient in this case was a baby, and the treatments were commenced when it was 4 months old. The pain caused by the applications apparently was severe, as the child cried for two or three hours afterward. In cases of lupus erythematosus, his results have also been satisfactory. In one case an excellent result was obtained after two applications. That patient also complained of pain. In another case of lupus erythematosus where the disease was of seven years' standing, the applications failed to arrest the spreading of the lesions.

Dr. Lee S. Shoninger, New York City, stated that one point in connection with this treatment is not entirely clear, and that is the question of scarring. Dr. Whitehouse had a resultant scar in almost every case. It would be of some importance, he thought, if Dr. Whitehouse would dilate on the character of that scar; whether it was atrophic or hypertrophic; the pathologic process involved in the formation of the scar, and also the macroscopic changes taking place in the interval.

Dr. William S. Gottheil, New York City, stated that liquid air is a curiosity; we can not get it. Carbon dioxid, on the other hand, is obtainable, and, according to Dr. Pusey, it practically answers the same purpose as liquid air. Apparently these applications act by setting up an inflammatory reaction, and they cause scarring. Can not the same thing be done with any cauterizing agent? For instance, with trichloracetic acid, a very manageable caustic, one can produce an inflammation, with resulting superficial cicatricial tissue, just as with carbon dioxid.

Dr. H. H. Whitehouse, New York City, said he had simply referred to the manner in which the applications should be made if deep scarring is to be avoided. The ordinary scars left by the applications are perfectly smooth and pliable, and he has never seen hypertrophic scars result from its use. What the pathology of the process is, and what the changes are that take place during the intervals of the freezing, he does not know, as most of these lesions are on the face, and it would be difficult to get a section of tissue for examination. As to carbon dioxid, which has about one-half the coldness of liquid air, he thought that one ought to get from it about the results that we get from liquid air. In regard to the pain caused by the application; he stated that while he may have been misled in that respect by some of his patients, he does not think his observations, in the main, were far wrong. After treatment, he has always instructed patients to make cold applications, which apparently were soothing. The better nourished and the younger the patient, the greater the degree of reaction and the greater the pain. In some cases of rodent ulcer the patients scarcely felt the applications, and in none of the cases was pain a prominent symptom. In any event, it could readily be alleviated by the application of an icebag. The interval between the applications, to which Dr. Bulkley referred, is a very important factor in the treatment.

Generally speaking, it takes about a week or ten days, after a mild application, for the little scabs to fall off and the tissues to resume their normal condition. After severe applications, to an epithelioma, for instance, often four to six weeks will elapse before the good effect of an application ceases. In indolent, deeply eroding epitheliomas, several applications, at intervals of a day or two, are necessary to start the healing process, after which three to six weeks will often elapse before another application is needed.

As regards the treatment of deep-seated port-wine marks, his opinions are practically the same as those expressed by Dr. Jackson. In these cases such a deep-seated effect must be obtained that the resulting scar may be worse than the original lesion. The same is true of deep-seated lupus erythematosus, the type generally observed in long-standing cases.

THE VALUE OF TUBERCULIN TR AS A DIAGNOSTIC AND THERAPEUTIC AGENT

IN THE RECOGNITION AND TREATMENT OF TUBERCULOSIS OF THE EYE; WITH REPORT OF CASES.*

CHARLES STEDMAN BULL, A.M., M.D.
NEW YORK.

Tuberculosis of the eye and its adnexa is a rather rare disease, though I believe not so uncommon as reported, for its presence is sometimes not recognized from lack of observation. We know that all parts of the eye may suffer secondarily from extension of the disease from lesions elsewhere in the body, yet it is a well-recognized fact that the ocular lesion may be primary, and the only existing focus of infection in the organism. It seems to be a well-established fact that tuberculosis attacks by preference the posterior segment of the eyeball, especially the more highly vascularized portion, like the chorioid, extending to the retina and thence by the blood vessels to the anterior segment of the eye. When the disease spreads from the interior to the exterior, the foci of disease may always be found at the filtration angle. The presence of indurated glands in anterior tuberculosis of the eye is not pathognomonic, but is of great diagnostic value, for statistics show that enlarged glands are found in about 85 per cent. of these cases. The microscopic examination of these glands does not necessarily render the diagnosis of tuberculosis certain, even if numerous giant cells are found, and the bacteriologic examination must prove the presence of the tubercle bacillus.

DETERMINATION OF NATURE OF LESION.

To determine positively the tuberculous nature of an ocular lesion, we must apply three tests, viz.: 1, histologic; 2, experimental; 3, bacteriologic.

Histologic Test.—The respective value of these tests is well described by E. Treacher Collins,[1] who states that the reaction of the tissues to the tubercle bacillus consists of an aggregation of cells made up of a central giant cell, the so-called Langhans' cell, epithelioid cells, and marginal lymphocytes. These cell aggregations may undergo caseous degeneration or a general cicatricial fibrosis. These three conditions, the cellular aggregation, the giant-cell system and the caseous degeneration, found together in a tissue, make the diagnosis of tuberculosis practically certain; but the presence of any one of them alone is not sufficient proof.

The Experimental Test.—This consists in the inoculation of tuberculous tissue in the eyes of rabbits or guinea-pigs, and the most suitable situation is the anterior chamber. The tissue to be inoculated may be taken from any part of the organ, but must be entirely free from any suppurative organisms. The results of these inoculations of tuberculous material into the anterior chamber have been so generally successful that we have come to look on the experimental test as the most certain of all. The immediate reaction after such an inoculation is very slight. By the end of a week the piece of tissue has been absorbed, and the eye looks normal. After a period varying from ten to twenty days the iris becomes inflamed and shows small gray nodules scattered all over the surface, which grow larger, coalesce and sometimes fill the anterior chamber and invade the cornea. General infection of the animal soon follows.

The Bacteriologic Test.—The presence of the tubercle bacillus in the tissue is conclusive proof of its tuberculous nature, but failure to find the bacillus after the most careful search can not be regarded as disproving the tuberculous nature of a lesion. In some cases the bacilli are limited in number, notably in chronic cases.

MODE OF ENTRY OF BACILLUS IN EYE LESIONS.

The postmortem table has often taught us that many tuberculous lesions exist without giving any clinical evidence of their presence. We know that endogenous infection of the posterior segment of the eye occurs in acute dissemination tuberculosis, and also in connection with the chronic tuberculosis of the skin, bones and joints. But we occasionally see cases of tuberculosis of the eye, both intraocular and extraocular, without the slightest evidence of the disease in any other part of the organism at the time, though they may have developed later.

We are inclined to believe that, except through some perforating wound or loss of substance, the only other port of entry for the tubercle bacilli would be the lymphatic or blood circulation. But we have no positive evidence that the bacilli can enter the blood current, except by direct inoculation or the involvement of the blood vessel in a nodule of the disease. Hence the development of tuberculosis of the eye through the blood is always secondary to a tuberculous focus elsewhere.

We know that tubercle bacilli may pass through the mucous membrane of the bronchial tubes or of the intestinal tract and be absorbed by the lymphatics into the glands where they are arrested and infect these glands.

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[1] Ophthalmoscope, January, 1907.

In ocular tuberculosis there is frequently a history of tuberculosis in the family, and it is significant that the intraocular form of the disease is most common in children. It is probably certain that in all the intraocular tuberculous lesions the eye becomes infected by the blood current, and the bacilli would be most likely to be arrested and set up foci of disease at points where the finest vessels exist or at bifurcations of minute capillaries.

REAL NATURE OF TUBERCULOUS PROCESS.

The real nature of the tuberculous process in the body is still somewhat of a *terra incognita*. It seems probable that the tuberculous infection gives rise to multiple forms of intoxication, of which we as yet know little. The renewal of these various toxic processes occurs so constantly that our present means of investigation are insufficient to enable us to understand them, and for this reason the problem of tuberculous experimentation becomes very complicated. The tuberculous lesions develop slowly, especially in the posterior segment of the eye, whether the toxic product acts from a distance through the blood or from the presence of bacilli at the site of the lesion.

TUBERCULIN TREATMENT.

The tuberculin TR supplied by Merck is produced by triturating the dried cultures of the tubercle bacillus, digesting the resulting powder with distilled water and then rapidly rotating the solution by centrifugal force. After the centrifugal rotation has been carried on sufficiently long, the upper clear layer is poured off and the remainder further treated as before until complete solution is obtained. Then 20 per cent. glycerin is added. The solution then contains 0.1 c.cm. of solid matter in one centimeter.

The injections should be made, as a rule, every second day, beginning with a dose of 0.002 mg., and this dose should be gradually increased, but avoiding as far as possible febrile attacks.

There seems to be now no reasonable doubt that in tuberculin we have a valuable diagnostic agent. The diagnosis of tuberculous disease of the eye may be regarded as established in a given case, if the following conditions are noted: First, the undoubted constitutional reaction as shown in the typical sudden rise and fall of temperature, amounting to 2 or 2.5 degrees, accompanied by a chilly feeling and some pain in the joints; second, by repeated local reaction in the eyes, when the dose of tuberculin injected has reached the physiologic limit, as shown by marked increase in the ciliary injection and in the swelling and vascularity of the tuberculous nodules in the parts involved; third, if there be a hitherto unsuspected focus of disease in the bronchi or lungs, there will be a regular afternoon rise of temperature and a slight cough.

It is wise to begin with the smallest possible dose, in view of a possible profound general reaction. A failure to obtain a general and local reaction after one injection is not at all conclusive, but it should be thoroughly understood in advance that the diagnosis of the real tuberculous nature of a lesion can only be made when the rise in temperature is accompanied by distinct local reaction in the eye; but it can not be claimed that even this is positively conclusive.

The manner in which the injection of tuberculin TR proves of benefit or effects a cure is still somewhat obscure. It might seem from certain clinical observations that tuberculin does not directly cure, but merely retards, or arrests, or improves the tuberculous lesion. The production of antituberculin in the body can not be very great, for small amounts of tuberculin injected after weeks or even months in a given case will induce the typical reaction. Hence the immunity induced by an injection of tuberculin is merely relative, limited both quantitatively and as to time. The tuberculin seems sometimes actually to cause the diseased process to assume an acute course, and thus render the healing possible. It is rare that any beneficial effect from the injection of tuberculin is noticed before the lapse of two or three weeks from the first injection.

Before beginning the treatment it is well to begin taking the temperature of the patient three or four days before the first injection. Beginning with a dose of 0.002 mg., the strength of the injection may be gradually increased to 0.5 c.cg.

In summarizing the reports of the numerous authors which have been published during the last five years, it would appear that even by the most enthusiastic advocates of this method of treatment much less can be claimed for the value of tuberculin as a therapeutic agent than for its value as an aid to diagnosis, especially in cases of intraocular tuberculosis of the posterior segment of the eye. Tuberculosis of the chorioid and retina is apt to be of a chronic, non-virulent type and with a more or less pronounced tendency to spontaneous healing. These cases can undoubtedly be helped by tuberculin, though the disease may not be cured. Experiments with animal inoculation would seem to prove that the relatively favorable course of this chorioidal tuberculosis is due to the infection having been transmitted through the blood vessels, while the introduction into the eye of tuberculous material from without always causes a virulent inflammation.

My own cases here reported were all from my private practice and were all cases involving the lids or the conjunctiva, cornea and iris. I have not used tuberculin injection in any case of tuberculosis of the chorioid or retina. Of the ten cases reported, four were tuberculosis of the eyelid, one or both; three were cases of tuberculosis of the conjunctiva, which involved the episcleral tissue and the sclera secondarily; one was tuberculosis of the cornea, and two were tuberculosis of the iris. In both the latter cases the cornea and ciliary body were involved. In the observation and continued treatment of these cases I have come to the same conclusions as von Hippel.[2] It is all important to continue the injections for a somewhat lengthy period, several months, in order to prevent the occurrence of relapses. They must be continued until all nodules have been replaced by cicatricial tissue, all ulcerations are healed, until the swelling and vascularity of the iris have disappeared, and until all deposits on the posterior surface of the cornea and all opacities in the vitreous have been absorbed. In some cases the treatment, with occasional interruptions, must last five or six months.

By this treatment the tubercle bacilli are not killed, but the tuberculin TR excites a reactive inflammation in the surrounding tissue, in which scar tissue is formed. This should be the object of the treatment and is best obtained, as von Hippel states, by the use of small, gradually increasing doses of TR, which cause no apparent increase in the inflammatory symptoms. Relapses are frequent, but become less likely to occur if the treatment is carried out for months. I am not prepared to accept the very optimistic dictum of von Hippel, that "this remedy, properly handled and employed for months, will cure the severest cases of ocular tuberculosis with maintenance of vision." But I believe that it is a remedy of considerable value, and that in small doses, properly employed, it will not act unfavorably on the general health. By this method, in the course of two or three weeks, the ciliary injection diminishes, the deep corneal opacities begin to clear up, the nodules in the iris grow smaller and less vascular. In the course of the second or third month the ciliary injection disappears, the cornea becomes transparent or nearly so, the nodules disappear from the lids, the sclera or the iris, and a gray cicatricial tissue takes their place. The vitreous opacities last much longer, and may never entirely disappear.

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[2] Archiv. f. Ophth., lix, 1.

Case 1.—Tuberculosis of left upper lid, including the conjunctival surface.

Patient.—A young woman, aged 29, was first seen in October, 1900, and gave the following history: About three months previously a small nodule appeared on the edge of the left upper lid in the outer-third. It resembled a stye and at first gave no trouble. It soon began to spread in both directions, but was not ulcerated. The patient was apparently in good health, but gave a history of some obstinate intestinal trouble three years before. Two cases of pulmonary tuberculosis in the family, a sister and a maternal uncle, with fatal termination.

Examination.—When I saw her, the lesion involved the outer two-thirds of the lid, and extended well toward the upper margin of the tarsus. The margin of the lid was ulcerated and the ulceration extended upward on the inner surface of the lid for about 4 mm. The ocular conjunctiva and cornea were normal. The surface of the ulceration was pale and granular. The pre-auricular gland was swollen, and so were three of the upper cervical glands. Interior of the eye was normal, and vision was unaffected. The clinical picture was one of tarsitis.

Treatment and Result.—The ulcerated surface was curetted and the fragments removed showed under the microscope giant cells and lymphocytes, but no bacilli. The first injection of the minimum dose of T.R. gave the typical general reaction, but it was not until the third injection that any local reaction occurred in the eye and then it was decided by considerable swelling of the lid, injection of the conjunctival vessels, and increased secretion from ulcerated surface, and more marked swelling of pre-auricular gland. This patient received injections on alternate days for three weeks, and afterward two injections weekly for two months longer, and then one injection weekly for two months and a half. The dose was gradually increased from 2 mg. to 0.5 cg., which was the largest dose given. In all, the patient received forty-one injections, and the treatment extended over a period of five and a half months. There was no demonstrable effect until after the ninth injection, when the ulcerated surface began to clear up and the whole tarsus became softer. These changes continued until the lid could be everted easily and the ulcerated surface began to heal. At the end of the third month the edge of the lid and the conjunctival surface showed a smooth cicatricial appearance, and the lid had regained its normal thickness and appearance, except for a small node at the external canthus. About the middle of the fourth month the appearance was normal and swollen glands had disappeared. There has been no return of the disease.

Case 2.—Tuberculosis of cornea and conjunctiva.

Patient.—A girl, aged 15, first seen in December, 1902, gave a clear tuberculous history on the paternal side for three generations. One brother died in infancy with some intestinal trouble.

History.—The patient had always been frail and anemic, but had no pulmonary or intestinal symptoms. One year before I saw her the right eye became inflamed and she was told that the eye was ulcerated. After some months the inflammation subsided, but one month ago there was a relapse.

Examination.—When I saw her there was a dense, deep infiltration of the cornea in the inferior segment, occupying about one-third of the corneal diameter, and in the ocular conjunctiva were a number of small nodules. In the cornea were three small grayish-yellow foci, and there were a number of new-formed vessels running from the periphery toward the foci. The iris and pupil seemed normal, but the ciliary injection was marked. The pre-auricular gland was enlarged and sensitive to the touch, but there were no enlarged cervical glands. A careful examination of the lungs revealed no evidence of tuberculosis, and the gastrointestinal tract seemed normal as to its functions.

Treatment and Result.—The first injection of the minimum dose of tuberculin TR gave a pronounced typical reaction in the rise and fall of temperature, but no local reaction. The second injection, two days later, was followed within three hours by very decided reaction in the eye, the ciliary injection and all the clinical symptoms being made much worse, and this local reaction continued for more than a week. This patient received two injections a week for twenty successive weeks, and subsequently one injection weekly for five weeks longer, the total number of injections being forty-five, and the dose was gradually increased to the maximum of half a centigram. Improvement began after the fifth week, the ciliary injection becoming less marked, the miliary nodules in the adjacent conjunctiva becoming flatter, and the vessels in the cornea fading out. After the tenth injection the pre-auricular gland began to soften and in the course of two weeks the enlargement disappeared. After the fourth month all the ocular symptoms had subsided, except a small, somewhat dense opacity of the cornea near the lower margin, and this still remained when I last saw the patient, three years after the treatment was stopped.

Case 3.—Tuberculosis of conjunctiva and sclera.

Patient.—A girl, aged 15, was first seen in March, 1903. There was no tuberculosis in the immediate family, but there had been in preceding generations.

History.—She had had ophthalmia neonatorum, but recovered with transparent corneæ. At the age of 12 I had fitted her with compound astigmatic glasses, on account of eyeache and headache. In January, 1903, she had a severe and prolonged attack of what appeared to be catarrhal conjunctivitis, but I did not see her, as she was at boarding school. From this the right eye recovered eventually, but the left eye showed a swelling on the temporal side of the eyeball, for which she was brought to me.

Examination.—I found an irregular fan-shaped thickening of the conjunctiva on the temporal aspect of the left eye, beginning at the external canthus, but stopping short of the corneal margin. About the center of this swelling could be felt and seen a distinct thickening and elevation of the sclerotic, but no ulceration. The pre-auricular gland and two cervical glands were enlarged.

Treatment and Result.—The first injection of tuberculin caused neither general nor local reaction. The second was followed by well-marked general reaction, but there was no local reaction until after the fifth injection, and this was only moderate. The patient was under treatment for five months and received in all fifty-four injections. Improvement began in the fourth week and advanced very slowly until at the end of the fifth month all the symptoms had subsided, leaving a somewhat discolored patch where the scleral infiltration had been located. There has been no return of the ocular lesion.

Case 4.—Tuberculosis of the iris.

Patient.—A girl, aged 12, was brought to me in April, 1903, with the following history:

History.—She had had what was probably double iritis during an attack of inflammatory rheumatism six months before; the iritis lasted nearly two months, but finally cleared up and vision was restored to the normal. One week before I saw her the mother noticed a peculiar appearance in the right eye.

Examination.—I found in the infero-temporal quadrant of the iris a yellowish-red nodule, the size of a large pea, extending from periphery to ciliary margin, filling the angle of the anterior chamber and pressing against the cornea, and several smaller nodules in other parts of the iris. There was considerable ciliary injection and some pain. Syphilis could be absolutely excluded, and the diagnosis was between sarcoma and tuberculosis, with the odds in favor of the latter, as there was tuberculosis in the family, and the growths were multiple. The cornea over the tumor was striated. The rest of the media were clear, and the tension was normal. The pre-auricular gland was enlarged.

Treatment and Result.—This was the first case of tuberculosis of the iris in which I had an opportunity to try the treatment by tuberculin. The first injection produced very active general reaction, which lasted for nearly an entire day, and a decided local reaction in the eye, in which the nodule seemed to swell. Tuberculin was injected three times a week for ten consecutive weeks, and then once a week for four weeks longer, the patient receiving in all thirty-four injections. A noticeable improvement began at the end of the third week, the first symptom to disappear being the ciliary injection. At the end of the fourth week the smaller miliary nodules seemed to melt away, and the larger tumor began to contract. At the end of the tenth week this large tumor had all gone, the iris was discolored, but not perceptibly thinned, and the pupil could be dilated *ad maximum.* I saw this patient eighteen months later, and there had been no return of the growth.

Case 5.—Tuberculous tarsitis of lower lid.

Patient.—A boy, aged 4, was first seen in April, 1904. His father died of pulmonary tuberculosis. The child had been well until three years old, when his mother noticed a swelling at the outer corner of the right lower lid. It was painless and there was no injection of the vessels or secretion. The swelling slowly increased without any other symptoms until one month before I saw him, when it became sensitive and a thin discharge appeared.

Examination.—When I saw him the outer four-fifths of the lid were involved, the tumor reaching the lachrymal punctum and involving the whole diameter of the lid from ciliary margin to near the orbital margin. On everting the lid, three points of ulceration were seen on the surface of the conjunctiva; one was rather large, but all were shallow and the base covered with miliary nodules. The pre-auricular gland and several cervical glands were enlarged and hard. The boy's general condition was bad. There were no evidences of pulmonary complication, but the bowels were very loose and he complained of abdominal pains.

Treatment and Result.—The first injection of the minimum dose caused pronounced general reaction and the second dose caused an increase in the swelling of the lid and in the amount of secretion. The general reaction was so severe that after the first week only one injection was given each week for four weeks. At this time the whole lid began to soften, the conjunctiva became less swollen, the sensitiveness disappeared, and the ulcerated surface began to clear. The boy was under constant treatment for five months, and received thirty-nine injections, the maximum dose being 0.012 mg. At the end of the fourth month the symptoms had all practically disappeared, but the treatment was continued for a month longer, as the patient's general condition was very much improved. There has been no return of the ocular disease, but the boy evidently has intestinal tuberculosis.

Case 6.—Tuberculosis of all four eyelids.

Patient.—A little girl, aged 5, was first seen in July, 1905.

History.—The mother and maternal grandmother died of pulmonary tuberculosis, in spite of all that the possession of great wealth might do to prevent a fatal termination. The patient had always been frail, had a faulty digestion, and was of an excitable, highly nervous temperament. Two months before I saw her, a small lump appeared in each upper lid, and subsequently several others developed in both lids.

Examination.—When I saw her there were two small nodules in the right upper lid, one in the right lower lid, looking exactly like small chalazion. The whole of the left upper lid, the external canthus and the outer-third of the left lower lid were hard and swollen, but there was no ulceration of either skin or mucous surface. The pre-auricular gland and all the cervical glands on the left side were involved. The eyeballs were intact. Congenital syphilis could be positively excluded. A careful examination of the child revealed no other foci of disease. The urinalysis was normal, but the blood count showed a marked diminution in the number of red-blood cells.

Treatment and Result.—The first injection gave a decided general reaction and also a local reaction, the ocular conjunctiva becoming injected and edematous. The injections were given twice a week for twenty weeks. There was no sign of improvment till the end of the third week and then the lids of the left eye began to soften and the swelling diminished. At the end of the sixth week the nodules in the lid of the right eye had disappeared. By the end of the fourth month the upper and lower lids of the left eye had regained their normal dimensions and mobility, though the upper lid was still somewhat stiff. The child's environment had been of the best and she passed most of the day in the open air, and her general condition had greatly improved. She took forty injections, the maximum dose being 0.2 mg. The child has been under observation ever since and there has been no return of the lesion.

Case 7.—Tuberculosis of conjunctiva and episclera.

Patient.—A little girl, aged 5, was first seen in January, 1905.

History.—No tuberculosis existed in the immediate family, but there were several cases in collateral relatives. The child was small for her age, but in excellent health. The disease began about a year before I saw her in persistent redness of the ocular conjunctiva, in the supero-temporal quadrant of the right eye, which in the course of a few weeks was followed by a series of small, miliary nodules. There was no pain, and at first no secretion. The redness and thickening of the conjunctiva gradually extended inward, outward, and downward, until when I saw her, it involved the entire temporal half of the ocular conjunctiva, and extended almost to the corneal margin.

Examination.—The whole tissue was much thickened and elevated, and presented a number of small nodules of a reddish-yellow color. A careful examination of the child did not reveal any other foci of disease. Media were clear and fundus was normal. The pre-auricular gland was enlarged, but there was no hypertrophy of the cervical glands. A portion of thickened tissue was removed for microscopic examination, but though numerous giant cells were found, there were no bacilli. A small piece was inserted into the anterior chamber of a rabbit, but caused nothing but a slight reaction which soon subsided.

Treatment and Result.—The first injection of tuberculin caused the typical general reaction, and the fourth a rather violent local reaction in the eye, with marked increase of the redness and swelling. This child received an injection twice a week for six weeks. Then owing to an attack of tonsillitis the treatment was discontinued for ten days. It was then recommenced and two injections were given each week for ten successive weeks. I could not discover any improvement until after the third week. Then the nodules seemed to flatten, coalesce and become merged with the general thickening of the conjunctiva, and the vascularity began to diminish. At the end of the third month the swelling had all gone, but the vascularity still persisted for another month. The child received in all thirty-two injections, beginning with the minimum dose and gradually increasing it to the maximum 0.5 mg. I saw the patient recently and there was no return of the lesion.

Case 8.—Tuberculosis of the iris.

Patient.—A young man, aged 23, was first seen in September, 1905.

History.—He came of a tuberculous family on the paternal side, but his boyhood and youth had been healthy. For more than a year he had been treated for some obscure intestinal trouble, and also for an obstinate hypertrophic rhinitis. Two months before I saw him there appeared slight redness of the right eye on the nasal side, which persisted, and later the iris was discolored.

Examination.—When I saw him there was marked ciliary injection inward and downward, the inner half of the iris was discolored, there were posterior synechiæ, and in the infero-nasal quadrant was a yellowish-red nodule, as large as a pea, attached to the periphery of the iris by a broad base, and filling the angle of the anterior chamber. In the upper segment of the iris were two smaller nodules, projecting into the anterior chamber. The pupil could only be dilated upward and outward. The vision proved to be only 15/200, and the ophthalmoscope showed a few yellowish red patches of exudation in the chorioid, all recent. These were not exactly like chorioidal tubercles, recently developed, though free from pigmentary deposits, but taken in connection with the nodules in the iris, their appearance was suspicious.

Treatment and Result.—The first injection of tuberculin gave both a general and local reaction, and the latter lasted for nearly a week, and was doubtless kept up by the following injections. This patient was under continuous treatment for about four months and received in all forty-six injections. An improvement was noticed after the third week, but the symptoms disappeared very slowly and it was not until three months and a half had elapsed that the eye regained its normal external appearance. The adhesions of the iris were all broken, and the iris regained its mobility and round pupil. The chorioidal patches flattened and faded, but did not disappear. Vision was eventually improved to 15/30. The other eye remained intact, and the general health of the patient was improved.

Case 9.—Tuberculosis of conjunctiva and cornea.

Patient.—A young woman, aged 17, was first seen in October, 1905, with absolutely no tuberculous family history, and with the exception of an obstinate constipation, was in good health.

History.—Two months before I saw her the right eye became inflamed on the temporal side near the cornea, and there was some dull pain. The symptoms gradually grew worse, and when I saw her the ocular conjunctiva on the temporal side was very much thickened from the external canthus to the cornea.

Examination.—The appearance was that of an exaggerated pterygium with marked thickening of the conjunctiva and episcleral tissue spread out like an open fan, with the apex in the cornea. The latter was densely opaque in its lower half, and was ulcerated. The pre-auricular gland and the entire chain of cervical glands on the right side were enlarged. The upper part of the cornea was slightly hazy but the iris seemed normal, and the pupil reacted promptly. There was little or no secretion. A part of the thickened tissue was removed for examination, and showed numerous giant cells, but no bacilli. Inoculation experiments on a rabbit proved negative.

Treatment and Result.—The tuberculin TR injection gave promptly the general reaction, but it was not until the fourth injection that any decided local reaction in the eye occurred. This proved to be the most obstinate of all the cases in resisting treatment. She received three injections a week for twenty-two weeks, and after that two injections per week for three weeks longer, making in all seventy-two injections. At the end of the six months the redness and swelling of the conjunctiva had all subsided, but the cornea remained cloudy in its lower third. The haziness of the upper part of the cornea had disappeared and vision was much improved. The gland enlargement had subsided except in one lower cervical.

Case 10.—Tuberculosis of conjunctiva and sclera.

Patient.—A boy, aged 14, was first seen in January, 1906.

History.—There was no tuberculosis in the family. The boy was in good health, but had suffered from a mild form of granular conjunctivitis in both eyes for some months. The left eye had been cured, but two months before I saw him a swelling or thickening of the ocular conjunctiva in the right eye, on the nasal side, appeared.

Examination.—When I saw him, the ocular conjunctiva was densely infiltrated from the caruncle to the corneal margin and about midway between the two there was a broad nodule with distinct elevation, the surface of which was ulcerated. The ulcer was shallow, and when cleaned, showed a reddish granular surface. The pre-auricular gland was enlarged. The cornea was clear and the iris normal. Conjunctival, ciliary and scleral vessels were engorged. No evidence of any pulmonary or intestinal disease existed, and if the ocular lesion were tuberculous, the infection must have come from without, through some abraded conjunctival surface.

Treatment and Result.—The first injection of tuberculin proved negative, as did also the second. The third injection, however, still of the minimum dose, gave a marked general constitutional reaction, and a slight reaction in the eye. At the fourth injection the dose was increased and caused a rather alarming increase in the injection and swelling of the conjunctiva, so that cold applications became necessary for twenty-four hours. This excessive reaction never occurred again. This patient was treated for five months, receiving in all sixty-two injections, but was discharged not cured, though somewhat improved. The ulcerated surface healed, and the large nodule softened, flattened and finally disappeared, but the general thickening of the conjunctiva and sclera remained, though decidedly less marked than at first. The ciliary injection disappeared and the conjunctival vessels were reduced in caliber, but very little impression was made on the scleral congestion. This case proved rather discouraging in the results gained from the treatment.

DISCUSSION.

Dr. W. H. Snyder, Toledo, Ohio, thought the results had been rather satisfactory, at least in the hospitals in which he has seen this work, with the ordinary and usual injections of tuberculin. A friend of his who has been doing this work for some years makes the positive statement that the injections given are much too strong, and much too frequent, and that about 1/100 of the dose should be given and the injections not oftener than two weeks. This gentleman is trying now to get a symptomatic index; a list of symptoms by which he can differentiate and tell when he can make the injections safely without making the opsonic count. His patients have done better under the new plan than under the old methods. Dr. Snyder said that it has been found that large injections given frequently, as has been customary, make a negative phase which lasts too long, and before the patient can recover another overwhelming dose is given, while the best seemingly can only be reached by making an opsonic count to determine the absolute result obtained.

Dr. S. L. Ziegler, Philadelphia, stated that, of course, the opsonic index is the most important question to be considered now. The cases are to be observed most carefully by the clinician and the pathologist, but, as far as the application to work is concerned, the most important thing is to be able to make an early diagnosis of tuberculosis. The most provoking thing, he said, is to have a patient under observation for a considerable period without even suspecting tuberculosis. As soon as tuberculin is used there is a reaction; it may be local, or general; it will probably be both. Therefore, make the diagnosis as soon as possible so that the tuberculin can manifest its effect before the beginning of encapsulation. That gives the tuberculin an opportunity to get in its work early.

There are a number of lesions that are most interesting, but the one that has fallen most under Dr. Ziegler's observation is tuberculous keratitis. This must be differentiated from the specific variety of interstitial keratitis, which it very closely resembles. The characteristics are manifest; there is not quite the typical salmon-colored patch, but a rather close resemblance. Following that comes the isolation into nodes, and then the diagnosis can be made, but by that time there are deposits in Descemet's membrane, and vision will ultimately be lowered. Dr. Verhoeff has called attention to the presence of scleritis or episcleritis in these cases, and Dr. Ziegler thinks that is true. Many of his cases have first had an episcleritis, and as this disappeared or broke down the corneal lesion began. He does not think, however, that every case of episcleritis is tuberculous, but the suggestion is worthy of consideration—the test with the tuberculin method can be made.

Dr. Ziegler uses the "old tuberculin" of Koch. The TR. is rather a dangerous product to produce, as it is made from the active germs, triturated, dissolved, centrifuged and decanted. It is usually imported. The old tuberculin is simply a culture on glycerin broth, in which the growth is destroyed by a blast of superheated steam. It is made in this country, is not so dangerous as TR., and, though milder, has equal therapeutic value. Dr. Ziegler has found it thoroughly efficient.

Dr. Herman Knapp, New York, referred briefly to one of his contributions on tuberculosis of the eye, which was one of the papers in the Jubilee volume dedicated to Prof. H. von Helmholtz, by the Heidelberg Ophthalmologic Society, in which he showed that there are two types of tuberculosis of the eye, which are an extension through the lachrymal duct of lupus in the nose. A small piece of tissue was taken from the conjunctiva, and inserted in the anterior chamber through a small opening in the upper part of the cornea. After four weeks the reaction was manifested. The iris and the ciliary body were swollen, but there was no circumcorneal congestion. The iris lacked luster and the pupillary ring was irregular. On the surface of the iris, there were many small white nodules, which gradually became fewer in number and smaller in size. The disease eventually seemed to disappear, yet, after several months, the eye again inflamed.

Dr. William H. Wilder, Chicago, pointed out that the followers of Wright and those who are studying the subject of tuberculosis from the standpoint of the opsonic index believe that it is dangerous to inject tuberculin without knowing first what the opsonic index is. If they are right in their conclusions, it is possible to determine by an estimation of the opsonic index whether there is any likelihood of the presence in the body of a tuberculous focus, because they claim that the wave of the index will be persistently lower than normal, except at such times as the individual is reinoculated from some tuberculous focus. That opens up a wide field of inquiry and if it is possible physicians should make such tests in their cases. But, if another observation is true, that of the pathologist, that in all cases that come to necropsy a large percentage show some tuberculous lesion somewhere in the body, we can appreciate the difficulty at arriving, from an ophthalmologic standpoint, to a clear knowledge of whether we are dealing with a tuberculous lesion in the eye. If we do get the lower wave it may indicate a lesion in some remote part of the body. So it seems that we can not rely absolutely on the conclusions of these men as to a diagnosis of an ocular condition. It would seem, therefore, that if we can resort to the old tuberculin we may be able to arrive at some positive conclusion. It would be well to study the case with the opsonic index, but at the same time, if we get the lower wave, we can with safety use the old tuberculin in 1 mg., later 3 mg., and then 5 mg. doses, because what we want to learn is whether the lesion we are studying is tuberculous, and if it is, we will also get a distinct local reaction, characterized by ciliary injection and increase of the symptoms. Of course, this must be done with careful taking of the temperature, and reducing any ciliary injection that may exist.

Dr. John E. Weeks, New York, asked, in regard to the study of the opsonic index and of the production of opsonins in tuberculosis, whether it is of any particular value; can one rely on what is found? This question has been brought into doubt by the experiments that have been made by the bacteriologists of the Board of Health of New York. Dr. Parke has devoted much time to the study of this question and has found by control experiments that the opsonic index of quite a large number of individuals in health varies very markedly. He has found that he may take within an hour a half dozen specimens from the same individual, and there will be a difference in the index of at least 20 per cent. This has been found not only from his own work but also from the work of an assistant of Wright's, who has worked in Wright's laboratory for a long period of time. So before one concludes that this method of study is of great value, it must be thoroughly sifted out. Another question Dr. Weeks raised is, does the disturbance in temperature occasioned by the injection of tuberculin, either of the old or new, give a positive diagnostic answer? If it is true that many cases of tuberculosis exist that are not suspected during life, one may, as Dr. Wilder said, get a reaction that is true and which may yet have nothing to do with the disease in the eye. It is thought by some investigators that tuberculin produces a reaction in certain conditions that are not tuberculous. If it is positive that the reaction due to the injection of tuberculin is only met with when tuberculosis is present, then there must be a local reaction in order to determine whether the process affecting the eye is tuberculous or not. The general reaction is not sufficient. One can make a diagnosis by methods other than tuberculin, as in tuberculosis of the iris. Therefore, he thinks it is unsafe to say that a disease of the eye is tuberculous unless one obtains a local reaction from tuberculin or can diagnose the case without the aid of tuberculin. Dr. Weeks has been struck with the remarkable results that Dr. Bull has been fortunate enough to obtain in many of his cases. In two of the cases of tuberculosis of the iris he has had recovery in two months. A patient he has had under observation has been under treatment 16 or 17 months without getting well. There has been reduction in the volume of the mass; it is a conglomerate tubercle of the iris, and the patient is undoubtedly recovering, but extremely slowly.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind., said that the reaction following an injection of tuberculin should not always be considered as conclusive evidence of the existence of tuberculosis in the patient, as there may be a coincident rise of temperature. He has seen coincident rise of temperature in two cases in which subsequent tuberculin injections produced no reaction. Two or more reactions following as many injections of tuberculin should be required to establish a diagnosis of ocular tuberculosis, and in addition to the general systemic reaction, there should be a local reaction in the eye. Another feature of significance in these cases which should always be looked for is the afternoon and evening rise of temperature. Regular afternoon rise of temperature occurs in every case of tuberculosis of the eye, and should be counted a manifestation of importance in arriving at a diagnosis. The rise may not be much, but even a slight rise is significant. The effect of tuberculin as a therapeutic agent is good in some cases, particularly those in which there are not extensive tuberculous lesions in addition to those in the eye. He has had under his observation for sixteen or eighteen months a case of tuberculous iritis in which there were numerous nodules in the iris, the diagnosis having been made by repeated diagnostic injections of tuberculin, the reaction occurring on several occasions. While the tuberculin treatment has produced a marked improvement in the general health, the ocular condition has not improved, but has continued on to practical destruction of the eye. It this case he noted that the injections had to be varied in amount and time of administration on account of varying effects. Perhaps the fluctuation of the opsonic index had much to do with the relative increased reaction at certain times.

Dr. G. W. Van Benschoten, Providence, R. I., stated that some years ago, while doing experimental work for tuberculosis in adenitis and tonsillitis, he saw two cases of what was diagnosed as phlyctenular keratitis, and in one child there was marked local reaction following the use of tuberculin. This subsided in several days, but the process continued. In about three weeks another injection was given, with a severe reaction taking place in the eye. He wondered if this could possibly be a tubercular condition causing the phlyctenular keratitis. No further experiments were made in the use of the tuberculin in this case, but more recently, in view of the literature on the subject, he has wondered if that condition was tuberculous. The case was a long-standing one, clearing up at times.

Prof. Carl Hess, Würzburg, Germany, has used tuberculin for diagnosis in about 100 cases, and has been astonished to find in more than 50 per cent. of them that there was a general reaction. In Germany it has been believed for 15 or 16 years that iritis may be caused by any tubercular disease. Local reaction was found in one or two cases. As to treatment: Tuberculous disease of the eye may heal without any treatment. That seems to be a contradiction of the generally held views and when it was first learned that these cases might be tuberculous he thought it must go on until the whole eye is destroyed. There has been observed a most interesting case in a child of four or five years, where there were many little nodules in the iris. Some of these were excised and injected into the eye of a rabbit, and proved to be tuberculosis. Nevertheless, the eye healed without treatment.

There are, he said, many diseases of the cornea which we do not know the cause of, especially interstitial diseases. Of course, about 80 per cent. of these are due to syphilis, but he believes many are due to tuberculosis. He has seen one or two cases in which after the injection of tuberculin there was a reaction, and it would be very interesting to clear up these cases experimentally. It has repeatedly been noticed after the inoculation of rabbits that opacities similar to those of interstitial keratitis were produced. It seems probable, he said, that some cases of interstitial keratitis are of tubercular origin. The most difficult question is that of phlyctenular disease. It has been said that these cases are caused by the staphylococcus and that by introducing staphylococci into the sac one can produce phlyctenules, but Dr. Hess is convinced that it has nothing to do with the staphylococcus.

Dr. C. S. Bull, New York, said that he approached this subject in the beginning from a skeptical standpoint. He is still largely a skeptic, especially as to the effects of tuberculin as a method of treatment. In some of the cases reported in his paper after an interval had been allowed to elapse since the last injection of tuberculin, he injected hypodermically bichlorid of mercury; in another saturated solution of chlorid of sodium. In every one of these cases he got a general reaction, with rise of temperature, sometimes as much as 2 degrees, showing that there are other substances that will produce this reaction. But, he did not in these get any local reaction.

It is alleged, he said, that one must begin with minute doses, watch the effect and if the general reaction be severe, let the interval between the injections become longer and longer. Some years ago he was using the old tuberculin in a number of cases of supposed tuberculosis as a method of treatment and got absolutely no results. The reactions from the new tuberculin are sometimes very severe, and it can not yet be stated positively whether or not the theory of the opsonic index in these cases is of any value, and in the case of new ideas or the application of new remedies it behooves the conservative man to go slow. It is known that many of these cases, especially those of tubercular iritis, heal without any specific treatment. Therefore, Dr. Bull still stands in the position of a skeptic.

A PARABOLIC REFLECTOR FOR THE ILLUMINATION OF TEST-TYPES.*

MORTIMER FRANK, M.D., B.S. (Mass. Inst. Tech.)
CHICAGO.

Under present-day considerations it is imperative that artificial illumination be used for the lighting of test-types. The quality of the light produced, its location and distribution with reference to its proper reflection, are matters which have to be observed in order to obtain an even and constant illumination over the whole surface of the card. The ideal condition, that of daylight, which we should endeavor to imitate, is one of nearly perfect diffusion. An even illumination over the whole surface of the test-type card, approximating daylight, can only be obtained with artificial lighting by means of a proper reflecting surface. The most common fault with the lighting of test-types is the improper care in the selection of the reflector and the position of the lamps. The reflector has been installed and selected in a haphazard way, and the resulting illumination left to be what it may. As a consequence, with installations of this kind there are spots and streaks of light on the surface of the card, plainly indicating the location of the lamps, and the obvious difference of intensity on the portions of the card farthest removed from the light source. Believing that some attempt ought to be made to design a reflector based on exact scientific principles, so as to give uniform illumination under a simple law, the following problem was undertaken. The principle involved is the reflection from a paraboloid of revolution, viz., a beam of parallel rays falling on a paraboloid or light emanating from the focus of the paraboloid is reflected by the paraboloid as a beam of parallel rays. It is to be remembered that only when the luminous object at the focus is a point will rays diverging from it be reflected in a parallel beam. The nearest approach to parallelism occurs with the incandescent light, in which case the illuminated surface is very small. As a basis for calculation, one must first determine the point on a plane surface where the illumination is a maximum from the law, that the illumination of a plane surface by a luminous point varies directly as the cosine of the angle of incidence of the rays and inversely as the square of the distance of the luminous point from the surface.

Let P (Fig. 1) be the luminous point, at a distance a above the surface AD. To find the point B where the illumination is a maximum. By above law,

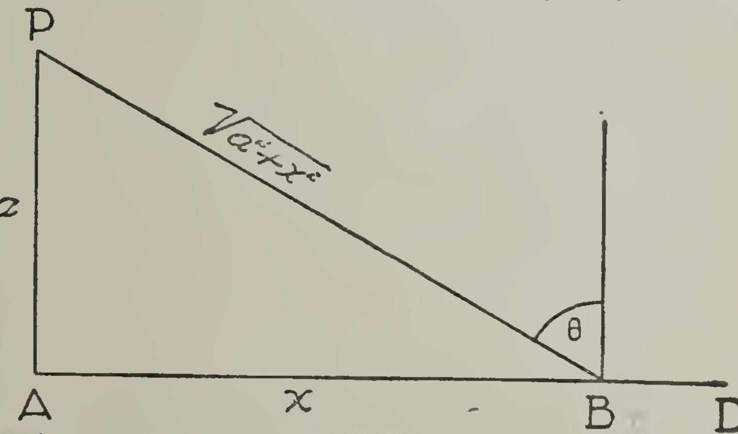

Fig. 1.—Diagram showing illustration of a plane by a luminous point.

$$\text{Ill.} = K \frac{x}{(a^2+x^2)^{3/2}}$$ where K is some constant.

$$\text{Let } u = \frac{Kx}{(a^2+x^2)^{3/2}}$$

For maximum value $\frac{du}{dx} = 0$,

$$\frac{du}{dx} = K\frac{(a^2+x^2)^{3/2} - 3/2x(a^2+x^2)^{1/2}(2x)}{(a^2+x^2)^3} = 0,$$

$$\text{or } K\,\frac{a^2+x^2-3x^2}{(a^2+x^2)^{5/2}} = 0,$$

$$\therefore x = \frac{1}{\sqrt{2}}a. \quad (1)$$

Let AC = 2.5 ft. (average length (Fig. 2) of card in use). Make AD = 3.25 ft. The value is arbitrary, but found to be the best value, as the longer CD is, the greater would be the length of BF. The value of CD was taken as small as possible and still have the card AC in full view of the patient's eye. Substituting the values of x and a in (1), we have:

$$\text{DF} = \frac{1}{\sqrt{2}}\ (\text{AD}) = 2.31 \text{ feet.}$$ The light is to be placed at F which is to be the focus of the parabola. Let FK = 1/3 ft., then FM = 2/3 ft. (law of a parabola).

By experimenting it was found that the best distance for FK, the distance from the focus to the vertex, was 4 inches, or 1/3 ft. If FK were much smaller, then the width of the reflector would be too small, and a larger value of FK would make the width unnecessarily large.

$y^2 = 4px$ (the parabola).

Therefore $4/9 = 4p\ (1/3)$, therefore $4p = 4/3$ and $y^2 = 4/3x$, is the equation of the parabola with focus at F.

The width of the parabola must be as great as CG and from similar triangles ACG and DBF, the value of

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*Read in the Section on Ophthalmology of the American Medical Association at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

CG = SR is found to be 1.9 ft., or approximately 2 ft. From the equation of the parabola $y^2 = 4/3x$, when $y = 1$, $x = 3/4$, that is KL = 3/4 ft. and FL = 5/12 ft. The focus is (1/3, 0), and LK = 3/4 ft., and LS = 1 foot.

Having determined on the kind of reflector and the illuminant, the next step in the problem is to find the distribution curve, in order properly to place the reflector so as to secure uniform illumination on the test-card. To the kindness of Mr. J. R. Cravath, an illuminating engineer, I am indebted for the following data with reference to the light distribution from an ordinary commercial parabolic reflector, using an incandescent lamp: The curve in Fig. 3 is Fig. 16 B, taken from a paper on "Data on Indoor Illumination," by Mr. J. E. Woodell.[1] This gives a photometric curve, showing the light distribution about one of the common parabolic reflectors known as the "D'Olier," No. 35. The reflector constructed on the foregoing calculations will not give a distribution of light similar to this in all planes, but it is safe to assume that in a plane at right angles to its axis the distribution of light is somewhat similar to that obtained from the D'Olier reflector shown in Fig. 3. In order properly to understand the theory of placing reflectors so as to secure an even illumination of test-cards, take an example, using the photometric test shown in Fig. 3. The dotted curved line which gives the distribution of light in a vertical plane at right angles to the lamp axis comes nearest to representing the conditions with the reflector constructed. The characteristic of this reflector, as well as of many other concentrating reflectors, is that the maximum candle power is obtained directly underneath the lamp when the lower edge of the reflector is placed in a horizontal position. The candle power rapidly falling off as the angle from the vertical increases.

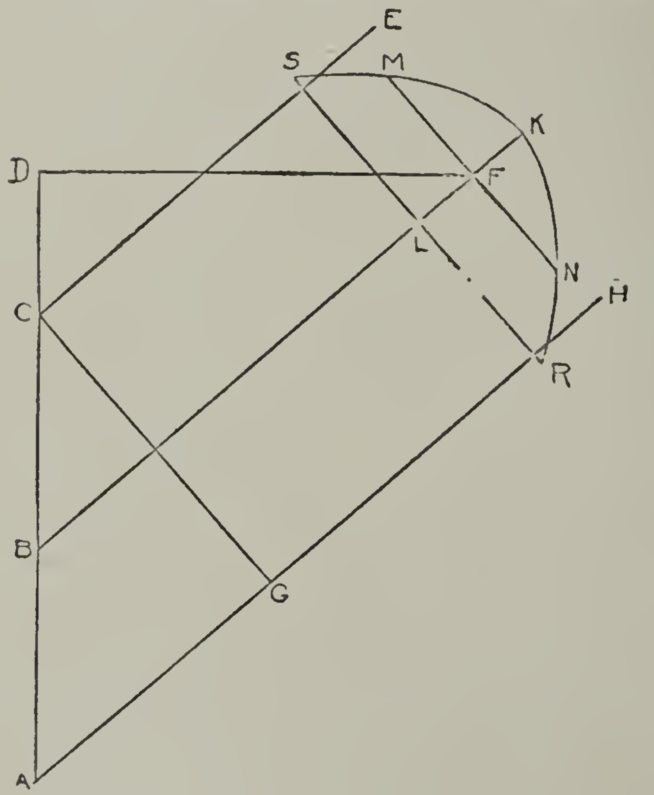

Fig. 2.—AC, card; SKR, reflector. Scale ¾ in = 1 foot.

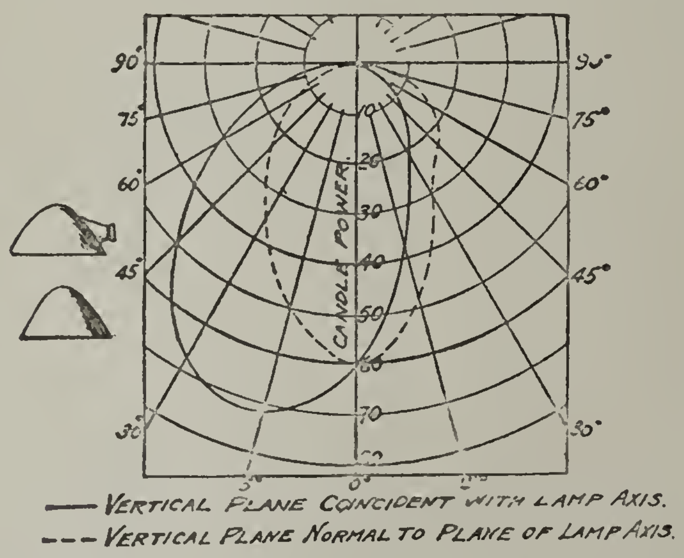

Fig. 3.—Photometric curve showing light distribution about one of the common parabolic reflectors known as the "D'Olier" No. 35.

This fact is of very great value in enabling us to place reflectors so as to illuminate test-cards and pictures evenly. It is of the utmost importance to have a uniform illumination over the entire surface of the test-card, because if the top is more highly illuminated than the bottom there is a possibility that it will affect the acuity of vision. In fact, if the top of the card is more brightly illuminated than the lower part, the lower part seems dark by contrast, even though the illumination on the lower part might be ample if the brightly illuminated upper part were not in view. Taking now the photometric curve of the reflector, as shown in Fig. 3, the problem is to determine the position in which to place the reflector so as to illuminate the test-card uniformly, and at the same time have it in a position where it will not be between the patient and the card, and also where the light will not shine in the patient's eyes. This can easily be done, for the reason that the illumination on any surface is according to the formula $I=\frac{cp}{d2}$ where I equals the illumination on the surface in foot candles. *cp* equals the candle power of the ray, and *d* equals the distance of the surface from the source of light. Now it will be apparent at a glance that the lamp in such a reflector can be so placed with reference to a test-card that the rays of maximum intensity from the reflector will fall near the bottom of the card, while the rays of less intensity will fall near the top, and we can thus approximate uniform illumination of the card, even though the top of it may be much nearer the source of light than the bottom.

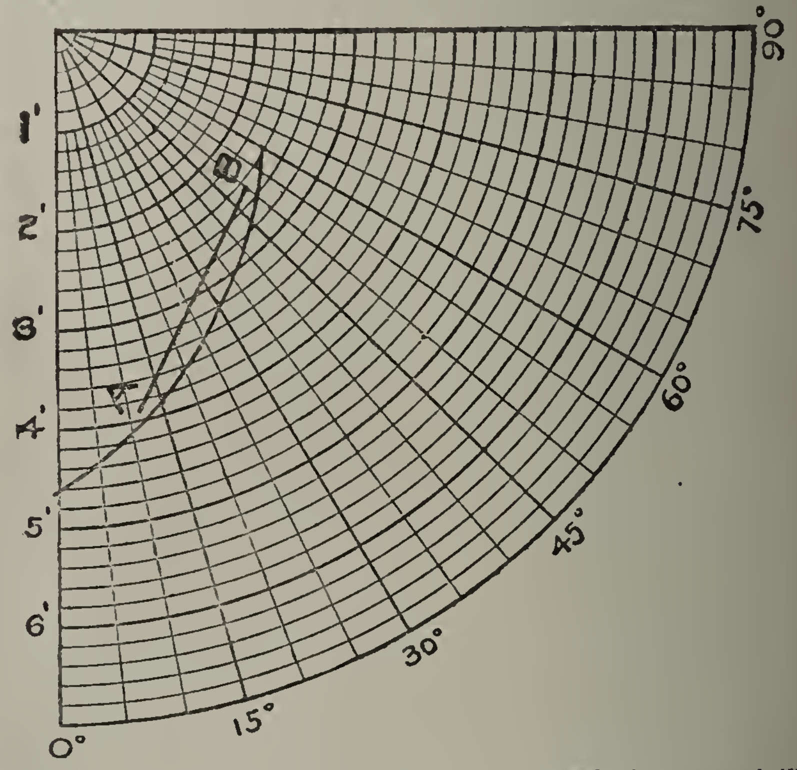

Fig. 4.—Curve showing distances in feet at which an equal illumination in foot candles would be produced by a "D'Olier" parabolic reflector. AB is proper position of card. Scale ½ inch = 1 foot.

The proper position of the source of the light with reference to the card can be determined by trial in a few seconds, but it is also interesting to work out the problem mathematically and see how nearly theory will check up with practice. To determine the proper position of the reflector by calculation, a curve of equal illumination is plotted for the reflector, as proposed by Mr. E. C. White[2] in a paper on "Application of Photometric Data to Indoor Illumination." Let us take the right-hand side of the dotted curved line in Fig. 3. Fig. 4 is a polar coördinate curve in which the distance from the center represents the distance in feet at which an even illumination in foot candles would be produced by a reflector giving a photometric curve, such as is shown in Fig. 3. The plotting of such a curve is a simple matter when we have the photometric curve as a basis, since the equal illumination curve is determined by the formula $d = \sqrt{\frac{cp}{I}}$ where d equals the distance in feet of the surface illuminated from the source of the light, cp equals the candle power of the ray, and I equals the illumination in foot candles. If I is taken as a constant quantity, then $d = \sqrt{cp}$ and the equal illumination curve represents simply the square root values of the photometric curve. Fig. 4 is plotted on a scale which gives the distances in feet from the lamp at which a uniform illumination of 3 foot candles, this value being assumed for purpose of calculation, would be obtained from the reflector shown in Fig. 3. Having this uniform illumination curve, we can at once draw in parallel to the curve the proper position or angle for the test-card. The proper position of the test-card is thus represented by the line AB in Fig. 4. As the line AB is at an angle of about 25 degrees from the vertical, and since the test-card is always hung vertical, it is to be noted that the reflector should be tipped at an angle of about 25 degrees from the horizontal, and that the top of the test-card should be about 15 degrees below a horizontal plane passing through the lamp. This corresponds very closely to the position found to be the best with the reflector described above.

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[1] Read at the October, 1906, meeting of the Illuminating Engineering Society.

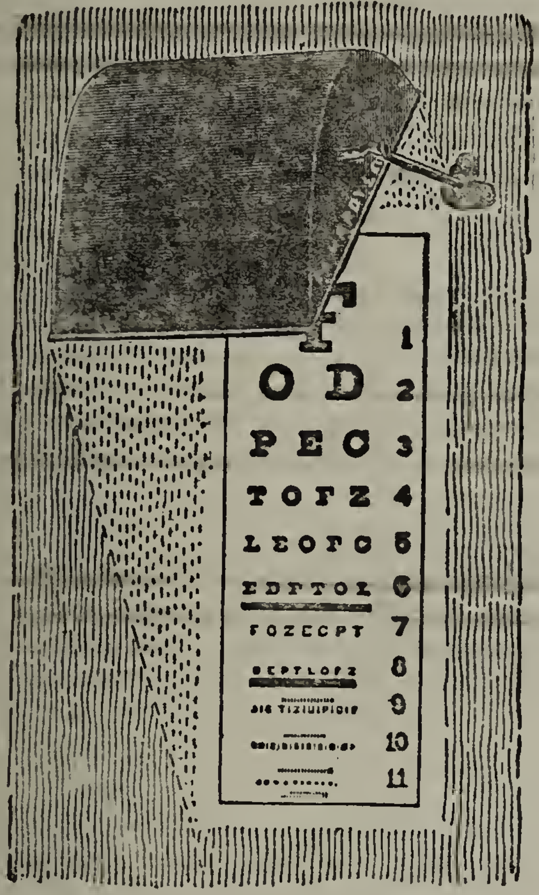
1
O D 2
P E C 3
T O F Z 4
L E O P C 5
E D F T O L 6
F O Z E C P T 7
8
9
10
11

Fig. 5.—Sketch showing reflector in position on wall in its relation to test type.

The reflector (Fig. 5) can be made of either copper, galvanized iron or tin. The reflecting surface is coated with aluminum paint, and on either side of the reflector, at the focus of the parabola, is placed an ordinary electric lamp socket. A piece of gas piping, 9/16 of an inch in diameter, with a thumb-screw attachment at the reflector end and a wall bracket at the other end, holds the reflector in place. The wires from the electric light socket are run through the piping, so as to be out of the way, and joined together with a plug for connection.

I wish to thank Messrs. F. A. Hardy and Company for their assistance in the construction of the reflector.

DISCUSSION.

Dr. William M. Sweet, Philadelphia, said that the reflected light is preferable to direct light. With a reflected light an illumination is obtained that does not tire the eyes.

Dr. Mortimer Frank, Chicago, said that with this reflector one can get any candle power from 3 to 50. The photometric curve in the paper was calculated for 3 candle power.

A CASE OF FATAL HEMOLYSIS FOLLOWING DIRECT TRANSFUSION OF BLOOD BY ARTERIOVENOUS ANASTOMOSIS.*

WILLIAM PEPPER, M.D.
Instructor in Medicine, University of Pennsylvania.
AND
VERNER NISBET, M.D.
Assistant Instructor in Medicine, University of Pennsylvania;
Assistant Director of the William Pepper Laboratory
of Clinical Medicine.
PHILADELPHIA.

Since the report by Crile[1] in November, 1906, of several cases of severe anemia in which direct arteriovenous anastomosis and transfusion of blood was made use of in the treatment of the anemia the method has been tried, at times with favorable results and at others without much apparent change in the course of the disease.[2] No serious ill effects have been reported so far as having been caused by this method of treatment, and we, therefore, believe that the following report of a case of fatal hemolysis after two transfusions of blood from different individuals should be placed on record in order to show that the procedure is not without danger and that until our knowledge of the hemolytic action of different sera is more exact it should be used with caution.

Patient.—C. J. G., aged 33, white, married, born in England. Referred April 16, 1907, by Dr. Frank Harris, Trenton, N. J., to the Hospital of the University of Pennsylvania, service of Dr. Stengel. Complained of bleeding from gums.

History of Present Illness.—Some time before October, 1906, it was noticed that the patient's complexion, though naturally pale, was becoming paler, though he had been in apparently good health up to that time. Tinnitus aurium, and a very slight intermittent nightly bleeding from the upper gum began at this time. He had been able to be about on his feet, but had gradually grown weaker during this period. Dizziness, palpitation of the heart, and pains in legs were occasionally present. He had gained six pounds in weight in the last ten weeks; for a time he noticed that his vision was dim. The bleeding from the upper gum was at first noticed at night only, but it gradually increased in severity, occurring day and night for ten weeks preceding his admission, though intermittently, and during the last four days preceding admission constant bleeding had occurred. Patient was kept in bed under a physician's care for seven weeks, beginning about Jan. 15, 1907. He grew somewhat better at the end of that time and went to work. On April 13, 1907, bleeding and other symptoms forced him to stop work again. Physicians told him he was losing blood in his urine, and by the bowel (after examination of urine and feces). He had noticed no edema. No hemophilic nor scorbutic history.

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[2] Read before the October, 1906, meeting of the Illuminating Engineering Society.

* From the William Pepper Laboratory of Clinical Medicine.
1. The Journal A. M. A., Nov. 3, 1906.
2. Watts: Johns Hopkins Med. Bul., May, 1907.

Previous Medical History.—Patient had none of the diseases of childhood. Had nervous indigestion six years ago; otherwise has been a very strong man.

Social History.—Patient at 21 years became a machinist, doing hard, manual labor ever since. About 11 years ago he had a sore on his penis, hard and persistent; a rash followed this, and he was treated for six months for syphilis. Was married ten years ago; wife had one miscarriage and one living child, which has coxalgia. He used tobacco and tea moderately, occasionally drank beer, rarely whisky. Had a good home and good food.

Family History.—Father and mother were living and well. Patient had fifteen brothers and sisters. One brother died of apoplexy and one of injury. One sister died of a peculiar (non-anemic) wasting disease. No history of renal, cardiac, or pulmonary disease.

Condition on Admission.—Temperature 98 F.; pulse, 108; respiration 22. Patient walked to the hospital, looking extremely anemic, but not dyspneic or weak.

Physical Examination.—Patient was a dark-complexioned man, fairly well nourished, and with good musculature. Skin uniformly throughout body had a dirty lemon color. No edema nor cyanosis present. Peripheral arteries were soft; pulse of low tension, easily compressible, moderately rapid and quickly receding. No capillary pulse. Lymphatic glands were palpable in axilla and groin and one beneath the jaw. Conjunctivæ very anemic; sclera showed a glistening pearly-white luster; pupils equal; pupillary reflexes normal. Ears showed a waxy-like pallor. Alæ of nose moved with respirations. Lips were very pale and blood stained. Tongue very pale and coated with mucus and blood. Upper gums, especially anteriorly, oozed blood continuously; slight oozing from lower gums. No blue line at edge of teeth; teeth were somewhat decayed at gum margin. Oral mucous membranes very pale. Neck shows marked pulsations, arterial in type. Thorax rounded and fairly well muscled. Respirations equal on either side, expansion good, breathing costo-abdominal. Lungs were normal as to vocal, tactile fremitus, and resonance, which extended from the sixth right rib to apex anteriorly on right side, and posteriorly to level of tenth dorsal vertebra. Breath sounds were vesicular in type; no râles. Heart: Apex beat extended over several interspaces, but was seen best in fifth interspace, within the left midclavicular line. A feeling suggesting a thrill on palpation. Cardiac dulness: Above third rib; right, 1 cm. beyond right sternal margin; left, about the anterior axillary line, 3 cm. beyond nipple line. A loud first sound, accompanied by a rough, loud murmur, heard best at apex, not transmitted. A systolic murmur was also heard in third interspace, not transmitted to vessels of neck, where a humming sound was heard over their course. The second murmur was the higher pitched. Pulmonary second sound was accentuated. Abdomen was of normal rounded outline; slight panniculus. Liver and spleen were not palpable. Retroperitoneal lymphatic glands were not palpable. Abdomen was generally tympanitic on percussion. Liver dulness extended from right midclavicular, sixth rib, to rib margin. Splenic dulness began at ninth rib in midaxillary line, and soon blended with colonic tympany about the eleventh rib. Limbs were well muscled. Nails bitten and anemic.

Urinalysis.—Straw colored urine, flocculent sediment; odor, normal; sp. gr., 1016; acid; mucus, plus; leucocytes, plus; erythrocytes, minus; squamous epithelia, plus; a few calcium oxalate crystals; a few bacteria.

Blood.—Hemoglobin, 20 per cent.; r. b. c., 970,000; w. b. c., 3,600. (See chart and table for further examinations.)

Blood Pressure.—Systolic, 120; diastolic, unobtainable.

Stool Examination.—Formed, hard, dark and tarry, somewhat offensive. Microscope showed erythrocytes, and undetermined crystals. Occult blood, very marked positive reaction.

The bleeding continued in small amounts and patient lost ground steadily.

April 24: 2,000 units diphtheria antitoxin were injected in the hope of influencing a possible undiscovered infection, whatever its nature.

April 25: The patient is losing ground daily. Lost several ounces of blood from the mouth last night in spite of various local applications and mouth-washes. Seems paler daily.

It was evident at this stage of the case that the patient was suffering from some obscure type of hemorrhagic disease rather than from any of the more definite forms of blood disease. Careful inquiry failed to disclose any history of hemophilia in his family. Scurvy was negatived by the absence of characteristic changes in the gums, or deep (intramuscular or subdermal) hemorrhagic effusions or of a suggestive history. The morphology of the blood as well as the blood count excluded ordinary pernicious anemia, and the patient was quite certain that his pallor followed the bleeding from the gums. Had the reverse been the case such persistent bleeding from the mouth could not well be ascribed to pernicious anemia; no such tendency to uncontrollable hemorrhage occurs in that disease. The blood picture more closely resembles that of so-called aplastic anemia, but the fact that the anemia seems to have followed the hemorrhage rather than to have occasioned it caused us to exclude this diagnosis. The possibility of the patient having acute leukemia was considered and the fact that cases have been recorded in which this disease has existed and even terminated fatally with leucocyte counts no higher than those obtained in our case was considered. We felt, however, that the degree of lymphocytosis and the general morphology of the blood did not justify this diagnosis.

For all of these reasons the conclusion arrived at was that the patient was suffering from some type of obscure hemorrhagic disease of unknown etiology. The rapid increase of the anemia with the persistence of bleeding caused us to place the patient under the care of Drs. C. H. Frazier and J. E. Sweet for direct transfusion, the patient's wife offering to furnish the blood.

April 26: Patient passed a very bad night, bleeding continuously from gums. Tinnitus aurium was very severe. Nausea present in high degree. Seemed to be sinking very rapidly. At 5:52 p. m., after anastomosis by Dr. Sweet of the left radial artery of patient's wife with a large vein at left elbow of patient, clamp was removed and transfusion begun. Transfusion ended at 7:25 p. m. Both husband and wife stood operation well. During the operation the patient vomited considerable quantities of dark grumous material.

Blood, 5:50 p. m.	
R. B. C.	420,000
W. B. C.	4,200
Hb.	12 per cent.
Pressure	100

Differential Count.	Per cent.
Polymophonuclear	41
Large mononuclear	0.5
Transitionals	2.5
Lymphocytes	54.5
Eosinophiles	1.5

Blood, 6:15 p. m.	
R. B. C.	920.000
W. B. C.	1.800
Hb.	15 per cent.
Pressure	118

Differential Count.	Per cent.
Polymorphonuclear	28
Transitionals	3
Large mononuclears	0
Lymphocytes	68.5
Eosinophiles	1

Blood, 7:15 p. m.	
R. B. C.	1,001,000
Hb.	21 per cent.
Pressure	115

Differential Count.	Per cent.
Polymorphonuclear	44
Large mononuclear	2.5
Transitionals	3
Lymphocytes	49
Eosinophiles	1.5

Pulse rate, 120-130 throughout operation. (See blood charts and table.)

April 27: Patient passed a fair night. Bleeding from gums almost entirely ceased immediately after transfusion and did not recur. Tinnitus aurium entirely ceased in one ear and was better in the other. Had not vomited since transfusion. Color a great deal better. No jaundice noted.

April 28: Patient continued to feel stronger and much better. Bleeding from gums was merely a trace. Stomach not very retentive. At 5:35 p. m. a vein was exposed in upper left arm by Dr. Frazier. This was found not suitable to the left radial artery of patient's brother-in-law, which was being exposed at same time. Another vein in patient's lower arm was exposed and an arteriovenous anastomosis done by Dr. Sweet. Blood was allowed to transfuse from 6:33 p. m. to 7:37 p. m. Patient visibly reddened during operation. The donor grew somewhat sick at stomach, but otherwise stood the operation well.

Blood before transfusion, 6:30 p. m.: R. B. C., 1,270,000; W. B. C., 2,450; Hb., 21 per cent.; pressure, 122.

Blood after transfusion was begun, 6:55 p. m.: R. B. C., 1,370,000; Hb., 23 per cent.; pressure, 140.

Blood, 7:15 p. m.: R. B. C., 1,580,000; Hb., 29 per cent.; pressure 145.

Blood at end of transfusion. 7:30 p. m.: R. B. C., 1,800,000; Hb., 36 per cent.; pressure, 142.

Blood, differential, 7:30 p. m.: Polymorphonuclears, 11.6 per cent. lymphocytes, 83.3 per cent.; large mononuclear, 0.3 per cent.; transitionals, 0.6 per cent.; mast cells, 0.3 per cent.; eosinophiles, 0.3 per cent.; myelocytes, 0.3 per cent.; microcytes, macrocytes. No nucleated red cells.

10:00 p. m., Blood pressure 142.

Later in the evening the patient lay in a flushed, warm, lethargic condition, probably influenced somewhat by morphin given at operation. Much sweating. No jaundice by artificial light. Temperature, 102 F.

April 29: Patient this morning was very jaundiced. Stomach had not been retentive since operation. Expectorates green mucoid material from throat. No bleeding from gums. Temperature rose in the afternoon to 104 F. Arm somewhat painful and swollen. Hand edematous. No pus in wounds. Spleen palpable. Urine contained urobilin, hemoglobin, some free blood and many casts. Blood pressure, 115.

After the first transfusion (wife's blood) the urine showed slight reddish discoloration and slight amount of urobilin, suggesting hemolysis, but this had nearly disappeared when the second transfusion (brother-in-law's blood) was undertaken. During the night after this second transfusion the urine changed to a marked bloody character and subsequently showed a direct proportional relation with the jaundice, oppression, and other evidences of hemolysis. (Details regarding the metabolism and hemolytic features in the urine will be reported by Drs. Stengel and Edsall.)

April 30: Passed a poor night. Jaundice worse. Stomach still not retentive. Temperature still high. Arm condition the same. Mouth very dry, but no bleeding.

May 1: Was in a very low state. Blood pressure, 105. The patient sank rapidly and was removed to his home in Trenton, where he died May 3, 1907.

The patient's temperature during the first ten days he was in the hospital was usually slightly above normal, reaching on one occasion 101 F. The pulse was always higher than normal, ranging from 80 to 120. The respirations ran between 22 and 32. During the last week the patient was in the hospital the temperature, pulse and respirations were higher, the temperature reaching 104 F., the pulse 125 and the respirations 39 and never coming down to normal. An effort was made to determine if the blood serum of the patient was hemolytic to normal red blood corpuscles.

Sterile blood was collected from the patient eighteen and thirty-six hours after second transfusion. The blood was allowed to coagulate and the serum used for the following tests: A 5 per cent. suspension of washed normal red blood corpuscles in 0.85 sodium chlorid solution was prepared. The serum of the patient was mixed with the suspension of red corpuscles in varying proportions. The mixture of serum and corpuscles was kept in an incubator at 37 C. (98.6 F.) for two hours. On removal no evidence of hemolysis was observed. The result was also negative after the incubated mixture had been kept on ice for twenty-four hours. The mixture when prepared as above and an activating substance supplied by adding normal serum, also failed to show hemolysis.

Throughout the patient's stay in the hospital a number of examinations of the blood were made which were of considerable interest. The type, as judged from the study of the stained specimen, was that of a secondary anemia. A remarkable feature was the fact that on only a few occasions were nucleated reds found and then only in very small numbers. These were all normoblasts, and not more than ten or twelve were seen altogether in the many slides examined. Poikilocytosis and polychromatophilia were constant. The leucocytes were normal in appearance.

A study of the table of the various leucocyte counts shows that the absolute number of lymphocytes was practically always higher than that of the neutrophiles, but was never higher than 2,289. The lymphocytes ran at a more regular figure than did the neutrophiles, which were affected by both transfusions, dropping much below the normal figures. The eosinophiles were normal in number. Very few basophiles were found. Only one myelocyte was seen.

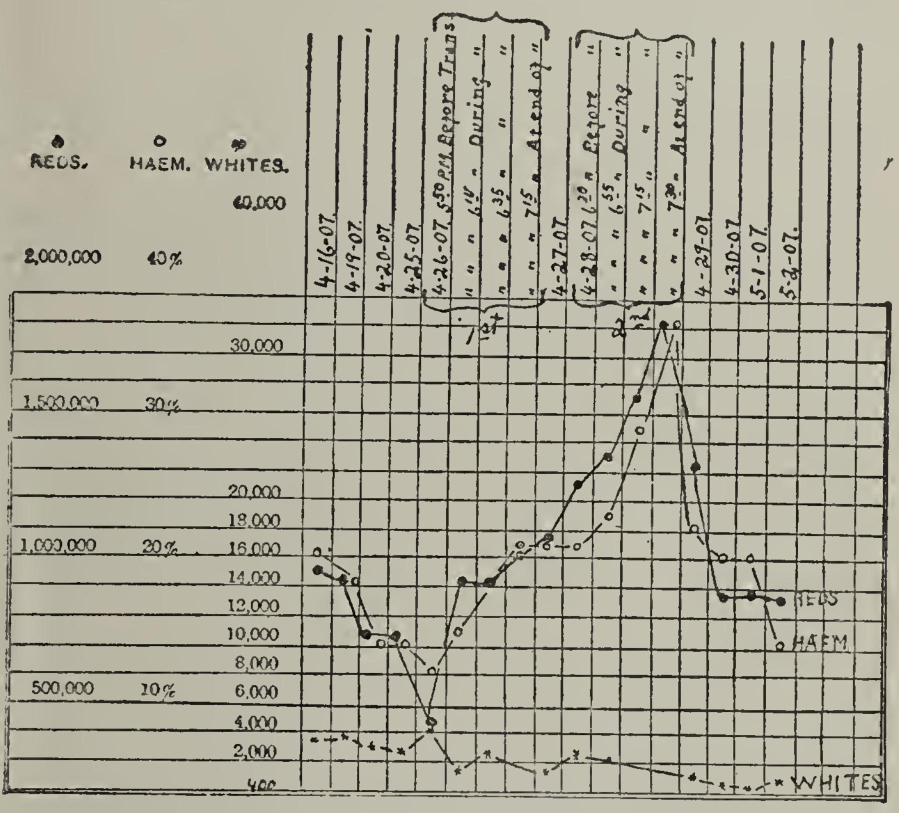

Chart of the patient's blood.

The chart here given demonstrates diagramatically the extreme grade of the anemia, the improvement in the hemoglobin percentage and in the red cell count, following the transfusions, and the rapid drop succeeding the second.

The color index, as can be easily seen, was usually above normal. There was a constant leucopenia, the total count per c.m. dropping May 1, the day before the patient left the hospital and three days after the second transfusion of 400 per c.m. Determinations were made of the hemoglobin, red and white cells before and during both transfusions, and an effort was made in this way to estimate approximately the amount of transfused blood.

Twelve hours after the second transfusion it became evident that a rapidly increasing hemolysis had developed and this persisted until death. Jaundice set in promptly and deepened until it was intense; the patient's temperature, which was a little higher after the first transfusion than previously, became still more elevated, fluctuating between 100 F. and 104 F. and the rates of the pulse and respiration became correspondingly higher. The urine quickly became blood red and, though at times a little lighter colored, did not change materially to the end. The patient was intensely restless and irritable, all food taken by the mouth and even water was promptly rejected, and the bowel proved equally unretentive. Petechial hemorrhages appeared in various places and there was active and increasing hemorrhage from the mouth and nose. The liver increased in size and was somewhat tender to pressure. The spleen was recorded as being palpable.

There was no doubt of the nature of the condition, which was typically that of intense hemolysis, and it is mainly on account of this event that the case is worthy of publication. It seems to have been too implicitly believed that the transfusion of human blood into another human being is incapable, apart from such accidents as embolism, thrombosis or infection, of causing untoward results and especially that hemolysis will not take place. It is true that Ehrlich and others who have investigated hemolysis in animals have called attention to the fact that iso hemolysins occasionally appear, and Eisenberg has reported some investigations of this question in its relations to the blood of various diseases. Nevertheless there has been no serious doubt of the innocuousness of introducing blood from normal individuals into other normal persons, or those suffering from hemorrhage or disease, providing the technical accidents could be obviated by some such refined procedure as that reported by Crile. The fallacy of this belief is illustrated in the case herewith reported.

When we come to consider the possible cause of the intense hemolysis which destroyed our patient our attention is at once called to the fact that the first transfusion was followed by but a suggestion of hemolysis (evident in some discoloration of the urine and by the presence of a small quantity of urobilin, neither being positively attributable to the transfusion rather than to the patient's disease), and in the second place to the prompt appearance of marked hemolysis after the second transfusion. One receives the impression that the first transfusion may in some manner have caused the formation of hemolytic bodies which after the second transfusion found abundance of vulnerable corpuscles for their operation. We do not feel that there are sufficient data to warrant our expressing any opinion as to the rôle ascribable to second transfusions or to transfusions of blood from more than one individual. It may be recalled, however, that Crile has reported one case of successive transfusions of blood from two brothers of the patient without any hemolysis being noted. Some experiments in animals and studies of sera and corpuscles of man undertaken in this laboratory since the occurrence of our case have thus far failed to throw any light on the matter.

We can not omit mentioning the injection of a dose of diphtheria antitoxin some days previous to the first transfusion, especially as the studies of Theobald Smith, Rosenau and Anderson and others have indicated possibilities of danger in secondary injections. These studies, however, have shown no hemolytic results and have in addition been concerned with secondary injections of the same heterologous serum and not with homologous blood or serum after foreign serum.

The published cases of Crile and others indicate the probable safety of the operation of transfusion in posthemorrhagic cases, but the results in our own indicate the danger in certain pathologic conditions and the necessity of caution until we are in possession of greater knowledge. At the same time the possibility of benefit may justify transfusion in apparently desperate cases.

TABLE SHOWING ABSOLUTE AND RELATIVE DIFFERENTIAL LEUCOCYTE COUNTS AND TOTAL LEUCOCYTE COUNT PER C.MM. OF BLOOD.

	4-16-07.	4-19-07.	4-25-07.	4-26-07.				4-28-07		4-29-07.	4 30-07.	5-1-07.
				Before trans. 5:30 p. m.	During trans. 6:15 p. m.	During trans. 6:35 p. m.	At end of trans. 7:15.	Before trans. 6:30 p. m.	At end of trans. 7:30.			
Neutrophiles	1494	1404	767	1722	504	×	....	×	....	570	175	210
Per cent	41.5	36.	29.5	41.	28.		44.		11.6	45.3	35.	52.5
L. Mononuc.	108	156	0	21	0	×	....	×	....	20	5	0
Per cent	3.	4.	0.	.5	0.		2.5		.3	1.6	1.	0.
Transit.	36	390	52	105	54	×	....	×	....	45	15	4
Per cent	1.	10.	2.	2.5	3.		3.		.6	3.6	3.	1.
Lymph.	1872	1911	1742	2289	1224	×	....	×	....	604	305	184
Per cent	52.	49.	67.	54.5	68.		49.		86.3	48.	61.	46.
Eosinoph.	90	39	39	63	18	×	....	×	....	16	0	2
Per cent	2.5	1.	1.5	1.5	1.		1.5		.3	1.3	0.	.5
Basoph.	0	0	0	0	0	×	....	×	....	7	0	0
Per cent	0.	0.	0.	0.	0.		0.		.3	.6	0.	0.
Myelocytes	0	0	0	0	0	×	....	×	....	0	0	0
Per cent	0.	0.	0.	0.	0.		0.		.3	0.	0.	0.
Count per c.mm.	3600	3900	2600	4200	1800	2100	....	2450	....	1260	500	400

Blood count of patient.

Autopsy Notes.—The autopsy was performed by Dr. Pepper, at the home of the patient in Trenton, N. J., on the afternoon of May 4, 1907, the body having been injected with some preservative fluid containing formalin by the undertaker some hours previously. Body of a well-nourished male, extremely anemic in appearance, and exhibiting a fairly intense jaundiced hue of the skin. Subcutaneous fat a bright lemon color. Muscles of the abdominal wall very pale. Numerous, easily broken down but fairly extensive, pleural adhesions throughout the left pleura; no adhesions in the right side. The heart was large, both auricles being very much dilated; the heart was empty and had been evidently injected with formalin, as the walls of the auricles felt like leather; the right ventricle was dilated. All the valves were normal.

Both lungs showed small subpleural hemorrhages and on section both were riddled with numerous dark-red firm areas, between which the lung tissue was apparently normal and crepitant. The lungs were very dry and these small areas or nodules were undoubtedly hemorrhagic and were so firm that they could be palpated throughout the whole lung. Most of them were about the size of a split pea; a few seemed to have coalesced.

The spleen was normal in size and appearance, on section it was also normal in appearance. The liver was fairly large, smooth, light in color, and on section showed no macroscopic evidence of necrosis; it appeared slightly fatty, but otherwise perfectly normal. The gall bladder contained a small amount of bile.

The left kidney was large, thick, fairly firm and rounded; there were a number of small subcapsular hemorrhages. The capsule stripped readily, leaving no trace of the hemorrhages on the kidney. Section of the kidney showed a cortex of normal width; there was no congestion. The parenchyma was clouded and granular in appearance. The right kidney showed exactly the same condition and in addition an area of hemorrhage in the parenchyma about a centimeter in length. The pancreas was normal. The right suprarenal was normal. The stomach contained a small amount of dark brown liquid. The mucous membrane was not ulcerated but was merely dotted here and there with a number of small reddish spots. There did not seem to be any break in the continuity of the mucous membrane at these points. The mesenteric lymph glands were normal in size and appearance. The intestines were not opened. The bone marrow from the middle of the shaft of the right tibia was normal in appearance.

Pathologic Diagnosis.—Severe anemia. Jaundice. Numerous small intrapulmonary hemorrhages. Dilatation of the heart. Acute parenchymatous nephritis with subcapsular ecchymoses.

Microscopic Examination of Tissues.—Lungs: Hemorrhagic extravasation into alveoli, congestion and edema. Number of large epithelial cells containing pigment (Hertzfehlerzellen). Kidneys: For most part the epithelium of the tubules presented normal characteristics. In some areas, chiefly in the convoluted tubules the epithelium was granular, the demarcation between cells obscure, and the nuclei invisible. The lumina of a number of these tubules were filled with granular débris; many others were filled with red blood corpuscles, more or less disintegrated. Glomeruli presented no unusual features. Proportion between interstitial and parenchymatous tissue was normal. In small scattered areas were found bodies presenting the characteristics of emboli composed of bacteria, but unattended by any inflammatory reaction. Liver: Some deposit of pigment, probably blood pigment, in the liver cells. (No areas of necrosis.) Suprarenal: Moderate congestion. Pancreas, spleen and bone marrow normal.

HEMIPLEGIA AS A COMPLICATION IN TYPHOID FEVER,

WITH REPORT OF A CASE.*

FRANK SMITHIES, M.D.
Instructor in Medicine in the University of Michigan.
ANN ARBOR, MICH.

Hemiplegia, during the course of typhoid fever, is a rare affection. Certain of the acute infectious fevers, e. g., smallpox, scarlet fever, measles, diphtheria, whooping cough, influenza and pneumonia, are not infrequently complicated by more or less complete unilateral paralysis. This affection is sometimes associated with aphasia. It is usually coincident with some disturbance in cardiac mechanism. It may occur at any stage of the special disease under consideration. The greater number of cases have been found to occur in children—perhaps because the diseases mentioned are most common in the first decade of life. But considering the severity of many of the typhoid infections, and the widespread prevalence of the ailment, is it surprising to note the infrequency of paralysis of any form as a complication, and especially of hemiplegia.

Numerous cases are on record in which paraplegia has complicated the course of the disease. Paralysis of single muscles, as, for example, the external rectus of the eye, or of certain muscle groups, such as the muscles of deglutition or the muscles of the posterior part of the thigh, is rather more common. However, one seldom meets with more than a passing mention of unilateral paralysis. Isolated cases are scattered throughout the voluminous literature of typhoid fever, but systematic tabulation is lacking. In view of the fact that the complication may occur in the course of any given case, and that, when present, it brings up an important point in the prognosis of such a case, it has been thought that a brief review of the subject might be of interest and value.

HISTORICAL.

Gubler, in 1860, first called attention to hemiplegia occurring at the "height of fever" in a young girl, a syphilitic, seven months pregnant. Aphasia was present. A few years later Scoresby Jackson published a careful analysis of a case in his own practice, in which hemiplegia and aphasia had suddenly appeared in the course of typhoid fever. Jackson paid more attention to the speech disturbance than to the paralysis, but nevertheless gives a most fascinating description of the progress of both lesions. Soon after the appearance of Jackson's paper Benedict reported two cases, in both of which there were disturbances in speech. The same year Karmin described hemiplegia without aphasia in the case of a young adult. The paralysis came on as late as the eighth month of a particularly severe attack of typhoid with prolonged convalescence. Studies by Berger and Nothnagel soon followed, the latter considering the subject far more completely than it had been heretofore. Between 1872 and 1889 only four cases appear in the literature that was accessible. Caley mentions hemiplegia during convalescence in a lad of 11, without aphasia; Gee cites its occurrence in a boy of about 7 years, with aphasia, and five years later Sorel reports hemiplegia and aphasia at the nineteenth day in a young adult male. A writer in the Middlesex Hospital Reports of the same year recorded hemiplegia coming on the ninth day, with convulsions and unconsciousness, in a man of 24. In this case also there was aphasia. It was not, however, until Sir Francis Hawkins' address before the London Clinical Society in 1889 that hemiplegia, in the course of typhoid fever, became recognized as a complication which was worthy of serious consideration. Thus far it had been looked on as a curiosity in medicine. Hawkins reported seventeen cases which he had collected from the literature or personally observed. He gave a masterly discussion of the conditions noted and added much of value to the pathology. No further summary of the lesion occurs until that of Osler's in 1899, although several cases had appeared in the literature, and a surprising number of them had been observed at the Johns Hopkins Hospital. Osler added four cases to the growing list, and was fortunate enough to be able to tabulate the postmortem findings in two of the cases reported. Since 1900 about a dozen cases have been mentioned, some with very complete detail, others with most meager observations.

FREQUENCY.

Holscher, summarizing 2,000 fatal cases of typhoid fever at the Pathological Institute in Munich, mentions twenty cases as showing "cerebral apoplexy," but gives no details concerning the locations of the lesions nor the antemortem manifestations. Perusal of the Charite Annalen of Berlin from 1874 to 1903 reveals the surprising fact that of 4,793 cases of typhoid fever, of which 875 were fatal, no cases of hemiplegia occurred.

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* From the Clinic of Internal Medicine of Professor Dock.

In an analysis of 1,000 cases of typhoid fever in America Herrick cites no instance. McCrea's tabulation of 707 cases at the Montreal General Hospital includes one case of paralysis of one side of the face and one case of paralysis of the muscles of deglutition, but no mention of hemiplegia. A somewhat careful review of the Guy's Hospital Reports, London, fails to find mention of hemiplegia complicating typhoid fever.

With the case herewith reported, the number of cases of which some details can be given has been increased to more than forty. It is probable that more extensive search may reveal a greater number, but further literature than that recorded was not available. For purposes of reference and convenience of comparison, a tabulation of all the cases reviewed is given, but before considering the reports in detail it is deemed advisable to present a summary of the patient which the writer recently had opportunity of watching.

CASE.

Patient.—A male, aged 36, a farmer, was admitted to Prof. Dock's clinic Sep. 30, 1906, on account of fever of about six days' duration, cough, headache, general weakness and discomfort. He came from a village in which there existed a small epidemic of typhoid fever.

History.—Family history was negative. Patient was puny as a child; had the usual diseases of childhood; made a rather slow recovery from measles, suffered with chronic bronchitis for some time afterwards; contracted syphilis at age of 24; had ulcer on penis, sore mouth, lost some hair, and had a rash. He took no treatment at that time. Patient said that the disease left him with a "feeling of weakness below the knees," that the knees "played out suddenly" and that for some time he had difficulty in walking any great distance. He gradually recovered, but six years later again suffered from "weak feelings" in his legs, but was not disabled. In April 1906, he had a third, similar attack, and had to give up his farm work. He then began specific treatment, and managed to get about again, but did not feel strong enough to work. He gave no history of alcoholism.

Present Illness.—On Sept. 24, 1906, he began to suffer from headache, "flashes of heat and cold," cough, with a little sputum, severe pains in back and top of head, flatulence; thinks that he had fever; called a physician, who sent him to the hospital.

Examination.—On admission at 10 a. m. his temperature was 101.5 F; pulse 110; respiration 36. He was able to walk with slightly spastic gait; he was rational; face flushed; had anxious expression, lips tremulous and slightly cyanotic; tongue very red and moist; extremities cold. His abdomen was moderately distended, the abdominal wall lax, with slight tenderness over both lower quadrants; the spleen extended to the rib margin in left nipple line at the end of deep inspiration. Heart showed slight enlargement to right; all sounds weak; pulse was full, rapid, regular, compressible with no dicrotism. Lungs disclosed harsh breathing over both upper anteriors, with few coarse, mucous râles.

Blood: Red blood cells, 5,560,000; white blood cells, 5,348; hemoglobin, 95 per cent.

Urine: Positive diazo and indican tests.

Progress of Case.—On the second day in hospital, temperature ranged from 100.4 F. to 102. F; pulse 88 to 120; respiration 28 to 32. Patient became delirious and rather violent towards evening. Splenic dulness disappeared. On the following morning, was rational, but stupid. Temperature ranged this day from 99.8 F. to 103.4 F.; pulse 80 to 112; respiration 28 to 36.

Oct. 3.—Widal positive, moderate clumping in 45 minutes with dilution 1:40 (Dr. McMichael). Towards evening the patient became delirious and very restless, and stood his tubbaths, at 65 F., rather poorly.

Oct. 4.—In the afternoon, patient complained of "cramping" of the last two fingers of his left hand, and of pain in his back, head and ankles. He became extremely restless, eyes became staring, arms and legs rigid, had difficulty in swallowing, and lay with his head drawn sharply to the right. Temperature ranged, 99.2 F. to 101.8 F; pulse, 96 to 122; respiration 28 to 42.

Oct. 5.—Slight tremor over entire body, extremities cold, skin mottled and dusky. Heart sounds very weak; reacted poorly to bath at 65 F. Blood pressure: Systolic, 112 mm. Hg; diastolic, 65 mm. Hg. with the Stanton 12 cm. cuff. During the night the patient's head continued to be strongly drawn to the right, there was marked tremor of the jaw and the upper part of trunk; the arms were rigidly flexed at the elbows. Cheyne-Stokes respiration appeared; the patient urinated involuntarily. On account of the tremor the blood pressure variations could not be followed.

Oct. 6.—Condition much the same; tremor slightly less marked. Patient became conscious during the early part of the day. He was unable to protrude his tongue, and his head was noticeably retracted. The heart sounds were weak at the apex, and a soft, blowing systolic bruit could be made out. Later in the day his face became very deeply flushed, violent coarse tremors and twitchings appeared over both upper extremities, especially over the right, the patient became delirious, and Cheyne-Stokes respiration again appeared. Temperature 99.2 F. to 103 F.; pulse 98 to 120; respiration 28 to 44.

Oct. 7.—Tremors more noticeable, especially over the right arm and the right face; ptosis of the left upper eyelid, slight photophobia; tongue could not be protruded; involuntary urination; abdomen slightly distended; heart sounds weak, systolic bruit at apex still present. Temperature 98.2 F. to 100.4 F.; pulse, 88 to 116; respiration, 28 to 40. Blood pressure: Systolic, 112 mm.; diastolic, 75 mm., with the Erlanger 12 cm. cuff.

Oct. 8.—(Nine days after the patient entered the hospital, and about fifteen days after the beginning of his illness.) Patient lay with head drawn to the left; left angle of mouth drawn down; left arm flexed rigidly at right angles across thorax; very coarse tremor over both upper extremities, especially the right. Legs could not be freely extended on the thigh, when thigh was flexed on trunk; tongue deviated to the left; involuntary urination. Patient in stupor greater part of day. Blood pressure: Systolic, 102 mm.

Oct. 12.—Patient rational, but dull; pulse very soft and irregular; moderate dilatation of the left heart. Blood pressure: Systolic, 99 mm.; diastolic, 60 mm., with the Erlanger 12 cm. cuff.

Oct. 11.—Distinct ptosis of the left upper eyelid; moderate deviation of left eyeball to left; pronounced lowering of the left angle of the mouth; marked leftward deviation of the tongue; difficulty in swallowing; flattening of the left nasolabial fold. There was slight rigidity of the left forearm, but a fair degree of motion on the right. The patient was unable to open his left hand, and only partly could extend his left forearm, slowly dragging it along the bedclothes. Patient could not elevate the left arm from the bed; there was no grip in the left hand; there was moderate movement on the right with fair grip. The legs were slightly flexed, the right moved slowly, the left could not be moved. There was marked sensitiveness to stimulation of the skin, with marked spasm of the leg and thigh muscles on such stimulation. Sensation otherwise was negative. There was slight Babinski's sign on the left; ankle clonus on both sides, especially on the left; patellar reflex was reduced on both sides. The patient complained of severe pains in the muscles of both legs. Temperature 96.6 F. to 102.2 F.; pulse 80 to 96; respiration 20.

Oct. 12.—*Laryngoscopic examination.* (Prof. Canfield) Right side negative; partial paralysis of the left vocal cord; throat negative. Deep reflexes (Dr. Klingmann) showed no change in character, but a general diminution in response on the left, with increase on the right; no reaction of degeneration.

Oct. 13.— Patient felt much better; could move right arm and leg freely; there was little motion on the left side, but the rigidity had almost disappeared. Eyes, mouth and tongue as before. There was still difficulty in swallowing; patient urinated involuntarily; slight Babinski's sign still present on the left; pronounced left wrist-drop, with flexion of the fingers of the left hand. From this time on the patient passed through a rather eventful convalescence, the main events of which are summarized in the following notes:

Convalescence.—Oct. 16.—Intense muscular tenderness in both legs and arm, especially the left; moderate but painful swelling of the glands in the left axilla. Oct. 20: Marked cardiac irregularity, with pronounced extra systole and loud systolic murmur at apex and in axilla. (Patient had been taking digitalis for dilated heart.) Babinski's sign disappeared on the left. Oct. 25: Moderately severe phlebitis in the left femoral. Nov. 1: Patient complained of severe general headache. Put on potassium iodid. Nov. 6: Right arm and leg practically normal; patient sat up in bed for a few minutes. Nov. 16: Moderately severe dacryocystitis on the left. Nov. 23: External strabismus of the left eye had disappeared; no deviation of tongue; patient could control his urine. Dec. 12: Patient walked with assistance: dragged left foot at toe, and swung left leg from trunk when walking; could not raise left leg over right knee. Dec: 16: Moderate edema of left leg and left hand. Patient had been moving about rather freely. Jan. 5, 1907: Patient was feeling fairly well, and was gaining in both weight and strength. Jan. 7: (Prof. Dock) Patient looked thin; lips and ears were red; vesiculo-papular eruption on forehead (potassium iodid?) walked fairly well; left arm very weak; tongue pushed slightly to the left. Jan. 25: The patient was about to be discharged; looked fairly well; was within about ten pounds of his normal weight, and could walk about twenty rods without feeling fatigued. Had difficulty in climbing stairs. Still slight ptosis in the left upper eyelid; pupils negative; could pucker lips so as to whistle, but could not whistle a tune; had slight tremor of both lips; the tongue was fuller on the right and deviated slightly to the left. The right hand and arm showed no disability. The left arm hung loosely at the patient's side; the left hand was puffy and cooler than the right; the arm was slightly flexed at the elbow and the fingers were flexed into the palm. The patient could approximate his fingers to his lips, and could raise his arm laterally about one-third of the distance to the shoulder-level and about half way, anteriorly. He could extend to about an angle of 160 degrees at the elbow. Flexion, without assistance, was very limited. He could extend fingers to about an angle of 170 on the hand, but distal phalanges were only capable of slight extension; flexion of fingers was fairly complete, with moderate grip. He could hold a full cup in his fingers. In walking, the patient swung his left leg stiffly from the trunk and shuffled his left foot slightly. He could move his toes, but there was a moderate degree of stiffness at the left ankle joint. Patient could cross his left leg over his right knee with little difficulty. There were no disturbances of sensation. He had no difficulty in swallowing. The jaw reflexes were increased, as were also the elbow and patellar deep reflexes; no ankle clonus; no reaction of degeneration.

Subsequent History.—The patient returned to the hospital for re-examination about the middle of February, 1907. He had gained considerably in weight and had steadily improved in strength. Movement of the left side was in every way freer, more definite and firmer. The patient had been on potassium iodid since leaving the hospital, with massage and faradism. Headaches were rare; mentally he seemed much brighter. He was advised to continue his medication, to get massage and passive motion when possible.

LESION.

The somewhat gradual onset of the hemiplegia, with the succeeding progressive recovery from the condition, points strongly to a thrombotic process in one of the cerebral arteries or its branches or both. The artery involved was doubtless the right middle cerebral, with its off-shoots to the various motor centers. The early disability of the right side may be explained by temporary disturbance in the circulation in the left middle cerebral or its branches. However, it is not impossible that extension of the thrombosis on the right side could have resulted in material interference with the flow of blood in the circle of Willis, and, as a consequence, the free passage of blood to the left motor area was retarded. The absence of any definite cardiac lesion, and the relatively slow onset of the paralysis, together with the extent of that established, are reasonably strong evidence against the process being primarily embolic. The large extent of the motor cortex simultaneously involved, and gradually rendered functionless, argue against hemorrhage as being the chief cause of the trouble. However, it is impossible to say that there was not slight hemorrhage, with early thrombosis following. The history of syphilis in this patient gives a significant hint as to the underlying pathologic alterations in the cerebral arteries, which rendered interference with the circulation possible—in fact, it is a question as to just how much the patient would have suffered had he not been luetic.

THE TABLE IN SUMMARY.

In the table herewith presented I am able to furnish information concerning forty cases of hemiplegia in typhoid fever. There are several cases mentioned to which I have not had access, and so am unable to properly complete the list. In addition to the cases herewith tabulated, I have to mention cases reported by Courtade,[1] Cohin[2] and Moore.[3] I regret that I have not been able to consult the literature for these cases. The interesting features of the summary will be considered in detail.

Sex.—Of the thirty-three cases in which the sex is mentioned, twenty-three are males, nine are females; in two instances the sex is not recorded.

Age.—Four cases were 5 years or under, five cases were between 5 and 10 years, eight cases between 10 and 20, thirteen cases between 20 and 30, and two cases were more than 30 years of age. In the remaining cases the ages were not stated. It is readily seen that the lesion is more common in young adults, and this is explained, doubtless, by the greater prevalence of typhoid fever at that period of life.

Associated Conditions.—Syphilis is mentioned in two cases, including the one reported in this paper. Pregnancy complicated in one; in another there was purpura. Several cases were accompanied by hemorrhage from the bowels. Cardiac lesions were not frequent. It seems that in few instances were any lesions other than those of the febrile state present. In the case herewith presented at times there were present a softly blowing systolic bruit at the apex, which became more marked under digitalis medication. There was considerable irregularity in rhythm, with marked dicrotism, but there was no persistence of cardiac dilatation or incompetence.

Aphasia.—In thirty-two cases in which disturbances in speech were recorded aphasia occurred in twenty-six; it was absent in four cases, and in the remainder of the cases there was unconsciousness, with later faltering speech or death before the presence or absence of aphasia could be determined. In the case given here the patient did not answer well for several days. He appeared to understand questions, but responses were very tardy.

Time of Onset.—This varied widely. It is not reported in all of the cases. In thirty cases in which some details are given, in but one case did the hemiplegia occur during the first week of the disease. Eight instances are recorded as occurring during the second week, eight during the third week, two during the

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[1] Encephale, Paris, 1886, 431.

[2] Bull. general. de Therap., Paris, 1887, 397.

[3] Trans. Royal Acad. Med., Dublin, 1900, xvii, 492.

TABULATION OF CASES OF HEMIPLEGIA COMPLICATING TYPHOID FEVER.

No.	Reported by	Sex and Age.	Occurrence.	Symptoms of Onset.	Aphasia.	Side.	Result.
1	Gubler: Arch. gen. de Med. 1860.	F., 19	"Height of fever."	Syphilis; pregnant; seventh month.	Present	R.	Recovery.
2	Jackson: Edinburgh Med. Jour., 1877.	M., 21	Eighteenth day	....	Present	R.	Recovery almost complete.
3	Benedict: Electrotherapie, 1868.	?	?	?	Present	R.	?
4	Karmin: Wiener Med. Press, 1868.	M., 24	Between eighth and ninth month of prolonged and severe case.	....	No cerebral disturbance.	L.	Persisted.
5	Benedict: Electrotherapie, 1868.	?	?	Atrophy of optic nerve	Speech faltering	L.	?
6	Berger: Berlin klin. Wochsehr., 1870.	M., 21	Third week	Unconscious	?	L.	Persisted.
7	Nothnagel: Deut. Arch. f. klin. Med., 1872.	M.	During febrile state.	Convulsions	....	R.	?
8	Eulenberg: Quoted by Nothnagel.	?	?	?	Present	R.	Recovery.
9	Same	?	?	?	Present	R.	Recovery.
10	Caley: Med Times and Gaz., 1878.	M., 11	During convalescence.	....	Not affect speech	R.	Recovery.
11	Gee: Med. Times and Gaz., 1878,	M., 7-8.	During convalescence.	....	Present	R.	Recovery.
12	Sorel: L'Union Med., 1883.	M., 24	Nineteenth day	....	Present	R.	Persistent one year after.
13	Hawkins: Clin. Soc. Trans., 1889.	F., 18	Twenty-ninth day.	Hemorrhage from bowels; purpura.	Present	R.	Died. Clot in right middle cerebral artery and in left auricle.
14	Middlesex Hosp. Rep., 1883.	M., 24	Ninth day	Convulsions; unconscious.	Present	L.	Recovery.
15	Newbolt: Lancet, Aug. 27, 1892.	M., 21	Forty-first day	Hemorrhage from bowels.	Present	L.	Recovery.
16	Strümpell: Lehrbuch	F., 10	"Fourth fever-free day."	Convulsions; severe attack.	Present	R. ?	Recovery in fifteen weeks.
17	Same	M., 15	Third week	....	Present	R. ?	Recovery in ten weeks.
18	Kummell: Ztschr. f. klin. Med., ii, 2.	M., 30	....	Severe attack; much meteorism.	....	....	?
19	Curshman: Nothnagel's Syst. Med.	F., 19	Third week	Moderately severe atttack.	Present	R. ?	?
20	Haynes: Johns Hopkins Hosp. Bul., 1896.	M.	Twelfth day	Delirium	....	R.	Recovery partial.
21	Blumer: (Same)	M., child.	Seventeenth week after typhoid.	Violent, sudden, convulsions.	Present	R.	Recovery partial.
22	Thayer: (Same)	M., 21	Tenth day	Stupor	Present	R.	Recovery partial.
23	Thayer: (Same)	F., 10	Nineteenth day	Typhoid state; involuntary passage of feces and urine.	Seemed to understand but did not answer.	R.	Much improved.
24	Rolleston: Brit. Med. Jour., 1898.	M., 30	Twenty-fourth day.	No convulsions	Present	L.	Gradual recovery.
25	Herringham: (Same)	F., 9	Third week	....	....	R.	?
26	Emerson: Johns Hopkins Hosp. Rec., 1899-1900.	M., 45	Eighth day	Headache; diplopia	....	L.	Gradual improvement.
27	Osler: Johns Hopkins Hosp. Rep., 1899-1900.	M., 22	Fifth day	Sudden, uneasy feeling in head; general, clonic convulsions, beginning in both arms simultaneously.	Unconscious	L.	Died. Hemorrhagic enteritis of ileum; ulcers in Peyer's patches; thrombosis in ascending parietotemporal artery, including points of origin in mid-cerebral, also recent thrombosis in branches running into Rolandic fissure.
28	Osler: (Same)	F., 7	Tenth week	Fever; sudden convulsions.	Present	R.	Partial recovery; both lesions.
29	Osler: (Same)	M., 25	End second week.	Delirium; no convulsions.	Not present	L.	Partial recovery.
30	Osler: (Same)	M., 46	Third week	Cheyne-Stokes respiration; cardiac arrhythmia; nausea.	Not present.	L.	Died. 'Ordinary intestinal lesions of typhoid fever, softening of upper part of right internal capsule and thrombosis of artery.
31	Ellis: N. Y. Med. Rec., Oct. 1, 1892.	Young lad.	....	Symptoms pointing to poliomyelitis.	....	....	Complete recovery.
32	Diller: N. Y. Med. Rec., 1903.	M., 5	Three and one-half weeks.	Moderate fever; much tympany.	Present	R.	Recovery partial.
33	Dankin: Lancet, Apr. 23, 1892.	F., 30	Thirtieth day	Pains in head	Present	R.	Died. Clot in middle cerebral artery; heart dilated.
34	Hrach: Wien. Med. Wochschr., No. 42, 1902.	M., 23	Fourteenth day	Moderately severe attack; convulsions; facial paralysis first three days then hemiplegia.	Present	R.	Improvement of both lesions; contractures of right hand.
35	Barrett: Mich. State Asylums for Insane.	F., 5	During second week.	Moderately severe attack.	Not present	R.	Epileptic attacks followed: contractures, with marked shortening of right arm and leg; athetoid movements; patient died at age of 17 of pulmonary tuberculosis. Postmortem examination of brain showed early thrombosis of second branch of Sylvian artery, atrophy of entire motor tract and replacement of parenchyma with dense scar tissue.
36	McCaskey: Studies	Child, 5	....	Severe attack	Present	?	Fatal.
37	Stevens: Glasgow Med. Jour., 1897.	....	....	Severe attack; onset gradual.	....	....	
38	Dantsig: Ejened. Jour. Prakt. Med., St. Petersb., 1898.	....	....	....	Present	R. ?	
39	Stein: Pest. Med. Chir. Pres., Budapest, 1901.	....	....	....	?	?	?
40	Baylac: Toulouse Médicale 1904,	....	....	Convulsions	Jacksonian type	R.	
41	Teissier: Progrès Médical, 1885, -440.	....	....	....	Present	....	
42	Sakorrhaphos: Ἰατρικὸς μηνῦτωρ Ἀθῆναι, 1903, iii, 75.	....	....	....	?	R.	
43	Smithies	M., 33	Seventh day	Convulsions, delirium; stupor; Cheyne-Stokes respiration; moderate temperature.	Did not answer well for two days; seemed to understand.	L.	Gradual improvement contractures hand and leg; muscular atrophy.

fourth, and the remainder during convalescence; in one case as late as the eighth month of a particularly severe attack with prolonged recovery period.

Mode of Onset.—In ten cases the hemiplegia was preceded by convulsions. In four instances these came on suddenly and violently. With the convulsions there was usually associated unconsciousness, either temporary or long continued. In four instances there was delirium—in the case here given it was quite violent at first. In three cases there was stupor. Several instances of very severe headache preceding the onset of paralysis are recorded. Hemorrhage from the bowel was noted in one instance, and in another there was choked disc. In the majority of the cases the height to which the fever rose is not mentioned. In a few instances there was very high temperature, with low muttering delirium and subsultus tendinum. In the case given there was but moderate rise in temperature.

The Side Affected.—This is definitely mentioned in thirty-five of the reported cases here tabulated. In twenty-one instances the paralysis was on the right side; in ten cases it was on the left side. In the remaining cases the side is not definitely mentioned. In only two cases of right-sided paralysis was aphasia absent. In three of the left-sided paralyses aphasia was present.

Postmortem Findings.—In Dankin's case there was a clot in the left middle cerebral artery. The heart was dilated and there was a hemorrhagic infarct in the lower lobe of the left lung. In Hawkins' case there was a clot in the left middle cerebral artery and thrombosis of the right auricle. Two of Osler's cases were fatal. One exhibited hemorrhagic enteritis and ulcerated Peyer's patches as the primary typhoid lesion. Section of the brain revealed thrombosis of the ascending parietal branch and the parieto-temporal branch of the middle cerebral artery, including their points of origin. There was also recent thrombosis of the branches running into the Rolandic fissure, the sulcus between the frontal gyri and the ascending frontal convolutions and the branches supplying the temporo-parietal region generally. The other case reported by Osler showed ordinary typhoid lesions in the bowel. In addition there was softening in the upper part of the right internal capsule. The area was about the size of a hickory-nut and lay lateral from the caudate nucleus and a little median and slightly dorsal from the upper border of the cortex of the island of Reil. Barrett's case died twelve years after the onset of the hemiplegia, from pulmonary tuberculosis. The autopsy showed evidence of early thrombosis of the second branch of the left Sylvian artery, with atrophy of the entire motor area. The cerebral parenchyma was replaced by scar tissue. In the remaining fatal cases the postmortem findings were not recorded.

Results.—In six of the cases the patients died. Twelve recovered completely. The shortest time to complete recovery was about twelve weeks. In the great majority of the remaining cases there was usually gradual improvement of the paralysis. This was especially so as far as the gross movements of the parts involved were concerned. The finer movements requiring delicate coordination were, in most instances, late in returning, or were lost completely. In three instances the hemiplegia persisted with no improvement. Recovery from the paralysis was generally noted as being more rapid and more complete in the lower limbs, with the muscles of the feet and legs regaining their functions earlier than those in the arms and the hands. Muscular weakness, more marked than that usually noted in post typhoid states, was frequently commented on. In many cases there was moderate atrophy of the parts involved. This usually was more apparent in the muscles of the hands, arms, shoulder girdle and legs. Facial hemiatrophy was occasionally observed. Contractures, both early and late, were commonly present, even with the most careful therapeutic measures adopted to prevent such. In Barrett's case there was shortening amounting to several inches of the right arm and the right leg, associated with athetoid movements. The contractures led to complete disablement. This case was also complicated with epileptiform attacks. In the patient, whose progress furnishes the basis of this paper, after six months' time the man was still greatly incapacitated. There was slight shortening of the left leg, with spastic paralysis of the posterior leg muscles, and partly of the posterior thigh muscles, contractures of the flexors of the left hand and paralysis of the anterior forearm muscles and the left trapezius. Co-ordination in the movements of both arm and leg was imperfect. Slight ptosis persisted in the left upper eyelid, the left face muscles were sluggish and incomplete in their action.

In the patients in whom the hemiplegia was associated with aphasia the recovery from the latter disturbance was much slower and less complete than from the former lesion. In some cases there was but slight improvement in the aphasia. In others only after persistent teaching efforts and various exercises did the patients succeed in speaking. In but few of the patients was there complete recovery. It might be said, indeed, that in no instance was the speech so perfect as before the illness.

In the non-fatal cases loss of bladder control has been but temporary. Involvement of the muscles of deglutition has not been permanent. Sensation has usually been but little interfered with. In the case here reported there was not the slightest sensory disturbance at any time, except the rather painful neuritis of the early period. Athetoid movements on attempted voluntary movement have been reported by both Osler and Barrett.

The mentality seems to suffer no serious alteration. The delirium of the early stages of the paralysis has not been observed to have very lasting effects. In a few patients, even without aphasia complicating, slow cerebration has persisted for some time after the febrile state. Confusion and hesitancy of speech is fairly common, persisting for some months, as in the case of the patient recently under our care. There seems to be, in some instances, more than the ordinary tendency toward post typhoid neuroses, particularly of the psychic nature. But this is not to be wondered at in view of the serious nature of the disability. For a man who has been previously well and active to suddenly find himself a helpless cripple, with but a prospect of partial alleviation at the best, is certainly sufficient ground for pessimism, if not actual melancholia.

Causes of the Hemiplegia.—In two instances syphilis doubtless predisposed. In the fatal cases coming to autopsy thrombosis has been the rule. This has occurred, irrespective of whether or not the lesion has appeared, as Hawkins suggests, early or late in the course of the typhoid fever. Whether or not the damage was done as a result of an early cardiac involvement can not be stated, inasmuch as observations on the heart condition are lacking in the majority of the reported cases.

In hemiplegia complicating other acute febrile diseases, cases are on record in which the cardiac valve-flaps have been found to be normal, and yet clots have been found in the heart and thrombi in the arteries. Hawkins cites Henoch as mentioning an instance in which embolus was found in the right Sylvian artery and a thrombus on the left side of the heart. In many cases dicrotic pulse and cardiac irregularity were marked, especially in those reported by Hawkins, Osler and that here given. When the lesion comes on early in the course of the fever, with sudden, severe convulsions and loss of consciousness, the evidence appears to be that the causative factor is either an embolus or a small hemorrhage involving the motor areas of the cerebrum. When the condition is a complication of the later stages of the disease the damage is doubtless due to thrombosis, although one can not eliminate the possibility of a hemorrhage occurring as a result of sudden strain on the arterial walls. The recent studies of Thayer on the blood-vascular changes in typhoid fever might lend strength to the opinion that there are some cases in which thromboses may develop without much coincident cardiac weakness. The possibility of the injurious effects on the circulation from a diffuse encephalitis must not be overlooked.

Prognosis.—Death occurred in about 15 per cent. of the cases in which hemiplegia complicated. In these cases the lesions in the bowel did not appear to have been the most serious factor in causing the fatal termination. In the non-fatal cases the prognosis is for gradual partial recovery. When the lesion is associated with aphasia the recovery is apt to be less rapid and less complete. The aphasia is apt to persist. However, this rule does not apply in all cases. In about 8 per cent. of the cases there was no improvement.

Treatment.—This naturally falls into (a) treatment during the onset of the paralysis, (b) treatment of the condition after hemiplegia has been established, and (c) treatment of the primary infection.

DURING ONSET OF PARALYSIS.

Measures whereby cerebral congestion is relieved are indicated. Ice-bags may be applied continuously to the head. They are of great service in controlling the delirium, and certainly, in my experience, exert a favorable influence on the convulsions when present. Doubtless they are of value in preventing the diffuse cerebritis, as suggested by Sir Thomas Barlow. The Brand bath should be discontinued during the convulsive stage, but in the absence of convulsions with simple delirium the cold tubs, with constant pouring of cool water on the head, do much to relieve the mental symptoms. Frequently by this treatment the onset of severe convulsions may be prevented. In those cases in which cerebral congestion is extreme, as shown by the swollen vessels, the purple face, the wandering mind, the high temperature and the dilated heart, venesection—if quickly done—is of undoubted service. In the cases with less evidence of cerebral congestion, and with slow onset of the paralysis, blood-letting is contraindicated, as predisposing, by retarding the circulation, to increased thrombosis. Local blood-letting, as by the application of leeches over the mastoid area, as suggested by Berger, may be tried and may be of some value in selected cases.

The action of brisk purges, as the use of salines or a few drops of croton oil, may be of advantage in the cases in which the paralysis comes on early, but would, of course, be out of place in the later stages of the disease when ulceration of the bowel has taken place. Warm bags to the feet or mustard cloths to the legs may be serviceable in some instances. For the cardiac weakness digitalis and strychnin may be necessary, although on account of their action on the blood pressure they should be used with caution. Aconite is of value in cases with high pressure and rapid heart. In many instances the constant application of an ice-bag over the precordia will do much to prevent sudden dilatation and to control such when once present. The convulsions seldom require chloroform. It should be given cautiously. Bromids in large dosage, in the early stages, may be useful for controlling spasm and convulsions, and are quite harmless if cautiously given. For the intense headache nothing is so grateful to the patient, or so harmless in its action, as the ice-bag or frequent sponging with cold water. An occasional dose of acetphenetidin is sometimes of value, but on account of its depressing effect its use should not be persisted in.

Surgical interference may be of value to relieve pressure or remove clots or thrombi in cases where an operator of the highest skill is available.

AFTER HEMIPLEGIA IS ESTABLISHED.

When the hemiplegia has been established supportive measures are indicated. In the early stage the patient may have to be frequently catheterized on account of the loss of sphincteric action. He may have to be fed through a tube or by the rectum, the latter procedure being inadvisable except in the very early cases or those coming on during late convalescence. It is to be remembered that an ordinary patient will go several days without much nourishment, and with little harm to himself, provided sufficient liquid is furnished in the form of water. Burns from hot water bags and the resulting bed sores should be carefully avoided or, if present, should be kept scrupulously clean, protected and dusted. In those cases which come on late, or after the acute infection has subsided, the indications are to prevent atrophy and contracture. Massage with warm olive oil several times daily is of much value, but must not be too vigorous, inasmuch as it occasionally is largely instrumental in the production of muscle tenderness and phlebitis. It should always be from the periphery. Passive movements of all the involved joints should be performed, gently at first and not over too long a period. In this way contractures and ankylosis are largely prevented. Faradism is often of value in promoting nerve and muscle nutrition.

Careful feeding, outdoor life and frequent bathing will do much to restore function. In those cases in which syphilis is present or suspected, full doses of the iodids are indicated. For the obstinate edemas, which frequently occur in the dependent parts, e. g., as in the hand, rest, with elevation, is indicated. If such a condition persists elastic web bandages, not too strong, may be worn when the patient is in the upright position. The patient should be encouraged to make voluntary movements as often as possible, and should be told the importance of attempting the finer movements of co-ordination. Exercises calling for such movements are readily invented, and frequently the patient performs them with enthusiasm. When aphasia is present exercises for phonation, for recognition and description by writing or by speech should be arranged.

TREATMENT OF THE PRIMARY INFECTION.

The carrying out of the measures for the relief of the symptoms associated with onset of hemiplegia, and for its treatment after once established, do not interfere with the routine treatment of the acute infection. The cold tubs may have to be suspended for a time, the patient will require more care during convalescence, which may be long drawn out, and the prolonged stay in bed may render him more liable to complications, but by taking care of such as they arise one can usually control the situation.

I wish to acknowledge my sincere thanks to Prof. Dock, Prof. Canfield, Dr. Klingmann and Dr. Freund for aid in the examination of the patient herewith presented and for suggestions in the collecting of data.[4]

THE TREATMENT OF PSEUDARTHROSIS AND RETARDED CALLUS FORMATION BY INJECTION OF BLOOD.*

VICTOR SCHMIEDEN, M.D.
Privatdocent of Surgery; Chief of the Surgical Clinic in the University of Bonn.
BONN, PRUSSIA.

It is now more than two years since Professor Bier reported his first experience in treating pseudarthrosis and retarded callus formation in a new and interesting way. It comprises the injection of venous human blood between the fragments, which blood is taken from the arm of the patient or from that of another healthy man, in order that callus formation may be stimulated.

As the manner in which this injection excites the formation of callus is not perfectly clear, I will make a few explanatory remarks regarding it. In every case in which there is a fresh extravasation of blood one sees the signs and symptoms of a slight inflammation. The affected part is painful, edematous, and many times the patient has fever and a feeling of heat in the part, at times also the patient has albuminuria.

These phenomena, which are but the manifestations of the reaction of the body to the extravasation of blood, seldom fail, and are especially marked when, instead of the patient's own blood, the blood of another person is injected. The most intense reaction is called forth by injection of the blood of animals.

These immediate symptoms of absorption are followed by others, which are active for a long time. Hard, new connective tissue is formed in which blood pigment may be deposited, and often more highly organized tissue is destroyed by these scars which follow such extravasations, for instance, in joints, muscles and in the central nervous system.

The inflammatory irritation produced by such extravations can be easily demonstrated in simple fractures. There is intense pain, marked swelling and increased amount of heat in the part. Bier believes that in these cases the inflammatory reaction is due to the extravasation of blood, and that the formation of callus is caused by this inflammatory reaction.

The fact that cases which often heal with the formation of a large amount of callus are those cases in which a large extravasation has occurred seems to point to the above-mentioned logical conclusion. On the other hand, we often see delayed callus formation in compound fractures on account of the escape of the blood. Further, in hemorrhages near bones we see at times a thickening of the periosteum; also in cases of repeated traumatic hemorrhages we see the formation of osseous nodules in the muscle substance. In the same manner the intentional irritation of the fractured ends of bones and the pounding on the site of the fracture, as practiced by Thomas, excited callus formation, not by the direct irritation, but by irritation excited by the hemorrhage which this treatment caused. These various considerations prompted Bier in his efforts to induce callus formation by injection of blood, and these injections have proven the truthfulness of his suppositions.

One can divide the pseudarthrosis into two classes, the one due to inefficient treatment (marked dislocation of the fragments), the other due to a general condition of the patient which is not favorable to the formation of callus. In the latter class there are many conditions which I will not enumerate. All surgeons have seen cases in which the fractured ends have been perfectly reduced and the best treatment followed, and yet no callus formation takes place. In such cases all treatment is in vain, even suture of the bones, which in these days of aseptic technic is the best, but is not always to be recommended.

On account of better technic in the treatment of fractures we see to-day comparatively few cases of pseudarthrosis as compared with former times. With the help of the skiagraph we are able so perfectly to reduce a fracture that pseudarthrosis from malposition of the fragments is very rare, indeed. Therefore, we may place almost all cases of pseudarthrosis in the second group, in which the system, from some known or unknown reason, has lost its ability to form callus.

The injection of blood in these cases is similar in its action to the injection of other irritating agents (tincture of iodine and oil of turpentine), the purpose of which was the same, namely, stimulation of the fractured ends to callus formation. The injection of blood is much better, because it is free from danger, it causes less pain, and is similar to the natural irritation, which results in union by callus.

In Bier's clinic, where this treatment is carried out, the technic is as follows: The site of the "false joint," as well as the arm from which the blood is to be taken, are rendered aseptic. By light application of a constricting band the veins of the skin are made prominent, then one of the largest vessels is punctured and 30 or 40 c.c. of blood are slowly drawn into the syringe. If any difficulties are encountered in puncturing the vein, the operation may be facilitated by a small skin incision. The syringe must be large and its needle sufficiently strong in order that the blood may be readily forced through it. Above all, the syringe must be very strong, since much force is necessary to inject the blood into the hard scar tissue.

It is desirable to inject the blood into the space between the fractured ends of the bone, and one may be assisted very much by a skiagram. Not only must one inject the blood between the fractured ends, but also around them into the places, where, from periosteal and paraosteal connective tissue, callus formation shall take place.

It is important that one should immediately inject the blood after its removal, using the same syringe into which it is drawn, in order that it does not coagulate in the syringe. The venous blood does not coagulate as rapidly as arterial blood.

Before using the syringe it should be proven to be in perfect order, normal salt solution being used for that purpose, as it tends to prevent coagulation in the syringe.

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[4] There is a bibliography, omitted from The Journal, which appears in the author's reprints.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

By immediately injecting the blood, which retains its fibrin, better results are obtained than by injecting blood which is defibrinated.

By this technic I have made a great many injections and have never observed any unpleasant or dangerous symptoms arising therefrom. I have often injected blood taken from another healthy man and have found it to be more effective.

From 20 c.c. to 40 c.c. of blood, according to the size of the bones, is injected, the operation being repeated every 10 days. In most cases there is a visible reaction and after the subsidence of this inflammatory reaction a tumor remains which becomes the callus. Often one or two injections suffice, at times six or more are necessary. The more recent the fracture the more quickly is the result obtained. Therefore, the best results are obtained in cases of delayed callus formation. In cases of long-standing pesudarthrosis this treatment fails entirely at times. But who will claim any one method or treatment as a panacea?

He who has mastered the simple technic of this treatment has at his command a potent prophylactic and by its use as such can prevent such an unfavorable result as a pseudarthrosis.

The results are as follows: In all 21 cases were treated—9 cases of genuine pseudarthrosis and 12 cases of retarded callus formation. Of the 9 cases of long-standing pseudarthrosis, 4 patients were healed with the help of from 1 to 6 injections, 2 remained unimproved, and 3 are still under treatment.

Of the 12 cases of retarded callus, 10 patients were healed with the help of from 1 to 4 injections, 1 remained unimproved, and 1 can not be well used for our purpose because of the bones having been sutured.

In conclusion, let me say that we have been convinced by this experience that Bier's views are correct. *The extravasation of blood is the natural irritant which excites callus formation.* The technic is simple and harmless. We have made over 50 injections and have not experienced a single infection or suppuration.

I recommend this method, and I hope you will be able to substantiate our results. Especially do I urge you to try it before resorting to operation, and I should be very glad to hear of your results with it.

THE TREATMENT OF HYPERTROPHIC AND INTUMESCENT RHINITIS WITH THE GALVANOCAUTERY.*

E. FLETCHER INGALS, M.D.
AND
STANTON A. FRIEDBERG, M.D.
CHICAGO.

In this paper we have considered the treatment of these two conditions together for the reason that most authors consider them as but two phases of a single disease and also because in the majority of cases the treatment adapted to the hypertrophic form of the disease is precisely the one that would be most efficient in the condition attended by repeated but temporary swelling of the parts. In the latter condition the swelling may entirely subside under the influence of cocain or adrenalin applied locally, whereas in true hypertrophy only a part of the swelling disappears under like measures.

In selecting this very old and threadbare subject, we are influenced by the conviction that the hue and cry raised against what we consider the safest and best form of treatment is largely the echo from those inexperienced in the proper technic or misguided by injudicious instructors.

The objections of careful and conservative men to certain methods are not infrequently founded on their observation of the results obtained with those methods by incompetent or bungling operators. That much of the work done by so-called laryngologists is not perfect is undoubtedly true and that some of it is utterly inefficient is altogether probable.

Our impressions, even though founded on long and careful experience, are often at variance with facts; therefore, scientific men demand proof before they will accept any theory, however plausible.

CASES STUDIED.

In preparing this paper we have carefully analyzed 100 private records of consecutive cases in which treatment had been continued long enough to allow us to expect appreciable results.

In order that the histories should be complete we began with a patient first seen in March, 1901. We then selected records following this, but excluded from consideration the records of all who had not received at least one treatment of each naris or two treatments of one naris. Many of those excluded were of slight degree and were seen but once. Of these many were from a distance, so that they could not return; some were cured by the single operation and the others, for reasons that we could not discover, did not continue treatment. It did not seem to use practicable to complete many of these histories by correspondence; therefore, we have relied entirely on the memoranda made at the various consultations.

Although these 100 cases constitute only a small part of those of which we have like records, we have so thoroughly eliminated any chance of selection that the results seem to us to be almost as valuable as though we had analyzed thousands. In analyzing these records, we first decided on the points we wished to consider and then carefully tabulated the findings in each case and we are recording the results without reference to any preconceived ideas. We searched these records first for the most common symptoms complained of by patients suffering with these affections, with the following results:

Hawking and clearing of the nasopharynx were complained of in 13 per cent., which was very much less than we had anticipated.

Stuffing up of the nose was complained of in 69 per cent.

Sore throat, throat irritation, hoarseness in 57 per cent.

Susceptibility to frequent colds in the head was recorded in 17 per cent.

The ears were more or less affected in 20 per cent.

The sense of smell was somewhat impaired in 10 per cent.

Mouth breathing and headache were each noted in 10 per cent.

Excessive discharge from the nose was complained of in 11 per cent.

Excessive sneezing occurred in 5 per cent.

Pain, dryness of nares, cough and interference with speech were among the other symptoms noted.

Our experience has led us to believe that as soon as the nares had been permanently freed from the obstruction the first of these symptoms would be diminished about 80 per cent.; that the second would be entirely cured; the third greatly relieved, and the fourth at least four-fifths removed. The results of treatment have usually been attained by from two to four cauterizations and with only six to twelve visits all told by the patient to the office. In most of these cases (indeed, in all of them having no other trouble) as soon as the symptoms were relieved to the extent indicated above the patients were advised to discontinue active treatment, but generally they were directed to use some slightly stimulating oily spray for a few weeks, in the belief that practically all annoying symptoms would disappear in that time.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

In this analysis we have been obliged to classify as improved, only, many cases in which for reasons that do not appear in the records the treatment was not completed, and certainly in some of those classified as not improved the treatment had been discontinued before the work had been completed. We have long believed that over 95 per cent. of all cases of uncomplicated hypertrophic and intumescent rhinitis can be cured if treatment along the lines we have employed be carried to its legitimate conclusion, but we always advise patients to discontinue treatment as soon as the nares appear sufficiently free, because it is easy to enlarge the cavities further if after a time it should seem desirable, whereas we have no remedy if we carry the treatment too far. It thus happens that some patients return for a little more treatment after a few months or years. Our policy has been to obtain the greatest possible benefit with the least discomfort and inconvenience for the patient, at a minimum expense and in the shortest practicable time. With this policy clearly in view, the great majority of operations have been made on the inferior turbinated bodies, a limited number on the septum and comparatively few on the middle turbinated bodies.

DISCUSSION OF METHODS.

The means commonly adopted for reducing the hypertrophied or swollen tissues in the nares are:

a. Aqueous washes.
b. Sprays of various substances in water or oil.
c. The snare, cold or hot.
d. Cutting off of turbinals by scissors or spokeshave.
e. Cutting out a wedge-shaped piece from the turbinals.
f. Acid caustics.
g. Electrolysis.
h. Free cauterization with galvanocautery in points or by linear cauterizations.
i. Submucous cauterizations.

Each of these methods has its adherents who employ it almost exclusively, and each has peculiar adaptation to certain cases, although most of us would agree that douches and aqueous washes are generally either inefficient or actually harmful. Watery sprays are generally harmful and oily sprays can do little more than aid in cleansing the nares and as carriers of antiseptics and stimulants, none of which can have much influence in reducing hypertrophy.

The cold snare that was so ably advocated by John N. Mackenzie twenty years ago is the best means we have for removing such hypertrophies of the posterior ends of the turbinals as can be engaged in it; but it is seldom satisfactory on the anterior two-thirds of the inferior turbinal. This operation is sometimes followed by troublesome bleeding, but, aside from this one drawback, it is to be highly recommended in suitable cases, for by it speedy relief is obtained and the subsequent reaction is slight. The galvanocautery snare is only rarely available for this purpose.

Turbinectomy either by scissors or the spokeshave is an easy operation, but we believe seldom justifiable because it destroys large mucous surfaces that can not be replaced and it often renders the passages abnormally large. Cutting of a wedge-shaped piece from the turbinated body would be attended by less reaction than cauterizations, but, as it is difficult to perform accurately and is liable to be attended by very annoying hemorrhage, the operation does not appeal strongly to many laryngologists.

Cauterizations by means of various acids, more particularly some form of acetic acid or chromic acid, is much in vogue with some operators. Our experience with this method has been unsatisfactory, because it destroys too much mucous membrane and causes the patient very much more pain and inconvenience than the galvanocautery.

Electrolysis serves a good purpose in a very limited number of cases, but for the majority it is inexact, tedious and unsatisfactory. It is advocated in cases in which the danger of adhesion is great and can not be obviated in other ways, but it very rarely appeals to us as the best operation in a particular case. We can not favor frequent cauterizations in points because the treatment appears tedious and the results are unsatisfactory. In a word, it has seemed puttering. From our standpoint linear cauterizations with the galvanocautery answer the best purpose in 90 per cent. of all cases.

This method was advocated by Seiler over twenty years ago, several years before the discovery of the anesthetic effects of cocain and, therefore, it did not come quickly into favor, although it was claimed by some of its advocates that it caused very little pain. Of all we have treated, only one patient can be recalled who admitted that such cauterizations without anesthetic were not very painful. It was found impracticable to make efficient cauterizations before cocain came into use, but immediately afterward and ever since we have employed this method extensively.

Before local anesthesia the cauterizations were so superficial as to be ineffective, but afterward with long cauterizations down to the bone we soon found that we might be practically sure of good results. There are very few cases in which we should expect as good results by any of the other methods, excepting the use of the cold snare in those cases we have spoken of above.

TECHNIC.

The operation that we most highly esteem for the affections of the inferior turbinated bodies consists of a long narrow cauterization, just deep enough to touch the bone. Occasionally similar, though much shorter cauterizations are applicable to the middle turbinals, but in this position we usually adopt submucous cauterization, a narrow electrode being run in at the edge of the turbinal in two or three places and carried upward and backward under the mucous membrane 8 to 12 mm.

For the swelling at the upper part of the septum we usually make oblique linear cauterizations, down to the bone, about 5 mm. apart and about 15 mm. long. For the inferior turbinated body we usually make at one sitting a line extending from the posterior to the anterior end along the junction of the middle third either with the inferior or upper third, the electrode being moved slightly backward and forward with a saw-like motion as the instrument is gradually drawn forward. These cauterizations are about 5 cm. long and from 1½ to 2 mm. in width.

In about 1 per cent. of all cases a cauterization of this extent causes too much reaction, and in these a line of only half the length is made at subsequent operations. The cauterizations are not repeated until ten to fourteen days have elapsed, and then the operation is made in the opposite naris, the patient having usually been seen but once in the interim, and not at all in the case of those living at a distance, because in the long run it is less expensive for them to take the chance of adhesions. Usually the only object in seeing a patient between the cauterizations is to prevent adhesions which, except when the naris is very narrow from bony obstruction, can usually be done easily by passing a flat probe between the cauterized turbinal and the septum on the fourth or fifth day after the operation.

We do not think it wise to destroy much mucous membrane; indeed, it is never desirable to create a condition in which the area of healthy mucous membrane in the naris is less than normal. One of us once saw a patient in consultation that died shortly afterward from the effects of extensive superficial cauterization of the nasal mucous membrane.

We are not in sympathy with the plan of making small and frequent cauterizations, first, because this course keeps up an irritation and is liable to cause purulent infection; second, because the treatment by this method is more prolonged and costs the patient much more in time and money; third, because we believe the final results much less satisfactory. One of us saw a fatal case in which death appeared to be directly due to this kind of treatment, but we have never seen serious symptoms in any of the cases we have treated for these conditions.

In cauterizing we first anesthetize the part by rubbing it over with a thin swab of cotton saturated with a 4 per cent. solution of cocain guarded by small quantities of atropin, strophanthin, oleum caryophili and carbolic acid which add to the anesthetic properties of the solution and appear to prevent the constitutional effects of the cocain. The swab is rubbed continuously over the part for about 30 seconds, a new swab is then prepared and the swabbing is repeated from two to four times at intervals of a few seconds. A so-called knife electrode is used, having a blade consisting of a No. 22 or No. 20 platinum wire about 18 mm. in length (the latter is much the better when the current is strong enough to bring the wire to a cherry-red heat in about one second or to a white heat in two seconds).

In cauterizing the inferior turbinal the electrode is passed to its posterior end, the platinum wire is turned against the part to be cauterized, the circuit is closed and after a second the electrode is moved slightly backward and forward as it is slowly drawn to the anterior end of the body, care being taken just to graze the bone along a part of the line. The line of cauterization is then swabbed over with a strong compound tincture of benzoin and then both nares are freely sprayed with a solution of oil of cloves, 7 minims to the ounce of liquid albolene. The nostril of the side operated on is then closed with cotton, and the patient is directed to keep it thus closed whenever out of doors for the next four days, but changing the cotton as often as desired as it becomes moist. The patient is given a glass tube about 8 cm. in length with a caliber of 4 or 5 mm. and a rubber tube about 25 cm. in length wherewith to blow into the cauterized naris three times a day a powder containing 1.5 per cent. each of bicarbonate and biborate of soda, 3 per cent. of cocain and 25 per cent. of iodol with sugar of milk; about a grain of the mixture being used each time. One of the important functions of this powder is to open the naris three times a day and thus aid in preventing adhesions. The patient is also given a mild oily spray usually containing thymol, gr. .3; oleum caryophili, 3 minims; to liquid petrolatum, 1 oz.; to be used in both nares five times a day, the principal object of which is to aid in cleansing the nares.

Very little pain occurs after the operation, but the naris is usually nearly closed by swelling and inflammatory lymph for four or five days, although in many instances this does not occur. At the end of this time the inflammatory lymph comes away or may be removed and subsequently decided improvement in nasal respiration may generally be expected. After the fourth day in ordinary cases the powder is used only once a day for three or four days, but the oily spray is continued five times a day. Prescriptions must not be given for this powder because of the danger of formation of the cocain habit. At the end of from ten to fourteen days the opposite naris may be treated, and at similar intervals the remaining needed cauterizations may be made.

We have come to believe that four-fifths of the trouble caused by the nasal obstruction, whether it be in the posterior nares, the pharynx, the larynx or trachea, will disappear almost as soon as free nasal respiration is established, but the remaining one-fifth will only disappear slowly. In rare cases the nares feel dry for three or four months after the treatment.

ANALYSIS OF ONE HUNDRED CASES.

The nasal conditions for which cauterizations were undertaken have varied from an obstruction of approximately one-fourth the lumen of the naris to complete closure of the same, embracing, of course, the simple intumescent or intermittent forms and those of the chronic hypertrophic form, circumscribed or general, with partial or complete permanent obstruction. In many instances definite statements were given by the patients as to the ability or inability to breathe freely through the nose, in whom at the time of the examination the reverse conditions were present. In a number of these cases, exostoses of greater or less degree were present, necessitating removal before an entirely satisfactory result could be obtained. In others the results were satisfactory without any septal operation. When the hypertrophy of the posterior end of the turbinal body was great, the snare was employed.

The duration of the nasal trouble was variously given. Some patients give a history of having been troubled always, the shortest time was three weeks. The greater number had been affected for from one to six years.

In the intumescent form at the first examination, one or the other side was free in 18 and both sides in 3 cases. Swelling was present on only one side in 28 and in both nares in 15 of the patients. The inferior turbinated bones were also enlarged in two cases and the posterior ends of the turbinated bodies were considerably enlarged in four. Exostoses of the septum were noted in one or the other side in the hypertrophic form in 20 cases. Swelling of the septum occurred in both sides three times and in either side alone eight times. Simple deflection was found in one case and deflection and exostosis in four.

In the intumescent form exostoses were present in either side 19 times and in both sides 3 times. Swelling of the septum occurred on both sides 3 times, in either side 3 times. Deflection twice and deflection and exostosis the same number of times. Out of the 100 cases the septum was involved in 51, exclusive of those in which merely swelling was noted. Adhesion and perforation were each found once.

The middle turbinal showed changes such as hypertrophy, swelling or polypoid degeneration in only 17 instances, and these changes were confined to one side. Polypi were found in five cases. Submucous thickening at the sides and base of the vomer was noted six times. Hyperesthesia was found three times, and in four cases the mucous membrane was noted as paler than normal. Altogether 295 cauterizations were made, 149 in the hypertrophic and 146 in the intumescent variety. The r. i. t. was cauterized 137 times, the left 143, the right septum 12, the left 1, and the r. m. t. two times.

In 25 of the cases it was necessary to perform other operations. These were 27 in number, exostosis removed in 11, polypi in four, adhesions cut in two, resection of septum in two, burr or trephine through turbinal in five cases, posterior ends snared in three, tonsils removed in one. Of these 25 cases nine had had some previous operation. In addition to these nine, ten more cases of the series had been operated previously, the operations consisting of removal of tonsils in five, Luschka's tonsil in three, cauterizations in nine, polypi in three, resection of septum in one, removal of spur in one and removal of part of turbinal in one. Several of these operations were combined in some of the cases.

Of complications or unfavorable conditions following the operation, bleeding was noted in seven instances. In no one of these cases, however, was it of any great importance, as it was not necessary to adopt any measures such as packing to stop the flow of blood. Attention is called to this merely to show that if sufficient care is used in having the electrode at the proper heat, bleeding can practically always be prevented. Only in those cases in which the wire is at too white a heat is there liable to be any trouble from this source. Adhesions were noted in five cases, but usually they were readily broken down by the use of a probe, sometimes followed by the application of a mild solution of silver nitrate.

When caution is used to avoid wounding the mucous membrane of the septum opposite to the point of cauterization, the liability to adhesion formation is greatly diminished. Nevertheless, it is nearly always desirable to pass a probe between the two surfaces the fourth or fifth day after the cauterization.

The use of a spray in the home treatment caused some trouble in seven instances. These patients complained of soreness of the nostril, sneezing, dryness, increased discharge or nausea. Headache, pain in the nose or neuralgia was complained of in a few cases following the cauterization.

On returning, several of the patients spoke of having caught cold with the attendant symptoms of an acute rhinitis, but this is a condition that should be anticipated as a natural result after most intranasal operations. Tonsillitis occurred within one day after the cauterization in one case. Increased secretion was complained of a few times and must have occurred much oftener. A feeling of dryness in the nose also annoyed a few patients. In one case the burnt area healed very slowly. Complete healing of the catarrhal condition, as a rule, takes place in from four to six weeks after the cauterizations have been completed, and after this time there is but rarely any complaint as to dryness, crusting or scabbing, though these symptoms occur exceptionally.

In no instance in this series was there any aural disturbance or complication attributable to the cauterization, although we have observed such a complication in one or two cases out of several thousand operations.

The shortest period of treatment was eight days; the longest two years; however, in this latter case the treatment was frequently interrupted for months at a time. Fourteen were treated for less than 24 days, sixty-three were treated for from one to six months, seventeen from this time up to one year, and seven over a year. It should be stated that in a considerable number of cases in which the treatment was prolonged the patients were from out of the city and were seen only at long intervals; consequently the treatment was not continuous, it being largely a matter of convenience to the patient when he would return. Of the sixty-three who were under treatment from one to six months, the greater part were under our care less than three months. The average number of consultations in this latter division was about six. In the average uncomplicated cases of hypertrophic or intumescent rhinitis, eight to ten weeks, with six to ten consultations all told, should be sufficient to effect a cure; relief, however, may be obtained in much less time, most patients noticing this in a few days after the first cauterization.

The time between cauterization varied greatly, from eight days to 13½ months. No patient was cauterized the second time before eight days had elapsed since the previous cauterization. After an interval of three months a succeeding cauterization was noted only sixteen times. From eight days to one month, the greater majority of succeeding cauterizations were noted. More cauterizations took place after a lapse of fourteen days than on the lapse of any other period of time.

A second cauterization is very rarely made before ten days have passed since the former one, and it is only made then when some special exigency requires. Experience has shown that it is better to wait about fourteen days before undertaking the operation. While the nose is not entirely healed even at this time, it has so far recovered as not to cause the patient any serious inconvenience because the succeeding operation is made in the opposite naris. In some instances, especially when the general health is not up to the normal standard and when consequently the wound heals slowly, it is better to wait a longer time.

The results of treatment in the hypertrophic form of rhinitis were excellent in eighteen cases, improved in nineteen, partial improvement in seven, not improved in one, no information obtained in five. In the intumescent form the results were excellent in twenty-seven, improvement in thirteen, partial improvement in three, no improvement in one and not stated in six. It is only fair to state that in most of the cases in which the results are given as not improved or partially improved, the treatment was unfinished. In those in which no statement of condition was found in the records, it is reasonably certain that the majority of them obtained relief.

Adding the results obtained in both series, we have seventy-seven cases in which the results were excellent or much benefited, ten in which partial improvement was found, two in which there was not improvement and eleven cases in which there was no statement as to improvement or lack of improvement, and of these eleven, in eight the treatment was of less than one month's duration and was unfinished.

When we separate the cases that required some other operation from the uncomplicated ones we find that the latter were 66 in number. The detailed results in these cases show that in 55 the results were excellent or improved, in nine no statement was given in the records and in one no improvement was noted.

It is interesting to note that three cases of asthma were found in this list which were treated locally and with internal remedies. Although the nasal trouble was relieved, the asthma failed to improve in two. In one case with the improvement in the nose, relief was secured from the asthma. Mouth-breathing persisted in two cases although the nose was freed of obstruction. This was probably due largely to the force of habit.

CONCLUSIONS.

1. In the hypertrophic and intumescent rhinitis uncomplicated with deviations or exostosis of the septum, the galvanocautery properly applied is the method *par excellence* of treatment.

2. In cases complicated with deviations or exostoses of a slight or moderate degree the cauterizations of the turbinal bodies will be sufficient to bring about complete relief without the necessity of performing operations on the septum. The advantages to the patient in the avoidance of expensive, prolonged and tedious operations, pain, and subsequent discomfort, can readily be seen.

3. The dangers of middle-ear infection have been greatly exaggerated, only one case among several thousand cauterizations, and that not in the list of those published, having come under our observation.

4. The liability to adhesion formation is not great, provided sufficient care is taken not to injure the opposite septal mucous membrane and provided that when the subsequent swelling is marked a probe be passed between the opposing surfaces the fourth or fifth day.

5. A 4 per cent. solution of cocain according to the formula published is sufficient in the vast majority of cases to induce a complete local anesthesia. Three to six applications on a cotton-wound flat applicator being sufficient for this purpose. As a result of experience, especially where there is marked intumescence, we believe that a spray of adrenalin chlorid or suprarenalin, grain .1 to the ounce, materially assists in producing anesthesia.

6. The objection that the galvanocautery destroys too much mucous membrane is not valid if the cauterization is linear and is done properly; indeed, we believe that the full area of healthy mucous membrane is left by this method.

7. Scab and crust formation does not occur any oftener following cauterization than after other nasal operations; in fact, it was noted in but very few instances and in some of these a change in the spray solution caused a cessation of this trouble.

8. No packing is needed to prevent hemorrhage.

9. There is very little, if any, pain after galvanocauterizations of the turbinated bodies.

DISCUSSION.

Dr. Hermann Stolte, Milwaukee, Wis., referred to the fact that the use of the galvanocautery for removing obstructions of the nasal air passages, recommended by Voltolini in 1879, and some years later by von Bruns and Seiler, received a marked impetus from the theory of Hack that excitation of certain parts of the nasal mucous membrane was responsible for certain forms of reflex neuroses, such as asthma, cardialgia, dysmenorrhea, etc. The method has undoubtedly been abused, but rhinologists of the present day, having a choice of two methods, either of which will give the same ultimate good result, have a tendency to choose radical surgery.

In this era of radicalism it is refreshing and satisfying to listen to the distinguished Nestor of rhinology, Dr. Ingals, who is defending conservatism and endeavoring to save thoroughly approved rhinologic methods, such as galvanocauterization of the nasal chambers in hypertrophic conditions, from being neglected and forgotten. Objections raised against this method of the danger of complications, such as middle ear abscess, sepsis, adhesions, destruction of too much vital tissue, too much reaction, and tedious after treatment, are not valid inasmuch as these dangers are avoidable by mastering the right technic and possessing the necessary skill, which is acquired by experience. In case of extensive hypertrophy where two cauterizations are necessary, better results are obtained by applying the second cauterization after an interval of two weeks. The cautery should burn through the whole depth of the mucous membrane down to the periosteum, in order to destroy a part of the deep seated vascular spaces of the erectile tissue and to produce scar tissue, which contracts the whole diameter of the hypertrophic or intumescent strata and fixes it to the bone. Before dealing with any case of hypertrophic or intumescent rhinitis by applying the galvanocautery, one should consider the causation in each case and treat it accordingly.

Dr. Stolte called attention to the Kopetzky method of submucous cauterization, published in the October *Laryngoscope*, vol v. Kopetzky inserts a sharp pointed platinum knife, 1½ inches long, anteriorly into the redundant tissue of the turbinate body along the septal side, pushing it backward along the mucosa as closely as possible to the bone. When *in situ* the current is turned on and allowed to pass through for a few seconds, then the instrument is immediately withdrawn before it cools. This method does away with any outer wound; except a small cut at the point of entrance of the knife. It does away with any scabbing and consequent synechia with the septum, shortens the time of procedure, and prevents destruction of the superficial epithelium and functionating structures of the subepithelial tissue; simplifies the after treatment, and when applied in suitable cases gives quick, satisfactory and lasting results. But the method is not universal. If the bone is uneven and irregular, due to rarefying osteitis or ostifying periostitis, met with often in hypertrophic rhinitis, it is difficult to introduce the knife and there is great liability of piercing the mucous membrane. In such cases Dr. Ingal's method is preferable. In intumescent rhinitis and in diffuse hypertrophic rhinitis, the galvanocautery is a very satisfactory remedy, but in the second class of true hypertrophic rhinitis, the irregular or lobular form, there exists so much hypertrophic tissue that the lower turbinated body rests on and fills out the whole floor of the meatus. In this form, galvanocauterization is mostly insufficient, and better results are accomplished by clear surgical methods, such as ablation by the snare, resection by the scissors, knife or saw. A marked abbreviation of the healing process is secured by Yankauer's intranasal suture, by which a primary union of the wound is obtained within a few days.

Dr. Cullen F. Welty, San Francisco, said that hypertrophy is a condition of the turbinates accompanied by a new formation, usually dependent on or accompanying accessory sinus involvment, while congestive rhinitis is simply due to an increased amount of blood to the part, usually dependent on environment, adenoids, tonsils, or systemic disease. It is a well-known fact that there will always be some improvement in either affection following the use of the cautery. This improvement depends somewhat on the degree of obstruction, but more particularly on the pathologic lesion. As in hypertrophies, the contraction is of necessity less, and will have to be repeated frequently, so in the course of ten or fifteen years the exposed surface of the turbinate will have numberless scars. Following each cauterization the improvement will be less than the one preceding, which is dependent on previous linear adhesions binding the mucous membrane to the turbinate bone. In the course of time no improvement whatever follows, because the turbinate is a mass of scar tissue; its function as a turbinate has been destroyed. However, it continues to act as an obstruction. On the other hand, with the removal of hypertrophied tissues with the snare or scissors, the patient is entirely relieved at one sitting. This remains free indefinitely, and, furthermore, the progress of the disease is arrested. In Dr. Welty's practice, chronic congestion of the turbinates is produced most frequently by adenoids or tonsils; secondly, by hypertrophy of the posterior end of the inferior turbinate; thirdly, by climatic conditions; fourthly, by systemic disease. If, after these conditions have been corrected the congestion continues, it is best to remove the inferior border of the inferior turbinate by scissors. To his notion this particular condition of the inferior turbinate is the only one amenable to treatment by the use of the cautery and to this he has serious objections. The cautery should never be used on the middle turbinate at all, because of the marked reaction which follows its use, which of necessity closes the exit of all the accessory cavities of the nose. Furthermore, serious infection is more likely to follow because of location. The removal of the anterior end of the middle turbinate is so easy that it should be done in all cases of hypertrophy or when chronically congested because it retards the secretion from the accessory cavities. Dr. Welty has never seen a dry throat follow nasal operations that was not accompanied by empyema of one or more of the accessory cavities. The apparent dryness was nothing more than the pus of an unrecognized empyema. He has had a few similar cases. In well regulated patients it is entirely unnecessary to apply a tampon to the nose. He has had a few hemorrhages, but it has always been when the patient has neglected to follow instructions.

DR. J. F. BARNHILL, Indianapolis, said that the paper has two divisions: Hypertrophic and intumescent rhinitis. Until 1899, when the Association met in Columbus, Ohio, in common with most practitioners of nasal surgery, Dr. Barnhill used the treatment by cauterization a great deal for both hypertrophied and intumescent states of the nose. At that meeting there was a long discussion concerning the advisability of cauterizing the turbinates, and since that time he has limited the use of the galvanocautery very much. There should be a very careful diagnosis of the condition which is present and for the correction of which the galvanocautery is to be used. With our present means of diagnosing a turgescent turbinate we should have no trouble in deciding on which case the galvanocautery should be used and on which it might be harmful. Dr. Barnhill has discarded the use of the electrocautery for the treatment of hypertrophic rhinitis. Certainly we can better, more successfully and permanently remove *en masse*, with the many instruments at hand to-day, any hypertrophic condition of the nose. He did not believe, however, that the time has arrived or will arrive at which we should entirely discard the use of the galvanocautery for the treatment of the intumescent inferior turbinate. For the reason just given by Dr. Smyth, he would never use the galvanocautery on the middle turbinate, for the reason that it is, in his opinion, rather dangerous to do so. Many unpleasant results follow the use of the galvanocautery in the region of the middle turbinate, one rather frequent sequence being tonsillitis. He has often seen tonsillitis of the follicular variety, and sometimes very severe, follow the simplest cauterization. Aside from this complication he has never seen any reason for not using the cautery in cases of simple intumescent rhinitis.

DR. J. F. BYINGTON, Battle Creek, Mich., said that, for five or six years, practically the only operation which he performed to relieve enlargement of the inferior turbinate, whether due to hypertrophy or intumescence, was cauterization supplemented by an occasional removal of a posterior hypertrophy by means of the cold or hot snare. During this time he cauterized several hundred of these turbinates. The method employed was practically the same as that described by Dr. Ingals, namely, deep linear cauterization extending from the posterior to the anterior end of the turbinate, produced by the knife cautery. The immediate effect was usually gratifying, but the results were not always permanent. He mentioned one case in particular illustrating this lack of permanency of the relief obtained: The patient first visited him about nine years ago. He had had several previous cauterizations of the inferior turbinates for the relief of intumescent rhinitis, the results of the treatment not being permanent. The case was clearly one of intumescence. At times the patient could breathe freely through the nose, at other times the occlusion of both nostrils was almost complete. Deep linear cauterizations were made in both inferior turbinates from back to front. The patient was relieved for a time, but returned for recauterizations at intervals of possibly a year, for several years. On one occasion Dr. Byington removed the posterior hypertrophies with the cautery snare, a method he has since replaced by the cold snare. This afforded more relief than he had previously had. But the patient returned again a year later with a return of his former symptoms. This time Dr. Byington examined the attic of his nasal chambers carefully under adrenalin and found markedly enlarged middle turbinates crowding on the superior surfaces of the inferior turbinates and thereby causing their engorgement at times. He removed both middle turbinates, and although he has seen the patient twice since the operation and after a considerable interval of time, his nose no longer has attacks of stopping up. Before attempting operations or cauterizations on the inferior turbinate he had endeavored to exclude causes outside the turbinate, which might be a factor in producing intumescence, recognizing that in this body we have an important functional tissue. This tissue may be prone to intumescence if crowded on by some adjacent unyielding structure, such as a bony enlargement of the middle turbinate, or a crest on the septum, and since paying more attention to these external causes he has been obliged to operate much less frequently on the inferior turbinate. He occasionally uses the cautery, and sometimes removes by the nasal scissors and snare the lower margin and posterior end of the inferior turbinate, but this is found to be necessary much less frequently than operations on the septum and middle turbinate.

DR. JOSEPH C. BECK, Chicago, said that if we consider the pathology of the scar, such as results from the cautery, and judge it from the analogy of scars in other parts of the body, we will understand why cauterization of the inferior turbinate body is so frequently unsuccessful. Everybody knows that a scar in the beginning contracts, but remains contracted only for a time; that whenever pressure is exerted on it it stretches. In the nose the scar holds for a time, then there is a turgescent condition and constant pressure on the scar, which stretches, and then it is freed. He considered the cautery in true hypertrophy a superfluous procedure.

DR. C. R. HOLMES, Cincinnati, said that during the first 600 or 700 cases of nasal operation on the inferior turbinate he used the galvanocautery extensively, but it was his experience that after the first or second winter they would return and there would be hypertrophy and obstruction again. It was for that reason he abandoned it for the more radical operation, and also because there was almost always more or less swelling and a certain amount of sepis connected with it, which, if the operation is done thoroughly, he did not see how to avoid. He had never been able to prevent swelling and a slight septic condition, with tonsillitis, etc., frequently following. So he resorted to the other method.

He had seen one very serious result from the use of the galvanocautery, a probable blindness after the removal of a polypus high up, with subsequent cauterization of the middle turbinate.

Dr. Holmes did not wish to condemn the galvanocautery, which he thinks has a place in hypertrophic rhinitis, but he did not think it had any place in the intumescent variety. This can frequently be cured by treating the patient constitutionally, by regulating his habits, stopping intoxicating drinks, looking after his method of living, the excretions and secretions. This condition frequently disappears without cauterization by local application of vibratory massage, without actually destroying any part. He always wants to raise his voice in protest against operating too extensively on the turbinates. While he has operated a great deal, he is astonished at the destruction that is sometimes done. Some operators think it is great to remove a big piece to show to the patient. That is a crime.

DR. WILLIS S. ANDERSON, Detroit, said that in the hands of one as skilful as Dr. Ingals, he did not doubt that benefit will result from this procedure, but in common with others he felt that there are better methods. He has restricted the use of the cautery to certain selected cases, and as the years pass he is using it less and less. If one cuts one's finger with a razor we know how quickly it heals if infection does not take place; but if one burns one's finger with a poker it takes a week or more to heal. Nothing heals more quickly in the nose, as in other portions of the body, than a clean, sharp incision made with a knife. In hypertrophied conditions of the inferior turbinal he removes a little wedge-shaped piece, puts in one or two sutures, and in three or four days it is united, with little or no crust formation, and a permanent result. He noticed that the abstract of the paper states that eight to twelve incisions are often necessary to relieve the condition. To his mind the somewhat more radical procedure is really more conservative, as in one operation the condition can be permanently relieved.

Dr. J. Solis-Cohen, Philadelphia, said that according to his recollection the introduction of the electric cautery into intranasal surgery was for the purpose of avoiding hemorrhage. The anatomic constitution of the turbinals, without vessel walls, and there being no retraction, renders them liable to hemorrhage. That was the danger feared, and in order to avoid it the electric cautery was introduced. In snaring posterior hypertrophies with wire there would be a great deal of hemorrhage, and there was difficulty in restraining it; but now we have found that this hemorrhage can be controlled, there is no longer the necessity for cauterization that previously existed. It is in the selection of cases we must trust for guidance to know when to use this agent and when not to use it. All these things swing like pendulums: everything was electric cautery at one time; then it subsided gradually, and now the pendulum is getting along the other way, and eventually it will stay where it ought to. There are occasions when this agent should be used and there are other occasions when it should not be used.

Dr. E. Fletcher Ingals, Chicago, said that he heartily agreed with the first speaker as to the time of repeating the cauterization; it should not be sooner than two weeks, and then it should be on the opposite side. He apprehended that the most trouble has come from oft-repeated cauterization. He has seen one patient die apparently as the result of the treatment, some one cauterized every day for two weeks. He sees no excuse for that kind of treatment. He fully agreed with the speaker, also, on the advisability of snaring off hypertrophies. One man thought the galvanocautery could not be controlled. He does not know of anything more easy to control. He readily understands that if he cauterizes the middle turbinate very often he is likely to get into trouble. Dr. Ingals knew of one case in which the cautery was used extensively in the upper portion of the nose which was speedily followed by a fatal meningitis. He has not seen numerous scars from cauterization. He has cauterized some cases four or five times on one side in the course of ten or twelve years, but in these cases little, if any, scar tissue is perceptible because we destroy very little tissue, so that there is always left as much healthy mucous membrane as normal. The paper states there was one case of tonsillitis in a hundred; he has seen more than one case and thinks such a sequel might be expected in 1 per cent. One man argues that the results of this treatment are not permanent. That depends on how much is done. As he stated in the paper, he does not cauterize any more than appears necessary at the time. The moment he thinks the nasal cavity is large enough he stops, hence the patient may be cauterized only once or twice before he gets sufficient relief and may not come again for two or three years or not at all unless more thickening develops. In our cases recurrence was very rare and in those it did not occur for a number of years. If in such patients he had cut off the whole turbinate there would have been no recurrence of the swelling, but they would probably have had many other difficulties due to abnormally large nares that could not have been remedied. He heartily agreed with Dr. Holmes as to the error in removing too much tissue. It is very easy to take out more than we ought. He said that he could not agree with Dr. Holmes that there is no place for the cautery in hypertrophy, because the line between intumescence and hypertrophy is not distinctly drawn and can not be. Intumescence is considered by many a true hypertrophy and in such cases the cautery is indicated, but there are some cases of hypertrophy where the cautery alone would not be sufficient.

CHEMISTRY OF SALIVA IN RELATION TO HAY FEVER.*

D. BRADEN KYLE, M.D.
PHILADELPHIA.

In my previous papers[1] I have taken up the general subject of the saliva and the importance of its chemistry in relation to disease.

This paper, then, will be devoted more to observations, conclusions, laboratory technic and treatment. That many deductions can be made, both from a standpoint of diagnosis and treatment, by the examination of the salivary secretion, I think, has been proved beyond a doubt. The information thus gained is not at all limited to hay fever and allied conditions. However, in hay fever, ragweed fever, rye fever, horse fever, rose cold, lithemic rhinitis, etc., the examination of the saliva is most useful from the standpoint of etiology and treatment. The three conditions, excess of alkalinity, excess of acidity, and the neutral condition, each play an important part and each produce a different line of symptoms. The treatment under such conditions also varies greatly. This physiologic and so frequently pathologic secretion which comes to the surface as such and then goes back into the economy to perform a physiologic function, is the only instance in which we have this advantage of study. In my study of the salivary and nasal secretions, I have made a few observations which, to me, are exceedingly interesting.

We may have excessive alkalinity of the saliva, with acid urine; or we may have excessive acidity of the saliva, with alkaline urine. On the other hand, the urine excreted and saliva secreted may both be either alkaline or acid, or neutral.

Another interesting observation is, that in saliva in which there is an excess of ammonium or sodium salts, before acids can be administered, the sodium and ammonium salts must be converted into potassium salt; or, in other words, the alkalinity changed to one due to potassium. The chemical reason for this I have not yet been able to demonstrate. However, I have seen this illustrated in a number of cases.

The chemistry of the saliva and its relation to the opsonic index is certainly an interesting subject. Unfortunately, I have not carried on the comparative experiments with the opsonic index, so can not draw conclusions, but there is no question that the chemical change in the secretion certainly would throw some light on the opsonic index; as the gland secretion is obtained chemically directly from the blood, there certainly could be established a relation between the index and the chemical change.

Another observation which I have made in four cases, which illustrated this chemical change in the secretion of the nose and mouth, after the secretion had reached the surface, was that an irritating fume or vapor was produced by chemical change in the secretion from the structures mentioned. These irritating fumes were so marked that they were distinctly noticeable by the observer and any one coming in close contact with the patient. There was no disagreeable odor.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] "The Etiology of Hay Fever. The Relation of the Chemistry of the Saliva and the Nasal Secretions to Diseases of the Mucous Membrane of the Mouth and Upper Respiratory Tract." Read at the Fifty-fifth Annual Session of the American Medical Association, in the Section on Laryngology and Otology. Also "The Chemical Pathology of the Saliva and Pharyngeal Secretions (Sialo-semeiology) as a Means of Diagnosis," read before the Twenty-fourth Annual Congress of the American Laryngological Association, Boston, May 27, 1902. Also "The Import of the Salivary and Nasal Secretions in Hay Fever," read before the American Laryngological, Rhinological and Otological Society, Lexington, Ky., May 1, 1903. Also "The Relation of the Chemistry of the Saliva (Sialo-semeiology) and Nasal Secretions to Diseases of the Mucous Membrane of the Mouth and Upper Respiratory Tract," read before the New York Institute of Stomatology, Nov. 6, 1903.

The sensitive areas of the nasal mucous membrane, as observed in certain individuals, no doubt render that individual more susceptible to irritants, but can not be the sole cause of the hay fever, as many individuals having no such sensitive area suffer from aggravated attacks of this malady, and others having equally sensitive areas do not suffer from hay fever.

The sulphocyanids, as well as the reaction, alkaline or acid, of the secretion, play an important part. All the cyanid preparations are poisonous, and the sulphocyanid is especially so. In some individuals, the nervous type, the low vitality, the low cell resistance, and general debility, which in themselves are predisposing factors—may such cases, often called neurotic, not be simply autoinfectious? Cases in which the sulphocyanids are present are necessarily autoinfected cases.

CHEMISTRY (SIALO-SEMEIOLOGY).

The chemistry of the normal saliva has been referred to in my previous papers. The principal soluble ferments, enzymes or diastases, exist in amorphous, albuminous substances. They can be separated by alcohol. The enzymes are not dialyzable.

The effect of acids and alkalies on the enzymes can be easily demonstrated in the laboratory, but in the systemic laboratory and in gland secretion, whether in intestinal, gastric or salivary, this action is not so easily demonstrable. Certain enzymes, amalose for example, only act in acid media, the degree of acidity also controlling the reaction. The slightest excess of the acidity, and the action is arrested. Certain other enzymes only act in alkali media, and others in neutral, and so on. Hyperacid saliva, on standing, changes in color from a golden yellow to very dark yellowish-brown. This is due to the change in the basic principle present. Frequently in excessive acid cases the presence of oxalic acid can be demonstrated in the saliva. When this is present any length of time there is likely to be caries of tissue or bone. In an alkaline saliva with sulphocyanids present, we frequently see the abrasion about the mucous membrane of the pharynx, tongue and cheek; in fact, a herpetic condition may occur. This is especially true in the excess of alkaline cases due to the potassium sulphocyanid or the ammonium form. Lactic acid and oxalic acid are frequently found in the saliva. The combination of uric acid and sodium phosphate will produce an acid sodium phosphate. In all such cases the mucous membranes are decidedly sensitive and irritable and the secretion acrid and burning. This is illustrated in various forms of rhinitis, and catarrhal conditions of the nasal mucous membrane, and also marked in the various forms of so-called hay fever.

LABORATORY WORK.

The following simple method of laboratory work I have used for a number of years, and is practically the same as used by Micheals and Dr. E. C. Kirk in his laboratory, and is the plan used by my laboratory assistant, Dr. J. M. Boice. I have used for a number of years in my office the color test in determining the presence and amount of sulphocyanids. The peculiar shade of pink obtained in this reaction can be determined by a color chart. It is empirical largely, but will enable the observer to determine fairly accurately the amount of sulphocyanids present, and he can also make his deductions from such color tests. In other words, a scheme something like the Goldsmith color chart, or hemoglobinometer, could be established, which would be of great service in the rapid examination of specimens. I had hoped to present such a color chart with this paper, but was unable to complete it.

Dr. Kirk, in his work, uses extensively the polariscope, and I find it of great service in determining crystals and an excellent aid in the chemical analysis of this secretion.

SALIVARY ANALYSIS.

The following simple working method for the routine examination of the buccal secretion is followed:

Collection of the specimen should be conducted with care to avoid contamination either with tooth powders or washes, or with various chemical substances; if possible, a sterile receptacle should be used.

The ordinary porcelain test tablet with from four to a dozen shallow cells is used for the test. The reagents are: A 10 per cent. solution of ferric chlorid in distilled water, Nessler's reagent, a solution (about 5 per cent.) of potassium chromate, solutions of silver nitrate and sodium hydrate of similar strengths, and, finally, Von Jaksch's solution of iodo-potassium iodid.

Inquiry should be made of the patient as to whether or not the saliva has any definite taste in his own mouth, and a note should be made in this regard under the heading, "sapidity." A note should also be made under each of the following heads: odor, color, reaction, consistence, aspect and sediment.

A few drops of the secretion is then placed by means of a small pipette on each of four cells on the test tablet. The worker must familiarize himself with the action of his set of reagents on normal saliva, as his results are simply qualitative and the substance tested for is stated as increased, normal or deficient, depending on the nearness of the color or the reaction to that obtained in the average healthy specimen. One drop of the reagent is employed. Ferric chlorid produces from the faintest pink to the most intense vermilion color. the normal reaction must be mentally compared with that under examination and the result noted in reference to the sulphocyanid content. The ammonia content is seen and expressed in a similar way after addition of Nessler's reagent.

The chlorids are determined by the addition of a very small drop of the potassium chromate solution, followed by a drop of the silver nitrate solution—the resulting reddish silver chromate being soluble and disappearing in proportion to the quantity of chlorids present. A substance similar to glycogen is precipitated on the addition of Von Jaksch's solution, and, if to this mixture a drop of sodium hydrate solution is added, the presence of acetone is demonstrated by the odor of iodoform, which odor must be distinguished from that of the periodates sometimes formed.

The above laboratory outline does not apply to the quantitative analysis. The methods employed for this in organic chemistry are necessarily long and complicated.

I lay great stress on the determination of the predominance of sodium or potassium salts in the saliva. The process I use for this determination consists, first, in evaporation of the saliva to small bulk over a water bath, it being better to use for this purpose the dialyzed saliva to rid the concentration of the otherwise glairy consistence. A faint crystalline precipitate on addition of hydrochloroplatinic acid is an indication of potassium, while a similar result, when potassium pyroantimoniate is added, indicates sodium.

A reaction may occur with both tests when a mixture of the salts is present, or for the same reason, or because of the very small amounts present, no visible reaction may occur. At best, the reactions are not pronounced and the tubes may have to stand some hours before a judgment can be given.

The use of the micropolariscope has made possible the recognition of many salts which, under the ordinary objective, have little or no distinctive character.

The absence of the normal salts, as well as the presence of abnormal ones, is of importance. For any degree of success here, the saliva must be dialyzed before being placed on the slide for examination; the slides are in best condition from three to ten days after they are made.

I am indebted to Dr. J. M. Boice, my laboratory assistant, for much valuable aid during the past year in this interesting laboratory work.

The so-called susceptibility of the mucous membrane is not a structural one, but is due to the irritation coming from within. The effect of these altered secretions is also seen in cases in which the mucous membrane is dry, with a sensation of burning and irritation, and yet there is practically no inflammatory process. This certainly is due to an altered secretion coming in contact with the mucous membrane surface and producing local irritation.

In many cases in which there is altered chemistry of the saliva, the patient complains of an excessive flow of this secretion, and in many instances of a soapy taste in the mouth.

CONCLUSIONS.

So-called hay fever varies in different individuals. The cause is not the same. In at least 60 per cent. of the cases I have been able to demonstrate that the local irritation is primarily due to an altered chemistry and an altered resistance, and these 60 per cent. of cases may be divided as follows:

1. The class in which the secretions when coming to the surface are non-irritating, but undergo chemic change and produce irritation. This may be either acid, alkaline or neutral.
2. Cases in which the secretion, when it comes to the surface, is irritating without any chemical change.
3. When the secretion comes to the surface it comes in contact with certain extraneous material and certain secretions coming in contact with certain materials produce by chemical change an irritant; hence the term ragweed fever, rose cold, etc.

Any individual having nasal obstruction in the form of deflected septum, narrow nostrils, polypoid growths, etc., or the neurotic type with lowered vitality, may suffer a more aggravated form than those not having such nasal obstruction or underlying systemic condition. I do not say that this is the cause of all cases of hay fever, but I do say positively that at least 60 per cent. can be worked out on this basis. Excessive alkalinity will produce really more irritation than excessive acidity. It is a well-known fact that strong alkalies are as caustic and escharotic as strong acids.

I do not mean to state in this paper that all cases of hay fever can be cured or, rather, are cured. Neither do I say that the altered chemistry is the cause in all cases, but I do state this emphatically, that, at least in 60 per cent. of the cases it has been my privilege to study, the underlying factor has been worked out on this basis, that the so-called susceptibility, the nervous element, the lowered vitality cases, all can be explained on the basis of altered secretion. One of the worst cases I have ever observed was in an individual who was suffering from autoinfection due to the enormous quantities of sulphocyanids present in his secretion. He was the typical neurasthenic and neurotic type, but it was purely acquired, and when once his general condition was restored to the normal his hay fever disappeared; but in restoring his general condition to the normal his secretion was freed from sulphocyanids and also excess of ammonia compounds in his saliva.

TREATMENT.

The treatment of hay fever has always been subdivided into local and systemic treatment. It is a well-known fact that there are many cases of hay fever in which any local treatment, instead of relieving the symptoms, seems to either aggravate them or to bring on an attack. Occasionally, however, the alkaline or acid douches seem to afford some relief. This is easily explained by the fact that the alkaline or acid would change the reaction of the irritating secretion; yet, if either solution was used in the wrong type of case, this influence would only be aggravated. Chemical experience has proved this to be true. Do not understand me to say that this is applicable in all cases. Some cases certainly receive considerable benefit from local sedatives, and if certain sensitive areas are removed the susceptibility on the part of the individual would be lessened. At the same time the underlying cause would still remain.

The plan of treatment which I have followed, and which has been based on the chemical analysis, necessarily varies in different individuals. The general plan, however, is attention to the secretions. I mean by that the elimination—active intestinal tract, stimulants to the liver, free action of the skin. In other words, increase elimination. The treatment will depend on whether the condition is alkaline, acid or neutral, whether it is due to the presence of ammonium salts, the sodium salt, potassium salts, or whether there are present sulphocyanids, lactic acid or oxalic acid. To meet these conditions citrate of soda, lactate of soda, benzoate of soda, which renders inert active compounds, boric acid, dilute hydrochloric acid, dilute nitric acid, various forms of salicylates, sodium chlorid—all may be used to counteract a certain chemical ingredient present in the saliva, so that the drug must be selected purely on this basis.

As stated before, I have seen several cases relieved by the administration of sodium chlorid, others by the administration of benzoate of soda, others by boric acid, and so on through the list, after first increasing elimination as much as possible, through the skin and intestinal tract. The patient should always be instructed to drink plenty of water. Following this basis, I have, without any application whatever to the nasal mucous membrane, succeeded in, as I have said before, about 60 per cent. of the cases. The other 40 per cent. I have been unable to relieve by either local or systemic remedies, and was also unable to analyze and separate the irritant and the secretion. Whether these 40 per cent. belong to some other type of cases I do not mean to say, but I do wish to make it emphatic that the cases relieved passed through the attacks year by year by taking the medicine before the onset and occasionally during the period in which they have suffered from the hay fever. Some cases extended back over a period of eight to ten years, and others varying down to the last year.

1517 Walnut Street.

DISCUSSION

ON PAPERS BY DRS. KYLE AND CURTIS.*

Dr. J. Solis-Cohen, Philadelphia, stated that he agrees with those who think that hay fever requires first, a nervous temperament; second, a want of elimination of the natural secretions, autointoxication, one might say; and, third, the irritant. There are very few poor patients who suffer with this disease, unless they happen to be servants of the rich who suffer a good deal, and are thus exposed. Hay-fever patients live in overheated houses, wear too much clothing, and in that way a great many things which should be eliminated remain in the system. Many public individuals who are prominent members of the Hay Fever Association and who have means to go away and get rid of the source of irritation, are men of intense cerebral energy. The nervous system has a great deal to do with it. Many patients with deformities of the nasal passages never have hay fever, while, on the contrary, many patients with hay fever have no nasal deformity. The deformities should be corrected as a matter of course, then every disturbing element possible removed from the patient. Dr. Solis-Cohen advised letting the patient wear light clothing, no more than is comfortable, and giving not a bite of food more than is necessary to keep from being hungry, avoiding highly dressed meats, and so on. To ease the air passages give a little lubricant night and morning; it will give comfort and supply the loss of the natural lubricant. There are many peculiarities of hay fever. Dr. Solis-Cohen mentioned the case of a patient, a prominent man in Philadelphia, who lived in the country thirty miles from the city. One year, when suffering a good deal, he had occasion to go down into the cellar, and at once found relief. This occurred several times, and eventually the man built a little office in the cellar and remained comfortable during the season. Dr. Solis-Cohen had two other patients, prominent citizens, a wife and husband, both subjects of hay fever. The husband, a large coal operator, had a good deal of business in the coal regions near Pottsville. It happened that, when the wife was in Pottsville, she was free from hay fever and when the husband was there he had it. When the husband was in Philadelphia he was free from hay fever, and when the wife was there she had it. Consequently they had to be separated.

Dr. George L. Richards, Fall River, Mass., said that he has not used the Dunbar serum, but that nearly all his well-to-do patients have used it, because they tell each other of it, buy it in the open market and follow directions; and as a rule they report it a failure. He has found that combination of some simple things, while it does not cure hay fever, does something toward relieving the attack, whether the particular cause be in the elimination of the secretions or due to a hyperesthetic condition of the nasal mucous membrane, or the result of spurs or hypertrophy of the turbinals. The patient comes with a nasal discharge, can not breathe, wants immediate results; and a good many patients can not afford to buy the Dunbar serum. The thing which seems to be necessary to give the patient relief is to get air to the nose and to lessen the degree of secretion, and Dr. Richards has been trying to find a simple method which will do that. He has found that adrenalin chlorid in strong solution harms the patient; in weak solutions, so weak that when first used there is not much effect, it is good. He has used it in a non-irritating solution of 1 to 14,000. The patients can use that themselves, and they do not get the subsequent hyperemia. During the last two or three years he has used for office work a method which gives better results, and that is the use of the original Armour powder of suprarenal extract. He takes a small quantity, in the proportion of 1 to 4, adds thymol iodid and uses it as a powder in the nose, sometimes with a preliminary cocainizing and sometimes not. The adrenalin powder heals the congestion, whereas the thymol iodid is a pronounced astringent in the nose and the effect lasts many hours. Simultaneously with that he uses some of the old-time remedies, belladonna and atropin, to the extent of getting dryness of the throat. One of the many forms of coryza tablet contains quinin and minute doses of morphin. He occasionally uses a tablet, beginning with 1 to 500 of atropin, and tells the patient to discontinue as soon as the throat begins to get dry. He has the skin cared for, the bowels thoroughly emptied and all the bodily secretions in good condition. That does not exactly cure hay fever, but it gives the patient relief so that he does not have to discontinue work, and it seems to Dr. Richards the nearest approach to a rational treatment of the symptoms.

Dr. Emil Mayer, New York City, declared that in his opinion the whole gist of this subject lies in its etiology. The suggestion that certain conditions of the saliva may be a cause is certainly an important one, as is the suggestion, also, of a particular nervous susceptibility on the part of the patient. That is well shown by the fact that these conditions occur at certain times in the year. If a certain chemical condition of the saliva alone were responsible, without susceptibility to foreign bodies of some kind, why do not attacks of hay fever occur in midsummer? In this country and in Germany there is a marked difference. Dunbar, when he sent his serum to this country, was thinking of the kind of hay fever which occurs in Germany some time in May and ceases with the beginning of hot weather; while ours begins in the middle of August and ceases with frost. So there must be an underlying condition besides the condition of direct local irritation. Dr. Mayer was under the impression that hay fever was primarily a disease of the well-to-do until he began work in this direction, and had some newspaper notoriety that brought a number of people to his attention. One patient was a coupler in the yards of the New York Central Railroad, about as far away from the rich as any one could be. Another was a track layer, and almost all who applied to Dr. Mayer for treatment were so poor they could not pay for anything. He thinks that the ultimate result of all work done by others, as well as by Dr. Curtis, will be that eventually more than a single etiologic factor will be discovered, and then we will be on the high road to cure this distressing condition.

Dr. H. W. Loeb, St. Louis, stated that some years ago he published the results of a considerable number of cases in which the Dunbar treatment was used. Since that time, as a matter of course, he has made careful observations of the cases treated then, and those coming on since. The patients with rose fever, which is similar to the hay fever of Germany, have all been relieved, at least all who have remained under his observation, by the use of the Dunbar serum. This is particularly noted in a number of cases under observation for three or four years in which the attacks had been regular until the serum was used. The next year after the treatment had been successful the patient came to the office once and was told to use the serum as he did before. In some instances Dr. Loeb experimented by having the patient wait until the attacks came on, but ordinarily suggested that the serum be used before the attack. This has reference to the June fever cases. In the fall fever the results have not been so good; even with the serum Dunbar prepared before he came to this country, the results were not so good as with the spring serum, so-called. The serum prepared from rye and other grass pollen was used. However, Dr. Loeb found a tremendous difference in the method of application, in the quantity that was used. The patient should be kept under observation so that only the minutest quantity of the serum be used. It is necessary that the individual dose be determined by the individual case. Dr. Loeb has found in the majority of cases the patients either were not getting any serum in the nose on account of the spurs or swellings, or were getting too much. The serum is irritative when the quantity is too great. Acting on that, he took patients who had secured the remedy and used it themselves with negative results, and by carefully adjusting the dose, using nothing else, he was successful in many of the cases. He believes that the final word has not been spoken. He does not believe that the serum as now made is expected to be successful on account of collateral features. He thinks that enthusiasm on the part of the physician has much to do with the case. It may be that is what cures the patient.

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*The paper of Dr. Curtis appeared in The Journal July 13, 1907.

Dr. George N. Jack, Buffalo, N. Y., said that he has done some original work along these lines, and while somewhat encouraged, yet he has found a great many discouraging features. He has worked with the idea that hay fevers are constitutional diseases, and that the local irritation and local condition is of minor importance, and he is receiving some support. He considers that hay fever is asthma of the mucous membrane of the head or nose and throat, and that asthma is the same condition carried down into the larger air tubes. It is not the fault of the mucous membrane; the fault is in the blood. The saliva has nothing to do with it. The normal secretions are altered when a person has hay fever, but that does not make hay fever. The altered condition of the secretions and the saliva, like the analysis of the urine, teaches a great deal, but it does not teach that the condition arises from the pollen itself, and it never will. Dr. Jack agrees with Dr. Kyle that the saliva in these secretions comes from the blood. If a physician knows the cause of a condition he can go ahead and give the patient an intelligent prognosis.

Dr. Frank M. Cunningham, Macon, Ga., said that if it is admitted by the maker and originator of the Dunbar serum that it is not yet in a perfected state, then we can accept the condition. The fact is, he said, that in every medical journal the Dunbar serum is advertised as a positive cure for hay fever. The position should not be taken by this Section that approval is given to this product, when it is not, and while the product is an unfinished, imperfect affair.

Dr. Cullen F. Welty, San Francisco, said that as predisposing factors in the causation of hay fever he would mention first, pathologic changes, particularly of the middle turbinate; second, malformation; third, systemic disease and its influence on the nasal mucous membrane. In all these conditions the mucous membrane is more or less inflamed, and is made more susceptible by anything of an irritating nature in the atmosphere. About five years ago, while in Vienna with Hajek, he wished to do some experimental work with Dunbar's pollantin. Hajek said that they had no hay fever there; however, there were patients who had symptoms similar to those of hay fever. They all had pathologic changes or malformations, and when these were corrected the patients made uninterrupted recoveries. The climate of Vienna is similar to that of the middle West, and Dr. Welty can not see why the same conditions should not prevail. In San Francisco he has had a few patients with symptoms similar to those of hay fever. In every case he has seen the symptoms entirely relieved by removing the cause. He is of the opinion that the majority of the so-called hay-fever patients have a pathologic lesion, malformation or adenoid tissue, which leaves the nasal mucous membrane much more susceptible to any form of irritation. In those cases in which he has not been able definitely to locate one of the aforesaid conditions, he has removed the anterior half of the middle turbinate, in the hope of uncovering something. At times islands of tissue have made their appearance and were removed. At other times the middle turbinate so impinged on the lateral wall of the nose as to cause the trouble. In all the cases with which he has had to deal the recovery was complete. However, he does not believe that the aggravated forms of hay fever are found in San Francisco.

Dr. D. Braden Kyle, Philadelphia, said that in a paper which he read at Boston, and in one read at Washington, the effects of climate and changes in altitude are fairly well explained. He believes that there is no one cause of hay fever, but a number of underlying causes. The condition is said to be more aggravated in patients of the neurotic type, but he does not think so. He has seen the worst hay fever in a cold-blooded man who was not a neurotic in any sense, and he has seen it almost if not quite so bad in a patient of neurotic temperament. What, he asked, is the underlying cause? Is it ragweed, the fumes from animals, or roses, or hay, or what? The line of work he is trying to follow out is to find not one cause, but a number of underlying causes, for that gross condition known as hay fever or hyperesthetic rhinitis. Probably when the underlying cause is reached a great many more names will be added.

Dr. H. Holbrook Curtis, New York City, said he has spent much time in an analysis of hay fever trying to get an intelligent explanation of his own failures, and also of the peculiar conditions in regard to the Dunbar treatment, because from some sources he has received the most fulsome letters saying that every case in which the patient was operated on was a perfect success. Then the next might state that in twenty cases there was not a single success. Dr. Curtis has had 8,000 replies to letters sent out in regard to his fluid extract of ambrosia, which has given him remarkable confidence. At first 60 per cent. were favorable, but in the end the thing sifts down and he sees that the effect of suggestion is so great that he has come to consider the climatic treatment of hay fever the only reliable and sensible one. The secretions of the mouth are different in disease. The secretions of the parotid glands are different from those of the sublingual gland. It is known that hay fever changes these secretions, but it is not known that these secretions as changed cause the condition which produces hay fever. Other things also change these secretions. There is a susceptibility, but is it of the secretions or the system? This is a remarkably interesting subject, he said, and the more one studies it the less he knows about it.

SLOW FEVER.*

H. F. HARRIS, M.D.
ATLANTA, GA.

Synonyms: Typho-malarial fever; simple continued fever; remittent malaria fever; Willacoochee fever; continued fever; bilious fever; typhoid fever.

Definition: A continued fever occurring almost exclusively during the warm months and lasting from one to ten weeks.

From the above list of names, by which this disease has at times been designated, it will be seen that there has been in the past most divergent views as to its causation and real nature. Many physicians living in the swampy regions of southern Georgia maintain that this affection is but a severe form of malaria, while others of equal capacity and intelligence are quite as positive that it is a mild form of typhoid fever; there are not wanting still others equally as capable who hold that the malady is neither one nor the other, but is a separate and distinct disease. These varying views have been maintained by their several advocates probably since the settlement of the country, but proof of their truth has been, so far as I am aware, based only on the clinical aspects that the disease presents and, more recently, on blood examinations for the malaria parasite.

The subject is then seen to be at present in a hopelessly confused state; there was no possibility of an agreement being reached except by actual proof of the truth of one of these opinions by the demonstration of the causation of the disease in question. With this object in view the present investigation was undertaken.

METHOD OF OBTAINING DATA.

It is much to be regretted that the assistants who aided me in this investigation comprised such a small working force that it was out of the question to secure full and complete clinical data in the cases of "slow fever" investigated. The material for the work was collected over a wide area embracing the entire southwestern portion of the state. In a number of instances specimens were sent by the physician in charge—the localities from which they were obtained being too inac-

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

cessible for any of us to make a personal visit to the patient—and in such cases we necessarily had to depend on data obtained from the medical man in charge; this accounts for the lack of clinical records in several cases.

It was likewise true that in not a few instances the patients were, on account of ignorance, but little disposed to aid us in our work, and it was only with the greatest difficulty under such circumstances that specimens were obtained. Charts were distributed among the physicians with the request that records be made of the clinical course of the disease in their several patients, but as in nearly all cases these had to be left in the hands of the patient's family to fill out, practically no records of any value were secured. It should, however, be understood that our prime object was to discover the etiology of the disease, and I consequently felt that everything else should be sacrificed in order to determine this; it is gratifying to say that this object has been accomplished according to accepted bacteriologic standards.

ETIOLOGY.

Opinion as to whether or not we have succeeded in ascertaining the etiology of this disease will depend entirely on our views as to the accepted ideas concerning the causation of typhoid and paratyphoid fevers. As is well known, the etiologic relationship of the typhoid bacillus to typhoid fever has never been put to the crucial test of human experimentation, and as typhoid fever does not occur in the lower animals, final proof of this connection is as yet wanting. This is equally true of the so-called paratyphoid bacillus. Notwithstanding this lack of final proof, a vast majority of bacteriologists agree that these organisms really stand in a causative relationship to typhoid and paratyphoid fever respectively. If this view be correct there can be no doubt of the success of our labors, and although the organisms in question were found in only 73.3 per cent. of all cases investigated, it seems in the highest degree probable that if these germs in reality produce the disease in question more careful and thorough examinations would have demonstrated their presence in all of the other instances.

At all events the typhoid and paratyphoid organisms were isolated in practically three-fourths of the cases under investigation, and agreeably to current views there could be no further doubt as to the real nature of the fever in those instances in which the organisms were found. It is certainly true, whatever views we may hold, that the isolation of these germs in such a large percentage of cases is extremely interesting and more or less significant.

As has been stated, typhoid and paratyphoid bacilli were demonstrated in 73.3 per cent. of all cases investigated; of these the typhoid organism was found in 51.1 per cent., the paratyphoid in 20 per cent. and a mixed infection in 2.2 per cent. of the cases.

CULTURAL DIFFERENTIATION.

As is well known, the isolation of the typhoid and paratyphoid bacilli, particularly from the feces, is a matter of great difficulty. Unfortunately there is a most close relationship between these bacteria and the colon bacillus, so close that it seems to me there can be no question that they are varieties of one and the same organism. Morphologically, and in their staining reactions, it is impossible to distinguish these bacteria one from another, and it is only by careful cultural experiments that this can be accomplished. This close resemblance had led to a vast deal of work with the idea of devising some method or methods by which it would be possible always to differentiate these bacteria. Thus earlier investigators laid great stress on the fact that the typhoid bacillus usually grows in a colorless film on potato, while the colon bacillus produces a thick grayish pellicle. Much also was made of the fact that as a rule the colon bacillus produces indol while the other organism does not.

A striking peculiarity of the colon bacillus is the fact that it produces gas in media containing sugars, a peculiarity which it does not share with the typhoid bacillus. For a time considerable stress was laid on the fact that in media containing iodid of potassium the colon bacillus usually develops much more rapidly than does the typhoid, but recently this method of differentiation has not been so much employed. Among the further peculiarities of these organisms on which investigators have relied to differentiate them are the facts that the typhoid is usually somewhat more slender than the colon bacillus, that their flagellæ are generally more numerous, that they produce less acid and that their growth is usually not so rapid as is the case with the other organism; the colon bacillus coagulates milk in which it grows, but the typhoid bacillus does not. Unfortunately it has been shown that these various methods for differentiation of the organisms in question can not be entirely relied on, as it now and then occurs that the colon bacillus will show some of the peculiarities of the typhoid organism, and, conversely, the latter germ not infrequently exhibits characteristics that are supposed to be peculiar to the other.

Within recent years highly successful attempts have been made along the line of preparing special culture media, the object of which was to isolate these bacteria from each other by means of the chemical substances that they produce. Chief among these is the culture medium invented by Drigalski and Conradi[1] and based on the well-known fact that in the presence of both carbohydrates and nitrogenous substances the colon bacillus produces acids from the former, while the typhoid bacillus breaks the albuminous material into products that give an alkaline reaction. This medium contains crystal violet, which is supposed to hinder the development of other bacteria that might be present in the material under examination.

THE MODIFIED DRIGALSKI-CONRADI MEDIUM.

The Drigalski-Conradi medium, when made according to the directions of the originators, was found to give somewhat inconstant results. Following the suggestions of Terburgh,[2] the method of preparing this medium was modified as follows:

2 liters of bouillon (3 pounds of beef to 2 quarts of water).
20 gm. (1 per cent.) peptone siccum (Witte).
20 gm. (1 per cent.) neutrose.
10 gm. (0.5 per cent.) salt.
60 gm. (3 per cent.) agar.
30 gm. (1.5 per cent.) lactose c. p.

After the solution in the autoclave is complete the medium is made faintly alkaline to litmus, 4 c.c. of a 10 per cent. soda solution and 20 c.c. aqueous crystal violet (B. Höchst) solution (1 to 1,000) are added, and the whole is sterilized; 36 c.c. of a sterilized solution of litmus, prepared by pouring boiling water over pulverized ordinary commercial litmus, is then added. The alkalinity of this medium should, at the least, be 0.04 per cent. of pure soda.

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[1] Ueber ein Verfahren zum Nachweise der Typhus Bacillen, Ztschr. f. Hyg., xxxix, 283.

[2] Die auf dem v. Drigalski Conradischen Nahragar wachsenden Bacillen, etc., Centrlb. f. Bakt., etc., xl, 2, 258.

Typical colon bacilli on account of the large quantity of acid that they produce turn the medium red in the immediate vicinity of the point where the growth occurs; the acids do not diffuse to any considerable degree owing to the great proportion of agar that the medium contains. The typhoid colonies do not develop so luxuriantly as the colon and they are more transparent; the medium in their immediate neighborhood remains blue. From the foregoing it is seen that where the two organisms in question develop in a characteristic way differentiation between them is extremely simple.

THE ENDO MEDIUM.

Another culture medium which is quite as satisfactory as that of Drigalski-Conradi for the separation of the two organisms in question is that of Endo.[3] Like the former medium, it depends for its value on the production of considerable quantities of acids by the colon bacillus and the detection of the colonies by the change in color produced in the culture medium on which the organism grows. The medium as slightly modified by us is prepared as follows: To 1,000 c.c. of 3 per cent. neutral nutrient agar add 10 gm. (1 per cent.) lactose, 10 c.c. (1 per cent.) of 10 per cent. soda solution. These ingredients are mixed and sterilized; then 50 c.c. of a sterile 1 per cent. watery solution of basic fuchsin is added. Then 25 c.c. of a sterile 10 per cent. sodium sulphite solution is added, the whole well shaken, and the medium at once poured into sterile Petri dishes. When cold it has a faintly pinkish tinge.

The reason that the above modification was devised was on account of the fact that we found that the medium again became red if sterilized after decolorization by the sodium sulphite. The alkalinity of this medium generally is between 0.1 to 0.15 pure soda with litmus paper as an indicator. It is particularly necessary in preparing this medium to give attention to the following details: 1. The lactose should be pure; if adulterated with cane sugar the typhoid bacillus also produces acids which render its differentiation from the colon bacillus very difficult. 2. The sodium sulphite solution must either be kept in a well-corked bottle or should be freshly made. 3. The culture medium must be preserved in the dark, as light causes it gradually to turn red. When colon bacilli are planted on this medium the colonies grow rapidly and become very red; a metallic luster quickly appears over their surfaces, which is highly characteristic. The typhoid colonies are small, have a transparent appearance and show only a faint pinkish color.

THE METHOD OF LENTZ AND TIETZ.

In 1903 Lentz and Tietz[4] discovered the fact that malachite green, when added to the customary culture medium, possesses the important property of more or less hindering the development of the colon bacillus, while the typhoid organism is relatively unaffected; this property of malachite green is particularly important where investigations of the feces are being carried on. We were not particularly successful with this method, however, and, as the same object could be attained more satisfactorily in other ways, we did not continue the use of the medium throughout the course of our investigations. It seemed to us by no means so certain as the method of Ficker and Hoffmann,[5] in which the growth of the colon bacillus is hindered by the presence of caffein in the medium; this method is certainly very serviceable, and we believe more reliable than the one just referred to.

GAEHTGENS' METHOD.

Perhaps the best of all the media for the detection of typhoid bacilli in badly contaminated material, such as feces, is the method of Gaehtgens,[6] which is a combination of the procedures devised by Endo, and Ficker and Hoffmann. In this method caffein in the Endo medium hinders the development of the colon bacilli, while the color reactions differentiate these organisms from the typhoid and paratyphoid bacilli. The medium is prepared by simply adding 0.33 caffein to the Endo agar solution already referred to.

It might be mentioned at this point that we have used with entire satisfaction the bent glass rods recommended by Drigalski-Conradi[1] for planting on plates the organisms under investigation. These consist of ordinary glass rods about 20 cm. in length and an arm about 3 cm. long bent at right angles to it at one end. The material to be examined is rubbed up well with water in a sterilized mortar. The culture is then made by inserting the small arm of the glass rod in the mixture, removing with a shake the excess of liquid adhering to it, and then drawing it lightly over the surface of the medium in the Petri dish.

BLOOD CULTURES BY CONRADI'S METHOD.

When it is wished to make cultures from the blood the method recommended by Conradi[7] is undoubtedly of great value—supplanting, in my opinion, the earlier procedures of Schottmueller,[8] who first called attention to the value of bacteriologic examinations of the blood in the diagnosis of typhoid fever. This procedure is based on the fact that the bile has a decided action in preventing the coagulation of blood, while the bacilli grow excellently in a mixture of these two substances. The method is carried out as follows: To ox bile 10 per cent. each of peptone and glycerin is added, and after sterilization 10 c.c. of the solution is measured off in as many tubes as may be desirable. Blood is then obtained from the patient by withdrawing it from a vein with a syringe, or, as Conradi prefers, from the ear; 0.5 to 2 c.c. is sufficient. The blood is added to the bile solution and put in the incubator for about sixteen hours. If typhoid bacilli be present their number greatly increases. Cultures are made from this mixture on any of the media by means of which it is possible to determine the true characteristic of any growth that may be present.

In the first instance, then, where it is desired to isolate typhoid or paratyphoid bacilli, I would recommend that in the case of the feces either the method of Gaehtgens or Drigalski-Conradi be employed; in dealing with urine either of these methods or the Endo process may be advantageously used; finally to examine the blood a preliminary culture in the Conradi bile medium may be made, and then subsequently either of the organisms in question may be identified in case they are present.

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[3] Ueber ein Verfahren zum Nachweise der Typhus Bacillen, Centrbl. f. Bakt. Orig., xxxv, 109.

[4] Eine Anreicherungsmethode f. Typhus u. Paratyphus Bacillen, Muench. med. Wochschr., 1903, 49.

[5] Ueber neue Methoden des Nachweises v. Typhus Bacillen, Hyg. Rundschau, 1904, xiv.

[6] Ueber die Erhohung der Leistungsfahigkeit des Endoschen Fuchsinagars durch den Zusatz von Koffein, Centrbl. f. Bakt., etc., xxxix, 5, 634.

[7] Ueber Zuechtung von Typhus Bazillen aus dem Blut mittels der Gallenkultur, Muench. med. Wochschr., 1906, 34, s. 1654.

[8] Schottmueller Ueber eine das Bild des Typhus bietende Erkrankung hervorgerufen durch Typhus ahnliche Bacillen, Deutsch. med. Wochschr., 1900, xxxii, 511. Also, Weitere Mittheilungen ueber mehrere das bild des Typhus bietende Krankheitsfaelle hervorgerufen durch Typhus ahnliche Bacillen, Ztschr. f. Hyg., 1901, xxxvi, 368. Zur Pathognese des Typhus abdominales, Muench. med. Wochschr., 1902, xxxviii, 1561.

One of the most satisfactory methods for differentiating between the colon bacilli and the typhoid and paratyphoid organisms is the modification of Rothberger's[9] neutral red procedure devised by Scheffler.[10] The medium is prepared by adding 0.3 per cent. of grape sugar and 1 c.c. of a concentrated watery solution of neutral red to 100 c.c. of nutrient agar. The medium is sterilized and put in tubes and stab cultures made in the usual way. In from twenty-four to forty-eight hours the medium which before was of a dark cherry red becomes partially decolorized and assumes a characteristic greenish fluorescence if colon bacilli be present; there are also numerous bubbles in the medium produced by the liberation of gases from the sugar which it contains. Exactly similar changes are produced by both types of the paratyphoid organisms. The typhoid bacillus grows in this medium, but neither decolorizes it nor produces gas.

OTHER METHODS OF DIFFERENTIATION.

Among the other methods that have been devised for the purpose of differentiating colon from typhoid bacilli after isolation may be mentioned the following as of most importance: Escherich[11] first called attention to the fact that the colon bacillus coagulates milk—a property which it does not share with either the typhoid or paratyphoid organisms. Another important differential test was that devised by Chantemesse and Widal,[12] who showed that the colon bacillus ferments lactose, with the production of gas, while the typhoid bacillus does not do this. Schottmueller's paratyphoid bacillus A resembles in this particular the typhoid organisms, while the type B, like the colon bacillus, disengages gas. Petruschky's[13] litmus whey is likewise very serviceable in separating the colon from the typhoid bacillus, the former organism producing acid and changing the color of the medium red.

A modification of the last two tests devised by Wurtz[14] is convenient; it is based on the fact that no gas or reddening of the medium occurs when the typhoid bacillus grows in litmus-lactose-agar, while both of these results occur during the development of the colon bacillus. Paratyphoid bacillus B produces more or less gas in this media. As has been long known, the formation of indol in albuminous media is highly characteristic of the colon bacillus, while this substance does not result from the growth of the typhoid organism; the paratyphoid in this respect resembles the typhoid bacillus. Erdmann and Winternitz[15] have shown that proteinchrom is produced by the typhoid bacillus in media containing albumins, but this substance does not result from the growth of the colon organism. Just one-half of the paratyphoid bacilli isolated by us produced this substance.

From the foregoing one inexperienced would certainly be led to the conclusion that the differentiation of typhoid from colon bacilli was comparatively an easy matter, but, multiply our tests as we will, there is unfortunately no absolutely certain method by means of which this result can always be accomplished.

PATHOLOGIC ANATOMY.

It is greatly to be regretted that no opportunity permitted the postmortem study of the bodies of those dying of "slow fever," and I am, therefore, not in a position to speak as regards this most important matter. I can only call attention to the fact that in a considerable proportion of cases the spleen was obviously enlarged and that in some instances the lymph nodes were increased in size. In a few cases rose spots were present. These facts certainly tend toward the assumption that this so-called "slow fever" is certainly, in many instances, typhoid, with its well-known pathologic anatomy.

SYMPTOMATOLOGY.

As the primary object of this investigation was, if possible, to determine the etiology of "slow fever," no systematic attempt was made to study the symptomatology of the disease. It was, however, necessary to go into the clinical side of the matter sufficiently to determine that the cases under investigation were true examples of the affection in question. It is not pretended that the symptoms hereinafter enumerated furnish an accurate and clear picture of the malady throughout its course, but is believed that the principal and most striking clinical phenomena are given. Of the forty-five cases studied records were not obtained in all instances concerning the clinical details; this accounts for discrepancies that otherwise might be puzzling.

In 13 cases the onset of the disease was in April, 11 in June, 18 in July and 2 in September; 36 of the patients were white and 8 were negroes; 23 were males and 21 femals; 44 were Americans, and 1 a German; 4 were under ten years of age, 12 from ten to twenty, 13 from twenty to thirty, 5 from thirty to forty, 2 from forty to fifty, and 2 from fifty to sixty years of age; 11 were farmers, 10 school children, 6 laborers, 6 housewives, 3 children, 2 school teachers, 1 a cook, 1 a travelling man and 1 a bookkeeper.

Five of these patients had previously had "slow-fever", 3 typhoid, 10 malaria, and 20 declared that they had previously had no fever of any kind. In 12 instances the disease was ushered in by a chill. Headache was observed in 37 cases, and pain in the limbs and back in 38 in the earlier stages of the disease. The appetite was good in 14 cases, and poor in 27. Constipation was present in 18, and diarrhea in 10; in 12 the bowels were regular. Distension of the abdomen and tenderness in the right iliac fossa was present in 17 cases. Nosebleed occurred 6 times.

The fever had varied up to the time of observation from 99.2 F. to 106.6 F. The temperature seemed as a rule to be decidedly higher in the earlier stages of the disease than is the case in typhoid. It did not appear to rise in the beginning and recede at the end in the gradual manner so characteristic of the classical form of the latter disease. The fever was in most instances continual, but showed regular remissions at some time during the twenty-four hours. In six cases intermissions were observed, these usually being present either in the beginning or toward the end of the attack. Rose spots were found in 7 cases. In 20 instances nervous symptoms were more or less pronounced. The heart, and curiously the lungs, also appeared to be normal in every case examined. The spleen was enlarged in 24 cases, and there was more or less general swelling of the lmyph nodes in 23 instances. The liver appeared to be somewhat enlarged in 11 cases.

Stained preparations of the blood by the Romanowski method were made in every instance, and not in a single case was the malarial parasite found. In 18 instances the hemoglobin was estimated; the figures ranged from 60 to 100 per cent; the amount of hemoglobin was not entirely dependent on the stage of the disease, as it was found to be very low in several cases during the first week of the disease.

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[9] Differential diagnostiche. Untersuchungen mit gefaerbten. Naehrboden, Centrbl. f. Bakt., etc., xxiv, 513; xxv, 15, 69.

[10] Das Neutralrot des Hilfsmittel zur Diagnose des Bacterium coli, Centrbl. f. Bakt., etc., xxviii, 199.

[11] Beitr. zur Kentniss der Darmbacterian, Muench. med. Wochschr., 1886, i, 43.

[12] Recherches sur le bacille typhique et l'etiologie de la fievre typhoide, Arch. de phys. normal et patholog., 1887, ix, 217, 300.

[13] Bakterio chemische Untersuchungen, Centrbl. f. Bakt., 1889, vi, 625, 657.

[14] Note sur deux caracters differentiels entre le bacille d' eberth et le bacterium coli commune, Arch. de med. exper. et. D'anat. path., 1892, iv, 85, 383.

[15] Ueber. das Proteinchrom eine klinische u. bakteriologisch bisher nicht verwertete Farbenreaction, Muench. med. Wochschr., 1903, xxiii.

In only 1 case were the leucocytes counted, the number being 7,800 to the cubic millimeter. The average of differential counts in 11 cases is as follows: Small lymphocytes, 17.7 per cent; large lymphocytes, 9.4 per cent; polymorphonuclear, 71.6 per cent.; eosinophiles, 1.3 per cent. Agglutination tests were positive in only 12 cases.

In 1 case the malady was complicated by a phlebitis in the leg, and in another deafness and nervous symptoms followed the disease. Death occurred in 2 cases.

It is noteworthy that so far as could be judged from our investigations—irrespective of the bacteriologic findings—the cases studied were essentially alike from the clinical standpoint. The instances in which paratyphoid bacilli were isolated appeared to be in every way as severe as those in which the typhoid organism was obtained; indeed, the percentage of death in the cases studied was even greater, there having been one fatal result out of nine cases of paratyphoid and one out of twenty-three of typhoid.

It is of interest to note that only three of the patients received their water supply from artesian wells, all the others obtaining it from surface sources. In every case but one the houses in which the patients lived were unscreened, these being uniformly swarming with flies, and in many instances mosquitoes also were present in great numbers.

PROGNOSIS.

The prognosis in "slow fever" is generally conceded to be better than in typhoid, and I believe there can be no reasonable doubt that this assumption is correct. The fact, in a large measure, furnishes the basis for the commonly-expressed opinion among southern physicians that "slow fever" is a distinct and separate disease. The mortality in our series of cases is certainly lower than is usually observed in typhoid fever, but, of course, from such a small number of instances of the disease no general conclusions could be drawn.

DIAGNOSIS.

The first thought that always arises in the southern physician's mind when he is called to see a case of fever is: Can it be malaria? He does not depend on the microscope for an answer to this question, but promptly administers large doses of quinin. If the patient responds to this treatment he justly regards the affection as being of malarial origin, but if, on the other hand, no effect is produced he will call it typhomalarial, "slow," or typhoid fever, depending on his preconceived ideas as to the real character of the disease we are studying. Practically, then, it may be said that we may include in the category of "slow fever" all of those instances of hyperpyrexia not responding to quinin, for which no anatomic basis can be discovered and which continue from one to ten weeks.

Of course an examination of the blood for the malarial parasite is of much value, but it should not be forgotten that in those regions where this fever is most common the usual type of malaria is the estivoautumnal, in which it is oftentimes a matter of great difficulty to discover the parasite. Unfortunately the Widal test, even when carried out with the paratyphoid organism, is extremely untrustworthy in this type of fever, it being, indeed, so much so that I am not inclined to lay any particular stress on it.

TREATMENT.

I have had no great experience in the treatment of this disease, but I think everything warrants the opinion that it should be looked after just as is typhoid, a view which I believe I share in common with the majority of southern practitioners. It should be mentioned, however, that many excellent physicians employ large doses of quinin throughout the course of the disease, with the belief that its course is thereby shortened.

DISCUSSION.

DR. J. A. WITHERSPOON, Nashville, Tenn., said that Dr. Harris' description of the continued fever of southern Georgia does not tally with that seen in the sister state. They have not, in a bacterial way, been able to determine its exact nature. They know that clinically it seems neither typhoid nor malaria. The fever does not respond to quinin, and the plasmodium is not found in the blood. It rarely shows a tendency to respond to the Widal reaction; occasionally the motility ceases, but there is certainly no clubbing together. Clinically Dr. Witherspoon drew some marked distinctions. In the first place there is commonly seen in the South a fever called "toxenteric," and this does not begin like typhoid or malaria. The patient may be taken with a chill, but the fever rapidly reaches its height. One condition always present is the very rapid prostration; the patients are weak from the start. The facies is stupid, a lethargic type of expression being present. The patient is fussy, irritable and, at all times, wide awake. The tongue is not that of typhoid or malaria; it is pale, small, not tremulous and is never dry unless made so by bad feeding or medication. The pulse is not slow as it is in the first week of typhoid fever; it is rapid from the start. The abdomen is not tympanitic unless made so by bad treatment; it is scaphoid. There is no tenderness in the right iliac fossa, but here is tenderness more often found in the bowel, usually over the seat of the sigmoid flexure. Diarrhea rarely is present except when caused by medication. Constipation is usually present with hard scybalæ. Again the disease does not seem to be influenced by the season of the year; it appears at all seasons. Nor does one attack prevent another; there is a tendency to repetition of the attacks, and one man had six attacks of the fever. The slightest thing appears to cause a relapse; any slight error in diet will cause it. Bathing or sponging, which is so grateful in typhoid fever, in this disease brings about sharp recurrence of the chilly sensations which are exceedingly uncomfortable to the patient. These patients are constantly hungry. A thing of particular importance is the rapid change in the temperature chart. The temperature may be 105 at 8 o'clock in the morning, 101 or 102 at 10 o'clock, and at dark 101. It is a fluctuating temperature like that of a septic type of fever. There is the cold and clammy skin and profuse sweat. This is the fever that occurs in the South more frequently than any other, either malaria or typical typhoid fever. Whether or not it is an atypical typhoid fever Dr. Witherspoon can not say. None of these patients dies unless treated too much.

DR. EDWARD J. WOOD, Wilmington, N. C., said that he sees many cases of extremely mild typhoid fever, closely resembling the fever described by Dr. Witherspoon. This fever runs a course of from three to six weeks, often with no diarrhea or tympanites, but there is always a positive Widal reaction. Many times these cases go undiagnosed, and few would ever be considered typhoid were it not for the blessing of an occasional hemorrhage. Often the mildness of the infection is a misfortune, as it is hard to convince the people that it is really typhoid, hence the difficulty in carrying out proper hygienic precautions. This danger of epidemic is enhanced by the lack of any system of sewage, and by the surface well, which supplies the drinking water. This well is usually close to the closet. It is difficult to determine the relation of malaria to the atypical fevers, as the people take quinin so constantly and the organism can not be found in the peripheral blood, as a consequence. It is a good rule that a fever of this type that does not respond to quinin, properly administered, in from five days to a week, may be safely considered typhoid.

Dr. John A. Lichty, Pittsburg, said that since his practice is in Pittsburg, a place that all know has more typhoid fever cases than any other city in the union, he believes that he can speak with some experience. It seemed to him that Dr. Witherspoon pictured cases in the South that he has had, with the same symptoms, and in which was found the Widal reaction, and which he called typhoid fever. One of the greatest stumbling blocks to students leaving the medical schools is that diseases do not run typical courses. In Pittsburg there are these atypical cases of typhoid fever, the same that are found everywhere, cases with rapid pulse, unusual condition of the tongue, and yet physicians do not hesitate to call them typhoid. They do not have malaria in Pittsburg, therefore, these are not malarial.

Dr. Alexander Lambert, New York, asked if Dr. Harris made blood cultures in that type of fever during the first ten days; it has become a routine measure at Bellevue Hospital to make a blood culture in fevers suspected to be typhoid. The positive blood cultures obtained are surprisingly great, above 90 per cent., especially during the first ten days. The Widal reaction is an excellent aid if positive; if negative at the time it was first being made, diagnosis must depend on other symptoms as it did years ago before the reaction was known. Dr. Lambert believes the blood culture to be an accurate and useful method of diagnosis in doubtful cases, especially during the first ten days.

Dr. Milton H. Fussell, Philadelphia, said that the cases reported by Dr. Harris could not be malarial if no malarial organisms are present. Blood cultures will appear positive in at least 73 per cent. of cases of typhoid. He has never practiced in the South, but to say that typhoid fever exists there in various forms is sufficient to make southern practitioners endeavor not to allow the disease to be spread. The term "typhomalarial" is a sheet to cover ignorance and should be abolished. Ninety per cent. of the cases diagnosed as "typho-malaria" in the soldiers in the Spanish-American War were true typhoid fever. To be sure, malaria and typhoid fever may exist in an individual at the same time, but the term "typho-malarial fever" ought to be excluded.

Dr. H. F. Harris, Atlanta, Ga., said that he was satisfied that the commonly accepted view is erroneous that this so-called "slow fever" is an exceedingly mild disease. He is equally certain, however, that it is not so severe as is typhoid fever in the northern portion of the country, where he had had an abundant opportunity of observing it in the past. The view that "slow fever" is very rarely fatal arises from a not unnatural tendency of the physician to forget the real facts. Since a hundred cases are seen during the course of perhaps four or six years and as probably not more than five or six patients die, the physician who keeps no records would almost inevitably have a strong tendency to minimize the dangers attending the malady. It is also true that many physicians consider the severe cases terminating in death as typhoid, and consequently these are not reckoned among the cases of "slow fever." Typhoid organisms were isolated from the blood in six of the cases and paratyphoid in one. More frequent success would have been obtained had it not been that the patients were, as a rule, exceedingly ignorant and much opposed to the abstraction of blood in sufficient quantity. Dr. Harris said that, after Conradi's ox bile method was published he was more insistent in the endeavor to obtain blood for diagnostic work, but the ignorant opposition of the patients generally prevented.

Floating Kidneys.—A remarkable communication has been made recently by Dr. Hector Mackenzie to the Medical Society of London regarding floating kidneys. It is stated, that among 2,801 females of all ages, who were examined, 516 had distinctly movable kidneys, while among 1,607 males only 11 were found to have this mobility. The most interesting point brought out in regard to this condition was, however, that out of these 515 females, whose kidneys were of this vagrant nature, 411 did not even know that they possessed erratic kidneys. It must be concluded, therefore, that slight mobility of the kidneys is no such serious condition as many medical writers have led us to believe.

GONOCOCCUS INFECTION AS A CAUSE OF BLINDNESS, VULVOVAGINITIS AND ARTHRITIS.[*]

J. CLIFTON EDGAR, M.D.
NEW YORK CITY.

CAUSE OF BLINDNESS.

The most important of the causes of blindness with which we have to do is that resulting from a gonococcus infection of the eyes of the child at birth. Important—first, because it is the most common cause of blindness; second, because it affects the young child and a long lifetime of blindness may follow; and third, because it is preventable and curable in practically every case receiving proper care, and because it is one of the most dangerous maladies to vision when treatment is neglected or delayed.

It is a veritable world plague. It occurs everywhere and no country has yet succeeded in getting it completely under control. So widespread is blindness resulting from it that Magnus, who has made careful statistical studies concerning it, says that out of 2,528 cases, of all ages, of complete blindness in Germany 10.88 per cent. were due to this cause.

In institutions the proportion is much larger. A committee of the Ophthalmological Society of the United Kingdom in 1884 estimated that about 30 per cent. of the persons concerned have lost their sight through the ophthalmia of the new-born. While in Mexico ophthalmia neonatorum is said by Ramos to be the common cause of blindness and 4,500, or 30 per cent., of the whole number are blind as a result of this preventable disease.

In the New York State School for the Blind 39 out of 149 pupils lost their eyes from ophthalmia neonatorum, which is a rather smaller proportion than that found in institutions elsewhere. In the state of New York more than 600, now hopelessly blind from this cause, might have been spared this dreadful calamity had simple prophylactic measures been employed at the day of their birth, while in the United States there are between 6,000 and 7,000 people who have been blinded by this disease.

This is a disease dependent on an infection finding an entrance in the eyes of the child at or immediately after birth. Stephenson has shown that about two-thirds of all cases of ophthalmia in newly-born babies are due to the micrococcus of gonorrhea.[1] If the eyes are carefully cleaned at once so that the infected secretion does not get within the lids, or if the germs be washed out with a simple solution before they have time to multiply, or if the virility of the microbes be destroyed by a solution which is in itself harmless in its effect on the eyes, the disease will not develop. But as one can never be sure that in inexpert hands the washing is complete and thorough, and as it is not easily performed, the latter method, in every suspected case at least, should invariably form a part of the toilet of the child.

As this disease occurs in about 0.5 of 1 per cent., or one in 200, of all births, and as the total number of births registered for 1906 in New York was 183,012, the frightful prevalence of the disease can be readily estimated.

It should be the purpose of the profession, therefore, to find and make known some agent which may be used by every one who attends a case of labor, and to this end a committee of the American Medical Association, by means of a series of questions sent out in circular form, has endeavored to determine the most efficient and most popular method.

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[*] Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Ophthalmia Neonatorum, its Etiology and Prevention, Trans. Obstet. Soc. of London, 1905, xlv.

As a member of this committee I sent out a large number of circulars to obstetricians throughout this country relative to the prophylactic use of silver nitrate in these cases. The number of physicians replying was 113. Of these, 103 think that a solution of nitrate of silver is the most effective drug for the prevention of this disease, as well as the most inexpensive. In view of the fact that a 2 per cent. solution occasionally causes "silver catarrh" and that a 1 per cent. solution rarely does so, 94 thought it safer and better to select this percentage for recommendation.

In addition to these replies a number wrote personal letters, from which I shall abstract the most important points:

Seven physicians prefer argyrol and protargol in solutions of from 5 to 25 per cent. Four prefer boracic acid solution, one announced himself in favor of sterile water and one other uses saline. Still another prefers boracic acid or salt, but thinks it dangerous to teach to medical students and the general profession. Four physicians think that the choice of method should be left to the physician in charge of the case. Three would make it compulsory for almshouses, hospitals and dispensaries, but not for private cases. The 2 per cent. silver nitrate solution was preferred by three. One goes on record as saying that he does not consider silver nitrate a prophylactic in all cases; another asserts that the vaginal canal always contains bacteria.

Incidentally, in reply to the proposition that a law be passed in each state securing the distribution through the various state health boards of small, sealed, inexpensive, light-proof tubes or ampules of the selected solution to be sent gratuitously to every physician and midwife on the passage of the law, and subsequently when required, or on filing of each birth certificate, 97 replies were in favor of such a law, 11 against it, and 5 were uncertain as to its advisability. Of the 11 opposing, 3 were not in favor of laws compelling physicians to perform an obvious duty.

In answer to the proposition that it shall be required by law that the birth certificate shall contain a statement signed by the accoucheur that some recognized procedure specified on the blank had been used in each eye of the newly-born on the day of birth, as a preventive of ophthalmia neonatorum; in the absence of this statement, should ophthalmia neonatorum develop and the child lose the sight of one or both eyes, the accoucheur, whether physician or midwife, filing the certificate, shall be deemed guilty of criminal negligence, and shall be subject to such penalty as the state may exact, 80 were in favor of such a law, 24 opposed, 5 were undecided and 4 made no reply. It was remarked by 5 that this was too drastic a procedure; one considered the proposition none too strong; 5 remarked that it would bring physicians into trouble through damage suits; one thought it applicable for midwives and not for physicians.

In answer to the proposition that it shall be the duty of the state health officers to place ophthalmia neonatorum on the list of communicable diseases, and failure of the attendant to report to the local health board each birth, the existence of ophthalmia neonatorum when present, and the fact that some prophylactic has or has not been used, shall be considered a misdemeanor, and subject the offender to such penalty as the state may exact, 91 favored such a proposition, 16 were opposed to it, 2 were undecided, and 4 did not answer this question.

In answer to the proposition that it be strongly urged if the above program meets with general approval, that the president of each state association be invited to appoint a committee on ophthalmia neonatorum whose duty it will be to collaborate with the state board of health in securing in the several states the enactment and enforcement of laws embodying the above proposition, 97 were in favor, 9 against, and no answer was received from 7.

The conclusions from a study of these replies make it certain that silver nitrate as a 1 per cent. solution is preferred by obstetricians in the United States in a position to judge of the merits of the various measures employed.

An important objection to Credé's method is that it tends to increase eye morbidity by causing "silver catarrh." This has led to the use of argyrol and protargol. Zweifel uses the former and neutralizes with sodium chlorid. His morbidity in over 5,000 cases has been but 0.25 per cent. Seipiades finds argyrol a certain prophylactic. From a number of other clinics come equally good reports as to protargol. Not only were the results less favorable, but more silver catarrh was caused by Zweifel's method than by any other single procedure. Hence at the Hofmeier clinic Credé's 1 per cent. silver nitrate is regarded as the best prophylactic.

My faith in the prophylactic power of the nitrate of silver method is so strong that I attribute all apparent negative or ill effects of the method to the presence of antepartum infection of the eyes, to unskilled application, or to improper or inert solutions.

The work detailed in this paper was performed for the purpose of determining if possible what strength of silver nitrate solution might be safely entrusted to the hands of students and midwifes for the purpose of instilling into the eyes of the new-born in order to prevent ophthalmia neonatorum.

The work of testing the germicidal effect of various strengths of silver solutions on the gonococcus was undertaken for me by Prof. James Ewing of Cornell Medical College. He assigned the task to Dr. John C. Torrey, one of his staff, the work being done in the Loomis Laboratory. Our thanks are expressed to both Drs. Ewing and Torrey for the complete report which here follows:

Tests of the germicidal effect of 0.5 per cent., 1 per cent. and 2 per cent. of silver nitrate on gonococcus were made. A culture of gonococcus on ascitic agar twenty-four hours old, was used in the tests.

1. Three drops of this growth was emulsified in five drops of sterile distilled water. To this was added 6 c.c. of 0.5 per cent. silver nitrate (solution distinctly clouded thereby). One large drop of this was transferred to 15 c.c. ascitic broth tubes at the following intervals:

SERIES I.—WITH 0.5 PER CENT. SILVER NITRATE.

Tube.	Interval in seconds.	Result after 24 hours.
1	15	No growth. Negative.
2	30	No growth. Negative.
3	45	No growth. Negative.
4	60	No growth. Negative.
SERIES II.—WITH 1 PER CENT SILVER NITRATE.		
5	15	No growth. Negative.
6	30	No growth. Negative.
7	45	No growth. Negative.
8	60	No growth. Negative.
SERIES III.—WITH 2 PER CENT. SILVER NITRATE.		
9	15	No growth. Negative.
10	30	No growth. Negative.
11	45	No growth. Negative.
12	60	No growth. Negative.
SERIES IV.—CONTROL. DISTILLED WATER (STERILE) IN PLACE OF NITRATE SOLUTION.		
13	15	Growth positive.
14	60	Growth positive.

From these experiments it would appear that silver nitrate in 0.5 per cent. strength or stronger is quickly germicidal to the gonococcus.

So far as I could learn from careful inquiry at a number of maternity hospitals the general technic was o drop into the eye several drops of some silver preparaion from a glass medicine dropper and shortly thereafter o cleanse the eye with a second solution, such a plain terile distilled water, boric acid solutions of varying strengths, or physiologic saline solution, but nowhere could I find that a silver nitrate solution was used without immediately applying some other solution to neuralize or wash away the silver salt.

It would seem that it would be a dangerous practice to require the use of a preparation that necessitated after-neutralization, for in the various exigencies of the ying-in room such after-neutralization or cleansing might be neglected or improperly performed and the eyes of a large number not infected with the gonococcus might be injured by the production of a silver catarrh.

Therefore, if a solution which did not require afterneutralization could be supplied a very simple procedure could be inaugurated thus: First, wipe the eyelids with a clean piece of gauze; second, drop into the eye the contents of a receptacle containing the solution. This technic would be simple, and with proper receptacles containing just enough for one eye would be perfectly safe. Furthermore, if it could be shown that some certain solution could be used with equally good results, whether neutralized or not, it would be the ideal solution. Then in case neutralization was neglected the eye would still be protected from infection and no silver catarrh set up. Such a result seems to be found in the use of a solution of 1 per cent. silver nitrate, as is shown in the observations here recorded.

It was for the purpose of trying to find some solution which might be used without after-neutralization, that would prevent ophthalmia neonatorum, and at the same time produce no silver catarrh, that the following observations were made.

The cases observed were in the wards of the Manhattan Maternity Hospital and the Bellevue Emergency Hospital.

The patients were from the average east side tenement house district, some with histories of previous vaginal discharge, some with vaginal discharge on admission and some with neither history nor sign of vaginal discharge.

The technic used in the eyes of the newly-born from these patients was as simple as could be performed. In some cases as soon as the head was delivered, in others after the delivery was completed, with a clean piece of gauze the mucus was wiped from the eye and by means of a medicine dropper one to three drops of the solution were dropped into each eye. This method was followed out with solutions of silver nitrate of one-half of 1 per cent., 1 per cent, and 2 per cent., with the following results:

Solution. silver nitrate per cent.	Subsequent neutralization.	Number children.	Result—Hospital.
1	Boric acid solution.	1000	25 cases mild silver catarrh, longest reaction, 3 days. No ophthalmia. Bellevue Emergency Hospital.
2	Physiologic saline solution.	20	5 cases silver catarrh, duration 2 to 3 days. No ophthalmia. Manhattan Maternity.
0.5	No cleansing of eyes afterward.	35	No cases of silver catarrh, 1 purulent ophthalmia developed on ninth day. Treated argyrol, 35 per cent. Manhattan Maternity.
1	No cleansing of eyes afterward.	20	1 case silver catarrh, duration 2 days. Manhattan Maternity.
2	No cleansing of eyes afterward.	20	6 cases silver catarrh, which yielded to boric acid solution in 2 to 3 days. No purulent ophthalmia. Manhattan Maternity.

One thousand children were treated at the Bellevue Emergency Hospital with a 1 per cent. solution of silver nitrate, and this solution was immediately thereafter neutralized with a boric acid solution. There were no instances of ophthalmia neonatorum in this series. Twenty-five patients, or 2½ per cent., showed symptoms of mild silver catarrh, the longest duration of which was three days.

Twenty children were treated at the Manhattan Maternity with a 2 per cent. solution of silver nitrate and this solution afterward neutralized with physiologic saline solution. Of these five, or 25 per cent., developed silver catarrh lasting from two to three days. No cases of ophthalmia neonatorum.

Thirty-five children were treated at the Manhattan Maternity with an 0.5 per cent. of nitrate of silver, with no after-cleaning of the eyes. No cases of silver catarrh resulted. One case of purulent ophthalmia developed on the ninth day, which was cured with 25 per cent. argyrol solution.

Twenty children were treated at the Manhattan Maternity with a 1 per cent. solution of silver nitrate, with no after-cleaning of the eyes. One patient, or 5 per cent., developed a silver catarrh lasting two days. No ophthalmia.

Twenty children were treated at the Manhattan Maternity with a 2 per cent. solution of nitrate of silver, without after-neutralization. Six patients, or 30 per cent., developed silver catarrh, which yielded to treatment in two or three days. No purulent ophthalmia.

Of those children in which one-half of 1 per cent. of silver nitrate was used the eyes of 97 per cent. were perfectly normal after ten days, with no discharge up to that time. A number of these were from mothers who had a purulent vaginal discharge on entering the hospital. The other 3 per cent. got up a purulent discharge about the ninth days and were then treated with argyrol and cold applications.

Of those cases in which 1 per cent. silver nitrate solution was used without after-neutralization, none of the patients had an after-discharge with the exception of the blonde baby, which type of child appears to be more susceptible to the action of the silver salts than dark babies; at least this is the experience of the last seven years in the Bellevue Emergency Hospital.

In those cases in which 2 per cent. silver nitrate solution was used the result was not so satisfactory. In the few cases tried a large percentage of the children showed signs of severe irritation when the silver solution was not followed by boric acid solution.

The method which has most commended itself to me is the one now in use at the Bellevue Emergency Hospital. It involves but one additional step in the technic, namely, that of following the instillation of several drops of 1 per cent. silver nitrate in each eye by a weak solution of boric acid. This method has been efficacious in several hundred cases, many of the mothers having been previously infected with the gonococcus. From the fact that a 1 per cent. solution may be used without after-neutralization it would be perfectly safe to require the use of a 1 per cent. solution of silver nitrate, with after-cleaning by boric acid, and in the event of carelessness or negligence, even if the boric acid solution was not applied, there would no harm come to the eyes of the child.

VULVOVAGINITIS.

Bacteriology proves the great difficulty of inducing the gonococcus to live outside of its regular habitat.

Nevertheless the gonococcus can be spread by the handling of towels, washcloths, toys, etc. Again it would appear that the vaginal epithelia of the child is more susceptible to infection than that of an adult.

Hence it is that we find gonorrheal vulvovaginitis in young children a common condition, especially where lack of cleanliness exists, as in overcrowded institutions and where proper prophylactic measures are not enforced. The parts affected, in the order of frequency, are the labia, urethra, vagina, cervix and uterus.

Any child with a purulent vulvovaginal discharge should be viewed with suspicion, whether the discharge contain gonococci or not, for at the outset of a gonorrheal vulvovaginitis the purulent discharge is often without gonococci, the epithelial cells being replaced by leucocytes and the gonococci only appearing after several days.

If a vaginal discharge of a child contains exclusively leucocytes without the usual bacterial flora and epithelial cells one should suspect the beginning or end of a gonorrheal vulvovaginitis (Harmsen). Such a child should have a microscopic examination of the vaginal secretion repeatedly made and be kept under observation for one week during the possible period of incubation. Otherwise an insidious onset might be overlooked (Harmsen). No case should be considered cured until two or more examinations of smears show the absence of the gonococcus.

The importance of prompt and energetic treatment of each and every case of specific vulvovaginitis is emphasized by the many and far-reaching complications of the condition to which every such child is liable. These are: 1, Infection of the peritoneum, local or general; 2, adenitis; 3, ophthalmia; 4, arthritis; 5, proctitis.

Loss of sight may occur from the ophthalmia, death from the peritonitis, and possibly, although it is a difficult proposition to prove but a rational one to assume, sterility in adult life may be due to a gonorrheal vulvovaginitis occurring in childhood.

On the other hand, a note of warning should be sounded against attributing to the gonococcus all the tissue changes that may ensue from a specific vulvovaginitis. The gonococcus appears to possess toxic properties which are active after the cocci themselves have disappeared from the secretions.

The severe instances of local, and the fatal ones of general peritonitis, with systemic infection, following a specific vulvovaginitis that have come under my observation, I have been inclined to view as instances of mixed infection, the gonococcus playing only a minor part in the etiology.

ARTHRITIS.

Observation and experimentation prove that gonorrheal arthritis is due to migration of the gonococcus. It appears also that the gonococcus does not flourish in joints as it does in the eye and in the vagina; that in the joint it is rarely found in other than in its acute stages of inflammation, and that it tends quickly to lose its activity.

Gonorrheal arthritis is generally considered to be a rare condition—the least frequent of the three gonorrheal conditions mentioned in this paper—indeed, there are those who even deny its existence, although analyses of several series of cases have been published.

Some years ago as examining physician for the New York Children's Society I had occasion to make over 600 examinations of children for evidences of rape. While gonorrheal vulvovaginitis was common enough in the series, and occasionally an ophthalmia of suspicious character, no case of arthritis came under observation.

It is absurd to consider the treatment of gonorrheal arthritis without first cutting off the source of infection. The urethritis, vulvitis, vaginitis or endometritis must be cured before one can hope for improvement in the joints. Even then the treatment by drugs is most unsatisfactory, and our main reliance is in continuous cold or intermittent dry heat as high as 300 F. or 400 F.

[THE DISCUSSION ON THE SYMPOSIUM OF WHICH THIS IS A PART WILL APPEAR WITH THE OTHER ARTICLES NEXT WEEK.]

A NEW INDICATOR FOR FREE MINERAL ACIDS.*

HERMAN M. ADLER, M.D.

BOSTON.

The indicator that has been used most generally for the detection of free HCl in the stomach contents is phloroglucin-vanillin, often called Günzburg's reagent. While this test is very delicate, it has the disadvantage that the reagent rapidly deteriorates, which tends to render its use unreliable. In consequence also of this fact it is of little use to the practicing physician who requires it only occasionally. A substitute that I offer is fully as delicate as Günzburg's, easier of application and much more permanent.

Dr. R. L. Emerson of Boston has discovered an indicator for free mineral acids, to which the name of "carminogen" has been given. It is a colorless fluid which, in the presence of free mineral acids, will give, on drying, a carmine color. The solution is practically permanent, if kept in a stoppered bottle. If exposed to the air for any length of time it may turn slightly brown, but this will in no way impair its efficacy. The brown color is very slight, never approaching opacity, as is the case with Günzburg's. Careful control tests have shown that it is fully as sensitive as Günzburg's.

The method of application is the same as with the phloroglucin-vanillin: A drop of the reagent is gently heated in a porcelain dish, and a drop of the solution to be tested is added and evaporated to complete dryness, care being taken to avoid burning or charring. This can best be done over a water bath. A point to be borne in mind is that the color does not appear until all moisture has been driven off. The indicator may be even more conveniently used, especially for office practice, in the form of test papers. These are prepared by saturating filter paper with the colorless solution and drying in the air. Paper so prepared keeps in a small stoppered vial indefinitely without changing color at all. If exposed to the air for any length of time it will darken slightly. The paper is fully as delicate as the solution. The best method of using it is to moisten the paper with a drop of the stomach contents and then to dry the same thoroughly by gentle heat, preferably in a small evaporating dish over a Bunsen flame. Carminogen has the added advantage of costing about one-tenth as much as phloroglucin-vanillin.

This paper may be obtained from Dr. R. L. Emerson, 739 Boylston St., Boston.

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*From the Laboratory of Clinical Pathology of the Harvard Medical School.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Clinical Notes

FATAL CASE OF ACUTE INFECTIOUS JAUNDICE (WEIL'S DISEASE).*

ROBERT M. THORNBURGH, M.D.
Captain, Assistant Surgeon, U. S. Army.
COTABATO, P. I.

A review of the literature reveals a very meager nowledge of this obscure disease, but few cases going to utopsy being reported (only ten reported cases could e found), and it is, therefore, deemed worth while to eport this case:

Patient.—R. S., white, aged 46, a civilian employé of the ubsistence department of the U. S. Army, was admitted Feb. 0, 1906, to the medical side of the Division Hospital, U. S. rmy, Manila, P. I.

History.—Born in Maryland in 1860. Had resided in the hilippines for four years. Occupation, butcher in Depôt Commissary, U. S. Army, at Manila, P. I. Had the usual diseases f childhood. Was operated on for hernia six months previously. Family history negative. Shortly before admission e had noticed swelling of the feet and legs, and had suffered omewhat from anorexia.

Condition on Admission.—Slight edema of feet and legs, and atient complained of shooting pains in both calves. Marked cterus, general in character, was observed. The blood examination showed many pigmented leucocytes, but no malarial lasmodia. Urine was negative. Temperature, 99.4 F. A entative diagnosis of malarial infection, type undetermined, vith probable complication of Weil's disease (in view of occupation, icterus and pain in the legs) was made. He was put n quinin, 1 gm. (gr. xv) twice daily, for three days, followed y iron and arsenic. The patient grew steadily better, and on ebruary 26 he was discharged at his own request, stating that e felt perfectly well.

Condition on Readmission.—March 13, 1906, the same patient vas readmitted. At this time his temperature was 98.2 F.; ulse, 108, and weak. Slight icterus was present, general in haracter; the liver and spleen were much enlarged and a lowing systolic murmur was heard at the apex. The laboratory examinations of the blood, urine and stools were negative. he patient was irrational, suffered from pain in the legs and ip joint, and complained of partial blindness.

March 15. His mind was much confused; he said that he ould not see. Had delusions that his bed was charged with lectricity and that there was an electrical machine on top of im. Temperature, 98.4 F. and pulse, 96.

March 16. He complained of great weakness and could carcely see. At 11:30 p. m. he complained of feeling cold; he pulse was very weak; he was bathed in a cold sweat and ad marked dyspnea. His condition rapidly grew worse during he night.

March 17. The pulse was very weak and irregular and the reathing labored. Tetanic movements of the arms and body ommenced and continued to a greater or less degree until eath. The patient was delirious all night.

March 18. The patient was much weaker and complained of evere pain in the right leg. He could not retain anything in is stomach during the morning, but later took albumin water, ilk, tea, and stimulants. At 2:15 a. m. he was catheterized, 5 c.c. of urine being obtained, which was negative, on examination, for albumin.

March 19. The patient had grown progressively weaker, the reathing being very difficult, and he apparently suffered from reat pain in the right hip. Involuntary defecation at 1 a. m. eces were normal in appearance. Hiccoughed at intervals all ight. Temperature, 101.2 F. in axilla, pulse 118, and respirations 24, at 6 a. m. The patient passed the urine and feces nvoluntarily during the day, and vomited dark green fluid several times during the night, which had a very offensive odor. he pulse was rapid and irregular all night.

March 20. At 8:15 a. m. the patient died, the temperature at the time of death being 105.4 F. in the axilla.

Treatment.—The treatment was symptomatic, consisting of arsenic, potassium iodid and stimulants. Adrenalin, strychnin, and atropin were administered as indicated, but no treatment appeared to influence his condition in the least.

For the following report of the autopsy I am indebted to Dr. Charles F. Craig, First Lieutenant, Assistant Surgeon, U. S. Army, Manila, P. I.:

Autopsy.—This was held two hours after death. Body was that of a well developed man, apparently 40 years of age. Considerably emaciated; rigor mortis slight; skin lemon-yellow in color; conjunctivæ bright yellow, pupils dilated and equal. Postmortem discoloration marked over dependent portions of the body. Examination of the brain showed nothing abnormal save some congestion of the dura mater. The amount of subcutaneous fat was increased and the fat very soft and bright yellow in color. The muscles appeared normal.

Thorax.—On opening the thoracic cavity the pleura was found normal and no fluid was contained in the cavities. The lungs externally appeared congested and a few small ecchymoses were noticed beneath the pleura at the base of the right lung. On section the lungs appeared normal save for marked venous congestion.

Heart.—The pericardial cavity was found distended with clear, dark yellow fluid, but both layers of the pericardium appeared normal. On section of the heart the muscular tissue appeared normal, and all the valves were found to be normal. The heart was slightly hypertrophied. The amount of extracardial fat was increased and the fat was deeply bile-stained.

Abdominal Cavity.—The abdominal cavity contained about 500 c.c. of clear, bile-stained fluid. The greater omentum contained a large amount of fat of a dark yellow color. The mesenteric glands were not enlarged.

Liver.—This organ reached about 8 cm. below the border of the last rib, and appeared greatly hypertrophied. Its consistence was decreased. Externally it presented a pale yellow color; the capsule was smooth; the gall bladder dilated with bile of a dark olive green color. On section the mucous membrane of the gall bladder was found thickened and congested. On section of the liver the cut surface was orange yellow in color and in some regions the tissue was so much bile-stained as to be almost black; the lobules were very indistinct and there was marked fatty degeneration present, especially in the right lobe; in some places there was intense venous congestion.

The Spleen.—The spleen was almost three times its normal size, dark purple in color externally, with a smooth, distended capsule. On section the consistence was very greatly reduced, the cut surface being almost diffluent, of a dark mahogany color, with marked pigmentation present in irregular areas. The pancreas appeared normal save for intense congestion.

The Kidneys.—The kidneys externally appeared somewhat congested, dull red in color, with a smooth capsule, beneath which, here and there, could be seen minute hemorrhagic areas. On section the cut surface appeared slightly congested, the cortex and pyramids were distinct, and the cortex of normal thickness. The capsules were not adherent. The suprarenal glands appeared normal. The bladder appeared normal, both externally and internally.

The Intestines.—Externally the intestines appeared normal. On section the mucous membrane of the duodenum was greatly congested and in places there appeared to be slight necrosis of the summits of the folds. The jejunum appeared normal, but the ileum was greatly congested throughout and covered with bile-stained mucus. The large intestine appeared normal.

Microscopic Examination.—Sections were cut and stained of the liver, spleen, heart muscle, and kidneys. The sections of all of the viscera mentioned showed the lesions common to great venous congestion, and the liver, heart muscle, and kidneys showed fatty degeneration. In the liver the fatty changes were most marked, whole lobules being replaced by fatty granules, while in others the fatty degeneration of the liver cells was only visible at the center of the lobule; the portal spaces presented a marked small-celled infiltration, and minute hemorrhagic areas were present throughout the sections. In places where fatty degeneration had not occurred, the liver cells were undergoing marked albuminoid degeneration. The principal microscopic lesions presented in the sections of the spleen were those of intense venous congestion, together with marked pigmentation, the nature of which appeared to be malarial. No plasmodia were found in smears from the spleen, however. The kidneys presented the lesions of albuminoid and fatty degeneration, and of venous congestion. There was but little evidence of nephritis in any form, only very small areas showing any desquamation of the epithelium, and the fibrous tissue of the organ was not increased in amount. In places the intense engorgement of the blood vessels had lead to their rupture and the formation of small, irregular hemorrhagic areas. The sections showed but little fatty degeneration, compared to the liver, but there was a marked general albuminoid degeneration. Sections of the heart muscle showed a slight degree of fatty degeneration. The principal pathologic lesions present were fatty degeneration, albuminoid degeneration, venous congestion and hemorrhages into the various viscera.

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* Published with permission of the chief surgeon, U. S. Army, ivision of the Philippines.

Bacteriologic Examination.—During life, cultures were made from the blood of the patient and from the urine and stools, and at autopsy cultures were made from the heart's blood and from the spleen. The cultures were all negative as regards any organisms which could be regarded as of etiologic importance. The *Bacillus proteus fluorescens* was not isolated in this case.

Weil's disease (acute infectious jaundice) first described by Weil in 1886, is so rare comparatively, especially when a fatal result follows, and so few postmortems have been had, that the above case is presented with the hope of adding some small contribution to the scant literature of the disease.

The etiology is obscure. The point on which all authors agree is that the disease is essentially an "occupation disease." Those who appear to have been most frequently affected have been butchers, sewer cleaners and others whose occupation has brought them into contact with decaying organic matter. It has been found in Europe in garrisons and prisons, but thus far but one case has been reported in the United States and none in the Philippine Islands.

From the study of the above case it would appear that a definite infection had taken place from the handling of frozen meats, thus proving that a putrid condition of meat is not a necessary etiologic factor. The patient had entirely recovered from his first mild attack and returned to his work—that of cutting up frozen meat for issue and sale to the Army. There is none other than frozen meat kept in the cold storage warehouse, and his work was entirely with such meat. It is probable that his hands became soiled and washing was neglected, but even so putrefaction could hardly proceed to any great degree before the close of working hours and the necessary hand-washing on quitting work. This fact would lend support to the theory that the infectious cause may be present in dead organic matter that has not as yet advanced to so-called decay. Another point evinced in this case is the suggestion of infection through the skin instead of through the alimentary canal, as formerly supposed. The latter mode can not positively be ruled out in this case, neither can the possibilities of infection through the air passages, but the most likely mode in this particular instance appears to be through the skin.

Although Jaeger, Conradi, Vogt and others[1] have isolated a *B. proteus fluorescens* from the urine and stools, it possibly may be regarded as a coincidence rather than a causative factor. In the case here recorded blood cultures were made and cultures from the stools and urine, but nothing resulted from the work done along this line.

Whether in this case two distinct infections occurred or whether the second attack was merely a relapse can not positively be stated. The condition of the patient was so good after the first attack that the inference of a second more severe infection is perhaps tenable.

SUMMARY.

1. The disease can be acquired by handling frozen meat, hence, decomposition is not a necessary etiologic factor.
2. The pathologic anatomy is not conclusive as to etiology or cause of death.
3. In a severe case treatment is of no avail.

DEATH FROM RESPIRATORY PARALYSIS FOLLOWING HYOSCIN-MORPHIN-CACTIN ANESTHESIA.

B. F. VAN METER, M.D.

LEXINGTON, KY.

Patient.—J. H. E., male, white, aged 51, was seen by me in consultation with Dr. G. M. Centers, Hazelgreen, and Dr. J. A. Stucky, Lexington.

Family History.—Mother and father living and in good health. Two sisters and one brother living and in good health. One sister dead; cause of death unknown. No history of malignant growth in family.

Personal History.—Patient was a bookkeeper and clerk. Married. Up to one year previously had always enjoyed good health. Drank whisky to excess. Present illness began one year before I saw him with an attack of tonsillitis. After the attack he noticed an enlargement at the angle of the left jaw. This increased slowly in size until two months previously, when it grew rapidly and caused a great deal of pain, for which morphin was given; at the time I saw him he was taking one grain of morphin daily.

Examination.—This showed a tumor, apparently of the parotid of the left side, somewhat smaller than a lemon and apparently slightly movable.

Diagnosis.—A provisional diagnosis of sarcoma of the parotid was made and an exploratory operation advised as it was believed that the condition was operable.

Operation.—The family physician, Dr. G. M. Centers, asked permission to use the hyoscin-morphin-cactin anesthetic, as manufactured by Abbott, saying that he had used it and thought it safer than ether and more convenient with the case in hand. I told Dr. Centers that I was ignorant of the use of that particular combination, but that if he would give it I would consent. Patient had been purged thoroughly the day before. One ounce of castor oil was ordered. Dr. Centers gave one tablet of the H. M. C. at 5 a. m., followed by one at 6:30 a. m., and a third tablet at 8 a. m. The patient was ordered to the operating-room at 8:30 a. m. The castor oil given the night before had not acted. An enema was given, which was partially retained. At the beginning of the operation patient was somewhat cyanosed, breathing deeply, 12 to 14 times a minute. Pulse rate, 64, full and strong. As the incision was made through the skin the patient roused up and was given a few drops of chloroform. This was repeated two or three times during the operation. A straight incision was made and the glands exposed. It immediately developed that it was not sarcoma but tuberculosis of the lymph gland within the parotid. A line of cleavage was readily found—the tubercular gland removed *en masse,* with comparative ease. The facial nerve and external carotid artery were not injured. No attempt was made to remove the parotid. There was practically no hemorrhage. The wound was closed by interrupted stitches, without drainage.

Postoperative History.—Patient left the operating room apparently in about the same condition as when he went on the table, still slightly cyanosed. Nurse was directed to give him water if he asked for it, and I said that I would see him a few hours later. The nurse's report states that there was no change in his condition until 12:15 p. m., exactly two hours after he was returned to bed, when he very suddenly ceased breathing and became markedly cyanosed. Immediately before this the patient's respiration as counted by the interne and nurse was ten. Artificial respiration was resorted to and continued for fifteen minutes, without any result. He was given a hypodermic of 1/20 of a grain of strychnin. The patient did not rally, however, dying apparently from paralysis of the respiratory centers.

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[1] Gyn: Reference Handbuch of Med. Sciences, viii, 302.

Autopsy.—Postmortem examination was held the following night. Kidneys and heart normal. Right lung showed a good many healed tubercular nodules. Left lung also showed a few healed tubercular deposits. Bronchial lymph nodes showed the effect of an old tubercular infection. The dura was somewhat thickened and slightly adherent. Brain, normal. Arteries, soft and in good condition. No evidence of cause of death. Conclusion: Death probably due to paralysis of the respiratory centers.

124 Second Street.

TRAUMATIC RUPTURE OF THE JEJUNUM.

A. P. HEINECK, M.D.
CHICAGO.

History.—C. H., aged 38, a circus acrobat, was admitted to the Cook County Hospital May 23, 1907, at 5:30 p. m. One and a half hours previously the horse which he mounted had reared and crushed him between the horn of the saddle and a brick wall. He was vigorous, robust, and of athletic build, and previously had always been healthy. There was no history of previous intestinal disturbance. On admission his pulse was 60, temperature 97.4 F. and respirations 20; he was suffering considerable abdominal pain and complained of feeling cold. He vomited a large amount of brown liquid which did not have a fecal odor. The vomiting was repeated several times throughout the night. During the night the patient was restless, unable to sleep and continued to be very nauseated. On admission the tenderness and muscular rigidity were most marked over right upper quadrant of abdomen, but at no time or in any place did the adbdominal wall show any evidences of contusion. Operation was urged, but the patient declined. On the morning following the day of admission the patient's condition being so evidently worse, the pain almost agonizing, the nausea and the vomiting continuing, an annoying hiccoughing having set in, and the abdominal distension becoming marked, he consented to operative intervention, which at the time seemed to afford him only slight chances of recovery.

Operation.—An incision 3 inches in length was made slightly to the right of the middle line, about equally supra- and infraumbilical. The peritoneal cavity contained seropurulent fluid and undigested pieces of meat and potatoes. The peritoneum, both visceral and parietal, and omentum showed signs of inflammation. The intestines were covered with fibrin. There was a rupture of jejunum about 1 cm. in diameter near the antemesenteric border with eversion of the intestinal mucous membrane. The , ipture was closed by inverting into the gut-lumen the prolapsed portion of the gut-wall by the aid of a circumferential catgut suture. The line of intestinal closure was fortified by a few interrupted catgut stitches introduced in a direction parallel to the long axis of the intestine. A gauze drain was inserted to site of rupture, as leakage was feared. There was no flushing, nor irrigation of the peritoneal cavity and no prolonged mopping or swabbing of the various peritoneal fossæ. The abdominal wall was hastily closed and the patient was placed in Fowler's position. Hiccoughing and vomiting persisted at intervals during the first twenty-four hours following the operation. Symptoms of peritonism persisted for a few days. The first bowel movement occurred forty-eight hours after the operation. The drain was removed in seventy-two hours. Recovery was uneventful. The patient left the institution June 11, 1907.

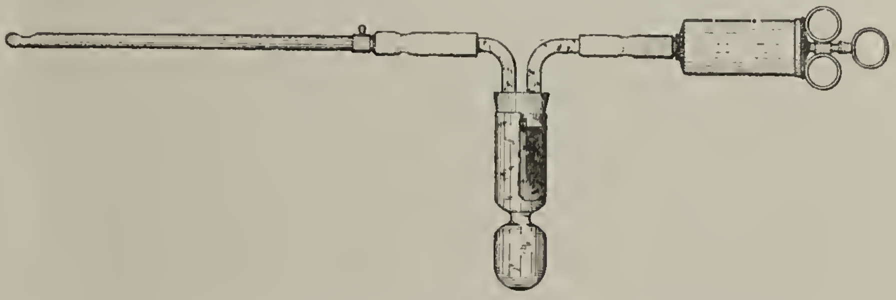
A NEW EVACUATOR FOR USE AFTER LITHOLAPAXY.

GEORGE WALKER, M.D.
Associate in Surgery, Johns Hopkins University.
BALTIMORE.

The apparatus as shown in the accompanying cut consists of an evacuating tube, a glass receptacle, a wire sieve and a syringe. These are connected by means of two pieces of rubber tubing, two glass tubes and one rubber stopper. The evacuating tube, straight or curved, is made after the ordinary pattern. The glass receptacle is five inches in length and one and three-eighths inches in diameter. It is constricted in the lower portion, at which place the lumen is slightly larger than that of the evacuating tube. During the operation the stone fragments fall through this aperture and into the lower portion of the receptacle, where they remain undisturbed by the motion of the fluid in the upper part. The wire sieve is a closed cylinder; it is connected to the rubber stopper by means of a piece of brass tubing; this device serves to prevent any particles from passing over into the syringe. The syringe is made entirely of metal, holds three ounces and is provided with a nozzle having the same internal diameter as that of the evacuating tube. The glass tubing is of the same size.

MODE OF USE.

The manipulation of the apparatus is so simple that anyone who is familiar with the ordinary evacuator will understand it at a glance. The glass receptacle should be held by an assistant, while the operator works the syringe. Occasionally the pressure in the glass receptacle is raised so that the rubber stopper is forced out; this can be easily prevented by the assistant holding the end of the thumb over it. A sufficient quantity of water should be injected into the bladder so that two or three ounces remain when the syringeful is withdrawn. This precaution is necessary, for there might be some danger of wounding the mucous membrane of the bladder if it came in contact with the opening of the tube during forcible suction.



I have tested the suction power of this apparatus, as well as that of the Bigelow evacuator, and have found that the former supports a column of mercury eighteen inches in height, while the latter holds one only six inches high. The apparatus is efficient, inexpensive and so simple that most of the parts can be constructed by the physician himself.

Treatment of Ringworm by Roentgen Ray.—Agnes Savill, in the *Archives of the Roentgen Ray*, gives the results in 36 cases of ringworm of the scalp treated by her with the Roentgen rays. The total number of exposures for the 36 cases was 182. Definite erythema occurred in 18 cases, in 3 of which it was severe. Recurrence was observed in 5 cases. The Drault apparatus was used and the dosage measured by means of the tint of the barium platino-cyanid pastille. The regrowth of hair occurred in some cases as early as two months after exposure, but in the majority of cases it required three months. Seventeen cases are tabulated showing the details and results of treatment.

REFLEX NEUROSES DUE TO MORBID THROAT CONDITIONS.*

ROSS ALLEN HARRIS, M.D.
LOS ANGELES.

The subject of this paper was suggested by a number of recent cases, each of which exhibited some unusual manifestation of local cause with distant neurotic effect.

These cases, while appealing most strongly to the specialist, may perhaps emphasize to the general physician the importance of associating remote asthenic consequence with a true organic origin.

CASE 1.—Hysterical cough. Physician, aged 44, of French and Spanish parentage. His family history is practically negative.

History.—For two weeks the patient had been annoyed by a dry, irritable cough, with some expectoration of white mucus; most troublesome at night or on lying down There was a sensation of a foreign body in the throat, which the patient located below the really affected area. Latterly the cough had been so persistent that he was unable to eat, sleep or attend to his office practice. His chief worry was lest the condition be one of incipient carcinoma. He said that he had had the uvula clipped, hoping that it was the slight elongation of this organ that caused the irritation. This operation had made no difference in the cough or other symptoms.

Examination.—This showed an inflamed and congested pharynx with a laryngeal hyperemia due to the frequent hawking. The uvula was considerably shortened by the recent operation. The only probable source of irritation seemed to be in two enlarged lymphatic glands at the base of the tongue.

Treatment and Result.—These glands were cauterized with the electro-cautery after local anesthesia, and it was suggested that the cough would probably vanish. To my dismay the patient appeared the next day, saying that the cough was just the same or only a little better. Suspecting an hysterical element, a second examination was made and a third lymphatic gland was found to be somewhat enlarged. This was thoroughly cauterized and the patient again dismissed. His cough almost immediately disappeared along with his worry and insomnia.

CASE 2.—Enuresis. J. W., male, aged 8.

History.—This boy, of New England birth and parentage, presented the typical facies of tonsillar hypertrophy. The bright and inquisitive eyes, however, gave the lie to the open mouth, contracted nares and church-roof palate. The father stated that the boy made unsatisfactory progress in school, that his nose seemed always stopped up, that he snored at night, caught cold easily, and was silly or irritable at times.

Treatment and Result.—Enormous tonsils meeting behind the uvula, with fleshy adenoids were readily made out on examination and were subsequently cauterized. Two weeks later the father called to report that the boy was breathing through the nose, was better natured, had not caught cold since, and was eager for school. He further stated that formerly it had been unpleasant to take him down town, as he had to urinate every fifteen or twenty minutes.

Since the operation this has all been changed. The boy goes to the toilet not oftener than four or five times daily, and this result alone was worth all the anxiety they had passed through.

CASE 3.—General headache. A. M., German boy, aged 6, was referred to me by Dr. David D. Thornton.

History.—The teachers in the day nursery complained to the mother of this unpromising youth that something was wrong with her boy's mind. He refused to play with the other children, made no progress in the simple work assigned and took no interest in anything. To his mother he was insolent; refused to dress himself, was dull and lifeless; had no appetite; had icy hands and feet, and complained of headache every morning. The child was apathetic, showed catarrhal deafness, marked icterus, with moderately hypertrophied tonsils and adenoids.

About three weeks after these last-named physical defects had been removed the mother came in to volunteer the information that a miracle had been wrought.

She said; "I noticed a change in Arnold the next morning. He got up and dressed himself. He used to say: 'You ain't my boss, I don't have to mind you;' but this morning he said: 'Mamma, I'm going to mind you the best I can.'

"He doesn't complain of headaches at all now. His color is better and he hears better. And he's hungry all the time. He has gone back to school, and the teacher told me to-day that he is the brightest boy she has."

CASE 4.—Asthmatic dyspnea. J. S., a man was formerly a cotton spinner, but lately has been a real estate dealer.

History.—For several years he has had attacks of bronchitis, and irritable cough, with occasional attacks of asthma. He raises considerable whitish mucus. There is no history or symptoms of phthisis. He catches cold easily and is very restless at night, being unable to sleep an hour at a time some nights. Both tonsils were operated on in childhood.

Examination.—The uvula was somewhat elongated and slightly edematous. Pale and abundant fragments of tonsils lined the tonsillar fossæ on either side. Posterior to these the internal carotids were distinctly seen pulsating strongly just beneath the mucous membrane.

Treatment and Result.—Uvulotomy served to relieve the cough a little, but added the annoyance of indistinct speech for a time. A short time later, after injecting a strong solution of cocain and adrenalin into the tonsillar masses, deep electrocauterization was done without inflicting much pain. Three days afterward the patient presented himself, saying that he breathed easier, coughed very little, and best of all, had slept all night for two nights, something he had not done in years. His brother stated a month later that he was breathing much better now, the asthma having apparently disappeared. He sleeps soundly and rarely coughs.

CASE 5.—Chorea. Miss B. L., aged 13.

History.—This girl came for refraction. She had complained of frontal and general headaches. A quarter diopter of hyperopic astigmatism "with the rule" was discovered in either eye. This correction was worn for a time, though with little relief from the headaches. A year later the mother brought her in again. The girl was suffering from a pronounced chorea. Spasmodic twitching of fingers, arms, shoulders and facial muscles made examination anything but easy. She had grown rapidly and was now taller than her mother.

Menstruation had not yet begun. The girl did not seem particularly intelligent. She replied to questions readily enough, though with halting speech. She had suffered from "growing pains," and an occasional angina. Neither appetite nor digestion was good. Bowels were sluggish. She had been out of school for months. Rest had made no difference. Throat examination showed catarrhal pharyngitis with hypertrophied tonsils. No other organic cause for the chorea could be discovered. Operation was advised, but declined.

A tonic was prescribed, and the case passed from observation.

CASE 6.—Epileptoid convulsions. W. R. L., a girl, aged 9.

History.—This girl was a type of the effects of vicious breathing. Naturally restless, active and precocious, her parents had started her in the kindergarten when she was 3 years old. Like many people they regarded the kindergarten as an asylum for the confinement of a too lively animal. At 5 years of age this girl was taking piano lessons, though she was too nervous, her mother said, to practice much; of late she had been much troubled with headaches. She looked pale and anemic, but this was attributed to the constant reading indoors, of which she was very fond. The teacher said she was bright enough, but very fidgety in school, and showed lack of concentration. A refractive correction of her total astigmatism was prescribed for constant wear.

Treatment and Result.—As the child was a mouth-breather and caught cold easily, examination was made for lymphatic hypertrophy. The adenoids were abundant and the tonsils enormous. These were removed, the former with Gottstein's curette, the latter with the tonsillotome. The mouth-breathing continued. A year later the girl was brought to me again. The mother said that she had had three convulsions in her sleep at different times. After the first one the family physician was called in. He declared that it was due to indigestion; he regulated the diet and ordered no lessons outside of school work. The second attack happened to be just as the mother was retiring, and was described by her rather graphically. The girl was apparently sound asleep, she said. She suddenly gave an inarticulate cry, and, clenching her fingers, began trembling contractions of hands, arms, legs and body. The muscles of the face were frightfully contorted and froth appeared at the open lips, which were drawn in a ghastly smile. The face was flushed; and although her name was called repeatedly she made no reply. After a few moments the child's muscles relaxed, and she seemed to be lying in profound slumber. The face was still flushed, but she slept all night. The next morning, as on the other two occasions, she complained of a severe headache, but at no time was she aware of the nerve storm, nor was she ever told about it. After the third convulsion it occurred to the parents to have the throat re-examined, as she had suffered from an occasional sore throat. The tonsils were found enlarged again to almost the former size. A second operation was advised. It is now two years since this last operation was performed, and the child has had no recurrence of the convulsions during that time.

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* Read at the semi-annual meeting of the Southern California Medical Society, Coronado, May 2, 1907.

To relate in detail a case of migraine in a teacher subject to angina and rheumatism, whose astigmatism was carefully corrected without effect on the unilateral headache, and who declined operation on fibrous, atrophic tonsils, would be to prolong this paper.

These clinical studies have been sufficient to sustain the contention of a reflex connection between the abnormal throat and the commoner neuroses. A really normal pharynx in an adult is rare. An edematous uvula or hypertrophy of the lingual lymphatics may give rise to irritative cough.

Nocturnal enuresis is common in the type of patients under discussion. It may be explained by the accumulation of carbonic acid gas in the brain dulling the sensory nerves so much that the irritation ordinarily attending accumulated urine is insufficient to give warning to the sleeper. Unconscious relaxation of the sphincters results. Frequent diurnal micturition is similarly due to imperfect cerebral nutrition, resulting in constant irritation of all reflex centers.

Hysterical dyspnea may be occasioned by tonsillar fragments acting as a foreign body and initiating spasmodic contractions of the diaphragm. Tonic and clonic convulsions as well as headaches may be caused by the toxins elaborated by the throat fungi. St. Vitus' dance results. The association of this disease with rheumatism has been often commented on. Both have been observed accompanying or following an acute angina.

Lymph stasis and venous stasis at the base of the brain of mouth-breathers, with impairment of nutrition of its cortex and membranes, is provocative of epilepsy.

Who can say that the psychoneurotic prodigy, Joan of Arc, was not obsessed by the mysterious whispers of catarrhal drum-retraction, rather than by angels' voices? Was not Beethoven pursued and hounded to his death in the horrible silence of total deafness by a single tone, all-powerful, overwhelming, on which he built imaginary concertos and symphonies?

In that ulterior day when men shall no longer, in home and mart and highway, think only of acquisition and profit, but of health and right; when a good name shall be more diligently sought for than great riches; when the science of medicine shall have become prophylactic instead of symptomatic; then shall the hysteric and the neurotic receive their meed of thought and care. Then shall those functional diseases no longer be allowed to develop into organic lesions, and epilepsy and insanity be as rare as variola and cholera.

DISLOCATION OF THIRD CERVICAL VERTEBRA—REDUCTION—HEMORRHAGE TEN HOURS LATER.

A. D. S. McCOY, M.D.
PASADENA, CAL.

History.—T. M., aged 36, a house mover, in raising a house, May 29, 1907, the wrench with which he was turning a jack slipped and he fell backward, striking on the back of his head with a great deal of force. He said that for a minute he could not move nor speak, though he could hear the other men talking. After a few minutes he crawled from under the house and walked to the Emergency Hospital, about four blocks.

Examination.—At 9 a. m., fifteen minutes after accident, examination showed the head flexed so that the chin nearly touched the thorax, slightly turned to the right and held very rigid. There was a protrusion, the size of a hen's egg, on the right side of the spinal column in the region of the third cervical vertebra. The right arm was paralyzed. He would hardly allow me to touch the neck on account of the pain, and all attempts to turn the head caused severe pain. I finally made out the lump to be caused by a dislocation to the right of the third cervical vertebra. While examining more carefully, I pressed on the displaced vertebra, at the same time turning the head to the left, and the vertebra slipped back into place with a pronounced click. The man immediately raised his head and turned it with the greatest ease. The paralysis of the right arm immediately disappeared. All pain in the neck disappeared and he said he felt as well as ever. A figure of eight bandage was put on to hold the head as still as possible, and patient was told to go to bed and remain quiet.

Subsequent History.—At 8 p. m. I was sent for. The patient complained of pain in neck, and a feeling of "deadness" on the right side, which had come on a few minutes before. Examination showed paralysis of the entire right side, except the face, and all sense of feeling was lost in that. In the course of thirty minutes he had lapsed into profound coma, stertorous breathing, and constant twitching of muscles of left side. On inquiry I found that he had been up and around the house and out on the street all the afternoon. He was removed to the hospital, ice applied to the back of the head and neck. After about an hour he partially regained consciousness, complained of pain all over the left side and in the neck; twitching of the left side was very marked; no sensation on right side; hyperesthesia on left side; left pupil normal, right eye had been removed some years before. Patient very restless and somewhat delirious. The next morning his mind was clear and the following day feeling had begun to return to the right side. Paralysis gradually disappeared, first in the leg, later in the arm.

There evidently was a hemorrhage which pressed on the right side of the cord and medulla, and was extensive enough to cause complete paralysis of the right side and irritate the nerve centers of the left side sufficiently to cause twitching of the muscles of that side.

Tuberculosis of Accessory Sinuses of the Nose.—J. W. Gleitsmann, New York, in the *Laryngoscope*, states that although tuberculosis of the accessory sinuses is of rare occurrence it is deserving of more attention than it usually receives. He says that it is difficult to determine the exact etiologic factor, as the writers who report cases generally confine themselves to a short report and omit the important data. From the histories, however, the majority of cases seem to be due to extension from a neighboring focus. Of twenty cases reported, Gleitsmann found that the maxillary sinus was involved in twelve. Most of the patients suffered from pulmonary tuberculosis and a few only had the symptoms of empyema of the antrum without any constitutional disturbance; at operation tubercle bacilli were found in the discharge evacuated. The prognosis in this condition, Gleitsmann says, is doubtful and the treatment eminently surgical and not differing radically from that generally adopted in severe cases of empyema of the sinuses.

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SATURDAY, AUGUST 3, 1907.

THE RELATION OF "HEART DISEASE" TO SUDDEN DEATH.

It is the usual custom to say, when a person dies suddenly under almost any circumstances, that it is due to heart disease. This has become so common that now it scarcely requires a physician for this diagnosis, and even the policeman who picks up the body of one who died suddenly on the street calmly pronounces the words "heart disease." There is little justification, however, for the assumption that most of the unexpected deaths are due to the heart, and those who have made the most exhaustive study of cardiac affections are practically unanimous in proclaiming the fact that sudden death from the heart alone is not nearly so common as has been imagined. It is now nearly half a century since Stokes protested against the popular conception that sudden death is very common in heart disease. He insisted that only in the aortic forms of heart disease is death likely to be sudden, and that even in these the almost inevitable involvement of the other parts of the heart, in various degenerative processes, usually leads to a prolongation of the breakdown that precedes death, so that the termination is as a rule only after abundant warning.

Professor Gibson of Edinburgh, one of the best authorities on heart disease of to-day, recently emphasized these expressions of Stokes. In the Morrison lectures before the Royal College of Physicians of Edinburgh, less than five years ago,[1] he declared that Stokes' words have been abundantly justified by a half century of additional experience and that "we now recognize that sudden death is not of extreme frequency in such affections. One or two special diseases are, as we know, prone to sudden dissolution, but these form a great exception to the vast mass of cases of heart disease. As we grow older our prognosis in cardiac affections, though it will probably remain for a long time one of the opprobria of practical medicine, becomes without doubt rather more hopeful than when we start out on our life work as physicians."

Professor Brouardel of the University of Paris is in striking agreement with these two British authorities. His long experience in connection with the morgue of that city, at which for over a quarter of a century he has been the teacher of the various phases of legal medicine, which occur in connection with sudden death of all kinds, makes his opinion particularly valuable. He says that "fifty years ago the doctrine of Bichat prevailed, that death took place by the heart, the lungs or the brain. To-day we can assert, at any rate as far as sudden death is concerned, that death is especially apt to be brought about by the kidneys, and we ought to restore the humoral theory to a place of honor." In his book on "Death and Sudden Death" he discusses this subject very thoroughly. He confesses that sudden death often occurs as the result of changes which take place in the circulatory system, but it is not essential that there should be any lesion of importance. A lesion in the circulatory system may have its seat in the heart or the vessels, "but especially in the vessels of the brain or kidneys." This view is so different from what is ordinarily the accepted opinion that it seems worth while to emphasize it.

Brouardel insists that probably more people die suddenly as the result of complications associated with kidney disease than from any other single affection, and even seems to think that the next most frequent cause of a non-expected fatal termination, in the midst of apparent health, is apoplexy. This would leave heart disease to occupy only the third place. It must not be forgotten in this regard that some at least of the comatose conditions which come over mankind from either Bright's disease or diabetes are so overwhelming in their onset that death is practically instantaneous. It is for evidence of these that one must look, at least as much as for heart disease, when there has been a sudden fatal termination.

It is necessary to keep in mind, however, the fact that the relative frequency of a sudden fatal termination of heart disease is an entirely different thing from the proportion which sudden death from heart disease bears to the total number of cases of sudden death. The close connection between the kidneys and the heart make it almost inevitable that the heart should be affected in some way in cases of death from kidney lesions. In these cases the kidney disease is perhaps the primary cause and it may be the lesion that appears most prominently at the autopsy, but death is almost always caused through interference with the circulation and frequently the heart is at fault. Sudden death in heart disease occurs in forms of cardiac affections in which a sudden interruption of the heart's blood supply is possible, especially in affections of the coronary artery, and it is just these conditions that are likely to depend on primary disease of the kidney.

From a prophylactic viewpoint it will be found that the measures best calculated to avoid sudden death from kidney disease will be essentially the same as those calculated to secure the integrity of the heart. Among them the most important are the voidance of sources of poisoning either from without or from within, the avoidance of alcohol, tobacco, too large an amount of meat and the prevention of autointoxication of all kinds.

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[1] The Nervous Affections of the Heart, 1902-1903, London and Edinburgh: Young J. Penland, 1905.

This subject is all the more interesting at the present moment because sudden death on the street is more common during heated periods than at other times. When the kidneys are affected a prolonged spell of heat adds greatly to the danger of sudden fatal termination. There could be no better time then for the review of opinions with regard to sudden death and a remaking of them to accord with those of the best authorities in the matter.

THE CONTROL OF INSECT-BORNE DISEASES IN THE ARMY.

The admission rate for malarial diseases among American troops serving in the Philippine Islands reached the maximum of 742.81 per thousand in 1900, and steadily declined from that time until the minimum of 220.65 per thousand was reached in 1904. This reduction followed the active efforts of medical officers of the army to control the disease. Since 1904, however, a steady rise in the admission rate for malarial diseases has been noted, reaching 304.20 per thousand in 1906. In the United States proper the maximum rate of 655.82 was reached in 1898, followed by a rapid decline to a low rate of 45.29 in 1905. In 1906 the rate in the United States again rose to 50.27 per thousand.

This unwelcome increase in malarial fevers in the last year or two led to an investigation as to the efficiency of the measures which had been taken in the Philippine Islands to protect the soldiers against malaria. It was found that after nine years of occupation by us practically nothing had been done in the way of mechanical protection. In the Department of the Visayas not even a single hospital was screened, while in the Department of Luzon but three buildings or parts of buildings were thus protected. Efforts are now being made to have all quarters, hospitals and barracks used by troops in the tropics thoroughly screened with 18-mesh wire gauze so as to exclude all mosquitoes.

In the United States proper practically all barracks, quarters and hospitals are screened, but many of the screens are not effective so far as excluding all mosquitoes is concerned, as owing to the question of expense many of the windows have only half-screens. In such cases the soldiers, with the natural perversity of their kind, generally open that part of the window not screened, so that full length screens are the only adequate means of protection.

It is understood that many of the buildings in the Philippine Islands used by troops are so constructed as to make it difficult to screen them effectively, but though the task may be difficult, it is not thought to be in any case impossible, and the matter is of such great importance that future construction should be planned with especial reference to the complete exclusion of mosquitoes. The value of such protection against mosquito-born diseases is not a matter of theory, but has been abundantly proved by practical experience, especially in Italy.

On the Adriatic railroad system, where formerly all the employés in certain districts, with hardly any exception, suffered from malarial fever, now of 10,000 employés at the same stations, but protected by wire gauze, during the last few years only 11.41 per cent. suffered, or but little more than the percentage of malarial cases occurring among some 25,000 persons employed in non-malarial stations.

Screening is now employed even in rice fields, wire work sleeping places being constructed for the "pruners of rice." In Corsica mechanical protection by screening, together with the use of quinin, reduced the morbidity from malaria from 50 per cent. of the inhabitants to 11.5 per cent., this 11.5 per cent. being mostly relapses. The Italian experience has demonstrated not only the efficiency, but also the great economy of this method in preventing the loss of effective labor from sickness.

Owing to our increasing knowledge of the importance of flies as transmitters of typhoid fever and other infectious diseases, it has also been recently recommended that all stables at military posts be provided with a fly-proof room or bin in which the daily accumulations of manure are collected, and that the manure be so treated, handled and disposed of as to prevent flies from breeding in it.

AMBULANCE SPEED.

As the traffic in the streets of our large cities becomes greater, and the number of rapidly-speeding trolley cars, automobiles, mail and express wagons and other vehicles becomes larger, the accidents to hospital ambulances grow constantly more frequent. This is lamentable because the ambulance service is primarily intended to save life and suffering and many of these accidents add to the amount of suffering and sometimes even cause fatalities.

The public is prone to make way for an ambulance, if only proper warning is given and sufficient opportunity provided to allow of yielding the right of way. There are very few people who fail to have a thrill of sympathy for the errand of mercy on which the ambulance is bound. This is a bit of humanity that exhibits itself even in the midst of the greatest hurry and bustle. The public can scarcely be expected to do more in this matter than they do at present. It would seem, therefore, that a reduction in the number of accidents to ambulances must come rather from a stringent enforcement of certain precautionary regulations than from renewed efforts to have the right of way, which is so equably granted, made more effectual.

One feature of the accounts of ambulance accidents is that in the majority of cases the ailment of the sufferer who is being taken to the hospital is not such as demands speed to save either life or suffering. Occasionally one hears that a patient was being taken to the hospital in preparation for an operation that was to be performed the next or even following day. Not infrequently the patient is suffering from some chronic ailment. Occasionally the case is already hopeless or practically so when taken by the ambulance surgeon. This was the case not long since in one of the large eastern cities where the ambulance demolished in an accident contained a little patient suffering in the last stages of cerebrospinal meningitis, very probably of tuberculous origin, yet the ambulance was being driven at top speed and a serious accident resulted. Nearly if not quite one half the ambulance calls require no special haste, yet it is almost an exception to see a hospital ambulance going at a moderate gait.

Ambulance drivers and young surgeons on ambulance service are somewhat prone to take advantage of their opportunity to make their way through crowded streets with all the speed they may for the sake of the effect produced by the clang of the bell and the right of way so willingly accorded them. This privilege, however, can readily be, and in the past has frequently been, abused in the way that we have pointed out.

It is needless to remark that such stringent regulations should be enforced with regard to ambulance service as will lessen the number of accidents. Surgeons who are merely transferring patients with regard to whom there is no special haste should be held strictly responsible for accidents due to speed greater than is necessary in the particular instance. The rushing across avenues crowded with traffic should never be permitted except under the most urgent conditions, and those absolutely known beforehand and not merely presumed on general principles. We have no doubt that a judicious reform in this matter will effect a saving to hospitals in bills of repair and will avert not a little human suffering and even save lives. Some accidents are inevitable, but the considerations we have suggested are sufficient to make it clear that they may be lessened to a noteworthy degree.

THE RESULTS OF ORGANIZATION.

The changed conditions in medical affairs, which have resulted in nearly every state since the adoption of the new plan of organization, are now becoming noticeable, especially when contrasted with those which existed five or six years ago. While the scientific work is not being neglected in the slightest and while the programs of recent state meetings, we venture to say, will compare most favorably with those of previous meetings, yet the state society is accomplishing something more than the discussion of scientific subjects and has become something more than a scientific mass-meeting. Our state societies which have reorganized and established a house of delegates are now, actually and potentially, legislative bodies, considering practical questions and legislating for the profession of the state. The adoption of these features has made possible results which never could have been obtained from the old general mass-meeting, in which there was never time to give careful consideration to practical questions and under which any carefully formulated policy was impossible.

These reflections are called out by reading the report of the recent meeting of the Michigan State Medical Society, which appeared in the July number of the state journal.[1] One of the most noticeable points of difference between this report and that of a few years ago is the wide range of practical subjects considered by the House of Delegates. Medical organization, the state journal, advertising, graduate work, medical legislation, school hygiene, tuberculosis, contract practice and the medical care of paupers are but a few. The reports rendered and the actions taken on these questions are far different from the old plan of passing hasty resolutions, which were utterly ineffectual so far as practical results were concerned.

Attention should especially be called to the excellent report on contract practice, one of the best yet submitted on this perplexing but important question, and one full of suggestion to other societies which may have the same subject under consideration.

In spite of the fact that certain medical journals opposed to organization have claimed that Michigan is one of the states in which dissatisfaction and disaffection exist, the council of the state society reports the past year one of "medical revival in Michigan." The universal report is that the work of county societies is being carried on with greater energy and enthusiasm than ever before. The officers and members of the Michigan State Medical Society are certainly entitled to congratulations on the excellent work done during the past year, which can not fail to result in greatly improved conditions, both for the public and the profession.

Yet Michigan is not an isolated instance, but is only one of many states in which similar work is going on. Things are now being done that in the past were only talked of. It is noticeable that the amount of practical work which is being carried on in each state is in direct proportion to the length of time which has elapsed since the state adopted the reorganization plan and provided for a small representative body of men, who could devote their time, during the annual session and during the year, to legislation and work for the good of the public and of the profession. Formerly, a state association was a succession of annual mass-meetings, separated by intervals of fifty-one weeks of inactivity. Now, by means of the council, the standing and special committees and the house of delegates, each properly organized state society is a well constructed machine, working continuously and effectively all the year around. As our state organizations gain in strength and experience, we may look for greater results in the future than were ever dreamed of in the past.

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[1] See page 436, Department of Medical Economics, this issue.

THE ORIGIN OF LIFE.

A number of years ago Lord Kelvin offered what was then considered by many the extravagant hypothesis that life first came to this planet on meteorites thrown off from other celestial bodies and carrying the germs of their existing organisms. The theory was widely discussed for a time, but had its little day and was apparently dropped as a mere hypothesis probably incapable of proof and open to too many objections to require serious consideration. It is not dead, however, and it has again been brought before the public in a modified form by the distinguished Swedish physicochemist, Arrhenius, who figures out the possibility of germs, even from other solar systems, reaching us, propelled by light and with their vitality maintained by the preservative action of the low temperature of space. It is somewhat significant perhaps that one to whom the more advanced chemistry of the day owes so much, should consider it worth while to assume an extra mundane origin of life, when so many of the minor chemicobiologists are proclaiming that life is itself a form of chemism. If the universe is permeated with wandering germs and all life and evolution are everywhere essentially the same, we are then liable to almost anything in the way of pathologic possibilities. The chance arrival on our planet of some ultra virulent germ might at any time produce a catastrophy as fatal to the human race as the collision of a dark star with our sun so vividly imagined by Professor Newcomb. Such speculations are perhaps of no practical use, but after all the question of the origin of life is an ever recurring one. Any one who, in the present status of our knowledge, assumes that it is settled—that any hypothesis can be considered as definitely proved—must have very inadequate ideas of what constitutes proof.

Medical News

CALIFORNIA.

New Hospital for Eureka.—A charter has been granted to the St. Francis Hospital at Eureka and the directors have elected the following officers: President, Dr. George N. Drysdale; vice-president, Dr. Oliver W. Sinclair; secretary, Dr. Edward J. Hill.

Personal.—At the regular meeting of the Board of Health of San José, July 1, Dr. Charles H. Walter was elected secretary and health officer.——Dr. Louis D. Baciagalupi, surgeon of the Naval Reserves at San Francisco, became exhausted while swimming at Ocean Park recently and narrowly escaped drowning.——Dr. Andrew M. Henderson, Sacramento, was badly bruised in a runaway July 21.——Dr. Esther C. Pohl has been appointed health officer of Portland, vice Dr. Cortez H. Wheeler, resigned.

Vital Statistics for June.—During June 1,994 births and 2,343 deaths were reported to the State Board of Health. Heart disease and allied ailments caused the greatest number of deaths. There were 349 deaths, or 14.9 per cent. of all, from diseases of the circulatory system, against 329, or 14.0 per cent., from tuberculosis of the lungs and other organs. Third in order were diseases of the respiratory system, causing 219 deaths, or 9.3 per cent. of all. There were 55 deaths from meningitis and 188 from other diseases of the nervous system, apoplexy, etc. Typhoid fever was the most fatal epidemic disease of the month. Deaths caused by epidemic diseases were as follows: Typhoid fever, 36; diphtheria and croup, 25; measles, 24; whooping-cough, 21; scarlet fever, 12; influenza, 10; malaria, 6, and all other causes, 15.

GEORGIA.

Personal.—Dr. R. B. Ridley, Jr., Atlanta, was operated on for appendicitis July 18.——Dr. J. B. Morgan, Augusta, has been seriously ill, but is now convalescent.——Dr. N. A. Frier, Bickley, a prominent representative of the profession in the state legislature, was recently appointed a member of the legislative committee on banks and banking, general agriculture, public libraries, University of Georgia and branches and others. He was also appointed vice-chairman of the committee on hygiene and sanitation. Dr. Frier is a member of the Ware County and Georgia State medical societies.

Society News.—At a meeting of the Troup County Medical Society, held at LaGrange, July 18, the following officers were elected for the ensuing year: President, Dr. Albert J. Tuggle, LaGrange; vice-president, Dr. Robert H. Jenkins, Hogansville; secretary, Dr. Henry W. Terrell, LaGrange.——Physicians of the Fourteenth Senatorial District met at Americus July 17, and organized a medical society with the following officers: President, Dr. Richmond Statham, Americus; vice-president, Dr. T. J. McArthur, Cordele; secretary, Dr. R. A. Stovall, Vienna.——The annual meeting of the Fifth District Medical Association was held at Atlanta, July 16. The following officers were elected for the ensuing year: President, Dr. Thomas R. Whitely, Douglasville; vice-president, Dr. Edward G. Jones, Atlanta; secretary and treasurer, Dr. John Ross Simpson, Atlanta.

ILLINOIS.

Claimed He Could Fix the State Board.—"Dr." Edward Dowdall, Chicago, has been arrested, on complaint of the secretary of the State Board of Health, charged with obtaining money from physicians, medical students and others by claiming that he could "fix" the board and thus enable them to pass the state board examinations successfully. Dowdall is also charged with practicing medicine without a license.

Personal.—Dr. William Blender, Carthage, has been appointed associate professor of anatomy at Keokuk Medical College.——Drs. A. H. Beebe and C. C. Anthony of the staff of the Illinois Asylum for the Incurable Insane at Bartonville, have resigned to enter private practice.——Dr. Charles I. Allen, Milton, was found to be insane July 19, and was taken to a hospital in Jacksonville.——Dr. Ewing M. K. Taylor, Leroy, has been appointed county physician of Macon County and will remove to Decatur to assume his duties.——Dr. George W. Evans, Marion, was overcome by heat July 20, and for several hours was in a critical condition.

Chicago.

Lake View Hospital to be a Public Institution.—The Lake View Hospital and Training School for Nurses, for two years conducted as a private institution, has been incorporated with a capital of $30,000 and will begin public work. Dr. Orlander E. Wald is president.

Result of Examination for Ambulance Surgeons.—A report from the Civil Service Commission on the examination recently held for city ambulance surgeons shows the following to be the first five men, in order of standing: R. T. Vaughan, F. Rastall, C. H. Gowan, A. L. Hoyne and C. H. Wall. About 85 candidates took the examination for the 16 positions to be filled.

Police Cooperate with Health Department.—The Bulletin of the Chicago department of health states that for the first time in its history the department is receiving the active cooperation and assistance of the department of police in its efforts, not only to safeguard the health, but also to promote the comfort and general well-being of the citizen. The present chief of police, George M. Shippy, introduces this new departure by an order intended to abate the intolerable hot-weather nuisance arising from failure to remove promptly the bodies of dead animals from streets, alleys and other places.

Vital Statistics.—The total number of deaths for the week ended July 27 was 548; of these 298 were males and 250 females. There were 132 deaths among children under one year of age. Acute intestinal diseases caused 90 deaths; tuberculosis, 65; violence, other than suicide, 49; pneumonia, 42; heart disease, 41; Bright's disease, 28; nervous diseases, 27; cancer, 24; scarlet fever, 11; apoplexy, 9; typhoid fever, 7; bronchitis, 6; suicide, 6; convulsions, 6; measles, 4; whooping-cough, 4; diphtheria, 3; sunstroke, 2; tetanus, 1; all other causes, 123. One smallpox patient, an unvaccinated woman, was sent to the Isolation Hospital during the week.

Health School for Chicago.—Articles of incorporation have been granted for the Chicago School of Sanitary Instruction, with Health Commissioner Evans, Assistant Health Commissioner Reilly and Dr. J. Biehn as founders. Free instruction will be given in general bacteriologic work, in bacterial diagnosis of disease and in the chemical analysis of water, ice, milk and food products. The students must serve two weeks in the city laboratory and two weeks accompanying the sanitary inspectors around the city. The faculty of the new school includes besides the health commissioner, Dr. Frank X. Walls, chief of the antitoxin service; Charles B. Ball, chief sanitary inspector; Dr. C. W. Behm, chief of the disinfection service; Dr. M. O. Heckard, registrar of vital statistics; Dr. Joseph Biehn, director of the city laboratory, and Dr. Heman Spalding, chief medical inspector.——Dr. Max Reichmann has returned from Europe.

INDIANA.

Typhoid Epidemic in Hammond.—Fifteen new cases of typhoid have been reported from Hammond, and a meeting of the State Board of Health has been called to arrange for a determined effort to check the spread of the disease.

Personal.—Dr. John L. Freeland has been appointed superintendent of the Indianapolis City Hospital to succeed Dr. Norman E. Jobes, who resigned recently.——Dr. Francis J. Duckworth, Indianapolis, received a severe scalp wound July 21, when a fare register on a street car fell on his head.——Dr. Harvey J. Clements, Converse, has accepted a position on the faculty of Willamette University, Salem, Ore.; he will be succeeded at Converse by Dr. Lucian W. Smith of Liberty Center.——Dr. John Q. Garner, one of the oldest physicians of Elwood, was seriously injured in jumping from a street car, July 10.——Dr. John D. Kaple, South Bend, has retired from active practice and will move to central New York; he will be succeeded by Dr. William M. Cook of LaGrange.

Sickness and Death in Indiana in June.—The *Monthly Bulletin of the State Board of Health* states that measles was the most prevalent disease. In the corresponding month last year rheumatism was the most prevalent and measles was thirteenth in order of prevalence. The exact order of prevalence for the month was as follows: Measles, rheumatism, tonsillitis, diarrhea, bronchitis, typhoid, cholera morbus, intermittent and remittent fever, smallpox, diphtheria, membranous croup, pneumonia, scarlet fever, inflammation of bowels, cholera infantum, dysentery, erysipelas and influenza. There was a decided increase in smallpox as compared with the same month last year, for there are on record 119 cases in 31 counties, with one death in St. Joseph County. In June, 1906, 63 cases were reported from 8 counties, with no deaths. The tuberculosis deaths numbered 343. The average for this disease in June for the last seven years is 334. Of the total number of tuberculosis deaths, 153 were males and 190 females. Of the males, 22 were married and in the productive age period from 18 to 40, and they left 47 orphans under 12 years of age. Of the females, 66 were married and in the productive age period from 18 to 40, and left 133 orphans under 12 years of age. Diphtheria was less prevalent than in June last year. The total number of deaths was 2,504, rate 11.3. In the corresponding month last year 2,322, rate 10.6. Deaths under one year of age numbered 312, or 13.1 per cent. of the total, and 65 years and over, 766, or 32.3 per cent. of the total. The country death rate was 9.7 and the city rate 13.9. The cities having from 25,000 to 50,000 population had the following death rates: Indianapolis, 14.1; Evansville, 14.4; Fort Wayne, 15; Terre Haute, 13.8; Anderson, 9.4; Muncie, 9.8; South Bend, 18.3. Cancer deaths numbered 119; deaths from violence, 184; smallpox, 1. Diarrheal diseases prevailed more extensively than in the same month last year, the respective number of deaths being 86 and 68. For the month of June, 1907, the summary shows that the number of deaths and the death rate was higher than in the corresponding month last year, and also that sickness prevailed to a degree about 4 per cent. greater.

IOWA.

New Hospital for Mason City.—The Sisters of Mercy have announced their intention to accept the offer made to them to assume $30,000 of the cost of the new $50,000 hospital to be erected there. They have also agreed to take charge of the hospital, provided Mason City furnishes the remaining $20,000 and a site for the building.

Personal.—The State Board of Health has elected Dr. Joseph Henry Sams, Clarion, president, to succeed Dr. F. W. Powers, Waterloo, who will retire from the board at the end of the year.——Dr. Alexander M. Linn, Des Moines, has been elected president of the board of medical examiners to succeed Dr. Sams.——Dr. A. B. Conaway, Marshalltown, has returned from a trip through Indian Territory, Oklahoma and Texas. ——Dr. Alfred O. Williams, Ottumwa, was operated on for appendicitis July 11, and is now convalescent.

KANSAS.

Vital Statistics for June.—During the month there were 77 deaths from contagious diseases, as follows: Tuberculosis, 52; typhoid fever, 9; diphtheria, 3; scarlet fever, 1; smallpox, 1; measles, 11.

New Home for Medical School.—The Washburn University trustees have purchased the Oddfellows' building in Topeka. The building will be used for the Kansas Medical College. The medical school will be moved into its news quarters by the time the college opens in September.

Personal.—Dr. Eleanor Ernest, Topeka, has been appointed professor of materia medica in Kansas Medical College.——Dr. Charles T. Hahn is seriously ill with appendicitis.——Dr. George Minney, Topeka, was painfully injured by falling from a wagon, but is now convalescent.——Dr. Herschel Hendricks, Iola, is going to New Mexico for his health.

MARYLAND.

Baltimore.

Mosquito Extermination.—Dr. Bosley, commissioner of health, contemplates continuing the work of mosquito extermination, which has been so successful, as a regular part of the work of the department.

Vacation Outings.—Dr. Walter B. Platt has gone on a camping trip with his two sons to Lake Champlain.——Dr. Ira Remsen is at Prout's Neck, Me.——Dr. B. Merrill Hopkinson has gone to New England for a month.——Dr. Charles J. Keller is at Atlantic City.——Dr. Arthur M. Shipley of University Hospital is at Wesley Grove camp meeting.——Drs. J. Howard Iglehart and J. W. C. Cuddy have gone to New York City.

Personal.—Dr. Fitz Randolph Winslow, recently attached to the resident staff of University Hospital, left Baltimore July 27, for Berkeley, Cal., to practice.——Dr. Harry Wilbur Stoner, a recent graduate of the University of Maryland, has been appointed assistant bacteriologist to the State Board of Health. ——Dr. John G. Jeffers has been appointed demonstrator of obstetrics at Baltimore Medical College.——Drs. Marshall B. West and John A. Tompkins, Jr., are physicians to the Orange Grove Summer Home for Children.

MASSACHUSETTS.

Personal.—Dr. Ernest D. Richmond, Reading, sailed for Europe July 15.——Drs. Arthur T. Cabot, Boston; William D. McFee, Haverhill, and Albert C. Getchell, Worcester, have been appointed as members of the commission to establish three tuberculosis sanitariums in the state.

Physicians Appointed.—As a result of the division of the state into districts the following physicians have been appointed district health officers: Drs Charles E. Morse, Wareham; Adam S. McKnight, Fall River; Wallace C. Keith, Brockton; Elliott Washburn, Taunton; Harvey Linenthal, Boston; Albert P. Norris, Cambridge; J. William Vose, Beverly; William H. Coon, Laurence; Charles E. Simpson, Lowell; William W. Walcott, Natick; Melvin T. Overlock, Worcester; Lewis Fish, Fitchburg; Harvey T. Shores, Northampton; Richard S. Benner, Springfield, and Lyman A. Jones, North Adams. These physicians will, under a recent act of the legislature, be required to gather all information possible concerning the prevalence of tuberculosis and other dangerous diseases, and to disseminate knowledge as to the best method of preventing the spread of such diseases. They are empowered, after conferring with the state and local health authorities, to take such steps as shall be deemed best for the eradication of disease.

MICHIGAN.

Personal.—Dr. Leartus Connor, Detroit, has suffered the severe affliction of the loss of his wife, who died suddenly, July 21.——Dr. Charles B. MacCartney, first assistant physician at Oak Grove Sanitarium, Flint, has resigned to spend several months in graduate study in Europe.——Dr. Charles W. Niles, Calumet, has resigned as a member of the Calumet and Hecla Hospital.

Society Elects Officers.—At the annual meeting of the Upper Peninsula Medical Society, held at Menominee, July 16, the following officers were elected: President, Dr. Benjamin T. Phillips, Menominee; vice-presidents, Drs. I. C. Girard, Escanaba, and William T. S. Gregg, Calumet; secretary, Dr. Harry J. Hornbogen, Marquette. Marquette was decided on as the next meeting place.

MISSOURI.

Society for Prevention of Tuberculosis.—The Ralls County Society for the Prevention of Tuberculosis was organized July 17. Dr. William T. Waters, New London, is secretary.

Additions to Tuberculosis Hospital.—A contract has been entered into by the Missouri State Tuberculosis Sanatorium for the erection of another building—a villa—for patients. It will cost about $22,975.

Personal.—Dr. Tazewell B. Wingo, Dexter, has been appointed to the position made vacant at the Hospital for the Insane at Fulton, by the resignation of Dr. J. F. Harrison, who has been appointed superintendent of the Farmington Hospital for the Insane.

Society Elects Officers.—The Ray County Medical Society met at Hardin July 17 and elected the following officers for the ensuing year: President, Dr. Edwin H. Musson, Rockingham; vice-presidents, Drs. Luther D. Green and Robert Sevier, Richmond; secretary, Dr. Herman S. Major, Hardin; treasurer, Dr. Marvin Grimes, Hardin.

NEW YORK.

Diphtheria Scare.—At Bayport, Long Island, a fatal case of diphtheria has spread alarm among the members of the summer colony; they fear an epidemic.

Epidemic of Rabies Feared in Rochester.—Several cases of rabies have occurred in Rochester recently and Dr. Goler, the health officer, has conferred with veterinary surgeons in regard to the most efficacious measure for checking the spread of the distemper.

Bills Approved by the Governor.—Among the bills signed by Governor Hughes are the following: Mr. Waddell's, requiring water corporations to supply the inhabitants of any city, town or village through which the conduits may pass with pure and wholesome water at reasonable rates. Senator McManus', providing for the pensioning of a dependent widowed mother left by a physician or employé of the New York City health department who died from a disease contracted in the service. Mr. Strattan's, amending the agricultural law to prohibit the use of unclean and insanitary milk cans and providing for their confiscation, and for the appointment of two milk can inspectors in New York City. Mr. Page's, making it a misdemeanor, in filling a prescription or order for any food or preparation used in medical practice, by putting thereon any untrue designation of contents, or by substituting or dispensing a different article or amount for any article or amount prescribed, or by otherwise deviating from the terms of the order. Mr. Wainwright's, providing for a sanitary sewer in Westchester County. Mr. Huth's, providing that dangerously sick patients shall not be ordered removed from hospitals in New York City except for good cause and on written certificate of attending physicians or surgeons.

New York City.

Personal.—Dr. and Mrs. D. Ernest Walker returned from Europe July 24.——Dr. Charles H. Chetwood sailed for Europe July 25, and Dr. Philip G. Becker, July 27.

Bequests.—Mrs. Susan A. R. Moses made bequests as follows: To Faith Home for Incurables, $2,000; to Brooklyn Home for Consumptives, $5,000; to Cottage Hospital of Laconia, N. H., $5,000, and $5,000 to the Brooklyn Home for Consumptives to establish a Susan Moses room.

Stony Wold's Plan.—The president of this sanitarium has conceived a plan to be placed in operation this coming winter of building cottages near by and removing thither, when possible, the families of the patients. The men then can work about the sanitarium or the farm, while the women can raise vegetables, fruits, etc. This plan is warmly recommended by the National Association for the Prevention and Cure of Tuberculosis.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended July 20, 414 cases of measles, with 24 deaths; 308 cases of tuberculosis, with 152 deaths; 304 cases of diphtheria, with 29 deaths; 231 cases of scarlet fever, with 14 deaths; 54 cases of typhoid fever, with 9 deaths; 32 cases of whooping-cough, with 6 deaths; 13 cases of cerebrospinal meningitis, with 12 deaths, and 44 cases of varicella, a total of 1,400 cases and 246 deaths.

NORTH CAROLINA.

Charlotte Wants a Hospital.—A movement is on foot to establish a large city hospital in Charlotte.

Personal.—Dr. Z. Marvin Caviness, Wakefield, was severely cut in the abdomen by a former patient whom he had asked about the settlement of an account. He is expected to recover. His assailant was placed in jail.——Dr. Claude O. Abernethy has been elected health officer of Raleigh.——Drs. Henry T. Bahnson, Winston, and W. Thomas Parrott, Kinston, are in Europe.

Annual Barbecue.—The annual barbecue of the Wake County Medical Society was held at the state fair grounds, near Raleigh, July 12. There was a full attendance of members, along with several invited guests from adjacent counties. Several entertaining short speeches were made by Drs. James M. Templeton, Hubert Royster, Albert Anderson, Thomas S. Faucette, J. W. McPherson, William C. Horton, Augustus W. Knox, Richard H. Lewis and others. The presence of a large number of the wives of the physicians added much to the pleasure of the occasion and helped to score another success for "reorganization" and the county society in North Carolina.

Baltimore Alumni Organize.—The graduates of the Baltimore Medical College who reside in Wake County recently effected the organization of a state association at Raleigh. The following were elected officers: President, Dr. James M. Templeton, Cary; secretary, Dr. James M. Judd, Wake; vice-presidents, Drs. Thomas S. Faucette, Burlington; J. W. McPherson, Haw River; Harvey G. Utley, Apex, and H. A. Dees. There are more than forty graduates in the state, and an invitation is extended to all to unite with the association. The next annual session is to be held in Winston-Salem at the annual session of the state medical society, May 26, 1908.

PENNSYLVANIA.

Society Meeting.—The twenty-seventh annual meeting of the Lehigh Valley Medical Association was held July 11 at Glen Summit. The annual address was delivered by Dr. James H. McKee, Philadelphia. The following officers were elected: President, Dr. John T. Howell, Wilkes-Barre; vice-presidents, Drs. Adam L. Kotz, Easton; William P. Walker, South Bethlehem, and Mary A. Wenck, Sunbury; secretary, Dr. Clinton J. Kistler, Lehighton; assistant secretary, Dr. W. J. Obermeyer, Mauch Chunk, and treasurer, Dr. Albert A. Seem, Bangor.

Rules on Vaccination.—The advisory board of the State Department of Health, at a meeting July 25, adopted rules requiring the reporting of every case of communicable disease to the department officers and permitting persons who have had three unsuccessful attempts at vaccination to be admitted to school, thus laying down two important lines of policy for immediate use. The report system requires physicians in rural districts to report every case of disease to the township health officer, who is to arrange quarantine. The reports of rural cases have hitherto been made to the department's health inspectors in each county. The new arrangement will go into effect as soon as the physicians of the state can be notified.

Personal.—Dr. Eugene R. DeLong, Geigers Mills, health officer of Robeson, Caernarvon and Union townships, has resigned. ——Dr. W. W. McCleary, Bellevue, was severely bruised about the face and head as the result of being thrown from a buggy recently when the horse became frightened at a street car.——Dr. James Stein, Scranton, narrowly escaped death by drowning in Lake Winola July 21, in an effort to save his fiancé when the boat capsized.——Dr. Robert W. Clark, Venango, was painfully burned July 8 by the explosion of turpentine which he was heating.——Dr. John A. Barr. one of the oldest physicians of McKees Rocks, fell from a ladder recently, breaking his leg in two places.——Dr. Samuel W. Perry, New Castle, was thrown from his automobile and badly bruised when his machine was struck by another car July 19.——Dr. Montgomery Linville, New Castle, narrowly escaped injury July 4, when his buggy was struck by a street car.——Dr. Thomas B. Allison, Tarentum, is reported to have become acutely insane July 23. The excessive heat is said to be responsible for his condition.

Philadelphia.

Personal.—Dr. Frederick Dunlap, in charge of the ambulance of St. Joseph's Hospital, was slightly injured recently when the ambulance was struck by a street car.——The following physicians sailed for Europe: July 25, Drs. George E. de Schweinitz, S. MacCuen Smith and Donnel Hughes; July 27, Drs. E. E. Hopkins and E. W. Barnardy.

Free Ice for City's Poor.—The work of distributing free ice to the deserving poor of the city, under the direction of the department of health and charities, was inaugurated July 23. Tickets for free ice, in quantities of 12 and 30 pounds, have been placed in the hands of the 48 district physicians for distribution and preference is to be given to homes having sick children.

Health Report.—The total deaths reported for the week ended July 27 aggregated 629. This is an increase of 130 over the number reported in the preceding week, and an increase of 72 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 9; measles, 4; pertussis, 7; diphtheria, 4; consumption, 65; cancer, 21; apoplexy, 21; heart disease, 41; acute respiratory disease, 29; gastritis, 7; enteritis, 152; appendicitis, 8; Bright's disease, 48; premature birth, 14; congenital debility, 23; suicide, 4; accidents, 34, and marasmus, 9. There were 138 cases of contagious disease reported, with 13 deaths, as compared with 100 cases and 8 deaths reported in the preceding seven days.

GENERAL.

Third International Conference of American Republics.—The Third International Conference of American Republics will be held in Mexico City, Dec. 2-7, 1907, under the presidency of Dr. E. Liceaga, president of the Supervising Board of Health of Mexico.

Delegates to the International Congress of School Hygiene.—The American School Hygiene Association has appointed the following physicians, among others, as delegates to the International Congress of School Hygiene to be held in London, August 5-10: Drs. Henry P. Walcott, Boston; Luther H. Gulick, New York City; Thomas Darlington, New York City; John J. Cronin, New York City; Robert W. Lovett, Boston; R. Tait McKenzie, Philadelphia; Elliott G. Brackett, Boston; Anna A. McKeag, Wellesley College; William Oldright, Toronto, Ont.

Bureau of Health Census of Manila, P. I.—Dr. Victor G. Heiser, director of health for the Philippine Islands, reports that the new Bureau of Health census, taken during January, shows that Manila has a population of 223,542, an increase of 3,601, or 16.37 per cent., since the census of 1903. The increase by nationalities is as follows: American, 801, or 18 per cent.; Filipinos, 5,510, or 2 per cent.; Spaniards, 375, or 14 per cent.; other nationalities, 248, or 27 per cent. There has been a decrease in the Chinese population due, probably, to the following factors: 1. The large emigration to the provinces which has taken place as peace conditions in the outlying districts have become more secure. 2. Operation of the Chinese exclusion law which prevents immigration of this nationality to the Philippines, thus preventing the replacing of death losses caused by the mortality. 3. The few births owing to the small number of wives of Chinamen who live in Manila. 4. The return of many to spend the remainder of their lives in China. 5. The fact that the census was taken at a time when many Chinamen were visiting their native country to celebrate the Chinese New Year.

FOREIGN.

Trachoma in Prussia.—In Quedlinburg, Prussia, a town of 23,000 inhabitants, the high school has been closed on account of an attack of trachoma, which affected 158 pupils.

Semi-Jubilee Celebration of the University of Liverpool.—The University of Liverpool celebrated its twenty-fifth anniversary July 11, by a reception which was attended by about 4,000 guests.

Personal.—Dr. Paul G. Woolley, formerly of Manila, and for over a year in charge of the government laboratories at Phrapatoom, Siam, has been appointed chief health inspector for the kingdom and medical adviser to the department of the interior, with headquarters at Bangkok.

Epidemic of Cerebrospinal Fever Diminishing.—According to the *Lancet*, the epidemic of cerebrospinal fever in Great Britain is diminishing. In Scotland, during the week ended July 13, 6 deaths from this cause were reported in Glasgow, 4 in Edinburgh, 2 in Leith, 1 in Dundee, and 1 in Paisley. In Belfast during the week ended July 6, 10 deaths were reported.

Smallpox in China.—Smallpox still prevails in Shanghai and, while the reported deaths among natives have fallen off a little, Dr. Ransom of the Public Health and Marine-Hospital Service reports that the disease seems to be spreading among the foreign population, and the isolation hospital is nearly filled to the limit of its capacity. The disease is not of a particularly virulent type, and is almost entirely limited to persons who have not been successfully vaccinated.

Leper Asylums in Japan.—Passed Assistant-Surgeon White of the Public Health and Marine-Hospital Service reports from Yokohama that it has been decided to establish homes for lepers in Tokyi-Fu, Osaka-Fu, Kumamoto, Aomori and Kagawa kens (prefectures). The site of the institution in each of these kens will be determined by the governor. Each home will accommodate about 400 persons; the staff will consist of a president, one physician, a pharmacist and several secretaries.

Alcohol and Insanity in France.—The results of a census of the insane asylums in France, to determine in how many insane alcohol had been the chief or contributing cause, has lately been published. Among 71,551 insane, 9,932 whose mental alienation is attributable in greater or less degree to the personal abuse of alcohol, a proportion of 13.88 per 100. Comparison of these statistics with those of former years is unavailable because of the incompleteness of the returns for a decade or more ago. In 36 departments, however, the figures for 1897 are sufficiently reliable for comparison. These 36 departments show 2,540 alcoholic insane in 1897; in 1907, 3,988, an increase of 57 per cent. *La Semaine Médicale*, July 10, remarks that the full influence of alcohol is not shown by these figures, as cases due to alcoholic heredity without alcoholic excess are not included.

Higher Education for Women in Russia.—The request of the University of Moscow to be permitted to admit women, not merely as listeners, but as regularly matriculated students, has been refused by the minister of public instruction, on the ground that the question can only be decided by legislation. ——Permission for the establishment of the school for the higher education of women in Kiev has been granted, on condition that laboratories, anatomic institute, etc., be provided. Eleven professors have been chosen. As the means of the new department are limited, the professors will be obliged to teach for the present without pay. Students to be admitted must have finished a course in a school of eight classes of "gymnasium" (high school) instruction. The course consists of ten semesters. Graduates receive a diploma, which, however, gives them no right to the title of doctor nor license to practice medicine.

Plague in India.—Consul-General Michael, at Calcutta, reports that plague still causes alarm in India. The disease is at its worst in Delhi, notwithstanding the extreme heat which ordinarily would lessen its severity. In Delhi from 100 to 120 cases are occurring daily. About 40,000 Hindoos had fled from the city up to May 6. Merrut, with a smaller population, reports 200 deaths from plague daily. One large bazaar is entirely deserted. Aligarh is reported as a "dead city." The Hindoos will not submit to inoculation. At Delhi the natives threw corpses of paupers who had died of the plague into the river and canal, although ample provision is made by the municipality for cremation. The status of plague in Calcutta continues to be about as it has been for some time past. The mortality reported from this disease is from 40 to 50 a day. Calcutta would be comparatively free from plague, cholera and smallpox the year round but for the large native population which lives in filth and surrounded by unhygienic conditions. The health officer and the municipal authorities are doing all they can do to bring the entire city within hygienic control.

LONDON LETTER.

(*From our Regular Correspondent.*)

London, July 20, 1907.

Death of a Child from Alcoholism.

An inquest was held on the body of a child, aged 2 years, at Swansea, who died from alcoholism. Drink had frequently been given to him by his mother and he was taken to the workhouse drowsy from alcohol. At the necropsy cirrhosis of the liver was found.

The Chair of Pathology at Oxford.

Dr. Dreyer, lecturer on pathology in the University of Copenhagen, and chief assistant to Professor Salomonsen, has been appointed to the newly made chair of pathology in the University at Oxford. At the recent meeting of the British Medical Association at Oxford, he distinguished himself in the discussion on immunity. He is the son of Captain Dreyer of the Danish Navy and speaks English fluently.

Sir William Perkin.

Sir William Perkin, F.R.S., the eminent chemist and founder of the coal-tar industry, died at his residence at Harrow July 14, from double pneumonia, after an illness of four days. At 17 he was private assistant to Professor Hoffmann in his research laboratory. Seeing the importance of preparing quinin artificially he attempted to make the basic substance anilin his starting point and submitted it to a process of oxidation. The result was an intense purple color (anilin purple or mauve). Before he was 20, with the assistance of his father, he proceeded to construct works for the manufacture of the dye on a considerable scale. Later he discovered a method for the manufacture of alizarin (artificial madder). He also produced artificial indigo and synthetically prepared perfumes. His most important research in pure science was the investigation of magnetic rotation, the application of which has done much to elucidate the composition of compounds and their molecular weights.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are **NOT** exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Intermittent Malarial Fever.

Intermittent fever may be of the tertian or quartan variety, depending on the type of the plasmodial infection. The quotidian type, or where there are daily chills, is due to two sets of tertian germs, each set maturing on alternate days. This is more likely to be the form of malarial fever when it occurs in young children. In any of these types of malarial fever there is always an intermission, i. e., a period without fever.

The symptoms of malarial fever are: Chill, fever, headache, backache, vomiting, sweating, period without fever; recurrence of above symptoms.

If all, or any two or three of these symptoms, are present and have recurred periodically, the diagnosis is almost certain and quinin should be given. If the case is atypical the blood should be examined and the plasmodia found before large doses of quinin are justifiable. In other words, patients with beginning typhoid fever, la grippe, cerebrospinal meningitis, bowel infection and cholecystitis should not be cinchonized, and *then* malarial fever ruled out by the continuance of the symptoms.

Other symptoms frequently occurring with malarial fevers are yawning, herpes on the lips and sometimes urticaria; the latter, however, is probably more often due to irritation of the gastrointestinal tract from quinin. In some seasons diarrhea frequently occurs with the chills and fever, and sometimes diarrhea is malarial in origin when there are no chills.

Most chills occur in the morning, probably because that is the exact period of the growth of the germ, infection most frequently taking place in the evening, or night.

The malarial parasites enter the red blood corpuscles, gradually eat them up, so to speak, and finally burst the capsule walls. To produce a chill it takes a large number of such plasmodia to mature at once. A small number will produce symptoms, but not cause a paroxysm, hence the periodical malaise and bad feelings many days before the typical malarial chill. After the paroxysm there is more or less temporary anemia, depending on the number of red cells that were infected. Whether the paroxysm is caused by the liberation of some toxin at the time of the rupture of the red blood corpuscles which, reaching the nervous system, causes the chill, or whether such a sudden breaking up of the blood corpuscles acts alone as a shock to the system, we do not know. The fever that follows is the reaction of the system from the chill. The headache is largely due to the local disturbance of the circulation in the brain, possibly to a blocking up of broken-down red corpuscles in some of the smaller vessels of the brain. The vomiting is doubtless due to this cerebral congestion. The intense backache is largely due to the congestion and blocked condition of the kidney vessels from the same red corpuscle débris, which, if severe, causes hemoglobinuria or hematuria of greater or less degree. The organ that suffers the most in malarial fever is the spleen, which is always more or less enlarged, especially after severe chills, it being probably loaded with the remains of broken-down red corpuscles.

The malarial parasite may exist in the blood for a long time without causing symptoms, even as long as eighteen days and some cases are on record of even a longer period of incubation. These rare cases account for the occurrence of malarial fever in regions where this infection is unknown.

A blood count will, of course, show a diminished number of red corpuscles, while leucocytosis is an exception in malarial fever.

The treatment is: 1. Prophylactic. 2. Treatment of the paroxysm. 3. Treatment during the intermission. 4. Treatment of the convalescence.

I. PROPHYLAXIS.

Prophylaxis is to take precautions against mosquito bites. This means to sleep upstairs, when possible, and, when in a malarial region, to be properly protected by mosquito netting, etc. Build up the general health if it is depressed, as all conditions of debility, whether chronic debility or the acute debility found in the convalescent from some acute disease, tend in malarial districts to allow the malarial plasmodia to get a footing in the system. All conditions of anemia should be carefully treated. If one goes to a malarial district, certainly for a time, prophylactic doses of quinin should be taken, viz., about 20 centigrams (3 grains) each day, in one dose. Individuals who have an idiosyncrasy against quinin should not remain in a malarial region.

II. THE TREATMENT OF THE PAROXYSM.

Here our whole aim should be to shorten the chill and fever stages and to precipitate or hasten the third or sweating stage.

If we first see our patient during the fever and the skin is dry, pulse bounding, head throbbing, patient possibly almost delirious, temperature up to 104 or 105, or even 106, our best treatment is an antipyretic in some form, and perhaps none is better for an adult than acetanilid, as follows:

℞.	gm.	
Caffeinæ citratæ	│20	gr. iii
Acetanilidi	│40	gr. vi
Sodii bicarbonatis	2│	gr. xxx

M. et fac chartulas 2. Sig.: Take one powder, with a half glass of water, at once, and the other if the first is soon vomited or the fever persists after four hours.

No quinin should be given during this stage of the fever, as all of the uncomfortable symptoms will be increased.

During the sweating stage it is well to do nothing except what is directly necessary for the immediate comfort of the patient. The "let-alone" treatment is what he wants, and he is generally contented and glad to rest.

III. TREATMENT DURING THE INTERVAL.

The treatment during the interval of intermittent fever is, of course, the specific treatment with cinchona in some form. It is always a good plan to precede the quinin treatment with a dose of calomel followed, or not, by a saline purge, as seems best.

℞.	gm.	
Hydrargyri chloridi mitis................	│20	gr. iii
Sodii bicarbonatis	1│	gr. xv

M. et fac chartulam 1. Sig.: Take at once.

Before beginning the administration of quinin, it must not be forgotten that the patient may possibly have an idiosyncrasy against it, and the inquiry should be made as to whether or not he knows if he can take quinin. Rarely an individual reacts enormously to this drug; swelling of the face, tongue and lips may occur, or he may have a severe dyspnea from the swelling of the mucous membrane in the air passages, or it may even cause, though sometimes denied, a hemoglobinuria. Urticaria is a not infrequent symptom when taking quinin, due, largely, to carelessness in taking it on an empty stomach. These cases of severe reaction are rare, but at least several times in every physician's practice such an idiosyncrasy will be found. Sometimes a patient will have a very uncomfortable reaction, severe ringing in the ears and terrible restlessness, almost to a delirium, this occurring with the first dose or two, after which a tolerance is formed and there is no more trouble while the quinin is continued. At another period of taking quinin the same disturbances will recur. Other rare cases acquire no tolerance, and the drug must be avoided.

Now, when should quinin be given, and how much should be used? The best results are obtained from administering the largest dose from four to five hours before the expected chill, giving a similar dose either once or twice at other periods of the twenty-four hours before, but not giving any quinin during the time of, or directly after, the expected or actual paroxysm. Some of our best clinicians, however, believe that they get better results by giving a large dose of quinin during the sweating stage of the paroxysm. Either method is probably generally successful, but from a bacteriologic standpoint it is easier to kill a germ in maturity than at any other stage; hence this theory (and the practice is generally successful) of giving it when the germ is about mature. If there is opportunity for twenty-four hours of treatment before the expected chill, the physician should rarely allow another chill.

If there is time before giving the quinin it is always well to give calomel, as previous chills have certainly caused deposits of hemoglobin débris in the liver and its activity is not up to normal. Hence the bile is imperfect and there may be constipation or diarrhea, and a good cleaning out of the intestines with calomel will, in either case, be advantageous.

The adult dose of the sulphate of quinin for an intermittent fever is about 30 centigrams (5 grains) twice during the day, and double that amount, 60 centigrams (10 grains), four or five hours before the expected chill. These amounts should be reduced as soon as two periods have passed without a chill, but 2 or 3-grain doses three times a day after meals should be continued for at least two weeks unless it greatly disturbs the head. After the first week it is well to add to the prescription arsenic in 2 milligram (gr. 1/30) doses and some form of iron, as there is always more or less anemia.

Always give the quinin in elastic capsules or in freshly made capsules, if the patient is old enough to swallow them. If the patient is a child too young to taste, give the bisulphate of quinin in solution. If the child is older and yet not old enough to swallow the capsule, have some pills freshly made and then crumble them in a teaspoon of thick oatmeal, jam, apple sauce, or anything that the mother may substitute, and they may thus be administered without much trouble.

℞. Capsulas quininæ sulphatis flexibles āā, gr. v. No. 20.

Sig.: Take according to directions. (See below.)

℞. For a child one year old.	gm. or c.c.	
Quininæ bisulphatis	1	gr. xv
Aquæ menthæ piperitæ	100	flʒiii

M. Sig.: A teaspoonful every six hours, followed with plenty of water.

℞. For older children.	gm.	
Quininæ sulphatis	2	gr. xxx

Fac pilulas 20. Sig.: A pill every six hours, or at times directed.

The following are directions written Saturday for the administration of quinin to an adult who has tertian malarial fever, chills having occurred in the mornings of Wednesday and Friday. Chill expected 10 a. m. Sunday.

	After breakfast.	After dinner.	After supper.
Saturday	Take 1 (5 gr.) cap.	1 (5 gr.) cap.	2 (5 gr.) cap.
Sunday	Take 2 (5 gr.) cap.	none	none
Monday	Take 1 (5 gr.) cap.	none	1 (5 gr.) cap.
Tuesday	Take 2 (5 gr.) cap.	none	none
W'dn'sday	Take 1 (5 gr.) cap.	none	1 (5 gr.) cap.
Thursday	Take 1 (5 gr.) cap.	none	none
Friday	Take 1 (3 gr.) cap.	1 (3 gr.) cap.	1 (3 gr.) cap.

There is no necessity for causing uncomfortable cinchonism when quinin is administered, provided that something is given which tends to relieve cerebral irritability and perhaps contracts the blood vessels of the brain. The drugs that will do this are morphin, bromids, hydrobromic acid and ergot, any of which administered synchronously with the quinin tends to prevent uncomfortableness from the latter. The best drugs to use for this purpose are the bromids, and a prescription containing sodium bromid, a gram (15 grains) to a teaspoonful of water, may advantageously be written at the time the quinin is ordered. Three grains, or 20 centigrams, of a bromid will prevent cinchonism from 1 grain, or 5 centigrams, of the quinin. Hence a teaspoonful of the bromid mixture, unless there is a good deal of idiosyncrasy against quinin, will put a quietus on 30 centigrams, or 5 grains, of quinin.

℞.	gm. or c.c.	
Sodii bromidi	20	ʒvi
Aquæ	100	flʒiii

M. Sig.: Five c.c., or a teaspoonful, contains 1 gram (15 grains) of bromid.

[In this prescription each fluid dram contains 15 grains of bromid.] Bromid should always be taken with plenty of water. The amount given at one dose and the frequency depend on the amount of quinin that is administered as above described.

Cinchonidia sulphate can be used as a substitute for quinin in practically similar doses, and occasionally may, perhaps, apparently cause less cinchonism than quinin. The action and results are practically the same. The hydrochlorid of quinin is thought by some to be preferable to the sulphate as it is more soluble, hence more quickly absorbed, and the dose is, therefore, somewhat less than that of the sulphate. Occasionally a patient may have less cinchonism by taking the quinin in small doses every three hours rather than in larger doses less frequently. The hydrochlorid (hydrochlorate), the salicylate and the hydrobromid (hydrobromate) cost more than the sulphate, and the hydrobromid does not prevent the occurrence of cinchonism, as was hoped. The so-called tasteless preparations of quinin are amorphous extracts of cinchona and generally are not as efficient or as active as quinin sulphate, and can not be relied on to prevent chills. The tannate of quinin may act somewhat as a tonic, but furnishes but little quinin to the system, being nearly insoluble in the gastrointestinal canal.

Suppositories of quinin have been used with some success. The dose must be larger than by the mouth by one-third at least. Irritation of the rectum, however, is readily caused. The oleate rubbed into the skin is not successful, as absorption of the quinin does not take place.

IV. THE TREATMENT OF THE CONVALESCENCE.

If there is a tendency to recurrence of the intermittent fever, a complete change of air for a short time will do more good than all drugs, especially if the patient can go to the seashore, take an ocean trip, or go into some high mountain air. If the spleen remains enlarged in these cases, good results are obtained by adding to the quinin treatment the daily administration of some active laxative. The success of the Warburgh's tincture, a nostrum of India, the secret of which was obtained by Professor MacLean of England, is due to its laxatives. There is nothing wonderful about the heterogeneous combination of drugs in this ancient mixture. It contains aloes, rhubarb, angelica, democratis, each 4 ounces; helenias, crocus, fennel, precipitated chalk, each 2 ounces; gentian, zedoaria, cubebs, myrrh, camphor, boletus laricis (purging agaric), each 1 ounce. These are digested for twelve hours in a water-bath with 500 ounces of proof spirit. It is then expressed and 10 ounces of bisulphate of quinin is added. The same advantage can be gotten more scientifically by administering aloes in tablet or pill, after supper, and a small dose of a saline laxative in the morning, with the administration of an elastic capsule of 2 or 3 grains of sulphate of quinin three times a day, after meals.

Ammonium chlorid is, besides an expectorant, a stimulant to the liver, and also seems to aid in reducing the size of the spleen in these malarial cases. For this purpose it should be given in large doses as follows:

℞.	gm. or c.c.	
Ammonii chloridi	10	ʒiiss
Syr. acidi citrici	50	flʒiss
Aquæ ad	100	flʒiii

M. Sig.: A teaspoonful (5 c.c.) with plenty of water, three times a day, after meals.

Miscellany

MINERAL WATERS.

The Claims of Londonderry, Hunyadi-Janos, Buffalo Lithia, Apollinaris, Etc., Viewed by the Food and Drugs Act.

An interesting article by Julius Greyer, in the *Midland Druggist,* entitled "The Incongruities of the Mineral Water Trade under the New Pure Food Law," is as follows:

"Congress assembled and the people have at last awakened to a stern realization of the faultiness of our many food and drug products, and the result is the Food and Drugs Act, 'An act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors and for regulating traffic therein and for other purposes.' This act has for its purport, first, the control of the proper and truthful labeling and advertising; second, the regulation of standards of purity; third, the abolishment of the use of harmful colors, preservatives and other ingredients, and, lastly, the general superintendence of the method of manufacture and sale of all food and drug products.

"After this general statement of the law it is but meet to say that its scope is broad and sweeping in effect, which is as it should be.

"The first and third are of such effect that if enforced in the mineral water trade will rectify all wrongs; in fact, the first will suffice of itself if we should leave sweet beverages out of consideration.

"At present there are three divisions of the mineral water business: First, the natural waters; second, the artificial waters, and, third, the sweet beverages. The adoption of a fourth is really necessary, as will be seen, namely, 'semi-natural' waters.

"The first division includes such waters as Apollinaris, Buffalo Lithia, Londonderry Lithia, Rhens, Bear Lithia, Hunyadi-Janos, Geneva Lithia and various artificial waters placed on the market as or under the dress of natural waters, such as Reichsquellen, Imperial Spring, Friedrichsquelle, etc.

"An examination of the methods of advertisement and labeling of these will suffice to point out the corrections to take place. Apollinaris, labeled a natural water, is the output of a German spring, freed of its iron by exposure to atmospheric air in large open tanks, then receiving an addition of salt equal to the weight of mineral ingredients naturally contained and then carbonated.

"Buffalo Lithia is a water coming from an American spring or springs, advertised as containing a definite quantity of lithia, namely, 2.25 grains per U. S. gallon, while the government analyses find much smaller amounts; and, according to the analysis made by Prof. F. Waller, the water contains but 0.018 grains of lithium bicarbonate per gallon.

"Rhens water, the product of a German spring, is freed of its iron, recarbonated and then bottled.

"Londonderry Lithia, an American water, advertised to contain 7.29 grains per gallon, contains but a spectroscopic trace of lithia, an amount too small to be expressed in weight.

"Bear Lithia, an American product, contains only a trace of lithia.

"Hunyadi-Janos, advertised as a natural Hungarian laxative water, is the manipulated mixture of more than one hundred springs.

"Geneva Lithia water, again an American product, said to contain 23.8 parts per million of lithia, is found to contain but 0.1 part; in other words, one would have to consume something like eighty gallons to get a single medicinal dose of the advertised drug.

"Reichsquellen, Imperial Spring, Friedrichsquelle, etc., are purely artificial products, put up by various manufacturers under a so-called stock label, purchased of a supply house.

"A review of these waters plainly shows a general inaccuracy of branding and labeling. Apollinaris, Hunyadi-Janos and Rhens would belong to the fourth class or semi-natural waters. Bear Lithia and Londonderry Lithia become types of misnomers and false branding, and will cease to exist as lithia waters. Buffalo and Geneva lithia waters are also misbranded, requiring radical corrections in their labels and literature. Reichsquellen, Imperial Spring, Friedrichsquelle, etc., are rank fakes, and will cease to exist entirely. It is a common thing for proprietors of natural waters to advertise the absence in their waters of organic matter, a gross misbranding, as no natural water exists free of it.

"A statement of the efforts of other countries and a review of some of their legal decisions may be of interest at this point. Germany was the first to start the cry of pure food, and proper branding in real earnest quickly followed by France. Then, after a lull of two years, our own United States picked up the cry, to be followed by the present mutterings in England.

"The decisions already reached in Germany in regard to mineral waters compel the Apollinaris Company to desist advertising and labeling their water as 'natural and absolutely pure,' imposing a heavy fine on such continuance.

"In the case of Rhens, the fact that the iron is removed, must be plainly stated on the label.

"Apollinaris, however, met its worst foe in France, which demanded that the water be termed artificial, owing to the extent of its manipulation, the result being that each bottle sold in France has 'Eau Artificielle' blown into it.

"The institution of proceedings in this country will result in similar decisions. For years Apollinaris has been entering this country duty free as a natural water, owing to the report of a blinded, misled, hoodwinked commission, appointed to investigate its claims. Such importation, under the new law, will, and ought to, stop. But we must be patient, as great reforms like this are worked out slowly.

"The second branch of artificial waters present the same, if not worse, conditions. For years such waters as artificial Vichy, seltzers, Kissingen, etc., have been put up by a motley crew of bottlers bearing no chemical or other resemblance to the waters whose names they bear; in fact, in most cases all are drawn from the same tank. Let me state here that to-day there are less than one-half dozen bottlers in this whole country who put up this class of goods honestly. This fact is exceedingly deplorable as these waters form such an immense and valuable branch of commerce. Artificial waters, honestly prepared with distilled water and proper chemicals in proper quantities are, as is admitted by most authorities, superior to the natural when removed from their source, as they contain no organic matter to start decomposition and putrefaction, as is the case with natural waters. The countries that have preceded us in this endeavor have decided that waters of this class, in order to bear these names, must simulate them exactly in composition.

"The third class, commonly termed sweets, embracing such as pop, Dewey, lemon soda, sarsaparilla, ginger ale, etc., have, owing to sharp and cheap competition, dropped to the very lowest ebb of purity and sanitary conditions. Sugar hardly ever enters into their composition, saccharin, a harmful coal-tar product, being its cheap substitute, glucose or some other substance furnishing the body lacking through absence of sugar. The law has taken a firm stand against such proceeding in this and other countries, and the use of saccharin, glucose, etc., will give way again to sugar. Similarly cheap and adulterated essences and extracts will be displaced by pure and wholesome ones.

"The foregoing article casts a deep and black shadow over American mineral water products as they are to-day which shall be effectually dispersed by the new law properly and vigorously enforced.

"The abolishment of gross misbranding followed by truthful and explanatory labeling and inauguration of proper standards of purity, will give the people an oversight and choice of what they eat and drink."

Clippings from Lay Exchanges.

STEAMING BLOOD AND PRURIENT ABSCESSES.

"Berlin, June 8.—Professor ——— will succeed the late Professor ———. . . . The new chief surgeon . . . is the inventor of . . . the artificial steaming of the circulation of the blood, as a crure for prurient abscesses."—*Los Angeles Examiner.*

THE ATONY OF A TONY.

"Tony S——— . . . is dead. His taking off was tragical in its nature. A strong and hearty looking man of twenty odd years, we would have least expected death to knock at his door so soon. . . . He was taken violently ill of cramps in his bowels. . . . There was no surcease to his illness. As too often happens among the uninformed, or those who part with money to a physician with reluctance, instead of calling a physician, S——— explained his condition as best he could to a druggist, and asked him to mix him up something that would give him relief. This the druggist attempted to do. S——— had not had a passage of the bowels from Friday . . . to Monday. The remedy of the druggist failed to give him any relief. But his torture was unceasing all this time. On Friday, the day before his death, he called a physician, Dr. B———. Grasping at once the desperate situation in which he found his patient, Dr. B——— resorted at once to heroic measures. Every known remedy was applied, but none of them responded with the hoped for result in breaking through the obstruction of the bowels. . . . Dr. J——— was called in consultation. They frankly stated to Mr. S——— that there was but a chance and that only one in a thousand to save his life and that was by an operation. . . . His abdomen . . . was found full of puss, as much as a gallon or more of it. Gangrene had set in. Death had set its seal on him when he called his physician on Friday. There was no hope for him then. He had slept on his opportunity to live by not calling a physician on Sunday to give him practical, intelligent treatment. Some there are who will blame the hospital service at F———. Only those will do this who do not stop to think. The record of loss in the F——— Hospital is but four-tenths per cent. There is not an institution of the kind in the commonwealth that has a better record. This should be answer sufficient to such critics."—*Anaheim* (Cal.) *Plaindealer.*

WORLD WONDER—KEEN KNIFE—MARVELOUS TECHNIC—NERVE—SKILL—SPECIALTY—PANTING BOSOM—SECRET SOLUTION—GOSH!

"To live for thirty days, to sit up and have one's photo taken in the interests of higher medical science, after having had one's heart literally taken out of your body and laid in the two open palms of a surgical nurse. This is the latest world wonder of modern surgery, and A——— McC———, of Los Angeles, is the man with the marvelous vitality and Dr. W——— P. T———, a celebrated surgeon of the Pacific slope, was the wonder worker, whose keen knife and marvelous technic have so far won the battle against death.

"For nearly half an hour McC——— lay and breathed and the blood in his body was pumped through his arteries and veins by a human heart that lay where all eyes could see it and several inches clear from the man's gaping bosom. The nerve of the surgeon was only surpassed by his skill, Dr. T——— has for years studied the heart and made a specialty of surgical and medical treatment of the most important organ in the human body. McC——— was run into by a great buck rake. A prong of steel entered the body, pushed the heart four inches out of place, cut three ribs in two and left the man in such condition that any ordinary doctor would merely have stood by to wait for death. But Dr. T——— at once had him taken to his private operating hospital, cut wide open the torn and panting bosom of the victim—quickly took out the beating heart and laid it slowly but surely pulsating in the two open hands of his best assistant. The heart beat quietly and the blood poured slowly through the arteries, which were pulled out of the breast several inches. Finally, when all had been sewed up and the torn ribs mended, Dr. T——— wiped off the heart with a secret solution and replaced it in the man's chest. He finally tied the loosened arteries and closed the great hole in McC———'s bosom. This was weeks ago. The man not only still lives, but shows marked improvement."—*Salt Lake City Inter-Mountain Rep.*

Status of Asiatic Cholera Throughout the World.—Information published by the Public Health and Marine-Hospital Service in the *Public Health Reports* gives the status of Asiatic cholera during the present calendar year up to July 5, throughout the world, as follows:

PHILIPPINE ISLANDS.—Present in four provinces, viz., Capiz, Negros Occidental, Rizal and Samar, in January and February, but not in epidemic form, only scattered cases being reported.

INDIA.—Present at seven localities, with no marked prevalence except at Kashmir, where the disease is declared epidemic, with a total of 7,089 cases and 3,853 deaths since the outbreak, which occurred late in 1906, to May 17, 1907. At Calcutta cholera was present continuously from the first week of the year to May 11; at Bombay in February, March, April and May; at Madras a few fatal cases were reported each month from January to May.

CEYLON.—Present at Colombo in January, February and April, with a total of 7 cases and 7 deaths.

SIAM.—Present in January.

STRAITS SETTLEMENTS.—From March 10 to April 6, 2 deaths were reported.

Research in Tropical Diseases in Australia.—The study of tropical diseases has received immense impetus in recent years, and Australia, which lies within the tropics, is taking up scientific inquiry along this line. The bishop of North Queensland has taken up the question and has written to the various Australian universities outlining a scheme for the encouragement of research in the diseases of tropical Australia. The Townsville (Queensland) hospital committee has undertaken to provide an isolated building in the grounds of the hospital as an institute for the work of investigation, the oversight and direction of the institute to be in the hands of the medical faculties of the universities of Adelaide, Melbourne and Sydney.

Queries and Minor Notes

DIAGNOSIS AND TREATMENT OF RABIES.

MER ROUGE, La., July 11, 1907.

To the Editor:—Please state in THE JOURNAL the present status of the treatment of rabies in the Pasteur Institutes. What can be done in the way of making a diagnosis by an examination of the brain or spinal cord of a dog suspected of having rabies? In doubtful cases what steps should be taken by the attending physician? As full a statement of the matter as your space will allow would be appreciated by me and possibly by many others as well.

E. W. HUNTER.

ANSWER.—If a person bitten by a dog suspected of rabies is seen immediately, the treatment should be the same as for snake bite: that is, if the wound is on a limb, a constrictor should be placed above the bite, and the virus removed by free bleeding as far as possible. The wound should then be cauterized, best by heat. Cauterization, no matter how thorough, is probably of little value even a few hours after the person is bitten, and even if done most promptly it does not guarantee protection against infection, as has been shown experimentally with animals. Apparently the virus is carried from the wound into the circulation with great rapidity. However, it is possible that even a tardy cauterization may delay somewhat the period of incubation, which delay is very desirable in permitting time for the application of the Pasteur treatment.

The next effort should be directed to learning positively whether or not the dog has rabies. By far the best evidence is obtained by keeping it in safe confinement for some time, for if rabic it will die in a few days at the most. If the dog has been killed, which is most frequently the case, the brain and spinal cord, or the entire body, should be sent to the nearest laboratory equipped for examination of pathologic materials. Even in case the dog dies a natural death it is well to make sure that the cause of its death was hydrophobia by means of laboratory investigation. By microscopic examination of the central nervous system one familiar with the histologic changes of rabies can make an almost positive diagnosis in a few hours by seeking for the "Negri bodies." Examination of hundreds of animals by observers all over the world seem to have established the specific connection of these structures with hydrophobia, although it has not been decided whether or not they represent the etiologic factor of the disease. Areas of round-cell infiltration in the central nervous system, called the "rabic tubercles" of Babes, and proliferation of the nuclei in the capsules of the ganglion cells in the cervical ganglia (the Van Gehuchten and Nelis reaction) are also characteristic of rabies; but apparently they are not so specific and not so constantly present in rabies as are the Negri bodies. Bertarelli states that in more than 1,000 examinations the Negri bodies were never found in animals that were free from rabies, and were missed in only three rabic animals. The method advocated for the finding of these structures is as follows: Pieces of the hippocampus major are hardened in alcohol or bichlorid solution, imbedded in paraffin, and stained in Mann's solution (35 c.c. of 1 per cent. aqueous solution of methylene blue, 35 c.c. of 1 per cent. solution of eosin and 100 c.c. of distilled water). Hematoxylin and eosin staining is also satisfactory if the eosin stain is not too strong. The microscopic findings can be controlled by inoculation of rabbits with emulsions of the nervous tissue. As the rabic virus passes through Berkefeld filters, it is said to be possible by using filtered emulsions to determine the presence of rabies even in putrid material, of which microscopic examination is impossible. Although the inoculation method is more positive than the histologic method of diagnosis, yet the latter is of great value in giving immediate results, whereas the period of incubation in inoculated rabbits is two weeks or more.

It must always be remembered that negative microscopic findings are not conclusive evidence of the absence of rabies, and if the history of the attacking animal is suspicious it may be the policy of safety to give the patient the benefit of the Pasteur treatment without waiting for the results of animal inoculation. At the present time the value of the Pasteur treatment must be accepted as proved, it having been tested in many thousands of cases; but its value is purely prophylactic. Once the symptoms of rabies have manifested themselves the patient is beyond cure; hence the imperative need of promptness in applying the Pasteur treatment. This consists in the subcutaneous injection of emulsions of the spinal cords of rabbits infected with rabies, which have been dried for varying periods of time up to fourteen days. It requires about fourteen days to establish immunity fully in man, so it is necessary that the treatment be begun at least that long before the disease is likely to manifest itself. As the incubation period in man is usually from twenty to sixty days, but may be as short as seven to ten days, it is evident that the time elapsing before treatment is begun needs to be as short as possible; in cases where urgency demands, it is possible to hasten the immunization process somewhat by intensive treatment. It has been established convincingly that the treatment itself is without danger, and hence there need be no hesitation about having it applied. The nature of the material used in immunizing (dried spinal cords of infected rabbits) is such that it can not be put on the market for use by practitioners, but must be continually prepared fresh in laboratories equipped for the work; hence the necessity for the existence of Pasteur Institutes in the centers of population throughout the country. The results obtained are excellent, the mortality among treated cases being but about 0.5 per cent., and when there are deducted the cases which develop symptoms of the disease before the process of immunization is complete the mortality is said to be as low as 0.18 per cent.

SCROTAL ICE BAG TO STOP PULMONARY HEMORRHAGE.

Minneapolis, July 22, 1907.

To the Editor:—Your answer to L. P., July 13, 1907, does not seem to accord with the scientific principles underlying modern hydrotherapy. You state that "the method and its theoretical explanation are probably fallacious." Through the indefatigable work of Winternitz and his disciples, it has been demonstrated that certain surface areas of the body standing in reflex relationship to distant internal organs can be made use of to exert a definite influence on the organs whose corresponding area is treated with applications of cold water. In local hydrotherapy, which nowadays plays such an important part, these very conditions are extensively made use of. These effects comprise not only a vasodilatation and contraction of the blood vessels, but also a contraction of the unstriped muscle tissues in the internal organs of the body. The muscles in the smaller air-passages, in the lungs, the liver, the kidneys, etc., can be acted on reflexly by the influence of cold on those surface areas that stand in corresponding relationship to the internal organs. A few examples might here be given. If we permit a stream of cold or very warm water to strike the abdomen, an immediate and powerful contraction of the abdominal muscles takes place and intestinal peristalsis is noticeably increased. A cold application to the face and neck, intense and short, causes a dilatation of the vessels of the brain. These vessels contract if the application is continued for a longer period of time. If cold is applied to the neck and chest for a short period of time, there is at first an increased frequency of pulse and respiration which after a while becomes less frequent. A prolonged dipping of the hands in cold water produces a contraction of the blood vessels of the brain and mucous membrane of the nose and can to advantage be used in combating congestion of the brain. A prolonged cold foot-bath causes uterine contraction and can therefore be used in cases of uterine hemorrhage. A short application to the feet of a stream of cold water under high pressure dilates the uterine vessels and is therefore useful in amenorrhea. A prolonged cold application to the upper portion of the back relieves the mucous membrane of the nose from congestion and can be utilized in epistaxis. A short application of a stream of cold water on the lower part of the sternum or epigastrium stimulates the kidneys and increases their activity. Cold applications to the thighs counteracts congestion of the lungs. I have never used an icebag on the scrotum in pulmonary hemorrhage, but it would appear probable that this region, so near that of the thigh, might possess an extension of the latter area's qualities in this particular. It is also to be remembered that an icebag on the scrotum would be apt to touch one or both thighs, and, through the action here exerted, would come within the well-recognized law in hydrotherapy above mentioned. Is it not likely that this explains the results reported by our colleagues in Colorado and Texas?

A. E. Hedback, M.D.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 27, 1907:

Reynolds, F. P., surgeon, granted thirty days' leave of absence to take effect on arrival in the United States.

Davis, W. B., deputy surgeon-general, granted nine days' leave of absence.

Shaw, H. A., surgeon, granted thirty days' leave of absence.

Winter, F. A., surgeon, granted five days' leave of absence.

Smith, H. M., asst.-surgeon, ordered to report in person to the medical superintendent, Army Transport Service, San Francisco, for duty as surgeon of transport *Warren*, to sail from that place August 3, 1907, and on arrival at Manila, to report in person to the commanding general, Philippines Division, for duty.

Kirkpatrick, T. J., asst.-surgeon, ordered to Washington Barracks, D. C., for observation and treatment at Army General Hospital.

Lambert, S. E., asst.-surgeon, resignation accepted to take effect July 27, 1907.

Jones, P. L., asst.-surgeon, assigned to temporary duty as surgeon of the transport *Kilpatrick* during the trip of that transport, leaving Newport News, Va., about Aug. 15, 1907, for Havana, Cuba, and return. On return to Newport News will rejoin station at Camp Captain John Smith, Jamestown Exposition, Va.

Jarrett, A. R., cont.-surgeon, ordered to return from Fort Terry, N. Y., to his proper station, Fort Hamilton, N. Y.

Stanton, S. C., cont.-surgeon, granted leave of absence for seventeen days.

Mills, F. H., cont.-surgeon, ordered to return from Fort Snelling, Minn., to his proper station, Fort Assinniboine, Mont.

Van Kirk, H. H., cont.-surgeon, ordered from Fort Logan, Colo., to Fort Duchesne, Utah, for temporary duty.

Munn, W. A., cont.-surgeon, relieved from duty at Fort Duchesne, Utah, and ordered to Denver for annulment of contract, at his own request.

Tignor, E. P., dental surgeon, arrived at Fort Adams, R. I., for duty.

Wing, F. F., dental surgeon, granted an extension of twenty days to his leave of absence.

Sorber, O. M., dental surgeon, ordered from San Francisco, to Fort Snelling, Minn., for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending July 27, 1907:

Bertolette, D. N., medical director, ordered to the Naval Recruiting Station, Philadelphia, August 5.

Hoen, W. S., P. A. surgeon, detached from the *Philadelphia* and ordered to the *California* when commissioned.

Backus, J. W., P. A. surgeon, detached from the *Amphitrite* when placed out of commission and granted leave for one month.

Munson, F. M., P. A. surgeon, detached from the Naval Medical School, Washington, D. C., and ordered to the *Philadelphia,* and to additional duty at the Navy Yard, Puget Sound, Wash.

Kelley, H. L., asst.-surgeon, detached from the Naval Hospital, Washington, D. C., and ordered to the *Constellation* and to additional duty at the Naval Training Station, Newport, R. I.

Steadman, W. G., Jr., asst.-surgeon, ordered to the *Franklin.*

Donelson, M., asst. surgeon, ordered to the *Stringham.*

Huff, E. P., asst.-surgeon, ordered to the naval proving ground, Indian Head, Md.

Baker, M. C., asst.-surgeon, ordered to the Midway Islands.

Dollard, H. L., asst.-surgeon, ordered to the Naval Hospital, Newport, R. I.

Curtis, E. E., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va.

Casto, D. H., asst.-surgeon, ordered to the Naval Recruiting Station, Indianapolis.

Smith, H. L., asst.-surgeon, ordered to the Naval Recruiting Station, Omaha.

Murphy, J. A., surgeon, commissioned surgeon from March 20, 1907.

Johnson, M. K., surgeon, detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Station, Charleston, S. C.

Evans, S. G., surgeon, detached from the Naval Hospital, Charleston, S. C., and ordered to the Naval Hospital, Washington, D. C.

Murphy, J. F., P. A. surgeon, detached from the *Scorpion* and ordered to the Naval Station, Culebra, W. I.

Holloway, J. H., P. A. surgeon, detached from the *Indiana* and ordered to duty with marines at Camp Columbia, Cuba, sailing from New York, about August 3.

Rennie, W. H., P. A. surgeon, detached from the *Wasp* and ordered to the *Kentucky*.

Heiner, R. G., P. A. surgeon, detached from duty with marines at Camp Admiral Harrington, near Williamsburg, Va., and ordered to the *Wasp*.

Angwin, W. A., asst.-surgeon, detached from duty with marines at Camp Columbia, Cuba, and ordered to the *Scorpion*.

Hull, H. F., asst.-surgeon, detached from the Naval Station, Culebra, W. I., and ordered home to wait orders.

Boland, M., asst.-surgeon, ordered to the Naval Hospital, Norfolk, Va., for duty.

Hermesch, M. R., asst.-surgeon, ordered to the Naval Hospital, New York, for duty.

Belknap, J. L., asst.-surgeon, detached from the *Kentucky* and ordered to duty with marines at Camp Admiral Harrington, near Williamsburg, Va.

McGuire, L. W., acting asst.-surgeon, ordered to the Naval Hospital, Boston, for duty.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ended July 24, 1907:

Stoner, G. W., surgeon, directed to proceed to El Paso, Texas, San Diego, Cal., and other ports on the Pacific coast and Canadian border for special temporary duty, on completion of which to join his station at Ellis Island, New York.

McMullen, John, passed asst.-surgeon, granted extension of leave of absence for seven days.

McMullen, John, passed asst.-surgeon, granted extension of leave of absence for five days.

von Ezdorf, R. H., passed asst.-surgeon, granted leave of absence for two days.

King, W. W., passed asst.-surgeon, directed to proceed from Tuckerton to Atlantic City and return for special temporary duty.

Stansfield, H. A., passed asst.-surgeon, granted leave of absence for three months from July 12, 1907, with permission to go beyond the seas.

Holt, J. M., passed asst.-surgeon, leave of absence granted for two months, from July 20, 1907, amended to be effective July 7, 1907.

Vogel, C. W., passed asst.-surgeon, relieved from duty in the Philippine Islands and directed to return to the states, reporting his arrival at San Francisco.

Creel, R. H., asst.-surgeon, relieved from duty in the Philippine Islands and directed to return to the States, reporting his arrival at San Francisco.

Lyall, R., acting asst.-surgeon, granted leave of absence for three days from July 11, 1907, under Paragraph 210, Service Regulations.

Owen, H., acting asst.-surgeon, leave of absence granted for thirty days, from June 1, 1907, amended to be effective from Aug. 1, 1907.

Rodman, J. C., acting asst.-surgeon, granted leave of absence for fifteen days, from July 1, 1907.

Seavey, L. T., acting asst.-surgeon, granted leave of absence for twenty-one days, from Aug. 15, 1907.

Wells, R. S., acting asst.-surgeon, granted leave of absence for thirty days from June 1, 1907, account of sickness.

Wells, R. S., acting asst.-surgeon, granted leave of absence for thirty days, from July 1, 1907.

APPOINTMENT.

Dr. Harry M. Friedman, appointed as acting asst.-surgeon for duty at Philadelphia.

Dr. Louis A. Thunig appointed acting asst.-surgeon for duty at Stapleton, N. Y., declined appointment.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 26, 1907:

SMALLPOX—UNITED STATES.

California: San Francisco, July 6-13, 2 cases.

Illinois: Dundas, June 10-30, 3 cases; Tolono, June 1-July 19, 5 cases.

Indiana: Indianapolis, July 7-14, 2 cases; Lafayette, July 8-15, 2 cases; South Bend, July 6-20, 2 cases.

Kentucky: Covington, July 13-20, 1 case; Louisville, July 11-18, 3 cases.

Louisiana: New Orleans, July 11-18, 1 case, 1 death.

Massachusetts: Boston, July 13-20, 1 case; Lawrence, July 6-13, 1 case.

Michigan: Detroit, July 6-20, 5 cases.

Minnesota: Stillwater, June 1-30, 1 case.

Missouri: St. Louis, July 6-13, 1 case; St. Joseph, July 6-13, 2 cases.

North Carolina; Greensboro, July 13-20, 12 cases.

Tennessee: Memphis, June 29-July 13, 4 cases.

Texas: San Antonio, July 6-13, 1 case.

Virginia: Richmond, July 6-13, 1 case.

Washington: Tacoma, July 6-13, 1 case.

Wisconsin: Milwaukee, July 6-13, 2 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, June 2-9, 1 case varioloid.

SMALLPOX—FOREIGN.

Africa: Lourenco Marquez, May 1-31, 4 deaths.

Austria: Vienna, June 22-29, 1 case.

Brazil: Bahia, May 25-June 29, 36 cases; Para, June 29-July 6, 14 cases, 5 deaths; Pernambuco, May 1-15, 48 deaths; May 15-31, 64 deaths; Rio de Janeiro, May 26-June 16, 5 cases, 1 death.

China: Hankau, June 1-8, 2 cases (foreign); Hongkong, May 25-June 1, 5 cases, 3 deaths; Niuchwang, June 1-8, 2 cases (foreign); Shanghai, June 1-15, 10 cases (foreign), 56 cases (native).; Tientsin, June 1-8, 2 cases (foreign).

Ecuador: Guayaquil, June 22-29, 2 deaths.

France: Marseilles, June 1-30, 136 deaths; Paris, June 29-July 6, 6 cases, 3 deaths.

Great Britain: Liverpool, June 29-July 6, 1 case.

Greece: Piraeus, June 29-July 6, 1 case.

India: Bombay, June 11-18, 2 deaths; Calcutta, June 1-8, 22 deaths.

Italy: General, July 4, 40 cases; Turin, June 16-30, 3 cases.

Madeira: Funchal, May 31-June 7, 70 cases, 11 deaths.

Mexico: Aguas Calientes, July 6-13, 4 deaths.

Portugal: Lisbon, June 22-29, 7 cases.

Russia: Odessa, June 22-29, 2 cases; Riga, June 22-29, 5 cases.

Spain: Barcelona, June 20-30, 2 deaths; Madrid, May 1-31, 8 deaths.

Turkey in Europe: Constantinople, June 23-30, 2 cases.

Turkey in Asia: Bagdad, June 1-8, present; Bassorah, June 1-8, present; Damascus, June 15-22, present.

YELLOW FEVER.

Brazil: Manaos, June 30-July 6, 1 death; Para, June 29-July 6, 3 cases, 1 death; Rio de Janeiro, May 26-June 16, 4 cases, 3 deaths.

Cuba: San Nicolas, July 22, 1 case.

CHOLERA.

India: Bombay, June 11-18, 2 deaths; Calcutta, June 1-8, 40 deaths; Kashmir Province, June 3-10, 2,293 cases, 1,315 deaths; Rangoon, June 1-8, 1 death.

PLAGUE—INSULAR.

Hawaii: Honolulu, July 22, 1 case, 1 death.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, May 26-June 16, 5 cases, 3 deaths.

China: Hongkong, May 22-June 1, 10 cases, 9 deaths.

India: General, May 25-June 1, 42.705 cases, 38.992 deaths; Bombay, June 11-18, 27.148 cases, 25,060 deaths; Calcutta, June 1-8, 1 case, 68 deaths; Madras, June 8-14, 1 death; Rangoon, June 1-8, 58 deaths.

Persia: Bahrein Islands, June 8-15, present; Bushire, June 8-15, present.

Society Proceedings

COMING MEETINGS.

Minnesota State Medical Association, Duluth, August 13.
Wisconsin State Medical Society, Superior, August 21-23.
Ohio State Medical Association, Cedar Point, August 28.
Medical Society of the Missouri Valley, Council Bluffs, Iowa, Sept. 5.
Washington State Medical Association, Seattle, September 10-12.
Colorado State Medical Society, Glenwood Springs, Sept. 17-19.
Amer. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 17-19.
American Electro-Therapeutic Assn., Boston, Sept. 17-19.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, held May 22, 1907.

The President, Dr. James Tyson, in the Chair.

Thoracic Aneurism Successfully Treated by Wiring.

Dr. James M. Anders and Dr. J. P. Mann reported the case of a man, 36 years of age, who four months previous to admission to the hospital, had had a specific infection. His last illness dated back four years, when he developed pain in the retro-sternal region aggravated by exertion and mental excitement, and attended with slight bulging to the right edge of the sternum. He had been treated by means of rest and other agencies, and was practically cured, according to his own statement. He was admitted to the hospital early in 1907, when the bulging to the right of the sternum had increased to the size of a small orange. Seven yards of wire had been introduced by Dr. Mann. Pulsation became markedly lessened and the mass diminished in size, but bulging appeared higher up and rapidly increased in size. This was wired with the same result. Some time later the necrotic area on the summit of the tumor mass was cast off, fully exposing the wire at the base of the sac. Granulation took place, gradually pushing the wire out until about two-thirds had been extruded at the time of exhibiting the patient and the sac had become occluded. The case was remarkable in that prior to the wiring perforation seemed inevitable.

Aneurism of Arch of Aorta Treated by the Moore-Coraddi Method.

Dr. Judson Daland exhibited this patient, a man aged 45, with history of syphilis and rheumatism. He had been seized with tachycardia and dyspnea. The usual signs of aneurism were elicited over the right chest. The Roentgen ray examination confirmed the clinical diagnosis, and a re-examination after operation showed the wire *in situ*. Fourteen feet of silver wire were introduced into the aneurismal sac through which a galvanic current was passed. The patient was placed at absolute rest and given 30 grains of iodid of sodium, thrice daily, accompanied with an appropriate diet. Improvement took place and a marked diminution was shown in the expansile pulsation of the tumor, with great relief from pain and dyspnea, and he was discharged 42 days after wiring. Eighty-one days after the operation he reported himself free from all symptoms, except an occasional slight pain over the aneurism, and he is able to walk fourteen squares without discomfort. The heaving pulse has greatly diminished. Recumbent, systolic pressure was 118 mm., diastolic pressure 52 mm., mean pressure 85 mm., pulse 84. Sitting position, systolic pressure was 125 mm, diastolic pressure 45 mm., mean pressure 80 mm., pulse 96. Dr. Daland also showed a specimen of aneurism into which 20 feet of gold wire had been introduced illustrating the manner in which wire enters the sac and coils within it, and how in connection with galvanism a firm clot is produced.

Chiroplasty.

Dr. J. P. Mann exhibited a young woman who in working in front of a mangle had had her hand crushed and burned so that the fingers became welded together and grew to the palm of the hand. After separating the fingers from the palm of the hand and from each other, a slit had been cut in the leg just below the buttock, a strip of skin dissected loose, except at its extremities. The hand was placed in position underneath the strip of skin with the palm outward, properly adjusted and bound. In ten days there was firm adhesion of the skin to the palm of the hand. With the cutting of the skin between the fingers to give free use of the fingers the operation would result in giving a very useful hand.

The Sulphonal Habit.

Dr. James E. Talley referred to a case of the sulphonal habit in a patient who, following an operation, began to take 10 to 15 gr. doses of sulphonal, which was continued for five years without symptoms. There was then some mild disturbance, when the dose was increased to 15 and then to 20 grains, without either acute or chronic poisoning. In the study of the histories of such cases a practical clinical point brought out was that the cases showing symptoms are those in which constipation is pronounced.

Conservative Treatment for Sarcoma.

Dr. W. Wayne Babcock and Dr. G. E. Pfahler pointed out that while advances in operative surgery have been of great value in decreasing the mortality from cancer, they have had relatively little influence in decreasing the dangers of sarcoma. There is little promise for advance in treating sarcomas by more desperate and radical operative measures, for here sacrificial surgery has reached its extreme limits, often without any decrease, and, unfortunately, frequently with a decided increase, in the early mortality of the affection. The course in sarcomas frequently suggests a systemic infection with local outbreaks determined by operative or other forms of trauma, in many features resembling tuberculosis. The authors believe that, undoubtedly, in cases of recurrent sarcomas, and probably in primary sarcomas, a greater duration of life with a minimum of suffering may be obtained by conservative rather than by the very radical operative measures. They point out that of the very malignant tumors, sarcomas are most prone to spontaneous retrogression; or to decrease in size or disappearance under Roentgen ray treatment, certain toxins and after pyogenic infections.

The treatment advocated consists chiefly of a very thorough and prolonged course of Roentgen ray treatment and prevention of sapremia by simple, and, if necessary, repeated subcapsular enucleation of the sarcomatous masses, together with the local use of strong solutions of methylene blue and a general roborant treatment. In a limited number of cases the use of mixed toxins, as proposed by Coley, is valuable. The authors have seen no favorable results from the use of trypsin. The Roentgen rays constitute the most potent single method at present known for restraining the growths of sarcomas. The rays, however, by destroying the lymphatics, retard the absorption of necrotic tumor masses and surgical aid must be invoked to free the body of these. The tendency to metastasis is evidently reduced by Roentgen ray treatment.

Marriages

Harry Garrison, M.D., to Miss Matilde Louise Metz, both of Philadelphia, July 10.

Emil H. Henckler, M.D., to Miss Elizabeth Emily Bauman, both of St. Louis, July 17.

George Root Miller, M.D., to Miss Ella Estell Taintor, both of Hartford, Conn., July 18.

Arthur E. Price, M.D., Chicago, to Miss Louise Higman of Benton Harbor, Mich., July 23.

Frank A. Boet, M.D., to Miss Mabelle H. Thomas, both of Grand Rapids, Mich., June 29.

Thomas J. Conwell, M.D., Bessemer, Ala., to Miss Ida Azbill of Jonesboro, Ala., July 17.

Albert DeKalb Parrot, M.D., Kinston, N. C., to Miss Mary Fletcher, at Richmond, Va., July 23.

Charles M. Byrnes, M.D., Charlottesville, Va., to Miss Nellie Pennington, at Baltimore, July 19.

Hugh McGavin, M.D., Plum Coulee, Manitoba, to Miss Tina Bryants of Morden, Manitoba, at Winnipeg, June 19.

Walter T. Flanagan, M.D., Ashland, Ky., to Miss Blanche L. Hackworth of Knoxville, Tenn., at Chicago, July 15.

Deaths

Charles Hodge Boardman, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1862; formerly a practitioner of St. Paul, Minn.; at one time medical director of the Northern Pacific Railroad, and professor of medical jurisprudence in the University of Minnesota from 1887 to 1890, died at his home in Brooklyn, July 17, from heart disease, aged about 70.

Oliver A. LaCrone, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1886; a member of the American Medical Association, and former president of the Kalamazoo (Mich.) Academy of Medicine, died in Mercy Hospital, Chicago, June 18, after an operation for disease of the gall tract, aged 48.

Patrick L. Barry, M.D. University of Maryland School of Medicine, Baltimore, 1893; a member of the Arkansas Medical Society and Garland County Medical Society; for five years chief surgeon of the Mexican International Railroad, died at his home in Hot Springs, Ark., July 20, aged 35.

Alfred C. Phillips, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1881; a member of the Illinois State and Jo Daviess County medical societies; of Apple River, Ill., died at the home of his sister in Omaha, July 19, from nephritis, after an illness of six months.

Marion William Swarthout, M.D. Grand Rapids (Mich.) Medical College, 1906; formerly of Honor, Mich., is reported to have committed suicide by shooting himself at his home in White Cloud, Mich., July 18, aged 44.

George W. Ronald, M.D. University of Louisville (Ky.) Medical Department, 1848; surgeon in the Army during the Civil War, died at his home in Louisville, July 17, from heart disease, after a long illness, aged 84.

Alphonse L. M. De Seay, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1882; of Ruston, La., died at his home in that place, July 17, suddenly, from heart disease, aged 54.

Leonidas W. Faulkner, M.D. Cincinnati College of Medicine and Surgery, 1874; of St. Paris, Ohio, died at his home in that place, July 18, from paralysis, after an illness of one week, aged 57.

George Tyler Ballard, M.D. Berkshire Medical College, Pittsfield, Mass., 1862; a prominent physician of Hampden, Mass., died at his home in that village, July 18, after a long illness, aged 66.

Robert R. Thompson, M.D. Long Island College Hospital, Brooklyn, 1876; a member of the American Medical Association, died at his home in Kingston, July 9, from nephritis, aged 57.

Edward T. Bradley, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1887; of Gallitzin, Pa., died at his home in that city, July 18, from tuberculosis, aged 42.

Samuel Bishop, M.D. St. Louis (Mo.) College of Homeopathic Physicians and Surgeons, 1870; of Bloomington, Ill., died at the home of his son in Muscatine, Iowa, July 20, aged 81.

William Farris, M.D. Medical Department, University of Nashville, 1858; of Tullahoma, Tenn., died at his home in that city, July 16, from paralysis, after a long illness, aged 74.

Campbell Crutchfield, M.D. Vanderbilt University, Medical Department, Nashville, 1888; of Gordonsville, Tenn., died at Nashville, July 17, following an operation for appendicitis.

Robert G. Laycock, M.D. Toronto University Medical Faculty, 1894; of Hopedale, Ill., died in the Brokaw Hospital, July 22, from pancreatitis and gallstones, aged about 55.

Book Notices

DISEASES OF CHILDREN, Medical and Surgical. By H. Ashby, M.D., F.R.C.P., Physician to the Manchester Children's Hospital, etc., and G. A. Wright, B.A., M.B., F.R.C.S., Surgeon to the Manchester Royal Infirmary, etc. Fifth edition, thoroughly revised. Cloth. Pp. 920. Price, $5.50 net. New York: Longmans, Green & Co., 1905.

It is doubtful if it is wise to combine in so small a space, as in this instance, a discussion of both the medical and surgical diseases of children. The accumulation of knowledge has become too great, and the differentiation of labor has gone too far, to do this satisfactorily. One branch or the other will almost surely suffer. The pediatric side of this work has been well done and is pretty complete; the surgical side is not so complete. The general arrangement of subjects is logical and the one usually followed: physiology and diseases of the newly born, then the grouping of diseases according to systems, digestive, respiratory, etc. The section on diphtheria, however, would be more complete if laryngeal involvement were more thoroughly discussed here, rather than in the chapter on respiratory diseases. The section on hemorrhages of the newly born is not in accord with prevailing opinion. There is too much of a tendency to dwell on hemorrhages from different localities as distinct affairs. These hemorrhages have been carefully studied and are now regarded as different manifestations of some common underlying cause and constitute the "Hemorrhagic Disease of the Newly Born." While the authors evidently have this condition in mind in writing under the term "hemorrhagic diathesis," they confuse it with "hemophilia neonatorum." The two conditions are entirely different. The "Hemorrhagic Disease of the Newly Born" is a non-hereditary disease, probably septic in its nature, self-limited in its course, never recurring. "Hemophilia" is a hereditary disease, non-septic, more frequent in later life and frequently recurring. This distinction should be borne in mind, as the ultimate outlook is so different in the two conditions. Surgical interference in meningeal hemorrhage incidental to hard labor holds out some prospect of relief, but of this we find no mention.

The value of any work on pediatrics depends chiefly on the quality and amount of work done on infant feeding. Most of what the authors say on this subject is good, as far as it goes. It does not, however, go far enough; there is too little detail, not enough elaboration as to preparation of food, methods of feeding, etc. The use of any of the proprietary foods should be condemned, and it is unfortunate to see a book of this kind recommending such an inaccurate, unscientific method of feeding. The chapter on scurvy is excellent, as one would expect from English authors, and the subject of rickets is also given the attention its importance demands. The infectious diseases are fully discussed, but a few comments as to diagnosis and to treatment are pertinent. Too little importance is attached to certain laboratory aids to diagnosis. Thus, in typhoid fever too much reliance is placed on the appearance of rose spots and an enlarged spleen, and too little emphasis laid on the leucopenia so constantly present even in the first days of the disease. Typhoid in early life is often a very atypical, irregular affair, and especially in the matter of rose spots and enlarged spleen does it depart from the adult type. These phenomena are so frequently absent that they can not be relied on in helping to a diagnosis. In many instances examination of the blood alone will reveal the true nature of the disease, and in this examination leucopenia is a very constant feature, often being present when the Widal reaction is absent. Again, in pertussis no mention is made of the lymphocytosis found in over 90 per cent. of the cases in the catarrhal stage, nor of the excess of lymphocytes found in the spinal fluid of tubercular meningitis, nor of the polymorphonuclear leucocytosis, and diminished chlorids in the urine, or lobar pneumonia. No mention is made of the varied bacteriology of meningitis. Speaking of the epidemic form, the authors say: "Weichselbaum has described a diplococcus, the *D. intracellularis*, which he believes to be the specific cause of epidemic cerebrospinal meningitis." This organism is now universally accepted as the cause of this form of meningitis, and the best opinion of the day warrants a stronger statement than the above. Certain phases of treatment are not sufficiently emphasized. The dosage of antitoxin in diphtheria is far too small, especially for laryngeal cases. The outdoor treatment of pneumonia and of tuberculosis should be more strongly emphasized.

We regret to see mention of "anemia infantum pseudoleukemica" (von Jaksch) as a distinct disease. This condition is merely a secondary anemia of severe degree arising from a variety of causes and should not be classed as a disease by itself. We had supposed the term "uricacidemia," with all that it implies, was an exploded theory. In view of later and reliable investigations it is unfortunate to continue the use of this term. There may have been an excuse for its appearance in the first editions, but not in this one. We also can not agree with the authors' statement that acute pyelitis is a rare disease in infants and children. In infants, at least, it is not infrequently found, when carefully looked for. The appendix contains suggestions as to baths, preparation of food, etc., some of which is of value, but the numerous "shotgun" prescriptions are to be deprecated, especially in a book on pediatrics in which treatment consists so largely of general hygiene and diet, and so little in drugs.

GOLDEN RULES OF PEDIATRICS. Aphorisms, Observations and Precepts on the Science and Art of Pediatrics, Giving Rules for Diagnosis and Prognosis, etc. By J. Zahorsky, A.B., M.D., St. Louis, editor of the St. Louis *Courier of Medicine*. Cloth. Pp., 362. Price, $3.00 net. Published by the C. V. Mosby Medical Book Co., 1906.

The title of this book in a measure prepares one for what one finds on opening it. It is a compilation of trite sayings and instructions as to what to look for in the examination of children, with superficial suggestions as to what to do when one has found these things. In laying down these "golden rules," we are told to look out for or to remember only symptoms, and this without any system or logical arrangement. A chapter or section entitled "Peritoneal Ifritation" may be taken as a sample of the book. Under this section are found mentioned abdominal tenderness and rigidity, with their causes, severe anemia with mention of pernicious anemia, leukemia, scurvy, anemia infantum pseudoleukemia and edema. Pernicious anemia, by the way, is spoken of as not "uncommon in young children," whereas it is a rare condition at this age.

A section is devoted to "Some Golden Rules of Prognosis." Here we read that epilepsy is not serious, but prone to leave dangerous consequences. We read also that "a few diseases usually amenable to treatment may exceptionally assume a malignant form for which all therapeutic effort is futile," and among these disease the author puts cerebrospinal fever! As the mortality in the meningococcic variety of this disease is about 60 per cent., and even higher in the pneumococcic type, and as those surviving are too often left terribly handicapped for life by some serious defect, either of some special sense or of the mentality as a whole, the view that it is "usually amenable to treatment" seems hardly warranted. In another part of the book, however, the author does state that the mortality in this disease is high.

The important subject of infant feeding is touched on briefly and superficially. The percentage method of feeding is advocated, but in an indefinite and unsatisfactory manner. Proprietary foods are advised under certain conditions, contrary to the best teaching of the day. The complex character of milk is not realized and there is no attempt made to differentiate between fat indigestion, proteid indigestion and sugar indigestion, the essential principles in infant feeding. It is difficult to see what good purpose this book can serve. The practicing physician will find in it little or nothing suggestive. It is no book to put into the hands of the medical student, as it would tend to develop in him superficial habits of thought and study.

Foods and Their Adulteration. Origin, Manufacture and Composition of Food Products; Description of Common Adulterations, Food Standards and National Food Laws and Regulations. By Harvey W. Wiley, M.D., Ph.D. Illustrated. Cloth. Pp. 625. Price $4.00 net. Philadelphia: P. Blakiston's Son & Co., 1907.

The importance of a knowledge of foods and their adulteration will be readily acknowledged, and it will be as freely granted that there is no one better fitted by training and position to treat such a subject than Dr. Wiley. The book is not a technical treatise. While the author expresses the hope that the book may prove serviceable to the chemist and expert in food inspection, it is prepared primarily for the consumer. The method of treatment includes an account of the sources, methods of manufacture, and the commercial forms under which food is placed on the market, with directions for judging as to its quality and an account of conditions which may render it unfit for food. The adulterations are described and while analytic methods are not given in detail, simple tests for adulterations are described and some estimate of the value of the various methods of detecting them are given. The commercial value and relative economy of various foods is touched on and the hint given in certain cases, e. g., in dealing with cereal foods, that the consumer might profit financially without detriment to his health by preparing his own food from the raw material. An appendix gives the standards of purity adopted by the United States Department of Agriculture, and the regulations governing food inspection and the administration of the Food and Drugs Act. Tea, coffee and alcoholic liquors have not been included in the scope of the work. Numerous illustrations are provided, several of them being colored plates.

Practical Physiological Chemistry, A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and Science. By Philip B. Hawk, M.S., Ph.D., Demonstrator of Physiological Chemistry in the Department of Medicine of the University of Pennsylvania. With Color Plates and Other Illustrations. Cloth. Pp. 416. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

This book, which is something more than the ordinary laboratory manual, and something less than a thorough treatise on physiologic chemistry, will undoubtedly be found useful for medical schools. Besides giving the usual directions for a systematic course in the chemistry of those substances of importance in physiologic processes, many of the laboratory features of the more recent advances in biochemistry are discussed at greater length than is usual in works of this kind. Excellent illustrations of the chief products of proteid hydrolysis are given, which will be found valuable to research workers as well as to students; indeed, the illustrations throughout the book are of exceptional merit. Other commendable features are the large amount of consideration of methods of making tests and the formulæ for the preparation of reagents; and the abundant use of structural formulæ in discussing both biochemical substances and their reactions. The explicit directions for quantitative urinary analysis, particularly the valuable new methods of Folin, will be found useful. All these features make the book valuable not only for undergraduate courses, but also as a handbook for the clinical and research laboratory. The chief criticism to be made is the failure to give references by which the original descriptions of the newer methods can be found by those workers who wish to consult a more complete discussion than can be given in a text-book. Such references need not be so numerous, if carefully selected, as to increase appreciably the bulk of the book and they add greatly to its usefulness for many purposes.

Vest Pocket Abstract Series. Including Abstracts on Anatomy, Physiology, Chemistry, etc. By Drs. McCurdy, Charles A. Orr and Others. Flexible Leather. Pp. about 140 each. Price, $1.00 each. Pittsburg: Medical Abstract Co., 1907.

Our examination of the books of this series does not leave an impression that they are destined to fill a place of great utility in medical education. The extreme condensation is very unfavorable to satisfactory work and great allowances must be made for the limitations under which the authors have labored. A brief examination, however, reveals numerous errors of statement due, possibly, to careless revision that tend to make the books not only worthless, but positively misleading. We may cite the book on chemistry, for example. Under chlorin we have the incorrect formula $HClCO$ given in an equation; under nitrogen we have the statement that nitrous acid is formed by reducing potassium nitrate with a lead salt. Probably the author means to form a nitrite by reducing the nitrate with metallic lead, but how is the student to know? Bromin is said to be prepared by heating any bromid with sulphuric acid and an equation is given which yields hydrobromic acid but not bromin. We are told that chlorin is found in the alkaline earths. These and similar errors are fatal to the usefulness of the series. If accuracy is anywhere of importance it is in works intended for those who have at hand no means of verifying the accuracy of the statements they read.

Second Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum, Africa. Andrew Balfour, M.D., B.Sc., etc., Medical Officer of Health, Khartoum, Director. Cloth. Pp. 254. Department of Education, Soudan Government: Khartoum, 1906.

The second report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum, affords a substantial addition to the literature of tropical medicine, and a striking evidence of the broad field of research that is opened by the occupation of Africa by the white race. The report forms a book of 250 pages, including the report of mosquito work and an account of other blood-sucking insects in the Soudan, a report on economic entomology, an account of trypanosomiasis in the Anglo-Egyptian Soudan, the report of the traveling pathologist on miscellaneous matters and the chemist's report. The interest for the physician centers in the researches on blood-sucking insects and trypanosomes. The presence of glossina palpalis in the Soudan appears to be established so that there is danger of the spread of trypanosomiasis and the sleeping sickness to the northwest. The trypanosomiasis of cattle and mules is described and some experimental work done on monkeys recorded. Human trypanosomiasis appears to be so far unknown or very rare in this region.

Manuale Pratico dell' Igienista, Per uso degli ufficiali sanitari, degli aspiranti ad uffici nella amministrazione sanitaria dello stato e dei comuni, degli allievi dei corsi complementari di igiene e degli studenti di medicina, farmacia e veterinaria. By C. Tonzig and G. Q. Ruata, con Prefazione del Prof. A. Serafini. Con. 243 Incisioni. Cloth. Pp. 64. Milan: Ulrico Hoepli, 1907.

To those who read Italian this little work will be found a handy reference book for many matters of hygiene. It is fully illustrated, especially as regards apparatus; the descriptions are clear and in the main it is well up to date. As an exception in this respect we may notice the space given to Sanarelli's bacillus, while the researches and facts as to the real cause of the disease are passed over in three or four short paragraphs, and the practically settled question is treated as one that is still an open one.

Essentials of Histology. Descriptive and Practical. For the Use of Students. By E. A. Schäfer, Sc.D., F.R.S., Professor of Physiology in the University of Edinburgh. Seventh Edition Cloth. Pp. 507. Price, $3.50 net. Philadelphia and New York Lea Bros. & Co., 1907.

It is a sufficient commentary on this work to direct attention to the fact that it is now in its seventh edition. The size of the book is convenient, the text is clear and concise, and is elucidated by many valuable illustrations, some of which are in colors. The book is divided into 50 lessons, each of which is intended to occupy from one to three hours, so that the teaching of histology is facilitated considerably. The work partakes more of the nature of a good laboratory guide than a class text-book, although it is well suited for either.

Medical Education and State Boards of Registration

CALIFORNIA Board of Medical Examiners, San Francisco, August 6. Associate Secretary, Dr. F. Dudley Tait, San Francisco.

NEBRASKA State Board of Health, State House, Lincoln, August 7-8. Secretary, Dr. Geo. H. Brash, Beatrice.

Indiana Examination in Two Parts.—At a meeting of the Indiana State Board of Medical Examiners held July 9, 1907, a resolution was adopted that hereafter students completing the work of the freshman and sophomore years of a reputable medical college may take the examination in anatomy, including histology and embryology, physiology, chemistry, pathology, bacteriology and such other required subjects as are taught in the freshman and sophomore years of a reputable medical college, at the end of the sophomore year. The student applying for such examination must present credentials signed by the dean of the college from which he comes, showing that he has completed the work of the medical freshman and sophomore years. He must pay a fee of $25 for this examination, which will not excuse the student from paying the regular fee when he comes up for his final examination. The board will keep a record of the grades and add them to the grades obtained at the final examination for certificate to practice medicine. There will be no reciprocity with other states in like examinations or grades.

Arkansas April Report.—Dr. F. T. Murphy, secretary of the State Board of the Arkansas Medical Society, reports the written examination held at Little Rock, April 9, 1907. The number of subjects examined in was 7; total number of questions asked, 58; percentage required to pass, 75. The total number of candidates examined was 64, of whom 23 passed, including 16 non-graduates, and 41 failed, including 30 non-graduates. The college for one candidate who failed was not obtained. Ten old practitioners, including two non-graduates, were granted license by reason of having been registered under old law. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Medical Coll. of Alabama	(1887)	77.
George Washington University	(1904)	93
Rush Med. Coll.	(1906)	86
University of Louisville	(1905)	75
St. Louis University	(1906)	78
Vanderbilt University	(1894)	75
University of Nashville	(1907)	78

FAILED.

Mississippi Med. Coll	(1907)	73
Jefferson Med. Coll.	(1877)	73
Meharry Med. Coll. (1905) 54; (1906) 60; (1907) 54, 73, 73;	(*)	53
Univ. of West Tennessee	(1906)	20
University of Tennessee	(1906)	44

REGISTERED UNDER OLD LAW.

Barnes Med. Coll	(1901)
New York University Med. Coll	(1894)
Memphis Hosp. Med. Coll.	(1893), (1896), (1899)
University of Tennessee	(1872)
St. Bartholomew's College, London, England	(1892)
†Hannibal Med. Coll., Memphis	(1892)

*Year of graduation not given. †A fraudulent institution.

Idaho April Report.—Dr. W. F. Howard, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 2-4, 1907. The number of subjects examined in was 14; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 21, of whom 16 passed and 5 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Colorado School of Medicine	(1906)	76
Northwestern Univ. Med. School.. (1905) 84, 86;	(1906)	92.5
Keokuk Medical College	(1905)	78.2
Rush Medical College	(1902)	89
Michigan Coll. of Med. and Surg.	(1894)	79.5
University of Minnesota	(1900)	81
Barnes Med. College, St. Louis	(1906)	83.5
Missouri Medical College, St. Louis	(1899)	77
St. Louis College of P. and S.	(1895)	89
Marion-Sims-Beaumont Medical College	(1904)	76
Medical College of Ohio	(1893)	81.5
Medico-Chirurgical College, Philadelphia	(1902)	83.5
Trinity Medical College, Ontario	(1899)	75.5
University of Toronto	(1905)	87

FAILED.

Hahnemann Med. College, Chicago	(1892)	73.1
Kansas City Homeopathic Medical College	(1903)	69
St. Louis University	(1906)	57
Omaha Medical College	(1901)	67.5
University College of Medicine, Richmond, Va.	(1904)	70.7

Wyoming June Report.—Dr. S. B. Miller, secretary of the Wyoming Board of Medical Examiners, reports the written examination held at Cheyenne, June 19-21, 1907. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 1 passed and 3 failed. Seven reciprocal licenses were granted. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Denver and Gross Coll. of Med	(1907)	79.7

FAILED.

Rush Med. Coll.	(1896)	71.1
Beaumont Hosp. Med. Coll	(1893)	67.2
Homeo. Hosp. Coll., Cleveland*	(1881)	73.1

REGISTERED THROUGH RECIPROCITY.

	Year Grad.	Reciprocity with
Hahnemann Med. Coll., Chicago	(1903)	Illinois
American Coll. of Med. and Surg., Chicago	(1905)	Illinois
Rush Med. Coll	(1898)	Indiana
Keokuk Med. Coll., Coll. of P. & S.	(1906)	Iowa
University of Maryland	(1902)	S. Carolina
University Med. Coll., Kansas City	(1905) (1906)	Missouri

* Merged with Cleveland Homeo. Med. Coll. in 1898.

Arizona July Report.—Dr. Ancil Martin, secretary of the Board of Medical Examiners for the Territory of Arizona, reports the written examination held at Phœnix, July 1-2, 1907. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Rush Med. Coll	(1906)	79.7
College of P. and S., Baltimore	(1897)	81
Jefferson Med. Coll	(1887)	75
Southwestern Univ. Med. Coll., Dallas	(1907)	75
Medical Coll. of Virginia	(1901)	75

North Dakota July Report.—Dr. H. M. Wheeler, secretary of the North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, July 2-4, 1907. The number of subjects examined in was 14; percentage required to pass, 75. The total number of candidates examined was 16, all of whom passed, Six reciprocal licenses were granted. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Bennett Coll. of Ecl. Med. & Surg.	(1907)	76
College of P. and S., Chicago	(1900)	81
Univ. of Minnesota.. (1903) 79; (1906) 76, 84, 84;	(1907)	78, 83
Minn. Coll. of P. and S..... (1905) 82; (1906) 81;	(1907)	79
University of Nebraska	(1907)	80, 84
Albany Med. Coll	(1900)	85
Milwaukee Med. Coll	(1907)	81
Manitoba Med. Coll	(1907)	91

REGISTERED THROUGH RECIPROCITY.

	Year Grad.	Reciprocity with.
Rush Med. Coll. (1904) Illinois;	(1905)	Wisconsin
Keokuk Med. Coll	(1905)	Iowa
Detroit Coll. of Med	(2, 1906) (1907)	Michigan

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

A Good Year's Work.

The July number of the *Journal of the Michigan State Medical Society*, just received, contains the official proceedings of the last meeting of the state society, a report of this meeting appearing in THE JOURNAL, July 6, but only a brief account was given of the proceedings of the House of Delegates. It would, however, be difficult to find a better illustration of the increased activity and enlarged field of present-day medical organizations than the report of this meeting, and we, therefore, give more space than we could otherwise afford. The reports of the council and of the various officers and committees, as well as the proceedings of the House of Delegates, all testify plainly to the earnestness and energy of the members of the association.

ADVERTISING.

The Council recommended the adoption of the following rules regarding advertising in the state journal:

Advertisements of remedies expressly disapproved by the Council of Pharmacy shall not be admitted.

The *Journal* does not stand sponsor for advertisements in its pages or necessarily approve of those published.

Reading notices of advertisements shall not be admitted after contracts in existence have expired.

REVIVAL IN MEDICAL ACTIVITIES.

The Council reported that the past year had seen a medical revival in Michigan, the work of the county societies being carried on with an energy not before in evidence, and that new lines of work were being developed in many of the more progressive county societies. Postgraduate courses have been established in six counties. The report says: "Organization has brought about a new era in medical matters and the profession is receiving the benefit on the intellectual as well as the material side." The report showed the present membership of the society to be 2,011. The material compiled for the American Medical Directory was utilized in compiling a chart showing the number of physicians in each county and councilor district and the percentage of members.

The Council recommended the election of the president one year in advance, following the plan of the American Medical Association. The Committee on Legislation reported on various bills, having a medical aspect, that were introduced into the legislature during the past session.

MEDICAL LEGISLATION MUST BE APPROVED.

Dr. J. W. Inches, of St. Clair, presented an amendment to the by-laws, making it necessary for proposed legislation to be approved by the Council or the House of Delegates of the state association before being introduced into the state legislature or sent to any member thereof in the name of the society. This amendment was adopted; also an amendment creating a committee on medical education of three members, one of whom should be sent each year as a delegate to the Conference on Medical Education of the American Medical Association.

EXAMINATION OF SCHOOL CHILDREN.

A most excellent report was presented from the committee appointed to encourage the systematic examination of the eyes and ears of school children. The State Board of Health as well as the State Board of Education have adopted resolutions favoring legislation for this purpose. The report showed that, up to date, the work had been inaugurated in Detroit, Grand Rapids, Bay City, Saginaw, Pontiac, Kalamazoo and Ann Arbor.

REPORT ON TUBERCULOSIS.

The Committee on Tuberculosis reported that one of the most successful tuberculosis exhibits ever given in the state had been held at Manistee, the meeting lasting ten days and over three thousand people being reached directly and five thousand more through the newspapers. Following the meeting, the city health officer in Manistee succeeded in securing provisions for compulsory disinfection of all houses vacated by renters. Sanitaria have been established in a number of counties, particularly in the northern part of the state, where conditions are specially favorable. Lectures have been given throughout the state, both to the general public and at farmers' institutes, taking up tuberculosis in cattle as well as in man, purity of milk supply, etc. In Grand Rapids two thousand dollars have been subscribed by the public to care for the tuberculous indigent poor. In Detroit an antituberculosis society has been organized and an outdoor sanitarium established, in connection with the Wayne County poorhouse, by Dr. E. L. Shurly. Investigation of the condition of the state penitentiaries with regard to the propagation of tuberculosis has also been taken up.

CONTRACT PRACTICE.

Space does not permit of the reproduction or even of the abstracting of many of the excellent reports presented. The report of the Committee on Contract Practice, however, is of particular importance, as it is one of the most exhausting and comprehensive reports on this vexing question which has yet been presented. We accordingly give it in full for the benefit of other societies and committees which may be at work on this question.

In accordance with a resolution adopted by the House of Delegates last year a special committee was appointed to investigate and report on conditions in this state relative to this problem.

It is not understood by your committee that it was at all intended as a part of its function to suggest or to recommend ways and means of solving the problem, but simply to gather information as to its character and extent.

Your committee finds the following classes of contract practice carried on by physicians in this state, viz.:

1. Railroad contracts.
2. Mining contracts.
3. Contracts for the performance of services for the indigent of counties and cities.
4. Contracts with local industries.
5. Contracts with sick and accident indemnity companies.
6. Contracts with fraternal organizations.

First.—As to railroad companies. Your committee finds that every railroad of any importance in the state has an agreement or contract with a surgeon in the cities and towns along its lines providing for the rendering of surgical assistance to persons injured in the company's service or while traveling on its lines.

The compensation consists in most cases of an annual pass over the company's lines, or the payment for actual services rendered in the care of the injured. In very few cases does your committee find complaint that the compensation is inadequate, or that the rights of other local practitioners are infringed on.

Second.—The care of the employés of mining corporations by contract surgeons is practically the universal rule. In some cases large hospital systems are established, employing salaried chief surgeons and large staffs of assistants. The compensation for this service is provided for by deducting a part of the weekly or monthly wage of the employé. This amount is 50c to $1.00 per month for a single man and $1.00 to $2.00 per month for a man of family.

Reports indicate that in some places the employés are dissatisfied with the service rendered and in some instances employ other than the contract service. Your committee has not learned whether or not the medical profession in mining localities is or is not satisfied with the system. Your committee believes the mining contract system a problem demanding further investigation by the physicians resident in the localities where it is practiced.

Third.—The investigation and report on contract work done for the indigent of counties and cities was assigned to Dr. Seeley of Mayville, Tuscola County, who will render a special report after the disposition of this report.

Fourth.—From reports received as to the system of contract service for employés of factories or other local industries we will report the following:

At Benton Harbor, the Baker-Vater Co., employing 300 men, pays the regular local fee bill for care of its injured employés.

At Saginaw, the Plate Glass Factory, employing 75 men or more, has its employés cared for medically and surgically for a fee to its physician of $1.00 per month for family and 50 cents per month for a single man.

At Wyandotte, the Michigan Alkali Company, employing 1,350 men, charges its employés 50 cents per month and furnishes contract medical service; also at Wyandotte the American Shipbuilding Company, employing 750 men, collects from the men 10 cents per week for a like service.

At Menominee, the Electrical and Mechanical Company, employing 300 men, furnishes medical and surgical service at a cost to the employé of 15 cents per month.

Certain large insurance companies having employers' liability departments contract on the one hand with the factories and on the other with the physicians, bringing about the result that one physician or more, for a set compensation, will do the surgical work for several industrial plants. For example, in Detroit, the Standard Life and Accident Company has liability contracts with several large factories and industries where the injury hazard to employés is great; by paying to two Detroit physicians a set salary, the amount of which this committee could not learn, they provide not only for first surgical aid to the injured employé, but also for his subsequent care and dressings.

It is the opinion of many Detroit physicians, who have some idea of the amount of services rendered, that the total salary received falls far short of proper compensation in accordance with the fees received in regular practice for like services.

The Standard has similar arrangements at Bay City and Lansing, as well as at Muskegon.

In this class of contract practice is placed that of the Aetna Life and Accident Co., doing a similar business to that of the Standard for large factories in Detroit, Muskegon and Battle Creek. The compensation for the medical and surgical work for this company is a percentage (usually 10 per cent.) of an assessment (usually $1.00 per month) levied on the employés.

It seems to your committee that not all phases of the contract system as operating between the physician and local industries or employers' liability companies are objectionable. Certainly here, as also in the railroad contract problem, the company must be conceded the right to secure for the injured employé proper and sufficient surgical service in order to protect itself from unjust liability claims.

On the other hand, any operation of the system tending in any way to degrade and cheapen the practice of our profession or tending to establish in our practice any other standard of competition than that of true professional worth and genuine efficiency as a practitioner of medicine and surgery should be considered as reprehensible.

Fifth and Sixth.—The operations of the remaining two classes of contract practice, i. e., of the Sick and Accident Indemnity Companies, and of the Fraternal Orders, can better be considered together.

The data given are compiled from reports sent in from cities of 5,000 and over. The absolute accuracy may in some instances be a matter of doubt, but the statements are in every case so close to the truth that a just conclusion may be drawn from them.

Data on all the organizations of this character can not be included in the report, but on the larger and more active ones only.

1. The National Casualty Company of Detroit is reported as em-

ploying a contract physician in Detroit for an approximate membership of 1,500. A statement as to the physician's compensation could not be obtained.

This company in Grand Rapids provides service for a membership of 100 and pays its physician 25 cents per week for each member.

II. The Phoenix Preferred Accident Co., of Detroit, is reported to employ for a usual fee of 10 per cent. of the premium collected a contract physician at Battle Creek for 250 members; at Jackson for 200 members; at Detroit for 700 members, and at Lansing for 200 members.

III. The United States Health and Accident Co., of Saginaw, has a physician at Battle Creek caring for a membership of 245, and at Owosso for 200; the compensation as reported varies from $1.50 to $3.00 per year per member.

IV. The Continental Casualty Co., of Hammond, Ind., maintains a sanitarium at Detroit with two resident physicians and one visiting surgeon. At Bay City a physician is employed at $30 per month; the number cared for at that city is not reported. At Lansing there is a membership of 500, but no report was received as to contract physician's fee. This company at Jackson has a membership of 1,400, and pays a local physician $125 a year to care for all members reporting at his office. Care and treatment are furnished free at the company's sanitarium at Detroit, if desired.

V. The Grand Rapids Accident and Health Insurance Company, now combined with the Imperial Casualty Co., of Detroit, furnishes free medical service to a membership of 200 at Jackson, 250 at Grand Rapids, and 300 at Lansing, and pays the physician from $1.00 per year in some cities to 25 cents per month in one other for each member.

VI The United States Accident Association, of Detroit, has a contract physician at Detroit, membership not given; at Grand Rapids, membership 150; at Muskegon, membership 200; compensation reported at about 10 per cent. of premiums received.

For membership in organizations of this class the premium collected from each member is usually $1.00 per month. It is seen, then, that the physician's income from this class of practice is usually from $1.00 to $1.20 per year for each individual.

VII. A fraternal order known as the Foresters of America, in each locality where established, employs a lodge physician as part of its plan of organization. He is paid from 80 cents to $1.50 a year per member. They are reported as having a membership as follows:

Battle Creek	150	Bay City	600
Marine City	150	Lansing	400
Pontiac	1,400	Menominee	35
Traverse City	500		

VIII. The Fraternal Order of Eagles provides in its constitution for the employment of an Aerie physician in each of its subordinate lodges.

The Fraternal Order of Eagles, as reported from a reliable source, has an approximate membership in Michigan of 5,000. A subordinate lodge has been established in nearly every city sending in a report to this committee.

Lansing and Bay City report a membership of 500 each, Jackson, Owosso, Pontiac, Iron Mountain and Benton Harbor report memberships of from 200 to 300. Grand Rapids, Detroit and Kalamazoo furnish no report on the membership. Some of the smaller cities report memberships varying from 50 to 200. A very few subordinate lodges have changed the provisions of the constitution so that the Aerie physician receives a different compensation than that specified. Notably in Albion, where, although an Aerie physician is appointed, it is provided that he receive compensation according to the fees prevailing among the practitioners of that city.

To show how contract services for lodges and for sick and accident companies may play an important part in the ethical and economical conditions affecting the profession in a community, the committee would report the conditions in the cities of Battle Creek and Jackson:

BATTLE CREEK.

Organization.	Membership.
Phoenix	250
U. S. Health & Accident	245
Eagles	130
Foresters of America	150
Total	775

Estimating each member to represent a family of three, there are directly under the influence of this form of contract practice 2,325 of Battle Creek's population of about 30,000.

JACKSON.

Organization.	Membership.
Phoenix	200
Continental Casualty	1,400
Grand Rapids Accident and Health	200
Workingmen's Mutual Protective Assn	300
Home Accident and Health	15
Eagles	300
German Workingmen's Relief Societies	263
Total	2,678

Estimating as before, there are directly under the influence of this form of practice 8,034 of the 30,000 population of Jackson.

In conclusion, your committee would call attention to certain facts brought out by correspondents in their reports to the committee:

1st.—That not *all* forms of contract practice should be subject to condemnation; as, for example, contract practice as carried on for certain mining corporations. From the facts obtained on this subject your committee would not feel competent to devise a system better adapted to meet conditions in mining localities.

2nd.—In some communities men of unquestionable moral integrity and high standing in the profession have been, and a few seem to be yet, engaged in forms of contract practice which seem to the committee objectionable.

3rd.—In most instances local societies are totally unable to control the evil without serious danger of disruption, although a few counties, notably Marquette, Mason and Emmet, have succeeded in holding the practice in check.

It is the judgment of the committee that the State Society should take some action looking to a betterment of conditions as affecting the matter under consideration.

T. S. Langford,
A. S. Kimball,
H. B. Garner,
E. H. Flynn,
T. E. De Gurse,
Committee.

REPORT OF SUBCOMMITTEE.

The Committee on Contract Practice appointed me as a special committee to investigate and report on that phase of our work that has to do with the contract practice for the County Board of Poor Commissioners.

That this part of our work has been, and is at the present time, in a very unsatisfactory condition, is evidenced by the numerous suits between the supervisors and doctors in adjusting claims for services rendered the indigent poor, by the constant discussion of this subject by the county societies, and by the motion that was carried at our last state meeting asking that this part of our work be investigated.

The questions that have been asked are:

Are the indigent poor looked after satisfactorily in your county? Is the schedule of prices, as allowed by the Board of Supervisors, satisfactory? If you have the contract system, does it give the indigent poor first-class treatment, and is the price paid what it should be?

We received reports from forty-two counties, and, with three exceptions, the reports indicated a very unsatisfactory condition. The exceptions were in the counties where as yet they were free from contracts, and the physicians were paid the regular fees for the services rendered, and the patients allowed to make their own choice of physicians.

Up to a few years ago, this was the plan throughout the state, and was satisfactory except when the supervisors, in auditing the bills, felt disposed to cut them in two, and this was quite often the case. A great many supervisors seem to think that they are better judges of what the doctors should have for their services than the doctors themselves. In many of the counties the supervisors adopted a schedule of prices, without consulting the physicians, far below the cost of the work. For instance, in Oakland County, a doctor drives fifteen miles and gets $2.40. In many of the counties the dotcors made a remonstrance at this unfair treatment, and many of them refused to do work for the poor boards, or, if they did take care of an indigent patient, did not put in a bill for it.

Report has been received from thirty-nine counties where the poor commissioners canvassed the doctors in the different townships and let the work to the lowest bidder. The prices paid range from $15 to $150 per year. The doctors in some of the townships contract to do all of the indigent work, furnish medicine, including antitoxin, take care of all smallpox cases, and examine insane indigents. We have been able to interview many of the physicians who have these contracts, and a few of them think they get pay enough for the services rendered, but the majority consider the prices paid far below what they should be. Also, the other physicians in the county who did not have the indigent contracts were doing about the same charity work as usual, for which, of course, they received nothing.

In some counties the competitive bidding for the work at the county houses has been quite sharp; for instance, in Midland County the work last year was contracted for at $75. A few years ago the county paid $500 for this work.

In summing up, as was said before, we find nearly every one concerned dissatisfied with the present conditions, and they are united in saying that they would welcome any fair schedule or scheme that would tend toward respectable fees, better care of the poor, and self-respect.

It seems to me that the time has come when we should say to the supervisors of Michigan that the physicians of this state propose to have something to say about how the dependent poor shall be treated, and also something to say about what their own services are worth.

That a reform is needed in many counties in the manner in which the sick at the county houses are cared for is known to many of us. Who but the physicians are able to take up this work and carry it to a successful issue?

It was suggested by Dr. Angus McLean, in a paper read before the State Society at Port Huron, that each county should have a small, well-equipped hospital. That this is within our reach we firmly believe if the following scheme is carried out:

One of the members of the board of poor commissioners should be a physician who is a member of the county society and approved by the society. Each county society should become an incorporated body. Then it is in a position to say to the board of supervisors, and here we will quote from the statistics of Tuscola County, whose population is 36,000, whose largest city contains only 2,000: "You paid for the medical attendance rendered the indigent poor of the county during the last five years $25,000, or an average of $5,000 per year. You pay to our society $5,000 a year, and each member of the society contracts to take care of all the indigent work that comes to him with a proper order from the supervisor." The society would soon have a respectable sum with which it could build and equip an operating room at the county house. We could then take down the sign of "county house" and put up the sign "county hospital." The work at the hospital could be looked after by a staff of physicians from the nearest town, who, by dividing the work, or by taking it in rotation, as is done in the larger hospitals, could do it with small inconvenience. Then by establishing an ambulance service we could have hospital facilities at the door of the country practitioner, and, instead of the sick being transferred in many cases hundreds of miles to reach the specialist, the specialist could come to the patient.

The idea of establishing a hospital in connection with the county house would, of course, not appeal to the profession in counties where they have already sufficient hospital facilities, but in such counties the fund could be devoted to other objects which benefit the profession as a whole. The details of this scheme could, no doubt, be worked out satisfactorily by the county societies.

In our opinion, then, we should agree that no contract practice should be entered into by an individual without the contract having the approval of the county society, and that the contract for the county work be taken by the county society as a whole, except it be in the larger cities where the county physician or city physician is supposed to devote his whole time to such work.

It can be readily seen, if this idea can be carried into effect, we would have no trouble in getting every reputable physician in the state into our society. It would eliminate what is now a very serious menace to us, and tend to promote strength and harmony. It would place us before the people as public benefactors rather than as so many dollar chasers, and, above all, we would maintain self-respect.

A. L. Seeley.

Medicolegal

Insanity Etymologically, Lexically and Legally—Expert Testimony.

The Supreme Judicial Court of Maine says, in re American Board of Commissioners for Foreign Missions, that the statute of that state provides that "a person of sound mind, and of the age of 21 years, may dispose of his real and personal estate by will, in writing, signed by him, or by some person for him at his request, and in his presence, and subscribed in his presence by three credible attesting witnesses, not beneficially interested under said will." There is no exception or qualification to the requirement that a person must be of sound mind in order to make a valid will, and the burden rests on the proponent of the will to prove affirmatively that the testator was of sound mind when he made the will. Hence, in probating a will, the sanity of the testator must be proved. It is not to be presumed.

But the word "sanity" is used in its legal, and not its medical sense. Etymologically, insanity signifies unsoundness. Lexically it signifies unsoundness of mind, or derangement of the intellect. In law, every mind is sound that can reason and will intelligently, in the particular transaction being considered; and every mind is unsound or insane that can not so reason and will. The law investigates no further. This definition clearly differentiates the sound from the unsound mind, in the legal sense.

A disposing mind involves the exercise of so much mind and memory as would enable a person to transact common and simple kinds of business with that intelligence which belongs to the weakest class of sound minds; and a disposing memory exists when one can recall the general nature, condition and extent of his property and his relation to those to whom he gives, and also to those from whom he excludes, his bounty. But mere intellectual feebleness must be distinguished from unsoundness of mind. The requirements of a "sound and disposing mind" do not imply that the powers of the mind may not have been weakened or impaired by old age or bodily disease.

It is a well-established rule in the state of Maine that, while confinement in an insane asylum or the disability of guardianship is made prima facie evidence of some mental incapacity, yet it is a rebuttable presumption of fact and may be overthrown by a preponderance of the evidence. The incapacity of guardianship is simply a fact, which may be proven like any other fact tending to establish mental incapacity; but it does not work an estoppel on the proponent of a will. The statute recognizes this principle and provides, among other things, that, "when a person over 21 years of age is under guardianship, he is incapable of disposing of his property otherwise than by his last will."

If the guardianship was imposed on account of the impairment of some particular function of the brain which did not materially interfere with the judgment, comprehension and memory, it might require scarcely any evidence at all to remove the effect of it. On the other hand, if it was imposed on account of long standing and chronic insanity, involving the destruction of all these faculties, no amount of evidence could overcome it.

Of the impairment of the mind between these two extremes, the amount of evidence required to overcome the disability would depend on the facts and circumstances of each particular case; so that, when the court reaches the final determination as to mental capacity or incapacity, whether the person is in an insane asylum, under guardianship, or under no legal disability, the court reverts to the simple proposition of law whether under all the circumstances in the particular case under consideration, the testator was of sound and disposing mind. The proof must be sufficient to overcome all disabilities, however originating and however imposed. When the proponents have sustained the burden of proof on this proposition, it matters not how the obstacles to be overcome were created.

The last of the handwriting of the party who made the will in this case showed an unsteady hand and an imperfect sight. Letters were repeated and the lines were crooked. But the court says that it would hesitate to say that this defect in the chirography of the testator was evidence of any greater decay than that which may be attributed, in many instances, to the weakness incident to approaching old age. It needs no expert to inform us that the hand may tremble and the sight may fail long before the mind is deprived of its mental grasp. These evidences of mental incapacity, therefore, must be considered in each particular case in connection with the other testimony. The other testimony may show that these defects are due solely to mental decline. It may show that they are due to other causes.

In the consideration of the testimony of medical experts, the test of consistency and reasonableness, always having reference to the other testimony in the case, which their opinions may tend to corroborate or contradict, should be applied.

The opinion of a medical expert, whose testimony does not differentiate between a medically sound mind and a legally sound mind, is entitled to weight only when the other evidence shows that it applies to legal unsoundness, as a mind legally sound may be medically unsound. On the other hand, a medically sound mind necessarily includes a legally sound mind.

When it appears that the opinion of a medical expert is made up from a prejudiced view and for a predetermined purpose, then the ordinary rule of law with reference to the effect of interest on credibility should be applied with special force, as such opinion evidence presents an unsafe criterion on which to found a judgment affecting important interests. Such testimony is not only worthless, but insidious and dangerous; for it is impossible for the layman, in the analysis of such testimony, to distinguish the true from the untrue; and, if the untrue is acted on, injustice must follow.

Liability of Railroad as Carrier to Pesthouse.

The Supreme Court of Appeals of West Virginia holds, in the case of Jenkins vs. Chesapeake & Ohio Railway Company, that where, by a contract made between a county court and a railroad company for the mutual advantage of the parties thereto in preventing the spread of a contagious disease, the carrier agrees, in consideration that the county court shall provide and maintain a pesthouse for the care and treatment of persons infected with such disease, to furnish and properly equip a car therefor, and transport such persons to the pesthouse, one of the class of persons therein designated in whose interest it is made may maintain in his own name an action against such carrier, either for damages resulting from a breach of its duty to him under the contract, or arising out of the relation of carrier and passenger after he has been accepted as a passenger.

Framing and Objecting to Hypothetical Questions.

The Supreme Court of Minnesota says, in the personal injury case of Frigstad vs. Great Northern Railway Company, that a hypothetical question must include all facts relevant to the issue which the evidence at the time the question is asked tends to prove. It must not assume facts as to which there is no evidence.

Under ordinary circumstances the objection that a question as stated does not include all the essential facts, or is not a correct statement of the evidence, should be treated as specific and as pointing out the grounds of the objection. It may safely be assumed that the judge has followed the evidence, and is able to determine whether the question is properly framed as against such an objection. If he is in doubt, he may call on counsel for information, and it must be furnished.

An objection such as is here made is not like the omnibus statement that a question is incompetent, immaterial and irrelevant.

When counsel asks for an opinion based on assumed facts, it is his duty to frame the question carefully and accurately, and he should not be permitted to throw the burden of correcting its defects on the opposing counsel. The grounds of an objection are required to be stated specifically, in order that the court may rule intelligently. If the court is satisfied, it is difficult to measure the duty owing to opposing counsel. Of course, he must not be actually misled by any concealment or sharp practice; but as a general proposition it may be said that each counsel must try his own case and be responsible for his own errors.

A contrary rule applied to a hypothetical question would lead to the absurd conclusion that counsel may ask a question obviously imperfect, containing a mere suggestion of the evidence, and throw the burden on his opponent of supplying all that is necessary to make the question perfect. The question might be a mere skeleton, and the objecting counsel would be required to furnish the substance at his peril. This would be to impose the burden on the wrong party and encourage careless and slovenly practice, which would in the end result in more frequent miscarriages of justice than would a strict adherence to technical rules of practice.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

The Medical Record, New York.

July 20.

1 Clinical Course of Gastroptosis and Its Treatment. G. R. Lockwood, New York.
2 Action of Radium on Plants and Animals. L. Hussakof, New York.
3 *Sulphur Waters in the Treatment of Syphilis. J. Dardel, Aix-les-Bains, France.
4 Early Diagnosis and Home Treatment of Pulmonary Tuberculosis. E. Keating, Chicago.
5 *Treatment of Malaria in the Vicinity of New York City. W. Stump, Larchmont, N. Y.
6 *Studies of Juvenile Criminals. . A. MacDonald, Washington, D. C.

3. **Sulphur Waters in Syphilis.**—Dardel says that the treatment of syphilis by the use of sulphur waters does not cure alone, but forms a very valuable auxiliary treatment, which may be combined with a course of mercurial treatment, and that the water will help greatly in the absorption, action and elimination of the drug. The cure is indicated at any period of the disease, since nutrition suffers at all stages. Patients suffering from arteriosclerosis or liver trouble, and those who are highly nervous, should not undergo an active sulphur cure. It is especially indicated in those who take mercury badly, or who can tolerate but a small dose of it, and in those in whom the therapeutic action of mercury is not easily obtained. It is also indicated in cases of great destruction of tissue, or severe infections in feeble or worn-out patients, and in lesions of the nervous system, ulcerative lesions that threaten great destruction to the organs affected, and other such lesions in which there is no time to lose. The treatment strengthens the patient and enables him to take more mercury and to assimilate it better. The sulphur of the water forms alkaline sulphids. Some are oxidized by hyposulphites and sulphites, but the most of it forms hydrogen sulphid, which is eliminated by the lungs and skin. It has a general tonic and exciting action, and liberates mercurial compounds stored up in the system.

5. **Treatment of Malaria.**—Stump advocates the treatment of malaria by large doses of quinin, given just before the expected chill, so as to reach the blood at the time when the spores are thrown into the circulation and are in their most susceptible state. He uses quinin in solution, 5 grains for each 50 pounds of weight, one hour before the chill, and follows with the same dose in chronologic sequence.

6. **Studies of Juvenile Criminals.**—MacDonald gives the results of three studies in juvenile crime. One consists mainly in observations of the physical defects of 65 young persons; another is a more general study of 200 children, from 6 to 12 years of age, in a reformatory; the third is a special investigation of a "criminal born child." Of the 65 criminals studied, data were obtained in 45 cases. The most frequent hereditary taints were: 1, Nervous diseases, 95 per cent.; 2, lung diseases, 64 per cent.; 3, alcoholism, 62 per cent.; 4, insanity, 47 per cent.; 5, epilepsy, 32 per cent.; 6, mental backwardness, 20 per cent. Of the second series of persons studied 134 were abandoned children; 13 had been in the poorhouse; 44 had been vagabonds; 19 beggars, 146 thieves and 33 embezzlers. All these children came from the lower classes. It is noteworthy that few of the parents of these children were criminals. In 78 cases the father was an alcoholic; 10 fathers and 14 mothers were insane; 11 fathers and 15 mothers were epileptics; 22.5 per cent. of the children were illegitimate. The remaining data of this group are too lengthy to embody in an abstract.

New York Medical Journal.

July 20.

7 Cases of Landouzy-Déjérine Myopathy (Congenital). Thomsen's Disease, and Enchondroma of the Hypophysis. L. P. Clark and C. E. Atwood, New York.
8 Perforative Appendicitis Due to Plum Stone. J. J. Rectenwald, Pittsburg, Pa
9 *Seven Gunshot Wounds of the Body. V. Kenerson, Buffalo.
10 Chancroid and Its Complications. A. A. Uhle and W. H. Mackiuney, Philadelphia.
11 Relation Between the Physiologic Action of Ions and Their Psycho-chemical Properties. (To be concluded.) W. N. Berg, New York.
12 *Pelvic Tumor in Little Girls. J. C. Kennedy, Brooklyn, N. Y.
13 Rational Treatment of Nervous Diseases. B. L. Bryant, Bangor, Me.
14 *Treatment of Acute General Peritonitis. G. Chandler, Kingston, N. Y.

9. **Gunshot Wounds of Body.**—Kenerson reports 7 cases, which he divides into two classes: One class that of penetrating wounds of the thorax, contained three patients, all of whom recovered, with practically no treatment except local drainage; the other class, that of penetrating wounds of the abdomen, contained four patients, two of whom had multiple perforating wounds of the intestine. Of these four patients, one died of septic peritonitis on the fifth day; one of hemorrhage, and two recovered, one with simple superficial drainage, the other after laparotomy. The cases reported are as follows: 1. Five perforating wounds of the intestines; death in five days. 2. Wound of left chest over the heart; recovery. 3. Penetrating wound of right pleura; puncture of lung; recovery. 4. Penetrating wound of abdomen; injury in liver and kidney; recovery. 5. Penetrating wound of right chest, puncture of right lung, with recovery. 6. Perforating wound of abdomen, 10 bullet wounds of intestine; recovery. 7. Penetrating wound of mesentery, uncontrollable bleeding; death on second day.

12. **Pelvic Tumors in Girls.**—Kennedy reports the case of a girl not quite 11, from whom he removed a typical dermoid cyst of the left ovary, weighing two and one-half pounds.

14. **Treatment of Acute General Peritonitis.**—Chandler emphasizes the importance of not washing out the abdomen under any conditions. At the lower angle of the median incision a large rubber drainage tube is placed. This tube carries a wick of gauze. If necessary, Chandler makes multiple drains, by puncture wounds in the flanks, over the kidney region, or wherever necessary. Through these puncture wounds, small split rubber drainage tubes containing a wick of gauze are placed. The head of the bed is elevated, the patient is given a normal salt solution, by rectum continuously. No food is given by mouth for four days; morphin is administered hypodermically as an "abdominal splint." A high enema of milk and molasses is given on the fourth day. Chandler believes that 9 out of 10 patients can be saved by this treatment.

Boston Medical and Surgical Journal.

July 18.

15 Science and Art of Medicine. F. C. Shattuck, Boston.
16 Medical Teaching at Harvard and the Opportunity It Offers the Young Graduate for Medical Training. H. A. Christian, Boston.
17 *The Medical and Surgical Aspects of Perforating Typhoid Ulcers. R. H. Harte, Philadelphia.
18 *Perforating Typhoid Ulcers. F. C. Shattuck, Boston.
19 *Mistaken Diagnosis in Cases of Typhoid Perforation. C. L. Scudder, Boston.

20 *Perforating Typhoid Ulcers. F. Cobb, Boston.
21 *The So-called "Ochsner Muscle" of the Duodenum. W. M. Boothby, Boston.

17. **Aspects of Perforating Typhoid Ulcer.**—This paper is practically the same as the one by the same author published in The Journal, Oct. 28, 1905.

18. **Id.**—Shattuck believes that in a patient in fairly good condition and with undoubted perforation operation can not be done too early. He thinks that better results are to be looked for through prompt recognition of the condition, more accurate knowledge as to the time of election, due consideration of the special features of each case, and realization of the fact that a patient with perforation in the course of an acute, though prolonged infection, tolerates anesthesia, and intervention less well than one in full health, with perforation of the stomach or apppendix.

19. **Mistaken Diagnosis in Typhoid Perforation.**—Scudder reports a case of typhoid in which there occurred a rupture of an old pyosalpinx at the end of the third week of the fever. Diffuse peritonitis followed, a salpingectomy was done, and the abdominal cavity was irrigated and drained. The abdominal fluid contained a pure culture of the typhoid bacillus. The rupture of the tube was occasioned by an acute infection of the pyosalpinx by the typhoid bacillus. The patient recovered.

20. **Id.**—Cobb presents an analysis of 20 cases of typhoid perforation treated by operation. Six patients recovered, 30 per cent. One patient lived 11 days, and died from intestinal obstruction caused by fibrous adhesions. Four patients lived from three to eight days, dying from general peritonitis. Three patients died from shock. The remaining 7 died within 48 hours of general peritonitis. Cobb urges a careful study of the symptoms indicative of perforation, so that operation may be done at a time when recovery of the patient is certain. If operation is delayed until severe general peritonitis sets in, the outcome will usually be fatal.

21. **Sphincter of Duodenum.**—After having examined the duodenum of 25 anatomic subjects, Boothby failed to find any grouping of circular fibers which could be considered an anatomic sphincter muscle, as was described by Ochsner a short time ago. Boothby says that the musculature of the duodenum, especially the circular layer, presents certain irregularities in its thickness, but these can not be termed a true sphincter muscle.

Lancet-Clinic, Cincinnati.

May 20.

22 Prevention and Treatment of Scoliosis. P. A. McIlhenny, New Orleans.
23 The Cataract Operation. F. C. Heath, Indianapolis.
24 Injuries of the Eye. S. C. Ayres, Cincinnati, Ohio.

Montreal Medical Journal.

June.

25 Functional Scoliosis. A. T. Mussen, Montreal.
26 Pneumococcus Conjunctivitis. F. T. Tooke, Montreal.
27 *Aortic Aneurism in Lung. J. McCrae, Montreal.
28 *Water Treatment in Postoperative Vomiting. J. A. MacArthur, Winnipeg.
29 Puerperal Infection. H. M. Little, Montreal.
30 Polypoidal Overgrowth of Inferior Turbinates. E. H. White, Montreal.
31 Unusual Tonsillar Enlargement. E. H. White, Montreal.
32 Tumor of Temporo-sphenoidal Lobe with Dreamy States. C. K. Russel, Montreal.
33 The Weak and the Flat Foot. A. M. Forbes, Montreal.
34 Aneurism of Internal Carotid. W. A. Molson and A. H. Gordon, Montreal.

27. **Aortic Aneurism in Lung.**—McCrae describes an aneurism in the descending aorta, evidently due to syphilitic aortitis, which excavated a large part of the upper lobe of the left lung, forming therein a cavity of which the walls were formed to a great extent by the lung tissue. The symptoms and findings were so misleading that the case was diagnosed as one of tuberculosis of the lung. No tubercle bacilli were found in the sputum. The diagnosis was finally made at the necropsy.

28. **Water Treatment in Postoperative Vomiting.**—Following a suggestion made by a New York surgeon, MacArthur gives his patients, two hours before operation, from 8 to 12 ounces of cold, fresh water, and half an hour before the operation, another 8 ounces. Out of 35 cases only four patients were troubled with slight postoperative vomiting, but there was no straining or retching. MacArthur has found the method mentioned a very valuable one.

Surgery, Gynecology and Obstetrics, Chicago.

June.

35 *Operations for Nonmalignant Disease of Stomach. B. G. A. Moynihan, Leeds, England.
36 *Relation of Ovarian Cysts to Abdominal and Pelvic Pain. J. A. Sampson, Albany, N. Y.
37 Ancient Military Surgery. N. Senn, Chicago.
38 *Latency of Carcinoma. E. A. Graham, Chicago.
39 Case Wrongly Diagnosed as Cerebral Abscess. A. E. Taussig and N. W. Sharpe, St. Louis.
40 Leontiasis Ossea with Halisteresis. C. Beck, Chicago.
41 *Fibromyomata of Round Ligament. B. C. Hirst and N. L. Knipe, Philadelphia.
42 *Surgical Intervention in Leontiasis Ossea. A. B. Kanavel, Chicago.
43 Internal Derangement of Knee Joint. L. Freeman, Denver.
44 *Traumatism of Internal Organs. M. Herzog, Manila, P. I.
45 Technic of Appendectomy in Acute and Chronic Cases. M. H. Richardson, Boston.
46 *Treatment of Postpartum Hemorrhage with New Method of Hemostasis. H. M. Stowe, Chicago.
47 Hydatid Disease in Australia. A. Watson, Melbourne, Australia.

35. **Non-Malignant Disease of Stomach.**—Moynihan presents an analytical report of 334 cases of operation for non-malignant disease of the stomach, with 21 fatalities. These operations were performed for: 1. Perforating ulcer, 27 times, with 9 fatalities. 2. Recurrent hemorrhage, 33 times, with 6 fatalities. 3. Hour-glass stomach, 26 times, with 4 fatalities. 4. Miscellaneous cases, 248 times, with 2 fatalities. The 248 operations were done on 239 patients, and of this number 223 are quite well, 4 are no better, 10 are classed as indifferent and 2 have died. In the last 151 operations in this series there was no death. The operations done were: Gastroenterostomy, 218; pyloroplasty, 3; gastroduodenostomy, 2; gastropexy, 2; secondary operations, 19; and one each gastroenterostomy and gastropexy, gastroenterostomy and gastrostomy, infolding of ulcer, and excision of ulcer. In this series there were 14 cases of gastric tetany, of varying degrees of severity, from the simplest to the most serious. In every case gastroenterostomy was performed and every patient recovered.

36. **Relation of Ovarian Cysts to Abdominal and Pelvic Pain.**—Sampson claims that the presence of abdominal or pelvic pain in patients with ovarian cysts usually indicates either secondary changes in the cyst, involving some sensitive nearby structure, or the presence of some other condition, independent of the cyst which may cause pain. The principal causes of pain arising from ovarian cyst are traction, or twisting of the pedicles, or the traction of the parietal peritoneum from adhesions.

38. **Latency of Carcinoma.**—Graham reports a case of remarkable latency of carcinoma. The patient, 61 years of age, was operated on in June, 1897, for serious carcinoma of the right breast. The breast was amputated and the patient made a good recovery, and had no recurrence, either at the site of the operation or in the lymph glands. In 1899, during a severe attack of pneumonia, she was unconscious for several days. During all of the summer of 1903 she was ill with symptoms of diabetes insipidus. After gradual failure and progressive weakness, death occurred in November, 1903. At the autopsy multiple metastatic fossi were found in the pleura, liver, pancreas and adrenals. There had been no clinical symptoms leading to a suspicion of their presence. Dense bands of adult fibrous tissue were found intersecting the tumor areas; in some places a complete capsule had been formed around the whole mass, while surrounding those areas not yet distinctly encapsulated young granulation tissue was found. In addition to these features, the presence of pseudogiant cells, the appearance of atrophy, and necrotic epithelial cells in portions of some of the tumors and the absence of mitotic figures, were taken to point to a healing process, such as is seen in chronic inflammations.

41. **Fibromyomata of Round Ligament.**—Hirst and Knipe report three cases in which a large fibromyoma was removed from the round ligament in the inguinal canal. In all these cases the unusual size of the tumor was due to the stimulus of pregnancy, a fact not demonstrated by cases previously reported.

42. **Surgical Intervention in Leontiasis Ossea.**—Kanavel presents a study of the clinical histories and skulls of reported cases of leontiasis ossea, and reports one personal case. He claims that operative procedures are justifiable in a certain proportion of the cases, although no well-defined operation can be suggested as a curative measure. Palliative operations, he says, should be done to relieve cerebral compression and encroachment on the orbital and nasal cavity. Obstruction of the blood supply and operations for cosmetic purposes may be considered. Kanavel reviewed 34 cases and examined 23 skulls.

44. **Traumatism of Internal Organs.**—Herzog reports five cases of fatal traumatism of internal organs, without external injury. Two were cases of rupture of the spleen, occurring in splenomegaly; two were cases of rupture of the heart, one a fatty heart, which in the absence of any other injury, in consequence of a slight fall, was pierced by a rib; and one case of rupture of a fatty liver, occurring during parturition, in consequence of a native obstetric practice.

46. **Treatment of Postpartum Hemorrhage.**—In cases of postpartum hemorrhage due to atony of the uterus, Stowe has tried with great satisfaction a method of hemostasis, which he has not seen mentioned in the literature. In several instances he has been able to arrest completely a profuse hemorrhage. A sterile towel should be placed over the abdomen, or if this is not at hand, a laundered towel, soaked with a 1 to 1,000 solution of corrosive sublimate, acts as a good substitute. Now the external hand grasps and firmly kneads the fundus and presses it down into the inlet. The other hand, incased in a sterile glove, is passed into the vagina up to the cervix. The fingers then attempt to seize as much of the cervix and lower uterine segment as possible, and the hand is forced far into Bandl's ring until the fundus is reached. The internal hand remains outside the uterine cavity throughout the operation. If sufficient pressure be used the internal hand can be forced well into the fundus and past the contraction ring, pushing the cervix and lower uterine segment before it against the walls of the fundus. This obliterates the cavity of the uterus, and brings direct pressure and compression to bear against the sinuses and open vessels. The position of the internal hand or fist in the fundus, yet outside the uterus, has a marked effect in stimulating contraction, especially when aided by brisk massage.

Kentucky Medical Journal, Bowling Green.

July.

48 Causes and Prevention of Typhoid. G. G. Thornton, Lebanon.
49 Cases of Pneumonia. O. P. Hamilton, Gamaliel.
50 *Case of Idiopathic Universal Pruritus in Pregnancy. G. Purdy, New Liberty.
51 Treatment of Typhoid. J. H. Lampton, Springfield.
52 Treatment of Abortion and Some of Its Complications. J. T. Reddick, Paducah.
53 *Case of Extrauterine Pregnancy. W. T. Daughtry, Marion.
54 Diphtheria. W. E. Sleet, Midway.
55 Surgical Treatment of the Urinary Bladder and of the Urethra. A. Dixon, Henderson.
56 Diphtheria. A. B. Caudle, Newstead.
57 *Patent Medicines. D. H. Erkeletlian, Laytonsville.

50. **Idiopathic Universal Pruritus in Pregnancy.**—Purdy's patient, iii-para, gave a history of having had an itchy, creepy sensation, beginning in the hands and feet in the first pregnancy, at about the twenty-eighth week. This gradually increased to the most uncontrollable itching imaginable and spread over the entire surface of the body. The patient suffered intensely until full term, when she was delivered of a healthy child. A few days later the distressing symptoms disappeared. In her second pregnancy the patient was entirely free from pruritus until about the thirty-second week, when the pruritus appeared, taking the same course as before. The itching became so bad that in the thirty-fourth week it became necessary to deliver the woman. As before, the itching ceased in a very few days.

53. **Extrauterine Pregnancy.**—Daughtry reports a case of ruptured extrauterine pregnancy, at about the fourth month, in which operation was refused. Peritonitis developed, but resolved itself in about ten days. Finally an accumulation in the cul-de-sac of Douglas was evacuated into the rectum by a spontaneous rupture, and with it, most of the fetus and some very offensive blood clots were discharged. There was slight discharge for 16 or 18 days. One of the fetal skull bones was then evacuated, after which the discharge ceased. The patient's health is about as good as usual, except for extensive adhesions, a slightly retroflexed uterus, dysmenorrhea, and some difficulty in defecation.

57. **"Patent Medicine."**—Erkeletlian urges that the practicing physician should not indulge in prescribing or encouraging the sale of "patent" or proprietary remedies if he wishes to fight the nostrum evil effectively. Further, he declares that drug stores must be prohibited from selling any drug without specific demand from a regular practitioner, and that the laity should be taught the grave consequences resulting from the indiscriminate use of unknown remedies. He also urges the creation of a national board for the purpose of investigating into the merits of all preparations, which it is sought to patent.

The Post-Graduate, New York.

July.

58 Etiology and Treatment of Renal Calculus. P. Horowitz, New York.
59 *Intestinal Obstruction Due to Persistence and Anomaly of Urachus. A. Fanoni, New York.
60 Surgery of the Gall Bladder. C. R. L. Putnam, New York.
61 Significance of Certain Abnormal Stools in Early Life. G. R. Pisek, New York.
62 Radiographs in Syphilis of the Bones. M. W. Ware, New York.

59. **Intestinal Obstruction Due to Persistent Urachus.**—In the case reported by Fanoni, the urachus was about the size of the little finger. Its lower attachment was into the fundus of the bladder. The upper attachment was into the anterior abdominal wall one inch above and two inches to the right of the umbilicus. There was no connection with the liver and the upper end of the duct divided into three branches which spread out in the shape of a fan. A portion of the intestine was caught between this cord and the abdominal wall. The urachus was ligated at both ends and its side. The patient was in perfect health three weeks after the operation and remained well for about two months, when he complained of cramp-like pains in the abdomen and of constipation. On examination, a swelling was found over the side of the stump of the urachus, which had been left in the abdomen. An incision was made over the tumor, and when the structures down to the peritoneum had been cut through some cheesy material was found and removed, together with the three remnants of the roots of the urachus. Further, a band of adhesions had formed between the omentum and the urachal stump, and a loop of small intestine had become constricted. A lateral intestinal anastomosis was made. There was no sign of tuberculosis in either the intestines or the peritoneum. The patient made an uninterrupted recovery.

Annals of Gynecology and Pediatry, Boston.

July.

63 *Wherein Popular Education Has Failed. H. Williams, Boston.
64 Metrorrhagia During the Early Months of Pregnancy. C. G. Cumston, Boston.
65 Cesarean Section the Outcome of Uterine Fibroid. S. Crowell, Dorchester, Mass.

63. **Popular Education.**—Assuming that the highest attribute of individual knowledge is knowledge to protect one's self against injurious influences, Williams claims that the most important function of education should be the inculcation of such knowledge as tends to the direct self-preservation of the individual in the highest possible degree of bodily perfection. Yet this, he says, is a subject which is taught only incidentally or which is left to be acquired by experience, and it is in this that he believes popular education to have failed.

Journal of Cutaneous Diseases, New York.

July.

66 *The Opsonins and Certain Bacterial Cutaneous Diseases. H. E. Alderson, San Francisco.
67 *Ichthyosis of Unusual Location. R. H. Boggs, Pittsburg, Pa.
68 *Extragenital Primary Syphilis. F. H. Washburn, Jefferson, Mass.

66. **Opsonins and Skin Diseases.**—Alderson says that while opsonic treatment is of undoubted assistance, in certain chronic bacterial skin diseases, yet to produce the best results much auxiliary treatment is necessary. External and internal medication, dietetic and hygienic measures, and means of producing local hyperemia should also be employed.

67. **Ichthyosis.**—Boggs reports a case of ichthyosis of six years' duration, in which the lesions were distributed somewhat unusually. The neck, axillæ and skin of the abdomen were greatly thickened and pigmented. The arms and hands were rather free from the general thickening, although somewhat pigmented. Over the rest and back the skin was less thickened, and only moderately bronzed. The lower extremities were free from the disease, except on the inner aspect of each thigh, where there appeared a moderately pigmented scaly patch. All the mucous surfaces were healthy.

68. **Extragenital Primary Syphilis.**—Six cases are reported by Washburn. The distribution of the lesions was as follows: Large ovoid ulcer of the right tonsil; ulcer on pectoral region above right breast; two ulcers on tonsil; ulcer of gum; ulcer on lower lip; ulcer of tonsil. At least four of these cases are classed as syphilis insontium, and possibly a fifth case.

Cleveland Medical Journal.

July.

69 Surgical Lesions of the Central Nervous System. (To be continued.) C. H. Frazier, Philadelphia.
70 *Lipomata of the Omentum. W. E. Lower, Cleveland, Ohio.

70. **Lipomata of Omentum.**—Lower's patient, a man aged 32, complained of pain and a dragging sensation in the left inguinal region, and also of the presence of a tumor. These symptoms had manifested themselves about a year previously and medical advice was sought because of nausea, pain and dizziness. The definite diagnosis could not be made and exploration was advised. On opening the abdomen the mass palpated was found to be a tumor of the omentum about the size of a large lemon. On either side and slightly lower were two other tumors. The tumors were brought out and sewed off with plain catgut. Recovery was uneventful and all the symptoms subsided.

American Journal of Medical Sciences, Philadelphia.

July.

71 *Hypoparathyreosis. Status Parathyreoprivus and Transplantation of the Parathyroid Glands. W. S. Halsted, Baltimore.
72 Interpretation of the Pulsations of the Jugular Vein., J. MacKenzie, Burnley, England.
73 *Bacterial Inoculation in Localized Infections. E. M. von Eberts and W. H. P. Hill, Montreal, Canada.
74 *The Opsonic Index in Diabetes Mellitus. J. C. Da Costa, Jr., Philadelphia.
75 *Chronic Intestinal Autointoxication. F. Forchheimer, Cincinnati, Ohio.
76 Auscultatory and Percussion Findings of the Heart in Late Childhood. W. J. Butler, Chicago.
77 *Improved Methods in Successful Operative Treatment of Cleft Palate. J. B. Roberts, Philadelphia.
78 Obstetric Paralysis. W. N. Bullard, Boston.
79 Tactile Amnesia. C. W. Burr, Philadelphia.
80 Difficulties in Diagnosis of Brain Abscess. B. H. Potts, Philadelphia.

71. **Hypoparathyreosis.**—Halsted reports a case of aborted operative tetany, occurring in a patient from whom the left lobe of the thyroid gland had been removed. The attempt was made to preserve the parathyroids of this side. About two years later the right lobe was removed. Two similar operations were done on another patient. In both patients the four thyroid arteries had been tied. The first patient recovered without incident; the second, a woman, did not. She was restless, flushed and slept badly. She had what she described as attacks, consisting mainly of a feeling of numbness. The patient was given dried parathyroid glands, six every three hours, and the effect was immediate. She was then given fresh glands, which were carefully freed from fat, chopped very fine, and served on thin, crisp water crackers. The dry powdered glands were usually given in gelatin capsules. The patient has improved somewhat. She has gained in weight and in strength, but her nervous system is wrecked. During the past three or four months she has had severe pain in her knees, elbows and shoulders. This case has led Halsted to experiment with the transplantation of the parathyroids into the thyroid gland and into the spleen, and the results of this work are given in detail.

73. **Bacterial Inoculation.**—The observations of von Eberts and Hill confirm, in general, the dictum of Wright that an individual suffering from a localized infection has a low opsonic index to that particular infection. They have found low indices to be the rule in afebrile tuberculous lesions, in furunculosis and in acne, during the earlier stages.

74. **Opsonic Index in Diabetes Mellitus.**—Da Costa makes a preliminary report of the findings in 22 cases of glycosuria, showing the behavior of the opsonic index. Of the 22 patients studied, 16 were examples of diabetes mellitus, 4 of diabetes insipidus, and 2 of transient accidental glycosuria. *Staphylococcus pyogenes aureus* was chosen as the bacterium with which to determine opsonin values in all the tests. Of the patients with true diabetes mellitus, all had subnormal opsonin indices, ranging between 0.34 and 0.72. In the 4 cases of diabetes insipidus, the indices ranged betwen 0.82 and 0.89. Of the 2 patients with transient glycosuria, one showed an index of 0.81 and the other of 0.91. The former was an example of postoperative glycosuria, while in the latter the temporary glycosuria was traced to an over-indulgence in malt liquors. Da Costa says that this inquiry establishes merely the fact that diabetics show feeble resistance toward staphylococcic infections, which may explain the prevalence of boils, carbuncles, abscesses, and similar lesions in this disease.

75. **Chronic Intestinal Autointoxication.**—The basis of Forchheimer's paper is an analysis of 77 cases examined by ordinary clinical methods in which he believed intestinal autointoxication was present. He says that in order that the diagnosis of chronic intestinal autointoxication may be made, the following will have to be taken into consideration: In the gastrointestinal tract there are Riggs' disease, various forms of stomach troubles, change in functional activity of the colon, and demonstrable retention of the feces due to one cause or another. In a large percentage of the cases indican is increased in the urine, and a microscopic examination shows, again in a large percentage of cases, calcium oxalate (50 per cent.), uric acid and urates (25 per cent.), red corpuscles (about 30 per cent.). In 28 cases, about 33.3 per cent., the alternation of polyuria with oliguria was noted. One-half of the females had menstrual trouble. Next to Riggs' disease, nervous symptoms were present in the largest number of patients. Of these 31 of the 77 patients had headaches. In a large number (58 out of 77) cardiovascular changes were observed; over one-half were due to neuroses and to myocardial conditions. Of the 77 patients, 50 had locomotor symptoms, gouty joints, but especially muscular symptoms. Twenty-two patients had skin lesions.

77. **Treatment of Cleft Palate.**—According to Roberts, cleft palate should be operated on as soon as possible after birth. Accompanying harelip should not be treated until after the palate operation. When the operation is done during the first six months of life, Brophy's tie-beam method should usually be adopted. After six months of age, he thinks that the Lane flap method should generally be employed. At times it may be needed as a supplement to Brophy's method in younger patients. Brophy's method for these cases by means of silver-tension sutures and coaptation sutures with lead splints, or plates, applied to the inferior surface of palate flaps, is also very valuable. Mechanical appliances to close the fissure are inferior to operative treatment, which has a low necessary mortality. Instruction in speech is a necessary adjuvant for satisfactory results.

Virginia Medical Semi-Monthly, Richmond.

June 7.

81 Scopolamin and Morphin as Preliminary to General Anesthesia.C. U. Collins, Peoria, Ill.
82 Cocain Anesthesia. R. E. Vickers, Huntington, W. Va.
83 Posterior Gastroenterostomy for Chronic Gastric Ulcer. E. T. Hargrave, Norfolk, Va.
84 Study and Prevention of Tuberculosis. H. M. Biggs, New York.
85 After-Treatment of Abdominal Sections. L. Smith, Montreal, Canada.

Journal of Inebriety, Boston.

June.

86 Alcohol and Insanity in the London County Asylums. F. W. Mott, London.
87 Brain and Nerve Degeneration. J. M. Aiken, Omaha.
88 Alcoholism and Sexual Impulse. R. W. Shufeldt, New York.
89 *Alcohol in Its Relation to Degeneracy. E. S. Talbot, Chicago.
90 *Physiologic Effects of Alcohol on the Human System. W. S. Hall, Chicago.

89.—This article also appeared in The Journal, Feb. 2, 1907, page 389.

90.—This article also appeared in The Journal, Feb. 2, 1907, page 393.

Northwestern Lancet, Minneapolis.

June 1.

91 Observations in Europe. H. W. Jones, Minneapolis.
92 Present Trend of the Medical Profession. T. L. Hatch, Owatonna, Minn.
93 Legislation in Minnesota Pertaining to Sanitary Problems. H. M. Bracken, St. Paul, Minn.

The Military Surgeon, Carlisle, Pa.

June.

94 Fever in the Army of Cuban Pacification. H. P. Birmingham, U. S. Army.
95 West Indian Bilharziosis. R. C. Holcomb, U. S. N.
96 Experiences with New York Volunteer Cavalry During Spanish-American War. M. Leale, N. Y. V. C.
97 The Seaman as a Patient. C. H. Lavinder, U. S. P. H. and M.-H. S.
98 Difficulty of Disposal of Garbage, Especially liquid, in Camp of Instruction. H. E. Ferrel, N. G. of Missouri.
99 Results of a Year's Surgical Work in Old Cavite Hospital. U. R. Webb, U. S. Army.

Medical Standard, Chicago.

June.

100 Scientific Study of Roentgen Ray Emanations. R. S. Gregg, Chicago.
101 The Ship Doctor. B. L. Reitman, Chicago.
102 Mitral Disease. J. V. Shoemaker, Philadelphia.
103 Fifty Biographic Clinics on Living Patients. G. M. Gould, Philadelphia.
104 Anatomy of Sigmoid and Mesosigmoid. B. Robinson, Chicago.

Louisville Monthly Journal of Medicine and Surgery.

June.

105 General Paresis. E. D. Burnett, Louisville.
106 The Magnet in Foreign Bodies within the Eye. W. Cheatham, Louisville.
107 Surgery of the Ureter. I. Abell, Louisville.
108 Is the Doctor a Shylock. E. A. Forbes, New York.

Journal of Cutaneous Diseases, New York.

June.

109 Acrodermatoses of Scrofula, Hyperhidrosis and Granulosis Rubra Nasi. H. G. Anthony, Chicago.
110 Dermatitis Herpetiformis in Childhood. F. C. Knowles, Philadelphia.
111 Unusually Extensive Folliculitis and Perifolliculitis. W. B. Trimble, New York.

Interstate Medical Journal, St. Louis.

June.

112 Postoperative Acute Dilatation of Stomach. M. G. Seelig, St. Louis.
113 Urethritis and Complications. G. S. Peterkin, Seattle, Wash.
114 Etiologic Factors of Gonorrheal Arthritis. H. W. Smith, Manila, P. I.
115 Mountain Climate of New Mexico. F. T. B. Fest, Las Vegas, N. M.

Albany Medical Annals.

June.

116 Gastric Ulcer. A. Jacobi, New York.

Journal of Nervous and Mental Diseases, New York.

June.

117 Ambulatory Automatism. H. T. Patrick, Chicago.
118 Dislocation of Eyeball, Through Palpebral Fissure. B. R. Tucker, Philadelphia.

Journal of the Missouri State Medical Association, St. Louis.

June.

119 Address, President's, Missouri State Medical Association. C. H. Wallace, St. Joseph, Mo.
120 The Surgeon of To-day; His Ancestry and Failures. P. Y. Tupper, St. Louis.
121 The Future of Medicine. W. F. Kuhn, Farmington, Mo.

Central States Medical Monitor, Indianapolis.

June.

122 Control of Sex. W. J. Moenkhaus, Bloomington, Ill.
123 Primary Anemias in Young Girls. W. T. S. Dodds, Indianapolis.
124 Postoperative Skull Fractures and Tubercular Stumps. J. H. Ford, Indianapolis.
125 The Doctor Himself, His Medical Books and Journals. M. A. Austin, Anderson, Ind.
126 Fibroid Degeneration. H. O. Pantzer, Indianapolis.

Yale Medical Journal, New Haven, Conn.

June.

127 Study of Latent Malarial Infections. C. F. Craig, U. S. Army.
128 Hyperchlorhydria and Its Treatment. L. M. Gompertz, New Haven.
129 Immunity in Tuberculosis. (Concluded.) D. R. Lyman, Wallingford.

Ophthalmic Record, Chicago.

June.

130 Primary Melanotic Spindle-Celled Sarcoma of Corneal Limbus. C. A. Veasey, Philadelphia.
131 Angiosarcoma of Lower Lid. J. H. Claiborne, New York.
132 Unilateral Form of Tarsopalpebral Vernal Conjunctivitis. C. A. Wood, Chicago.
133 Simple Chronic Glaucoma. C. S. Bull, New York.
134 Primary Sarcoma of Eyelid. A. N. Alling, New Haven.
135 Increase of Hyperopia During Marked Glycosuria. R. R. Saunders, Philadelphia.
136 Congenital Inequality of Size of Cornea in Normal Eyes. A. A. Hubbell, Buffalo.
137 Pseudomembranous Conjunctivitis Caused by Staphylococcus Aureus and Albus. R. H. Johnston, Baltimore.

Maryland Medical Journal, Baltimore.

June.

138 Helpfulness of Organization. J. P. Remington, Philadelphia.

Mississippi Medical Monthly, Vicksburg.

June.

139 The Country Doctor. President's Address, Clarksdale (Miss.) and Six Counties Medical Society. T. M. Dye, Sherard.
140 Dangers of the Therapeutic Uses of the Roentgen Ray. J. Smyth, New Orleans.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

July 6.

1 Diagnosis and Treatment of Sudden Cerebral Lesions. W. R. Gowers.
2 Laënnec and the Evolution of the Stethoscope. C. T. Williams.
3 *Where Physician and Surgeon Meet. R. Kirkland.
4 Stovain as a Spinal Analgesic. J. H. Pringle.
5 Care of the Patient During Serious Abdominal Operations. H. B. Gardner.
6 Sterility Among Roentgen-ray Workers. A. C. Jordan.
7 *Spontaneous Aneurism of the Dorsalis Pedis Artery. A. Cuff.
8 *Bacteriology of Summer Diarrhea of Infants. H. de R. Morgan.
9 Ambiguous Reactions in Sugar Testing. S. G. Longworth.
10 Post-scarlatinal Desquamation. F. J. V. Hall.
11 Case of Splenomegalic Polycythemia. W. L. Pethybridge.
12 Case of Simultaneous Dislocation of Both Shoulders. D. G. Hunter.

3. **Where Physician and Surgeon Meet.**—The conditions discussed by Kirkland are persistent jaundice and gastric and duodenal ulcers. His views are in accord with those held by American physicians.

7. **Aneurism of Dorsalis Pedis.**—In the case reported by Cuff, occurring in a woman aged 53 years, there was no history of syphilis or trauma. The aneurism was about the size of a small walnut, and presented all the typical and usual signs of aneurism. The aneurism was excised and the patient made a good recovery.

8. **Bacteriology of Summer Diarrhea of Infants.**—During the summer of 1906 Morgan examined 54 cases of summer diarrhea, in the same manner as during the previous year, except that on this occasion the spleen and mesenteric glands were examined as well as the stools and small and large intestines. Morgan succeeded in isolating a bacillus, which he thinks is entitled to be regarded as a factor, perhaps the most important, in the causation of the disease. It differs from other described organisms, although it appears to be closely allied to the bacillus of hog cholera of McFadyean. Morgan designates his organism Bacillus No. 1.

The Lancet, London.

July 6.

13 Pelvic Inflammations in the Female. T. Wilson.
14 Experimental Researches on Specific Therapeutics. P. Ehrlich.
15 *Operation for Intermittent Hydronephrosis. W. W. Cheyne.
16 *Improved Preparation for Intramuscular Injections of Insoluble Salts of Mercury in Syphilis. F. J. Lambkin.
17 Separation of the Acetabular Epiphysis of the Femur. P. W. G. Sargent and H. A. Kisch.
18 The Opsonic Index and Agglutination in Cerebrospinal Meningitis. A. Taylor.
19 *Acute Conjunctivitis. A. C. Hudson and P. N. Panton.
20 Distal Ligature of Common Carotid Artery for Aneurism. J. C. Renton.
21 Case of Foreign Body in the Female Bladder. W. Hook.
22 *Case of Prolonged Retention of Food in Esophageal Pouch. W. Ayres.
23 Important Epochs in the History of the Old School of Medicine of Paris. H. Macnaughton-Jones.

15. **Intermittent Hydronephrosis.**—Cheyne reports two cases, in which he employed a modification of the usual method of dealing with the upper end of the ureter. An oval piece of the pelvis of the kidney containing the orifice of the ureter is

excised, the greater extent of the oval being above the ureter. At the lower part the incision runs about a quarter of an inch below the point where the ureter leaves the pelvis, at the sides it is carried out to about half an inch, and at the upper part rather more. This piece being detached the orifice of the ureter is inspected and one blade of a pair of scissors is introduced into the ureter not quite down to the point where the ureter loses connection with the pelvis, and the other blade being on the pelvic surface the scissors are closed and in this way a slit-like opening is made and the valvular orifice is got rid of. The wall of the ureter and that of the pelvis along this cut, and more especially at the lower angle, are now united by three or four fine catgut sutures. A piece of the lower part of the dilated pelvis is now cut away corresponding in size and shape to the above, and the ureter is then fastened into this opening by a series of Lembert catgut sutures. If deemed advisable a portion of the dilated pelvis may now be cut away and the opening stitched up in a linear direction. If possible it is well to avoid any connection between this incision and that in which the ureter is attached, as leakage is apt to occur at the angle of union.

16. Intramuscular Injections of Mercury in Syphilis.—For some time past Lambkin has used palmitin with much success as a vehicle for the mercury. He said it is non-irritant and non-toxic; is easily saponified, soluble, and does not enter the circulation as a foreign body. To 10 grams of mercury, or 5 grams of calomel, are added palmitin basis to 100 c.c., and 10 c.c. each of creosote and camphoric acid, the latter for the purpose of abolishing the pain experienced by patients after the injection is made.

19. Unusual Forms of Conjunctivitis.—The organisms met with by Hudson and Panton in a study of cases of conjunctivitis in the order of frequency were as follows: A diphtheroid bacillus, 60 times; a white staphylococcus, 60 times; a gonococcus, 7 times; the staphylococcus aureus, 24 times; a streptococcus, 10 times; an intermediate staphylococcus, 3 times; the diphtheria bacillus twice, and an unclasified coccus once.

22. Prolonged Retention of Food in Esophageal Pouch.—In the case reported by Ayres, a piece of cheese one and a half inches long and five-eighths of an inch wide laid in an esophageal pouch for at least six weeks without giving rise to any symptoms.

British Journal of Children's Diseases, London.

June.

24 *Tuberculosis of the Spine in Children. O. Elgood.
25 *Case of Morbus Cordis. T. R. Whipham.

24. Tuberculous Disease of Spine.—Elgood presents a very complete analysis of the clinical history of this affection based on 28 cases.

25. Morbus Cordis.—Whipham reports the case of a little girl, aged 11 years, who five years ago had an attack of epistaxis, and for the last three years has had similar attacks at intervals of about three weeks. There was no history of rheumatism or chorea. The heart was considerably enlarged, and there was a distinct systolic murmur. The liver was not enlarged and there was no edema. There was polycythemia, the red cells numbering 5,670,000, and at one time as high as 7,800,000; hemoglobin, 66 per cent. The diagnosis in the case was mitral stenosis.

Intercolonial Medical Journal of Australasia, Melbourne.

May 20.

26 Pathology of Enlarged Prostate, with Reference to Prostatectomy. B. Kilvington.
27 Prostatectomy Under Spinal Anesthesia. W. Moore.
28 Use and Abuse of New Remedies. J. Jamieson.
29 Earache. C. Iredell.
30 Leprosy like Disease of Rat. R. J. Bull.
31 Gastric Ulcer in Child. T. G. S. Leary.
32 Treatment of Congenital Dislocation of Hip. A. J. Wood.
33 Case of Glioma, Chiefly Affecting Left Brachium Pontis. F. Andrew.
34 Paroxysmal Tachycardia. W. A. Wood.
35 Functional Paralysis of Thirteen Years' Duration. A. E. R. White.

Glasgow Medical Journal.

July

36 Evolution of the Medical Curriculum in the United Kingdom. J. L. Steven.
37 Resuscitation of Apparently Stillborn. J. Weir.
38 *Notes on Interesting Cases. A. J. Wilson.

38. Interesting Cases.—Wilson reports the following cases: 1. Apoplexy during labor. 2. Tumor of nasopharynx in newborn child. 3. Influence of heredity, and especially paternal heredity, on multiple pregnancy.

Bristol Medico-Chirurgical Journal.

June.

39 Cases Illustrating Unusual Complications of Pneumonia. J. M. Clarke.
40 *Value of Compression of Aorta in Postpartum Hemorrhage. F. P. Elliott.
41 *Eighty Cases of Lupus Vulgaris. W. K. Wills.
42 Case of Narcolepsy. B. M. H. Rogers.
43 Tumors and Tubercle in Monkeys. W. R. Williams.

40. Compression of Aorta in Treatment of Postpartum Hemorrhage.—Elliott reports the case of postpartum hemorrhage, in which compression of the abdominal aorta undoubtedly saved the patient's life. All other measures usually employed would have proven futile. The compression not only immediately stopped all bleeding, but also influenced shock, by cutting off the blood supply in the lower extremities. Compression was maintained continuously for five hours. Injury to the sympathetic nerves and compression of the vena cava were avoided by changing the point of pressure from time to time, and by swaying the fist sideways before finally compressing the aorta.

41. Treatment of Lupus Vulgaris.—In the treatment of lupus vulgaris Wills claims to have obtained better results with the Roentgen ray than with the Finsen light; but he believes that the Finsen lamp is the better radiotherapeutic agent for nodular lupus, while the Roentgen ray is better for hypertrophic, ulcerated, verrucous and sclerodermic forms.

42. Narcolepsy.—Roger reports the case of a young woman, who with almost lightning-like rapidity, would fall into a sleep of short duration. On talking to her, she would suddenly cease talking, slowly close her eyelids, place her hands behind her head, as if in pain, and then with a slight turn of the head, she was fast asleep. After a minute or two she would open her eyes, blink a little, and go on with the conversation where she left off, seldom, if ever, losing the thread of her conversation. Wills emphasizes the fact that the condition was not one of epilepsy.

Australasian Medical Gazette, Sydney.

May 20.

44 Influence of Local Irritation and Nature of Infectivity in Relation to Tumor Growth. D. A. Welsh.
45 Appendicitis. R. H. Marten.
46 Id. W. A. Giles.
47 Treatment in Fulminating or Perforative Appendicitis. M. Jay.
48 *Internal Secretions of the Ovary and Testicle in Relation to Secretions of Ductless Glands. R. F. Llewellyn.
49 Case of Spina Bifida. A. L. Levy.

48. Internal Secretions of Ovary and Testicle.—Llewellyn claims that the internal secretions of the ovary and testicle contain one or more ingredients physiologically antagonistic to at least part of the secretion of the thyroid gland, and that such ingredients are the main agents in the neutralization of the thyroid secretion in the body during the reproductive period of life. He reports three cases of exophthalmic goiter, successfully treated, by ovarian substance. In two of the cases discontinuance of the remedy was followed by return of the disease, and symptoms again promptly ceased on the renewal of the treatment.

Revue de Chirurgie, Paris.

Last indexed, XLVIII, page 2079.

50 (XXVII, No. 3, pp. 329-528.) *Calcification of Pleura. (Calc. pleurale.) T. Tuffier, Jardry and Gy.
51 Pathogenesis of Traumatic Effusion of Serous Fluid. (Epanchement traum. de sérosité.) S. Mercadé and H. Lemaire.
52 Lateral Pinching of the Intestine in Strangulated Hernia. (Pincement lat. de l'intestin dans les hernies étr.) J. Delage.
53 Structure of the Callus. (Arch. du cal.) H. Caubet.
54 *Treatment of Prolapse of the Rectum. (Colopexie.) C. Lenormant.
55 *Pylorectomy in Non-malignant Stenosis of the Pylorus. (Sténoses bénignes du pylore.) A. Bréchot.

50. Complete Calcification of the Pleura.—Tuffier and Jardry relate a case of complete calcification of the pleural serosa in a patient with chronic empyema. They review the literature on the subject and the prognosis and treatment. In only 3 other cases on record has the diagnosis been made during life. The movements of the lung are hindered by the calcified wall above, and if there is a fistula it never heals as long as a particle of calcareous matter remains. Treatment should aim to remove all the calcified substance if symptoms demand intervention.

54. **Colopexy in Treatment of Prolapse of Rectum.**—Lenormant reports 3 cases and summarizes nearly 100 from the literature to show the advantages of suspension of the rectum in treatment of extensive prolapse. Rectopexy is indicated, he thinks, in case of moderate prolapse, not more than 8 or 10 cm. long, and when the rectal ampulla is much enlarged. It should be reserved for cases in which no preceding intervention has been attempted. Colopexy, on the other hand, is adapted for extensive prolapse, measuring 12 or 15 cm. or more, also for prolapse starting in the upper part of the rectum and not accompanied by the turning outward of the anal portion, also in cases in which the prolapse emerges from the anus, and further for all cases in which a previous intervention has failed. In 110 cases on record in which the prolapse was resected only 14 were known to be free from recurrence at the end of a year, and only 9 cases of recurrence are recorded—showing ignorance of the ultimate results in the majority. Resection of the mucosa alone is liable to cause subsequent cicatricial stenosis and 2 patients died in the 25 cases on record. In 54 cases of rectopexy recurrence was observed in 18.5 per cent.; in 24 per cent. the patients were completely cured as determined by examination a year later. In 102 colopexy operations there were no deaths, and 75 of the patients were cured, with relapse in 27 other cases. The details of the technic are illustrated and its advantages extolled. A cucumber-shaped flap of peritoneum is excised and the lower part of the pelvic loop of the descending colon is sutured to the peritoneal defect. The mesenteric side is sutured to the peritoneum, after which a second row of over-and-over sutures unites the free margin of the intestine to the outer edge of the defect in the peritoneum. The loop of intestine is drawn up as high as possible, and is placed in the most natural position in contact with the internal iliac fossa. The fixation extends for 8 or 10 cm. along the intestine to prevent kinking. The second suture takes in, besides the edge of the peritoneum, as much of the parietal tissues as possible, the iliac fascia and the superficial fibers of the iliac muscle. The colon is thus fastened to the wall by a double row of sutures, its entire external aspect in close contact with a freshened surface, that is, deprived of peritoneum. In conclusion, he urges the importance of completing the intervention by supplementing the colopexy by an operation which includes preanal perineorrhaphy by taking up a tuck with myorrhaphy of the levator ani on both sides. This effectually completes the intervention and renders the effects of the operation durable while scarcely adding to its seriousness.

55. **Pylorectomy in Non-Malignant Stenosis of the Pylorus.**—Bréchot's long monograph presents evidence to prove that pylorectomy should be preferred to other operations for non-malignant lesions of the pyloric region. The duodenum, he asserts, is highly essential for the proper performance of the act of digestion, and any operation that excludes it impairs the digestive functions. Experimental physiology has confirmed the findings of normal physiology, showing that the duodenum controls the physiologic evacuation of the stomach by its action on the pylorus and on the motor function of the stomach. It allows only the proper amount of chyme to pass, and it presides over the secretion of pancreatic and intestinal juices. The surgeon should aim to retain the duodenum and restore natural conditions. He cites a number of examples to demonstrate that the evolution of a gastric ulcer is not arrested by a gastroenterostomy, also that resection of the ulcer is followed by a complete cure, the evidence being overwhelmingly in favor of operations which aim to resect the ulcer at the start and re-establish the normal gastrointestinal route. In another series of cases he shows how pylorectomy realizes the desired conditions, removing the ulcer and reestablishing the physiologic route at one stroke. The full details of 30 cases are given, most of them unpublished. The literature on the subject of pylorectomy for non-malignant stenosis is also appended.

Berliner klinische Wochenschrift.

56 (XLIV, No. 19, pp. 589-620.) *False Anemias. (Pseudoanämien.) H. Strauss.
57 Nature of Tumors. (Wesen der Geschwülste.) Westenhoeffer
58 *Febrile Reaction to Injections of Salt and Sugar in Infants. (Salz- und Zuckerinjektion beim Säugling.) L. Schaps.
59 Sensibility of Abdominal Organs and Effect of Injections of Cocain. (Sensibilitat der Abd. Organe.) L. Kast and S. J. Meltzer (New York).
60 Inactivation of Complement in Salt-free Medium. (Inaktivierung der Komplemente im salzfreien Medium.) H. Sachs and Y. Teruuchi.
61 Recent Experiences with Physical Measures in Treatment of Chronic Pulmonary Affections. (Einige neuere physik. Methoden zur Behandlung chron. Lungenkrankheiten.) A. Laqueur.

56. **False Anemias.**—Strauss applies this term to the cases in which the patients look pale and anemic, but the proportion of hemoglobin and the blood otherwise is apparently normal The anemic aspect is due to lesser transparency of the skin or to lesser filling of the superficial vessels with blood. The latter is generally the result of spasmodic contraction of the vessels. Such patients do not need iron, but merely measures to raise the general tone and strengthen the nervous system. These false anemias are observed sometimes in case of lead poisoning and in kidney affections, and also in Raynaud's disease. In one case a patient had the "dead fingers" of the latter with the aspect of anemia, spastic obstipation, and other signs of disturbance in the vasomotor system. In another case a patient presented round red spots on the arms and neck, the size of silver dollars, which vanished temporarily under pressure with the finger. Sometimes this false anemia is observed in incipient tuberculosis, and in patients with enteroptosis and diseases of the gastrointestinal tract. The vascular spasm of nervous origin, simulating the aspect of anemia, is, as a rule one of the manifestations of general weakness in the functioning, and possibly also in the structure of the organ involved.

58. **Alimentary Fever in Infants.**—Schaps found that infants were liable to have a febrile reaction after the injection of ever 5 c.c. of an isotonic solution of salt or milk sugar. This reaction grew less on repetition of the injections. His attention was attracted to the subject by finding that infants given buttermilk with 15 gm. flour and 60 gm. sugar to the liter always had distinct fever afterward, which was not observed when the sugar was omitted from the mixture. The same was observed with diluted cow's milk when sugar was added or omitted. After the subcutaneous injections he found that the temperature began to rise almost at once and reached its height at the end of six or eight hours, subsiding afterward The febrile reaction is more intense the larger the amount of sugar or salt injected, and the higher the molecular concentration of the fluid. Some of the infants seemed injuriously affected by the injections, losing in weight or becoming somnolent or showing signs of collapse. He explains the phenomenon as a purely physical molecular action in all probability The molecular balance is disturbed by the change in osmosis Fever in nurslings may occur, therefore, without the direct or indirect action of bacteria.

Correspondenz-Blatt f. Schweizer Aerzte, Basle.

Last indexed XLVIII, page 1819.

62 (XXXV, No. 10, pp. 305-344.) *Trauma and Organic Nervous Affections. (Trauma und org. Nervenkrankheiten.) O Veraguth.
63 (Nos. 11-13, pp. 345-440.) Minor Points in Surgical and Gynecologic Practice. (Chir. und gyn. Kleinigkeiten.) L Gelpke.
64 *How to Tranquilize in "Nervous Prostration." (Erzielung psychischer Ruhezustände bei Erschöpfungsneurosen.) M Müller.
65 *"Toughening" of Young Children. (Abhärtung der Kinder in ersten Lebensjahre.) C. Renggli.
66 Kidney Tumors. (Nierengeschwülste.) U. Krönlein.
67 Nature of Special Actions of Drugs. (Wesen der spez. Arzneimittel-Wirkungen.) M. Cloetta.
68 (Nos. 13-16, pp. 441-536.) *Treatment of Pseudoarthrosis by Injection of Blood. (Pseudarthrosen-Behandlung nach Bier.) Lauper.
70 Trichinosis. (Trichinosis.) C. Stäubli.
71 *Operative Treatment of Retained Testicle. (Leistenhoden. F. Steinmann.
72 (Nos. 17-20, pp. 537-664.) Congenital Giant Colon. (Hirschsprung'sche Krankheit.) F. Stirnimann.
73 *Treatment of Functional Enuresis. (Funkt. Enurese.) T Zangger.

74 Action of Roentgen Rays in Leukemia. (Röntgenstrahlen bei Leuk.) A. Müller.
75 Treatment of the Eclampsia of Pregnancy. (Eklampsia gravidarum.) Frei.
76 Arterial Affections Induced in Rabbits by Injection of Suprarenal Preparations. (Exp. Arterienerkrankungen bei Kaninchen.) E. Hedinger.
77 Trichinosis in Switzerland. (Trichinenkrankheit in der Schweiz.) H. Naegeli.

62. **Trauma and Organic Affections.**—Veraguth classifies hese affections in five groups. The first includes trauma which breaks through the protections around the nerve and estroys part of the nerve, as in case of bullet wounds of the ead and fractures of the spine with injury of the cord. The econd group includes cases in which the nerve is destroyed without injury of its sheath. This can happen directly or by he intermediation of the vascular system, as in fat embolism, metastasis from infectious foci, from tumors, by hemaoma, by hemorrhage in the brain at the time or later. The hird group includes cases in which the trauma sets up inflammation in other organs that spreading, involves the erves, as in neuritis. The fourth group includes cases in which, after the trauma, one of the parenchyma affections ecomes manifest, such as post-traumatic tabes, poliomyelitis r syringomyelia. The fifth and last group includes cases in which, after the trauma, a primary tumor becomes manifest in the nervous system. He gives a number of case histories o illustrate each group of cases, emphasizing especially the act that a post-traumatic organic affection of the nervous ystem very rarely develops from an exogenous cause alone. This is most liable to happen in the first group. In the other groups the assumption seems almost inevitable that the rauma encounters some special predisposition. Not until the *x* of the trauma is added to the *y* of the pre-existing tendency oes the organic nervous affection develop. The predisposition may be due to anomalies in development, to coexisting affecions elsewhere, age, nourishment at the time or possibly merely to a temporary condition of irritation or exhaustion n the part of the nervous system. All these factors must be studied in passing judgment on a case, to determine the ausal connection between the trauma and the organic nervus affection, the anamnesis, the present state of the patient, tc.

64. **To Tranquillize Patients in "Exhaustion Neuroses."**—Müller takes advantage of the fact that the mind is unable o concentrate on more than one thing at a time. Undivided attention has practically an inhibiting action on other sensaions and thoughts. To divert the attention from abnormal estlessness and excitement requires only something else for he mind to concentrate itself on. This he accomplishes by aying his hand on the patient's brow and calling his attenion to the warmth of the hand, after speaking to the patient in a soothing way. There must really be a sensation of warmth, and the exercise must be repeated until the patient actually becomes conscious of the warmth from the hand. Concentrating the attention on this consciousness crowds out of the mind the previous ideas that had been causing restlessness, and yet it is not hypnosis. The concentration of the atention on the sensation of warmth and rest is at once a rest or the exhausted nerve centers. All discussions should be avoided, the fatigued centers getting only what they really need, namely, rest. The crowding out of the abnormal conents of the consciousness puts an end to the abnormally inensive inhibitions, and the will is reinforced.

65. **"Hardening" Children.**—Renggli cautions against the methods of "hardening" children common in some families, urging moderation. He cautions against cold baths, bleak winds, etc., for very young children.

68. **Treatment of Pseudarthrosis by Injection of Blood.**—Lauper relates two cases to illustrate the benefits derived from he simple injection of 35 c.c. of blood from the patient himelf or from another patient, in case of non-consolidation after a fracture. After three injections the consolidation was perect. The injections were made at intervals of a week or so. The blood was defibrinated and injected between the stumps f the fractured bone, using a wide, strong cannula. From 35 o 50 c.c. is the usual amount injected at one time; a small aseptic dressing is then applied and the limb immobilized. He declares that the procedure is so simple and harmless that it deserves a trial in every case of intractable pseudarthrosis or delayed callus formation.

71. **Operative Treatment of Retained Testicle.**—Steinmann advocates reduction of the testicle, restoring it to the abdominal cavity, in case operative treatment becomes necessary, concluding the intervention by injecting paraffin to make an artificial testicle in the scrotum. By this means a tendency to hernia is combated, and the results of castration are averted. He describes a case to show the simplicity and advantages of this technic.

73. **Treatment of Functional Enuresis.**—Zangger outlines treatment under four headings. First, instruction of parents and possibly also of teachers to bring moral suasion, encouragement and incentives to bear on the child, avoiding expressions of contempt, but comforting and rousing the ambition of the child and strengthening his will. Teachers should be warned to allow the child to urinate at each change of classes. Secondly, regulation of the diet to combat a tendency to constipation, giving raw or cooked fruit at breakfast and again at 10 and 3, with absolute suppression of all drinking after 4 p. m., or, if the individual does not retire until 10, after 6. The evening meal should contain no fluids; condiments should also be avoided, and the child should sleep on a hard bed, without too warm covering. In some cases it may be advisable to raise the pelvis by a wedge-shaped cushion or by raising the foot of the bed. At first the child should be roused to urinate twice each night, and later once, between 10 p. m. and 6 a. m. Hydrotherapy is the third indication, a cold rub just out of bed, then a spray for two or five seconds, with three or four douches on the back. The fourth indication is for massage of the neck of the bladder, once or twice a week, for four or five minutes, according to Walko's recommendations, and squeezing the sphincter as recommended by Thure Brandt. The prognosis under this treatment is good, even for old chronic cases except in case of serious mental deficiency. Recurrences may be observed during bleak weather or from trauma or emotions, but they generally yield to a few massage sittings. The diet restrictions should be kept up for months, and are always the best safeguard against recurrence.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

78 (LXXXVI, No. 1, pp. 1-114.) Case of Volvulus of Small Intestine with a Meckel Diverticulum, and Remarks on Subacute Ileus and Gastrostomy for Paralysis of the Small Intestine. (Dünndarmvolvulus, etc.) K. G. Lennander.
79 Topography of Normal Hepatic Artery and Its Variations, and the Blood Supply of the Liver. (Blutversorgung der Leber.) Budde.
80 Duodenal Cancer. (Duodenalkrebs.) J. F. Geiser.
81 Case of Zygomatic and Infraorbital Neuralgia Cured by Bardenheuer's Technic. (Neurinsarkoklese.) Grabowski.

Münchener medizinische Wochenschrift.

82 (LIV, No. 20, pp. 969-1016.) *Manganese Intoxication and Phobia. (Mangantoxikosen und Manganophobie.) R. v. Jaksch.
83 *Influence of Nicotin on the Circulatory System. (Einfluss des Nikotins auf die Zirkulationsorgane.) K. Grassmann.
84 *Treatment of Delirium Tremens. (Delirium tremens.) F. Eichelberg.
85 *Pathogenic Properties of Mouse Typhoid Bacillus. (Pathogenität des Mäusetyphusbaz.) G. Shibayama.
86 Microbic Invasion of the Gastrointestinal Walls. (Wie schützt sich der tierische Organismus gegen das Eindringen von Keimen vom Magendarmkanal aus?) A. Uffenheimer.
87 *Influence of Nicotin, Coffee and Tea on Digestion. (Einfluss des N., K. und T. auf die Verdauung.) Crämer. Commenced in No. 19.
88 The New Prussian Army Medical Corps Regulations. (Kriegssanitätsordnung.) Lion.
89 *Physicians and Publicity. (Aerzte und Oeffentlichkeit.) M. Nassauer.

82. **Occupation Affections from Handling Manganese Dioxid.**—The breathing of dust laden with manganese dioxid causes a peculiar nervous affection of which von Jaksch gives an illustrated description, based on four cases. The gait is characteristic, especially the way the patient steps on the metatarsophalangeal joints. In other cases he had occasion to observe a neurosis among the workmen which was evidently merely a phobia and soon subsided under proper treatment.

83. **Influence of Nicotin on Heart and Vessels.**—Grassmann believes that physicians pay too little heed to the possible evil influence on the cardiovascular system of smoking. In

case of existing cardiovascular disease the danger is still greater, but even for the healthy the physician should try and accomplish that not every day is a "smoking day."

84. **Treatment of Delirium Tremens.**—Eichelberg devotes special attention to the heart in treating delirium tremens. Alcohol is entirely suppressed, and, as soon as the pulse begins to weaken, digitalis, strophanthus, camphor and coffee are pushed. The patients are allowed to drink freely; sweetened water tinted to resemble wine is allowed in abundance, and the patients are kept in bed in the general ward, if possible. Complicating pneumonia renders the prognosis much graver. Digitalis is here still the main reliance, and alcohol is allowed.

85. **Pathogenic Properties of Mouse Typhoid Bacillus.**—This communication from Japan relates a number of instances in which the cakes containing cultures of mouse typhoid bacilli, distributed by the government, were eaten by mistake and a severe, acute gastroenteritis followed.

87. **Influence of Nicotin, Tea and Coffee on Digestion.**—Crämer's extensive research and clinical experience have convinced him more and more that excessive tea and coffee drinking and smoking have an injurious influence not only on the secretions of the stomach and intestines, but also on their motor functions. Hyperchlorhydria, spastic atony of the intestines, motor insufficiency and chronic intestinal catarrh are of too frequent occurrence to be merely a coincidence. Spastic symptoms in the intestines can frequently be traced to abuse of tobacco, and chronic intestinal catarrh is frequently kept up by the influence of the weed. The patients must be warned that benefit does not follow immediately on suspension of the tobacco, tea or coffee; weeks may elapse before the symptoms show marked subsidence.

89. **Physicians and Publicity.**—Nassauer delivered this timely address at a meeting of the Munich branch of the *Leipziger Verband*. He discusses the amazing revolution that has taken place in the medical profession in Germany during the last few years in regard to publicity. Before that, he says, the financial condition of physicians was a secret carefully screened from public gaze, and the economic conditions were growing steadily worse. The first step toward remedying matters was taken at Munich, where a committee was appointed to write articles for the lay press, informing the public of the way in which physicians were being exploited by the sickness insurance societies, and other grievances. This committee supplied articles for the large dailies throughout the country, dealing blow on blow until finally the *Leipziger Verband* was organized to champion the material interests of physicians. The coming forth into the light of publicity has proved of far-reaching importance and benefit. It was necessary at the time and is now more than ever necessary. Physicians now stand in the full light of publicity, Nassauer continues, their professional life, their social relations and economic conditions are now in the glare of publicity as well as the scientific life of medicine. If in this glare of publicity physicians worthily represent their profession and show its strength and the power of its knowledge and achievements, and show no diffidence or cowardice in attacking those who assail science or the medical profession, then they will take the rank in the modern world to which as a profession and as individuals they are entitled. He warns, however, that the dangers of this publicity are manifold; the tongue must be guarded and every word for the public ear must be carefully considered for fear of misconstruction. There is also the danger that the public—informed now in regard to the scantiness of the incomes of many of us—may apply to us the contempt that so many feel for the poverty-stricken. The medical profession must hold its scientific and ethical standards high before the world to justify its claims for supremacy. The profession will rise higher and higher in public estimation when the world sees that we are not merely preventers and curers of disease, but take an active part in the affairs of the state and community. The profession must have its representatives in political circles, in belles lettres, in art, in music, in all things which go to make up the cultured man, the man who enjoys the finest flowers of culture and is able to scatter the blessings of culture around him. Germany has seven physicians in the front rank of its literature, but it is impossible for a medical man to attain there the political eminence of a prime minister, like Baccelli in Italy, and Combes and Clemenceau in France. There are seven physicians in the lower house (reichstag), and one of them, Mugdan, is the authorized representative of the profession. In local affairs physicians in Germany have never taken a leading part—the legal profession seeming to have an inherited monopoly of all influential positions in the communities. Not even in matters directly affecting the public health are the services of physicians invited by the authorities, as a rule. This renders the physician more independent when he does conquer a place for himself in administrative affairs, as is evidenced by Virchow's career. Mightier than legislative action is the power of the press, the most important of the great powers of civilization. It is historically interesting that a physician, Renandot, was the founder of journalism. (His career was described recently in THE JOURNAL, xlviii, page 1127, 1907.) The press committee at Munich did good service. It is not difficult, he continues, to get on good terms with the lay press, but it is advisable to have a middleman, a medical man trained in journalism, best of all, a medical adviser as a collaborator on the influential dailies. The editorial department is separate from the advertising department, of course, but the editors have been willing to publish articles calling attention to the fraudulent claims of the nostrum advertisements. This has been most successfully done by the Carlsruhe board of health—an institution of non-medical origin. Lawsuits brought against charlatans seldom do much good, as the court affords comparatively little opportunity for public branding of the fraud. The most promising anti-quackery measure, Nassauer thinks, is for physicians to write good, popular books, and have them distributed among the people by thousands of copies. Much has been done in this line during the last few years. A number of such books have been published which are well adapted to enlighten the public as to quack practices, but unfortunately they cost too much for them to reach the public generally. He suggests that it would be a good plan if these books were recommended and supported by physicians so that their price could be reduced and more copies put in circulation. It requires a special gift to write such works, a journalistic talent mated with universal knowledge. Medical sensations, new discoveries, should be carefully reported in the lay press, as they generally are misunderstood and give rise to false hopes and disappointment, which are followed by mistrust of physicians in general. Every progress in medicine should be written up for the lay press; they enhance the prestige of the profession. But new methods of treatment should not be heralded until they have been thoroughly tested. Any one writing an article to popularize medicine should ponder carefully each sentence three times at least, considering its effect both on the healthy and on the sick, that no harm may result and that science may not be discredited. On the other hand, physicians must not be too diffident. Medical congresses should be written up for the lay press in brief, interesting style, imposing respect for medical research in general and for the laborious duties of the physician, thus serving the cause of science and of the profession. He warns that the charlatans and faddists scan the pages of the medical journals for a loophole for their attacks, so that even the writers of scientific articles must be on their guard against them. Popular lectures on medical subjects are a valuable means for enlightening the public, but the lecturer must beware lest he train up quacks in his wake. In teaching first-aid measures he must emphasize that they are merely for emergencies, before the physician arrives, not to take the place of the physician's services. A new and promising field for influence has been opened to the profession in its contact with the rising generation in the medical inspection of the schools. This phase of publicity imposes on the physician the obligation to foster respect for medical science and the conviction of the indispensability of the physician. The appointment of medical inspectors for the schools shows what physicians can accomplish when they rouse to action. It is further a hint that physicians must let their voices be heard—unasked—in all questions of hygiene. With voice and pen and deeds they must make themselves noticed in all mat-

rs affecting the public health. The new organization of phy- cians, parents and teachers, the "Parents' League," is another eld for fruitful action, a new point of contact between physi- ans and the public. Nassauer further discusses how a phy- cian can make himself known when he first settles in a ace, and concludes his remarks with a quotation from a let- r written by Virchow to his father: "I strive to steer my ourse, with the utmost possible caution, toward reachable oals."

Zeitschrift f. klinische Medizin, Berlin.

90 (LXIII, Nos. 1-4, pp. 1-376, *S. E. Henschen Festschrift.*) *Acute Poliomyelitis and Phagocytosis of the Neurons. (Neuronophagienfrage.) G. Forssuer and E. Sjövall.
91 *Two Cases of Tumors in Spinal Membranes Diagnosed and Removed. (Tumoren der Rückenmarkshäute.) H. Koster.
92 Course of Vaccine Fever. (Vekzinefieber.) I. Jundell.
93 *Diagnosis and Treatment of Subcutaneous Traumatic Rupture of Spleen. (Subkutane Milzruptur.) J. Borelius.
94 Bactericidal Leucocyte Substances and Immunity to Anthrax. (Endolysine und Milzbrandimmunität.) A. Pettersson.
95 Sensory Disturbances During and After Herpes Zoster. (Sensibilitätsstörungen.) K. Petren and G. Bergmark.
96 Serous Cysts and Partial Defect of Cerebellum. (Ser. Zyste und partieller Defekt des Kleinhirns.) F. Henschen.
97 Inflammatory Granulation Tissue with Giant Cells in Fourth Ventricle. (Seltener Fall von Ependymitis.) J. Tillgren.
98 *Aneurism of Aorta. "Fibrous Aortitis" and Syphilis. (Fall von Aortaaneurysma mit Durchbruch in den linken Vorhof, etc.) B. Dahlen.
99 *Case of Tuberculosis of Lymph Glands Simulating Pseudoleukemia. (Lymphdrüsentub, und ihre Behandlung mit Roentgenstrahlen.) H. C. Jacobaeus.
00 Amyloid Tumor of Bone Marrow. (Amyloid tumor des Knochenmarkes.) G. Hedren.
01 Case of Solitary Tubercle in Spinal Cord. (Solitärtub. im Rückenmark.) G. Rystedt.
02 *Peritonitis from Enteritis. (Von Enteritis ausgegangenen Peritonitis.) K. G. Lennander and G. Nyström.
03 *Banti's Disease. (Bantische Krankheit.) I. Hedenius.
04 Tumors and Cavities in Spinal Cord. (Rückenmarkstumoren und Höhlenbildung im Rückenmark.) C. A. Kling.
05 Books as Tubercle Bacilli Carriers. (Werden Bücher von Lungentuberkulösen mit Tub-Bazillen infiziert?) O. V. Petersson.
06 *Prognosis of Acute Poliomyelitis and Related Affections. (Akute Poliomyelitis, etc.) I. Wickman.
07 List of Henschen's Works. (Bibliographia Henscheniana.)

90. Phagocytosis of Nerve Cells in Acute Poliomyelitis.—his article reports two cases in which there were unmistak- ble evidences that the nerve cells in the spinal cord were fall- ng victims to actual phagocytosis. The findings are illus- rated. They are interpreted as showing that certain sub- tances are generated in the dying or dead ganglion cells which xert a chemotactic action on those cells which can act as hagocytes under certain conditions. Some infectious disease lmost invariably precedes an attack of acute poliomyelitis, nd the neuronophagia occurs during extremely acute proc- sses. It probably is not restricted by poliomyelitis, but may ccur in other affections of the central nervous system, such s hydrophobia and botulism, although it has not yet been tudied from this point of view.

91. Tumors in Spinal Membranes.—The first patient was a reviously healthy woman, aged 58. The symptoms were first bserved about a year before the operation, and indicated com- ression of the spinal cord, although the disturbances did not egin on one side alone, the upper limit was not constant and he pains were never very severe. A psammosarcoma was emoved from the fifth dorsal segment, and the patient was elieved from her former cramps and contractures, but other- wise no improvement was derived from the operation, the egs being still paralyzed. An earlier operation might have iven better results, but the symptoms did not allow exact ocalization of the growth before. The anesthesia reached only o the umbilicus for a long time, finally climbing to the lower nargin of the mammæ. The tenderness of the spine also only radually reached the height where the tumor was found later. f an operation had been undertaken before the upper limits ad been reached, the tumor would not have been found. The umor in the second case reported was of slower growth; the egs alone were paralyzed and the spine was not tender. The ensory disturbances were mostly in the region of the lumbar erves. The reflexes were increased, and the symptoms had een unilateral for the first year, while a tumor in the cauda enerally causes bilateral disturbances. None of the symp- oms suggested the possibility of a tumor above the first lum- ar segment, and at this point the growth was found. The patient succumbed not long after its removal to gangrene and general sepsis. Autopsy revealed total softening of the spinal cord at the site of the tumor. There is a possibility that the tamponing to arrest the profuse hemorrhage may have been responsible for this softening. The symptoms observed directly afterward sustain this assumption.

93. Subcutaneous Rupture of Spleen.—Borelius reports a case which demonstrates that extirpation of the spleen is the best means of treating traumatic rupture of the organ. No functional hypertrophy of any other organ was observed in this case, nor any signs of disturbances from lack of functioning of the spleen.

98. Aneurism and Syphilis.—Dahlen gives an illustrated description of a case of aneurism in the aorta, perforating into the left auricle. The patient was a man of 41, and the aorta showed signs of the fibrous aortitis which Dahlen regards as typical of a syphilitic origin. No spirochetes could be discovered nor any tendency to gumma formation, and a history of syphilis was denied.

99. Tuberculosis of Lymph Glands Simulating Pseudoleukemia.—A young man noticed a swelling in the left side of his neck which did not interfere with his general health, but in the course of three years became so large as to incommode him. The course of the case showed that it was a chronic regional tuberculous glandular affection, but pseudoleukemia was diagnosed, and Roentgen treatment was instituted, with exposures of 20 minutes each for 11 days—a total of about 225 minutes. The lymph glands rapidly subsided in size and could scarcely be palpated, but a sluggish ulceration developed which healed after two or three months. The blood picture then was approximately normal, but the spleen became enlarged and was given Roentgen exposures to a total of 130 minutes in 13 sittings. In about a month the spleen rapidly subsided to normal size, but symptoms then developed indicating miliary tuberculosis and the patient soon succumbed. Autopsy disclosed that the tuberculosis was probably the primary affection. Differentiation might have been possible early by excision of a scrap of an enlarged gland. The tuberculin test and inoculation of animals are frequently misleading in cases such as the one reported. Under the Roentgen rays the lymphoid tissue had evidently been entirely destroyed, sclerotic connective tissue taking its place in the neck glands, at least. No general symptoms were observed after the exposures suggesting intoxication of the system. On the contrary, the patient constantly increased in weight during treatment until he began to have fever, after the second course of exposures. Miliary tuberculosis simulating pseudoleukemia is almost inevitably fatal, so that the Roentgen treatment could not have been responsible for the outcome. It seems to have been of such pronounced local benefit that its application in the earlier stages of the disease might have arrested it altogether.

102. Peritonitis from Enteritis.—Lennander gives the detailed histories of 15 cases of peritonitis consecutive to enteritis and colitis. Some of them illustrate the way in which severe appendicitis can occur and subside without attracting attention, by symptoms of any kind. They are also examples of the way in which a comparatively small part of the intestine may become inflamed, with lymphangitis, lymphadenitis and secretion into the peritoneal cavity of a free, serous or suppurative, sterile or nearly sterile effusion. The hyperemia, swelling and hemorrhages found in the walls of the intestine in such cases are evidently the results of an enteritis accompanied by acute lymphangitis and lymphadenitis and acute peritonitis. Most cases of the kind are classified as appendicitis or perforating gastric ulcer, and an operation is done at once in this so-called "preperforative stage of peritonitis" or "peritoneal irritation." When possible, the feces, urine and blood should be examined for bacteria. A low leucocyte count suggests the possibility of typhoid fever. The operation should be exceptionally prompt, Lennander urges, in case of streptococcus and pneumococcus enteritis. He also emphasizes the importance for incising in the direction of the fibers of the skin and each muscle. This allows ample drainage without danger of hernia. The main point is to empty the intestines and rest them. If the streptococci are virulent the general symptoms are usually very severe. He adds that the pains observed can not be referred to the stomach, intestinal canal or mesentery, as he has established that these organs do not possess pain-transmitting nerves.

103. **Banti's Disease.**—Hedenius asserts that the symptom picture of Banti's disease may be presented in cases lacking the supposed characteristic pathologic findings. On the other hand, cases are on record in which the entire syndrome and findings suggested Banti's disease when, in fact, the trouble was of syphilitic origin. The blood findings accepted as characteristic of the disease may also be encountered in other affections with enlargement of the spleen. In certain cases of cirrhosis of the liver the conditions favor enlargement of the spleen, the early and predominant splenomegaly then being the primary symptom. He describes a case which sustains his assertions and proves the necessity for restricting the application of the term "Banti's disease" to a much smaller group.

106. **Prognosis of Acute Poliomyelitis.**—Wickman's experience indicates that the prognosis of this affection in regard to a fatal outcome is graver than generally accepted, especially for older children and adults. On the other hand, if the patients recover, they regain their health more completely than has hitherto been deemed possible. The paralysis left in many cases proves temporary. His article is based on 1,025 cases observed in a certain part of Sweden in 1905. In 157 there was no tendency to paralysis, and in a number of the 868 cases with paralysis the latter subsided in time. The total mortality was 159 cases, 12.2 per cent. This figure is evidently too high, as many of the abortive cases were never reported to physicians. By far the larger number of cases were observed in children under 14, but the highest mortality was only 14.9 per cent., while the mortality became 28, 33, 50 and 100 per cent. among adults of various ages.

Norsk Magazin for Lægevidenskaben, Christiania.

108 (LXVIII, No. 5, pp. 453-568.) Stenosis of the Ureter During Pregnancy. (Ureterstenose under graviditet.) K. Jervell.

109 Pancreas and Fat Tissue Necrosis After Gallstone Attack. (Om pankreas- og fedtvævsnekroser efter galdestensanfald.) N. B. Grøndahl.

110 Spontaneous Rupture of Aorta. (Spont. ruptur af aorta.) E. H. Hansteen.

111 Chronic Lymphangitis and Arthritis in Fingers of North Sea Fishermen. (Spækflegmonen. De norske ishavsfareres "spækfinger.") J. H. Bidenkap.

112 Case of Bronchus Stones. (Bronchialstene.) O. Berner.

113 Case of Coprolalia with Myoclonia. (Tvangstale med tvangsbevægelser.) A. Tillisch.

Books Received

ESSENTIALS OF MILK HYGIENE. A Practical Treatise on Dairy and Milk Inspection and on the Hygienic Production and Handling of Milk for Students of Dairying and Sanitarians. By C. O. Jensen, Professor in the Royal Veterinary and Agricultural College of Copenhagen, Denmark. Translated and Amplified by Leonard Pearson, Dean of the Veterinary Faculty of the University of Pennsylvania. Illustrated. Cloth. Pp. 275. Price, $2.00. Philadelphia and London: J. B. Lippincott Co., 1907.

DISEASES OF THE STOMACH. By. Dr. I. Boas. Specialist in Gastroenteric Diseases in Berlin. The Sole Authorized English-American Edition from the Latest German Edition, by Albert Beruheim, M.D., Instructor in Department of Diseases of the Stomach and Intestines in the Philadelphia Polyclinic Hospital and Post-graduate School. Illustrated. Cloth. Pp. 730. Price, $5.00. Philadelphia: F. A. Davis & Co., 1907.

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Original Articles

THE INFLUENCE OF GONORRHEA AS A FACTOR OF DEPOPULATION.*

JOSEPH TABER JOHNSON, A.M., M.D., Ph.D.
WASHINGTON, D. C.

That the birth rate in this country is surprisingly low will be admitted by all who have noticed the decreasing size of American families and familiarized themselves with the researches of prominent sociologists as to the cause of this national calamity.

This fact has been accentuated by Englemann, who believes that the birth rate in America is lower than that of any European country, except France, and who states that the birth rate of the American born population is much lower than that of France, and that the fecundity of American women is lower than that of any other country.

Cleveland devoted the major part of his presidential address at the Washington meeting of the American Gynecological Society to the destructive effects of venereal diseases on the female pelvic organs. He appointed a committee to investigate this subject and report next year. Especial prominence is to be given in this report to the influence of venereal diseases in causing sterility.

Ward insists that, in spite of the progress of gynecic science, the number of children to each marriage has decreased from 4.5 in the eighteenth century to 2.5 at the present time, and that, while voluntary "race suicide" is alarmingly prevalent, there is still that great multitude who, through no wish of their own, are childless and spend their time and money in seeking relief.

While there are many causes of sterility in both sexes, the object of this paper will be to discuss the influence of the gonococcus on the male and female generative organs as a depopulator of the human race. As the time limit for the reading of the several papers of this symposium is necessarily very short, I shall omit most of the discussion and the general argument and rely for the proof of my contention chiefly on the statement of what appear to be facts and on dry statistics.

At the outset it may be stated that the subject will be presented under the following heads:

1. The frequency of gonorrhea in the male.
2. The results of this infection in the causation of sterility.
3. The frequency and results of the gonococcic infection of married women and the relation of these results to sterility.
4. The practically incurable nature of these infections, except by surgical methods, as, while saving life, result finally in preventing further conception.
5. Sterilizing end results of the vulvovaginitis of little girls.
6. Influence of the gonococcus in the causation of abortion and premature labor.
7. Gonorrhea as a probable cause of extrauterine pregnancy
8. "One child sterility."
9. The cause of much chronic invalidism which persistently inhibits conception.

One may state safely that gonorrhea is the most frequent of adult diseases. The lowest estimate which we meet in recent literature is that at least 75 per cent. of the male inhabitants of our cities between the ages of 18 and 28 have had or now have this disease. Its frequency is placed by many at a much higher rate, varying from 75 to 95 per cent. It is probable that the latter figure is more nearly correct than the former.

The curability of this infection is not assured short of six months' treatment and observation in the milder cases. In the severer degrees of infection, involving the posterior urethra and seminal vesicles, it is doubtful if a radical and permanent cure can ever be promised which will make the wife perfectly secure from gonococcal infection.

The statement of Noeggerath in regard to the latent powers of the germ of Neisser have been generally accepted by the profession. It is now held to be quite possible for the wife to be infected by a husband who honestly believed himself cured of an attack which occurred several years before his marriage and from which he had, for a long time, been free from any gross symptoms.

Wertheim has demonstrated that even in cases in which the husband has been assured by his physician that he is cured it is still possible for the excesses and excitements of the newly married state to revive into virulent activity latent gonococci which had been hibernating for years in the deep recesses of his generative tract. These, when deposited in the virgin soil of his wife's vagina, can cause a characteristic specific infection.

The pathetic part of this unexpected and heretofore misunderstood condition is that the innocent victim of the husband's early unchastity is accused of causing the infection. Believing himself free from the disease, he naturally thinks his wife has lapsed from virtue, acquired the disease from some one else, and infected him, when, in reality, it is one of his own unrecognized chickens come home to roost.

It was formerly believed that "in nine out of ten childless marriages the fault was that of the wife." It is now known that in a much larger proportion than was suspected the husband himself is sterile, and that in a great number of cases this sterility is caused by the effects of gonorrheal infection. Dr. Hagner, of Washington, a specialist in genitourinary diseases, in a recent paper on sterility in the male, states that, "as a net result of many investigations, it may be stated, in general, that in cases of unfruitful marriages the husband is the sterile member of the family in about one case in six."

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

According to Kehrer, the cause of childless marriages is nowadays sought much oftener on the side of the man. He found that in 96 investigated cases of sterility in man 63 had a history of gonorrhea with infection of the epididymis and prostate. Noeggerath found 8 unfruitful marriages in a series of 14 cases to be the fault of the male, and Gross, in 192 cases, found the male deficient in 18 per cent. Brothers places the responsibility with the man in 20 per cent. Reis says it is 30 per cent., and Kehrer, 31.5 per cent. Lier and Asher found that out of 424 childless marriages 169, or 40 per cent., were due to sterility of the husband. Vedder, of Christiania, in 310 cases, by including all cases of sterility in women due to gonorrhea acquired from their husbands, found the man at fault to the extent of 70 per cent.

The principal cause of sterility in men is stated to be bilateral gonorrheal epididymitis. Bengler, in 1898, found that among soldiers in the German army who had been married three or more years, 10.5 per cent. who had suffered from gonorrhea without epididymitis were childless. Of those having bilateral epididymitis, 41.7 per cent. were childless. Bengler adds that it will be seen from all statistics that epididymitis is by far the most common cause of sterility in the male.

From a consideration of the above statistics men are responsible, therefore, for from 18 to 70 per cent. of the sterility of the world, and, in the language of Hagner, the "principal cause of sterility in men is bilateral gonorrheal epididymitis." Still greater responsibility might justly be placed on the shoulders of these husbands who, through ignorance, thoughtlessness or unbelief, have infected their innocent wives and thus brought about conditions which have resulted in their unwilling or enforced sterility. Morrow has pointed out that gonococcal infection is a more potent factor in the production of involuntary "race suicide" than syphilis by the sterility induced in both sexes; but much more frequently in women, on account of the ascending destructive and incurable infection of the tubes and ovaries.

Bland-Sutton is correct when he asserts that gonorrhea is the chief cause of the sterility of prostitutes. Gonorrheal salpingitis, whether it results in pyosalpinx or tubo-ovarian abscesses or not, usually destroys the ciliated epithelium of the tube or so cripples the ovary as to render conception and normal gestation almost impossible.

Gynecologists do not profess their ability to restore a Fallopian tube, once infected with gonorrhea, to its normal condition. Sterility or some more positive and destructive condition is, therefore, the very common legacy bequeathed to the female victim of this disease. A specific endometritis must always be the cause of gonorrheal salpingitis.

The frequency of this infection was brought prominently to the attention of the profession by the report of the Committee of Seven on the Prophylaxis of Venereal Diseases in New York City. This report indicates "that nearly 30 per cent. of all venereal infections occurring in women in private practice in that city are communicated to them by their husbands." Noeggerath stated, in 1876, that, of every thousand married men, eight hundred have had gonorrhea from which a great majority of their wives have been infected. Another writer of large experience thinks that fully 70 per cent. of the women who came to his service for treatment were respectable married women who had been infected with gonorrhea by their husbands. Janet, in his "Social Defense Against the Venereal Peril," in speaking of its frequency, says: "If we compare from a social point of view the importance of gonorrhea with that of syphilis, gonorrhea is to syphilis as 100 to 1, not only from the standpoint of the number of persons attacked, but also from the standpoint of the gravity of the lesions and their perpetuity, . . . which to-day gives to the surgeons three-quarters of their work and conducts finally both men and women to sterility."

Noeggerath has expressed his belief that 50 per cent. of female sterility is caused by gonorrhea. Neisser places the proportion from this infection at 40 per cent., while Gruenwald, Kammera and Crolax report 53 per cent., 83 per cent. and 40 per cent. of endometritis, mesometritis and peritonitis, respectively, all of gonorrheal origin, as causes of sterility in the female.

The results of gonorrheal infection of the female pelvic organs are inseparably connected with the discussion of any and all phases of this question, and it is practically impossible for one who has written much on this subject to avoid repetition or to state old points in new or different language.

The phase of the gonococcus infection question which especially interests and occupies us to-day is its influence or power as a "depopulator." This influence is again shown in the great number of mutilating and unsexing surgical operations which are required to save the lives and restore the health of a large number of infected women. The oft-repeated statement is familiar to you all, that at least one-half of the abdominal operations of the world are necessitated on account of gonorrheal infection. While this statement is startling, the sad part of it is that it falls far short of the actual facts. Hummeiston states that 90 per cent. of his operations are attributable to this cause, some of them, however, being cases of mixed infection. Price declares that "in 1,000 abdominal sections for pelvic inflammation 95 per cent. were attributable to gonorrhea." Pozzi and Frederick state that their experience puts the proportion at 75 per cent. Mann and many other gynecologists hold that, as gonorrheal endometritis is nearly always the cause of pus tubes, for the complete cure of the patient, the practically incurable gonorrheal uterus must be removed also. It goes without saying that all these removals of the gonorrheal uterus or its appendages is the indirect cause of sterility, while the gonococcus is the primary and direct cause of all this class of mutilating and unsexing surgery.

The depopulating influence of this specific infection is seen again in the production of what has come to be known as "one child sterility." It is possible for a woman who has gonorrhea in the anterior portion of her birth canal to conceive and to give birth to a child. The child has, however, a very dangerous gauntlet to run to be born alive, as well as to escape ophthalmia neonatorum, which statisticians tell us is the cause of about 30 per cent. of the blindness in this country. In a previous paper on the effects of gonorrhea on the female generative organs it was stated that there is abundant testimony that specific infection frequently ascends to the pelvic organs after parturition, when this infection only existed below the internal os previous to labor.

The way seems to be opened by the parturient act, through slight traumatisms in the endometrium, for the lodgment, subsequent development and multiplication of these germs and their further ascent to the tubes and ovaries. Morrow declares that "after accouchement the tissues of the genital organs are in a peculiar state of inhibition and infiltration which offers to the gonococcus a favorable soil for its proliferation, and that the aptitude of a gonorrheic woman for conception is often extinguished by the first pregnancy, the one child representing the sum total of her reproductive energy."

The pernicious influence of the gonococcus is again shown as a "depopulator" in the causation of many more abortions and premature deliveries than have heretofore been attributed to it. Sanger contends that "as many abortions are caused by gonorrhea as by syphilis." Noeggerath states that of 53 women, known by him to be suffering from the effects of gonorrhea, 19 aborted. Frughinsholz found that in 101 pregnancies occurring in gonorrheic women 23 aborted. Williams insists that 73 per cent. of all abortions are due to endometritis, which is without doubt chiefly caused by gonorrheal infection, when not due to puerperal sepsis.

While many authorities might be quoted in favor of this proposition, it is difficult to prove its direct causative effect. Without doubt modern writers believe that gonorrhea is, much more frequently than was formerly taught, the cause of abortion.

The causes of extrauterine pregnancy have never been definitely formulated and clearly stated in the textbooks on obstetrics or gynecology, but it is claimed by recent writers on social diseases and abdominal surgery that gonorrheal salpingitis plays an important rôle in the etiology of this condition.

Modifications in the epithelial lining of the tubes occur in mildly latent cases which may arrest the descent of the ovum to its natural bed in the uterus and thus become directly responsible for its tubal development. To the extent that it is the cause of the death of the fetus, of mutilating operations and of fatal results to the mother, just to that extent it becomes another factor in depopulation. M. Paul Petit sums up the argument as follows:

> If this nuptial microbe, apparently benign, is sufficiently attenuated so that it does not produce peritonitis—does not shut the tube at either of its ends (closure fatal for the race, but salutary for the woman)—if, nevertheless, it happens that its delicate cells have lost their vibratile cilia, charged to secure the advance of the fecundated egg, this is arrested in the channel, through which it can not pass, and notwithstanding the heroic efforts of nature to produce a compensatory hypertrophy, the drama still proceeds. In the place of becoming enfeebled, the virulence of the microbe becomes cataclysmic, extrauterine pregnancy, much more common than is usually supposed, is constituted, the infant dreamed of, still in its embryonic state, has become for its mother a malignant tumor, and if it does not kill her suddenly by internal hemorrhage—when in apparent perfect health, which is fortunately quite rare—too often it offers her to the reparatory knife of the surgeon, and in the more fortunate cases immobilizes her for many months on a bed of suffering.

We have the authority of Jacobi and Currier for the statement that the "vulvovaginitis of little girls," which is generally of gonorrheal origin, has the effect to retard and to frequently prevent altogether the normal development of the uterus and its appendages. Women with undeveloped or infantile uteri or ovaries are not only great sufferers from amenorrhea and dysmenorrhea, but are, at the same time, unable to conceive, or, if they do, to produce a live child. This condition amounts practically to sterility, and its first cause is gonorrheal infection during infancy or childhood. Recent text-books on pediatrics refer to the vulvovaginitis of little girls as the most frequent and troublesome of institutional diseases, and that in the great majority of cases they are caused by gonorrheal infection.

It is not, of course, suggested that their infection resulted from any sexual relation with the opposite sex, but was communicated from one to another in a great variety of ways.

Caille gives an example in his treatise of the spread of this infection in a public institution in New York harboring 850 children; 130 cases of so-called leucorrhea developed, in two months, which proved, on investigation, to be gonorrheal in nature. Much more similar evidence could be produced if there was time to read it.

In addition to the above charges in the indictment against the "nuptial microbe," as M. Paul Petit calls it, we have the large number of indeterminable cases where no surgical operations are performed, where no organs necessary to procreation are removed, and yet the women are living lives of chronic invalidism, which too frequently means lives of chronic gonorrheal infection, the ultimate effect of which is to inhibit any further conception.

The human race is then "depopulated" to the extent that children are denied to these chronic invalids. Their number it is impossible to determine, but, arguing from a permissible analogy, the charge against the gonococcus gains enormous and blacker proportions. It may be said to have fairly earned the title of the "chief moral and physical pest of our age," and, in contradistinction to tuberculosis, might be called the "great black plague."

926 Farragut Square.

SYPHILIS AS A CAUSE OF DEPOPULATION AND RACE DETERIORATION.*

EDWARD L. KEYES, Jr., M.D., Ph.D.
NEW YORK CITY.

The effects of syphilis are as complex and difficult to ascertain as the effects of gonorrhea are definite and directly attributable to this disease alone. For example, gonorrhea causes rheumatism by specific inflammation of the joint, while syphilis causes paresis by some vague means of which we are none too sure, and with the aid of certain other factors which we can not definitely ascertain, but which make one race far more vulnerable than another.

In the matter of heredity, gonorrhea destroys the race either by sterilizing a potential parent or by blinding a new-born infant; while syphilis leaves the parent neither sterile nor impotent; the child it may kill or brand with indelible disfigurement, or it may simply leave him liable to destruction by other agencies, notably by tuberculosis. Finally, the problem of race deterioration by syphilis is still further complicated by the alcoholism, the debauchery, and the moral perversion that so often complicate the disease in the parent and join with it in degenerating the child.

Such being the case, let us, from as firm a foundation as possible and beginning with the effects of syphilis *per se,* consider the disease briefly as it relates to the individual—more in detail as it relates to his or her descendants.

ACQUIRED SYPHILIS.

According to the United States Census of 1900,[1] about 3,000 deaths directly attributable to acquired syphilis occur in the United States every year. This is about 3 in every 1,000 deaths, and puts syphilis in the class with malaria, cerebrospinal meningitis, septicemia, alcoholism, diabetes and appendicitis.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Vol. III, Part 2. The round figures given are obtained by adding 1,591 deaths from venereal disease to 702 from locomotor-ataxia and 1,303 from paresis and substracting the 675 cases of hereditary syphilis.

The mortality statistics of life insurance companies tell the same story from a different point of view. The estimated mortality of syphilitics, according to the report of the Actuarial Society of America,[2] is 133 as compared with 100 non-syphilitics. Thus the acquisition of syphilis by the average American decreases his expectancy of life by about one-third. So much for mortality.

As a cause of inefficiency syphilis stands high. I have tabulated some 2,500 cases of syphilis in the better class of patients, and find that about 4 per cent. of them have locomotor ataxia, a little over 1 per cent. have paresis, and an indefinite number more are debilitated by various other manifestations of the disease.

The Surgeon-General's report for 1905 shows that in the United States Army syphilis stands ahead of every other malady as a destroyer of careers, having caused, in the year 1904, 166 men to be discharged from the Army; whereas tuberculosis caused a loss of only 101 men. This fact alone would be enough to mark syphilis as one of the scourges of the human race. There are more soldiers in the United States Army rendered permanently unfit to follow their profession as a result of this disease than of any other.

In comparison with these statistics, referring to our own countrymen, the quotation of those obtained by foreign observers is, I believe, of less value; yet it bears out the same thesis and adds a few suggestive details. According to the figures collected and compiled by Blaschko in Germany and Fournier in France, it would appear that from 5 per cent. to 20 per cent. of the male inhabitants of the larger European cities are infected with syphilis, though the disease is less prevalent in the smaller towns and in the country districts. Syphilis is at least four or five times more frequent in men than in women.

HEREDITARY SYPHILIS.

The transmission of syphilis from parent to unborn child has long been recognized, though the method of transmission has formed a subject of warm debate. But the fact alone interests us. The disease may be transmitted to the fetus *in utero* and may work three results:

1. It may destroy the fetus and cause its abortion.
2. It may kill it at about the time of birth—a short time before or after the event.
3. The child may be born alive, but bear evidences of the disease, or may develop these weeks or months or years later.

Abortion, still-birth (or death in infancy) and syphilis of the child are, therefore, the three classes of hereditary syphilis. To these we must add the very imminent danger to young children from parents infected after their birth.

According to the statistics of Fournier, the mortality ascribable to hereditary syphilis in hospital practice reaches 85 per cent.; that is to say, 85 out of every 100 children born of actively syphilitic parents die either before birth or shortly thereafter. In private practice, on the other hand, the mortality falls as low as 60 per cent., and, when the mother is apparently sound, but the father obviously infected, as low as 28 per cent.

The statistics of individual cases are still more shocking. In one instance (Ribemont-Dessaigne) a woman became pregnant nineteen times only to lose eighteen of her children by abortion or still-birth; a single child survived. And Fournier has even found it possible to collect a consecutive record of 157 births with 157 deaths—every single one failing to survive.

This so-called "polymortality" is the great stamp of hereditary syphilis. But such statistics are derived from cases of recent or of neglected syphilis. They represent conditions which are found in this country only under relatively exceptional circumstances of ignorance and over-population.

Let me hasten to add for the benefit of my non-medical listeners that well-treated syphilis ceases to be transmitted to wife or children within a very few years. Yet the United States Census of 1900, taking no account of miscarriages—although these form about one-half of syphilitic mortality—reports 675 infants dead of hereditary syphilis in the first year of their lives.

Apart from locomotor ataxia and paresis, more than one-half the deaths due to syphilis in the United States to-day occur in children less than one year old.

Personal records of office cases, though not very large, express fairly accurately the dangers of hereditary syphilis among fairly intelligent people and elucidate certain important points in regard to this inheritance.

Among 27 patients who acquired syphilis when married, or who married within a year after acquiring it, 25 infected their wives (or husbands). Of those marrying in the second year of the disease, 10 proved infectious, 4 not so. In the third year, 4 were infectious, 16 not so. In the fourth year one was infectious 4 (and probably many more) not so. Beyond this I have no records; but of the hundreds (literally) who have married during the fifth year of the disease, only 2 proved infectious, while there is a single alleged infection in the seventh year.

Moreover, in 41 cases the party of the second part was infected during the first year of exposure (almost always within the first few months). Only once was infection delayed one year until after the birth of a healthy child, who was last seen in perfect health at the age of 7.

Thus the danger of marital infection is instant and the chances for it are at least 12 to 1 during the first year of the disease, 5 to 2 in the second year, 1 to 4 in the third year, and all but nothing after the fourth year—whether the patient has been well treated or not. So much for the danger of transmission in matrimony. The danger to the child, the product of matrimony, is greater.

Fournier states that of 90 women infected within a year of the chancre in the male, 50 aborted, 38 bore children who died in infancy, and only twice did the first born live.

To these figures let me add my own. They are small in comparison, yet they strike closer home, inasmuch as they are a home product, not an importation, and derived from an office, not a hospital practice. Hence they represent at least a fairly intelligent class of patients. Yet the index of nocivity among these infants, i. e., the number aborted, killed or at least infected by syphilis, is simply shocking.

Among 43 women innocently affected with syphilis in matrimony and who bore children after such infection, only 2—think of it, only 2—escaped bearing at least 1 syphilitic child; and this exception is fully compensated by the 3 who, before realizing they had the disease themselves, infected a child whom they had previously brought into the world healthy.

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[2] Personal communication by Dr. W. M. Bross.

Of the infecting 41

23 bore 1 syphilitic child (or fetus), and 5 bore healthy children later.
8 bore 2 syphilitic children and 6 bore healthy children later.
4 bore 3 syphilitic children and 2 bore healthy children later.
2 bore 4 syphilitic children and 2 bore healthy children later.
3 bore 5 syphilitic children and no others.
1 bore 8 syphilitic children and 6 healthy ones.
— —
41 86

The last was the poorest and most ignorant of the lot: she should be really classed as a hospital case. Doubtless many more of those who bore but one syphilitic child bore healthy children after they had passed from my treatment and observation, just as many of their sisters who acquired syphilis without a husband have gone through their treatment at my hands and then married and borne perfectly healthy children.

Why this difference? Why does the unmarried syphilitic woman so commonly become competent to bear healthy children, while syphilis of the wedded victim almost inevitably impairs the health or destroys the life of at least one child?

The difference lies in knowledge and the lapse of time. The innocent wife does not realize she is diseased until she brings into the world her first syphilitic child; does not perhaps realize it even then—witness the frequency of multiple syphilitic heredity—but the woman forewarned and forearmed is in little danger. My statistics enforce this point: In 37 cases the interval between infection of the mother and the birth of the first syphilitic child (or fetus) is known. In 32 it was a year or less, thrice between 1 and 2 years, and twice at 2½ years. On the other hand, the interval before the birth of a healthy child was twice 2 years, ten times 3 years, twice 5 years, once 7 years and once 10 years.

In order to interpret these figures more clearly, let me invite your attention to the charts founded on them and arranged to show the parallel between the danger to a wife from an infected husband and the danger to an unborn child from an infected mother.

Chart 1 compares the duration of matrimony before infection was transmitted to the wife with the duration of the mother's disease before it was transmitted to an unborn child as calculated by the first birth or miscarriage. The lines, you note, run practically parallel: the infection is immediate.

Chart 2 compares the duration of syphilis in the husband at the time that he married and infected his wife with the duration of syphilis in the mother at the time she ceased to bear syphilitic children. The lines again run parallel; and, as Chart 1 is calculated to illustrate the instant infectiousness of early syphilis, Chart 2 is calculated to show its gradual dying out.

Chart 3, on the other hand, shows the opposite side of the picture—the chance of avoiding infection—and is a comparison of the duration of syphilis in the man before marriage to a woman whom he did not infect with the duration of syphilis in the woman before the birth of her first healthy child. The sharp rise at the third year forms a most graphic contrast with the equally sharp fall in Charts 1 and 2, and shows that, whether for wife or for child—and in some degree independent of the treatment—the infectiousness of syphilis falls off sharply in the third year. The latter part of Chart 3 is traced in interrupted lines, because the few recorded cases here merely represent the fact that, as the patients become well, they no longer return for observation, excepting the meager few whose disease continues more fierce than the average. These scanty data have no statistical value.

From this jumble of statistics I wish to draw just one conclusion, viz.: Syphilitic marital infection and syphilitic heredity are appallingly frequent in the first two years of the disease, but diminish rapidly thereafter, especially if the influence of time is fortified by proper medical care.

LATE HEREDITARY SYPHILIS.

The child who survives in spite of a hereditary syphilitic taint may develop symptoms of the disease at birth or not until many years thereafter. But, even though these syphilitic symptoms are controlled by appropriate and skilful treatment, there remain certain developmental peculiarities which attest to the experienced eye the presence of a syphilitic heredity and some of which impair the child's future usefulness as a citizen.

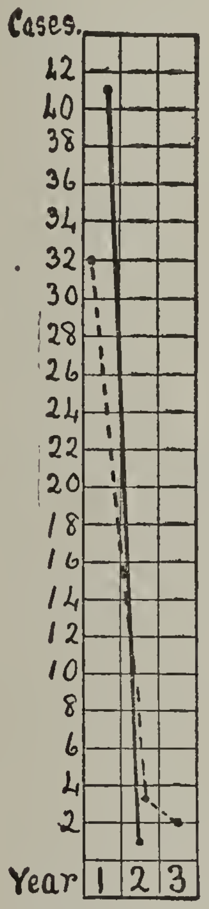

Chart 1.

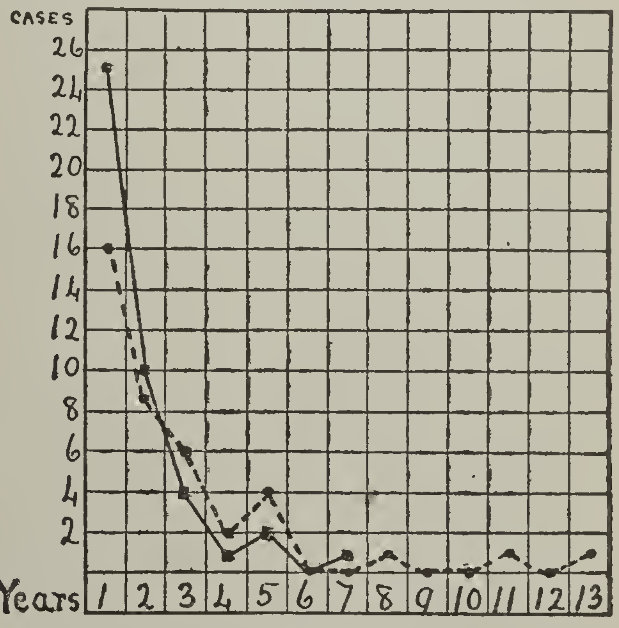

Chart 2.

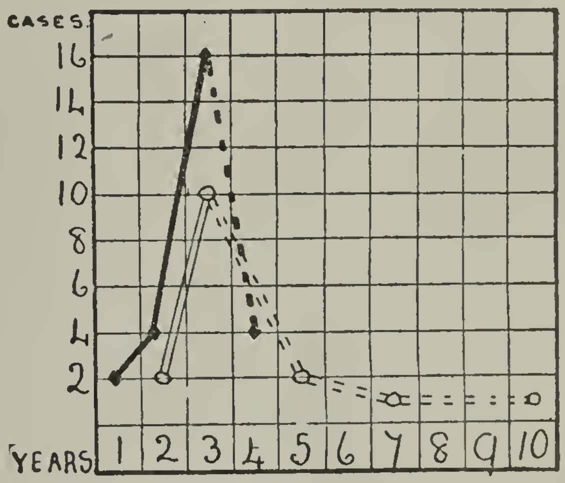

Chart 3.

Chart 1.—Beginning of infection; comparing duration of matrimony before wife becomes infected with duration of wife's disease before unborn child becomes infected. Solid line—husband to wife; broken line—mother to child.

Chart 2.—Duration of infection; comparing duration of syphilis in husband at time of infecting wife with duration of syphilis in wife at time she ceased to bear syphilitic children. Solid line—age of infectious syphilis in husband (to wife); broken line—birth of last syphilitic child to wife.

Chart 3.—Beginning of non-infection; comparing duration of syphilis in man before marriage to woman he did not infect with duration of syphilis in the woman before birth of first healthy child. Single line—age of non-infectious syphilis in husband; double line—birth of first non-syphilitic child (to mother); broken lines—statistics incomplete.

Thus the later evidences of hereditary syphilis may be separated into three classes: 1, Active lesions of the disease; 2, evidences or scars of healed syphilitic lesions; 3, dystrophic conditions attributable to impaired or disordered nutrition.

Of these classes, the first, though the most characteristic, is the least common; the second, almost as typical, is more frequent; the third, though the commonest of all, is so little typical as to be a constant source of confusion.

1. Instances of the first class, the active lesions, we need not enumerate.

2. Striking and familiar instances of the second class are Hutchinson's triad (viz., interstitial keratitis, deafness and a peculiar deformity of the permanent upper, central incisors), scars on the skin, perforation of the palate, chorioretinitis, natiform skull, broken-down nose, saber tibia, etc.

3. Instances of the third class are not lacking; but they should be interpreted with the greatest care and be accepted as evidence of syphilis only when seen in connection with other more definite signs of the disease. For example, the victims of hereditary syphilis are usually undersized and poorly developed in muscle; they reach puberty late; the men are relatively beardless. Yet it were manifestly absurd to conclude that every individual showing these characteristics is a heredo-syphilitic. Every medical man here can call to mind innumerable exceptions to such a rule; or, I should say, can call to mind more exceptions than exemplars.

The same holds good of many other deformities. The vaulted palate, the hare-lip, the knock-knee, the club-foot, as well as the grosser malformations, such as dwarfism, monstrosity, idiocy, imbecility, etc., may indeed result from the debilitating effect of hereditary syphilis, but they are as often due to other causes. Such a statement may sound obvious to those of you who are not aware of the lengths to which European syphilographers—especially the French—go in the effort to prove syphilis the fount and origin of every hereditary defect.

As a matter of fact, the unbiased practitioner is far more often impressed by the absence of congenital deformities in syphilitic infants than by their presence. It is surprising that a disease so destructive in its activity should inhibit normal development so little. Generally speaking, one may accept the rule that hereditary syphilis spends its force on the infant. If it escapes with body and brain intact, it is likely thereafter to remain as sound as its parent—perhaps even more so. What, then, becomes of the surviving children of syphilitic parents? They may be divided into three classes:

1. Some are not syphilitic or diseased in any sense. These are the children of parents whose disease has been watched and treated intelligently. Among the upper classes such healthy children easily outnumber the diseased, and even among the poor and ignorant of our large cities they almost equal them.

2. Some are syphilitic and continue to have relapses of syphilis. Such relapses, though most unusual, are apt to appear at the time of puberty. Edmond Fournier[3] alleges that they may result in transmission of the disease even to the third generation. This thesis, though not accepted by every syphilographer, is all but proved. The names of Taylor, Fournier and Hutchinson lead those who accept it, while Tarnowski, Barthélemy and some German authors incline to it. But the cases are extremely rare and are bred in such an atmosphere of neglect, ill treatment, privation and debauch that the hereditary syphilis seems almost an incident rather than a sole cause of the resultant degeneracy.

3. The greater number of syphilitic children who survive depend for their future health entirely on the hygienic and medical treatment they receive in infancy. If intelligently handled, the stunting, disfiguring and enfeebling influence of the disease is overcome in the majority of instances. But if neglected or if so overwhelmed by the disease that no treatment can cure them before their developing tissues are permanently scarred, their vitality permanently impaired, they are doomed to grow up defectives and peculiarly subject to rachitis and tuberculosis.

The relation between rachitis and syphilis has long since been determined. Parrott believed and taught that every rickety child was syphilitic; but subsequent investigation has clearly shown that this is not the case, that syphilis is only one among many potential, debilitating causes of rickets. Indeed, when I was a medical student in New York City, a decade since, hereditary syphilis was common enough in our clinics, while a case of rachitis was quite unusual.

The same is true of tuberculosis. Sargent[4] has recently collected much evidence in the matter, and, with a wealth of authoritative quotations, enforces his conclusions that "la syphilisation du père a préparé le terrain pour la tuberculisation du fi's"—"syphilis in the father prepares the soil for tuberculosis in the son. This aphoristic statement expresses the actual condition not quite accurately. It is necessary to distinguish as follaws:

1. Syphilis in the father, if severe or if allied with other debilitating influences, such as drink, deprivation or debauch, prepares the father's own soil for tuberculosis.

2. Syphilis transmitted from parent to child—hereditary syphilis—exercises the same predisposing influence magnified by the difficulty of eradicating the disease from the vulnerable tissues of the new-born.

3. But the non-syphilitic child of a syphilitic parent is not predisposed to tuberculosis, unless by such privation or neglect as would so predispose it in any event.

Since a hereditary tendency to tuberculosis and rickets is by no means bound up with an inheritance of syphilis, we are faced with the question, How often and in what degree does syphilis predispose to rickets and tuberculosis? I doubt if the question can be directly answered by statistics. Perhaps the nearest we can come to an answer is the parallel between the influence of hereditary syphilis on rickets and tuberculosis, and that of acquired syphilis on tabes and paresis.

Some evidence may be deduced from the effects of syphilis on different races, which may be briefly summarized as follows: In many regions of Asia Minor, Egypt, the Balkan States and other Oriental lands syphilis is endemic and is found in every generation of a family and in almost every family of a village or town. The children in these countries are often tuberculous, but the adults are never, or practically never, either paretic or ataxic. The obvious inference which has been drawn from these facts is that paresis and ataxia, as seen in the civilized communities of Europe and America, are due not to syphilis alone, but to "syphilis and civilization," as Krafft-Ebing puts it; while the absence of these diseases and the relative frequency of rickets and tuberculosis among syphilitic Orientals show that, in the main, these latter diseases are the appanage of untreated, neglected syphilis. By proper care they can almost always be prevented.

The influence of syphilis as a cause of depopulation and race deterioration may, therefore, be summed up as follows: *In the individual,* syphilis causes in the United States to-day 3 per 1,000 of the deaths, and in the Army more discharges for permanent disability than tuberculosis. According to the statistics of life insurance companies, it decreases the expectancy of life by one-third. *In his descendants,* syphilis is the great cause of infantile polymortality, even among the better classes. The infant who survives a hereditary syphilis is likely to fall victim either to relapse of syphilis or to rickets or tuberculosis, even though submitted to proper medical treatment and kept in proper hygienic surroundings. His efficiency as an adult citizen may be more or less impaired; but the extent of this impairment depends on the intelligence with which his disease is handled in infancy, and the debilitating influences to which he is then subjected.

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[3] Syphilis Héréditaire de seconde Génération, Paris, 1906.

[4] Syphilis et Tuberculose, Paris, 1907.

ARTIFICIAL CHILDLESSNESS AND RACE SUICIDE.*

J. NEWTON HUNSBERGER, M.D.

SKIPPACK, PA.

Of all fundamental conditions of society none is of greater moment than that of the propagation and preservation of the human race. Beside it all other sociologic and material conditions fade into insignificance. For it is self-evident that only a few decades without a single birth would mean practically the depopulation of the entire earth, and though this will probably not occur, yet we are undoubtedly facing a diminishing birth rate, especially among the better class of American-born citizens.

I will not tire you with statistics, for they are often incorrect and usually misleading; but I would ask each one of you to compare the number of children born twenty years ago in your immediate neighborhood with the number born to-day, and I feel sure that you will note a decided reduction.

Fifteen years after I was graduated in medicine there were inquiries made of the one hundred and twenty-four members of the class. Eighty-one replied. Of this number sixty-four had been married and had had born to them one hundred and five children. Comment is needless. For we all know that a birth rate so low as this, if it held good among all classes, would mean the rapid depopulation of any community. And coming from physicians, who should know, if any one does, what it all means, it seems especially deplorable. Possibly we would best cast out first the beam from our own eye before attempting to remove the mote which is in our brother's eye.

In Massachusetts, where vital statistics are accurately kept, the decline of the birth rate among those families who have lived there for generations has been alarmingly rapid. In inquiries made by the colleges regarding the number of offspring which the various classes, twenty-five years after graduation, of both sexes, had, the reports all show an exceedingly small percentage of children. But why reiterate what every thoughtful physician knows, that the birth rate among the class best equipped to have and to rear children is very much lower than it should be.

I am aware that among the very wealthy, with some exceptions, families are small, but as they form such a small percentage of the entire population they need not be seriously considered. It is also true that among the very poor and shiftless we frequently see large families, but they again form but a small percentage. It is in the great middle class, the class from which have sprung, and from which will continue to spring, the ablest, the cleanest and the best men and women, the "leaven which leaveneth the whole lump," and who constitute the backbone of our national supremacy; in this class, I repeat, the birth rate has fallen off most markedly. Do we understand and fully appreciate what this means?

It means that the curse of selfishness is sapping the very roots of life. It means the decay of spiritual ideas and the death of true patriotism. It means the breaking up of homes. It means the divorce court and the triumph of sensualism. The joys as well as the sorrows of parenthood do more to redeem men and women than all the religious creeds in the universe. Children are the only true missionaries; the only beings really Christlike. "Except ye become as one of these little ones, ye shall in no wise inherit the kingdom."

The responsibility which children bring inculcates self-denial and self-restraint. Thinking for others becomes a habit. Those who are childless, through their own wrong doing, do not know the pleasures of self-denial, their natures become narrow, selfish and warped and their souls atoms. It is a truism that from large well-born families come the best citizens. They early learn self-reliance; are free from false sentiment; are tolerant and helpful to each other, and lose the egotism and self-consciousness so commonly seen in an only child. Luxury seldom enters into such homes. Satiety is unknown with its blasé expression. Want may even show his gaunt form. But in spite of all this, there are more manly men and womanly women found in large families and more real happiness, than is ever dreamed of by a childless couple or where a single child is surfeited, stunted and spoiled by needless luxury and display. The large families of our forefathers were big factors in the building of our nation; while we are slowly but surely drifting to the shoals of a decreasing birth rate, on which France has already stranded her best hopes, with its selfishness, worldly prudence and sensualism for which it stands sponsor.

We are not brought into this world for ourselves alone, nor is it intended that we should go out of it without leaving some one to fill the place we vacate. Humanity has placed a heavy mortgage on each one of us and demands satisfaction, or she will surely exact a penalty. And is it a hard mortgage to satisfy? Is a little bundle of pink and white helplessness, as it cuddles its warm body against ours, so very objectionable? And is the clinging clasp of its tiny hands so hurtful? Is there anything in this world—position, wealth, honor or achievement, that can balance it? Listen to William Allen White:

> In every heart that is not a dead heart, calloused to all joy or sorrow, some little child is enshrined—either dead or living—and so child-love is the one universal emotion.
>
> A child's soul is such a small thing, and the world and the systems of worlds, and the infinite stretches of illimitable space, are so wide for a child's soul to wander in, that, sane as we may be, stolid as we may try to be, we think in imagery, and the figure of little feet setting off on the far track to the end of things, hunting God, wrings our heart-strings and makes our throats grip and our eyelids quiver.
>
> And then a child dying, leaving this good world of ours, seems to have had so small a chance for itself. There is something in all of us struggling against oblivion, striving vainly to make a real impress on the current of time, and a child,

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

> dying, can only clutch the hands about it and go down—forever. It seems so merciless, so unfair. Perhaps that is why, all over the world, the little graves are cared for best. It is to the little graves that we turn, and not to the larger mounds, in our keenest anguish, to the little graves that our hearts are drawn in our hours of triumph; and so the child, though dead, lives its appointed time and dies only in the fulness of its years. The little shoes, the little dresses, the "little tin soldiers, covered with rust," and the memories sweeter than dreams of a honeymoon, these are life's immortelles that never fade.

There is a certain proportion of marriages unfruitful through no fault of the individuals. These, however, constitute a comparatively small percentage and are the exception. As a rule, the childless couple is childless, and the family with one or possibly two children is small, because means are used to prevent or destroy the product of conception. We frequently see one or possibly two children born quite promptly after marriage and then child-bearing suddenly ceases. It is plainly evident what is taking place.

What reasons and what influences are at work which produce such unfortunate conditions? They are many and varied: The extra expense which children bring, probably being as potent a factor as any, coupled with the selfishness that refuses to deprive itself of any pleasure or luxury for the child.

There are many young men in the professions or in business who will not marry until financial success is absolutely assured, or if they do, refuse to be burdened with large families. Many of the better class of skilled laborers with good wages refuse the little sacrifices necessary to rear a family. Girls who had been earning their own living previous to marriage, and who often get erroneous ideas of life through their associations, frequently refuse motherhood. Another factor is the living in boarding houses and flats where children and dogs are not allowed. It is almost considered vulgar and bourgeois in a certain class, to have a good sized famliy. How the mother of to-day pities and sympathizes with her daughter if she should be so unfortunate as to have a baby, and is not above instructing her how to prevent a repetition of the accident. Many, many reasons, but never a good or valid one, and all of them, every one of them, based on selfish motives!

There are also far-reaching influences which play their rôle: The so-called emancipation of women, which has come to pass during the last century, with its freedom from medieval slavery. This new freedom has been perverted and misconstrued, to mean a relief from the duties and obligations, which, though they may appear burdensome, women can not expect to escape. And while woman's sphere is not alone to bear children, yet if she refuses her God-given part toward propagating the race, she is worthy of nothing but scorn—she is not womanly.

Though the law may sanction and the church bless, yet such an one just as truly prostitutes the marriage bed as the woman of the street. The violent opposition in certain quarters to houses of ill-repute, and the time spent on devising ways and means to regulate or abolish them, would better be directed in other channels nearer home. There are very few of us fit candidates for a stone thrower's license. The inmates of these houses are usually deflowered long before they enter the portals, and the maudlin sympathy of our specialists would best be withheld until occasion arises when it can be worthily bestowed. It is a well-known fact in the underworld that houses of prostitution could not exist if it were not for the patronage of married men. Undoubtedly, one of the reasons of this unfortunate condition is the objection on the part of the wife to bear children, while the cold-blooded devices to prevent conception simply drive their husbands from them.

Ah! you divorce investigators, you are afraid to call a spade a spade, or else are ignorant of conditions as they exist, or you could easily locate a large percentage of the trouble. Though I believe the woman is oftenest at fault in preventing conception, yet the husband is usually more than a willing accomplice in the crime, and for reasons less valid than his wife's. Such a man marries only for the selfish gratification of his own passions and is hardly on a par with a brute.

The world does homage to the man who works and to the soldier who fights, but to a far greater extent do the right-thinking men and women do homage and reverence to the woman who performs her great duty, and no greater or more ennobling one was ever given to woman than that of propagating her kind. In Rome's halcyon days it was the mother, and she who was about to become a mother, who were given precedence and homage savoring of idolatry. While this worship continued Rome was superb, unbeaten, matchless. When her affections and homage were transferred to mistresses and vestal virgins her boasted supremacy became a byword.

It has been proved that among families which can properly have children the population will not materially increase, if there are fewer than four children. Three children in a family are insufficient when allowance is made for those who do not marry, for those who physically can not have children, and for the children that die. This is a most conservative estimate. While I do not believe that the best interests of mankind are served by rearing children with a rapidity that undermines the mother's health or bringing children into a life of abject poverty, wretchedness and disease, yet the hideous vice and crime which marks the prevention and destruction of the product of conception must be abhorrent to every right-thinking man and woman. And, mark you, this not the vice of the woman of the street alone, but is practiced by what appear to be the best people of our land, not excepting the clergy. It may be the result of thoughtlessness; it may be done through a perverted sense of right and wrong, or it may be moral obtuseness. But whatever be the motive back of the act—the act itself is a crime, and nothing can ever give it the garb of respectability.

Just a short quotation from President Roosevelt in conclusion:

> If a man or woman, through no fault of his or hers, goes through life denied of those highest of all joys which spring only from home life, from the having and bringing up of many healthy children, I feel for them deep and respectful sympathy—the sympathy one extends to the gallant fellow killed at the beginning of a campaign, or the man who toils hard and is brought to ruin by the fault of others. But the man or woman who deliberately avoids marriage and has a heart so cold as to know no passion, and a brain so shallow and selfish as to dislike having children, is in effect, a criminal against the race, and should be an object of contemptuous abhorrence by all healthy people.

The following taken from a daily paper is apropos:

> Paris, Nov. 11, 1906.—Public attention again has been drawn to the national peril involved in the constantly diminishing birth rate by the publication of the vital statistics for 1905, showing births for the year of 807,292, a decrease of 10,937 from the total of 1904. The reason for this decrease is

not to be found in a reduction of the number of marriages, in which the statistics show a slight increase over 1904, but it apparently arises from the aversion of the French people to raise large families.

The national association, which is studying the matter, has reached the conclusion that it is necessary to inculcate the idea that any couple that raises more than three children merits and is entitled to public gratitude and protection.

DISCUSSION

ON PAPERS OF DRS. EDGAR,* JOHNSON, KEYES AND HUNSBERGER.

Dr. Prince A. Morrow, New York City, in answer to a question by Dr. Stolper, as to what states he had reference to that had laws regulating the granting of marriage licenses so as to prevent the propagation of disease, said that the marriage law of Indiana, as he recalled it, requires the applicant for a license to marry to report to the clerk his freedom from any contagious disease. That is a condition of license to marry. If he perjures himself and actually transmits the disease to his wife, he becomes amenable to the law. There is not only a civil, but, Morrow believes, a penal, responsibility imposed—certainly a civil responsibility. The law in Michigan, he thinks, differs somewhat. The law has been in operation, Dr. Morrow said, about two years in Indiana; of the law in Michigan he could not speak with absolute accuracy, because he had not referred to it for a year or two; but he thinks it is very much of the same general order.

Dr. G. T. Swarts, Providence, R. I., said that the State Board of Health in Indiana issues to all physicians in general practice a certain card circular that states that the fine is $200 or so for marrying if one has syphilis; another card states the penalty for marrying if one has gonorrhea. These are given to the patients of the practitioners at the time of the visit; it may be but one visit, but they are given this card to take to their homes and think over. Thus all patients are warned of the penalty of the law whether they desire warning or not.

Dr. Liston H. Montgomery, Chicago, said that in two cases of gonococcus infection that had come under his observation, he used a 25 per cent. solution of argyrol. One drop was instilled into the eye every two hours, night and day. In addition to that, not exactly alternating, 1 drop of a 4 per cent. solution of nitrate of silver was used three times a day; and also boracic acid compresses were applied to each eye to saturate the tissues, the lachrymal sac, etc., as a curative means of destroying the gonococci as well as a probable preventive of silver catarrh. The treatment in the two cases referred to cleared up the discharge in ten days. In one patient there was a little turgescence remaining. The infection seemed to have been cut short and the discharge stopped all at once, on the tenth day. Even up to the night previous the discharge was considerable, and seemingly almost poured out of each eye. In that case the infection in one eye seemed to follow two days after the first eye became infected; both eyes seemed to clear right up apparently in the tenth night or on the tenth day.

Dr. H. P. Jack, Canisteo, N. Y., said that in a recent discussion of this matter of educating the physician and the public as against gonorrheal and syphilitic infection and the dangers of abortion, Dr. Howard A. Kelly, after going over the subject, decided that the education was useless and the only hope was religion. Dr. Jack considered this not a sensible position to take. In Europe, in some of the clinics, there are three or four conscientious, earnest workers that give to every individual who is suffering from syphilis or gonorrhea a succinct statement, in printed form, explaining the dangers to which he is subjected and to which he may subject others. Perhaps the patient does not always read it; but many times he does. Such a statement should be given out in all of our great clinics like the Johns Hopkins or the University of Pennsylvania. It is an educational means that is before us and this Section ought to take it up. Dr. Jack said it would be a most excellent idea for this Section to appoint a committee to draft succinct statements of what might or might not happen to a given individual, written in plainest, clearest English, as regards syphilis and gonorrhea, and also as regards the dangers of abortion; that it might be given out by the clinic and by the general practitioner. In that way not only will we educate the public, but by these very things we will educate many physicians that never reach a medical association but still do a large amount of the practice of the country.

Dr. H. D. Holton, Brattleboro, Vt., said that two years ago a committee of the Conference of State and Provincial Boards of Health prepared such a circular as has been referred to. They had, however, no funds wherewith to distribute such a circular. The state boards of health of several states took the matter up and the circulars were sent to every physician in some six states. Dr. Holton expressed regret that the House of Delegates and the Trustees of the American Medical Association had not seen their way clear to make an appropriation to send that circular to every college president in the United States, to every preparatory school and high school. If this matter could be placed before the colleges, if the young men in the preparatory schools could be educated in it, it seems that it would be the great work, not only of this Section but of the profession, to educate the people of the United States.

A great deal of gonorrhea and syphilis exists from ignorance. Innocent parties are affected, as has been suggested, and with the young men in many institutions the matter has been treated in such a way as though it were a pretty good joke on the young man if he contracted one of these diseases. They see no seriousness in it to themselves and to their families—or their want of families. Dr. Holton said he did not know how this can be met, unless a fund is raised whereby such a circular can be distributed in the manner indicated.

Dr. J. H. Stolper, Krebs, Okla., suggested a United States department of public health which could send the circular all over the United States. The authorities have the free use of the United States printing office; they have the free use of the mail. Dr. Stolper suggested that this Section appoint a committee to take the matter up with the surgeon general.

Dr. S. A. Knopf, New York City, said that he does not believe it is wise to always wait on the government to do things when we can do something ourselves. He referred to the fact that the chairman has written admirable papers on the subject, and so have other members of the American Society of Sanitary and Moral Prophylaxis, an organization having its headquarters in New York City. Dr. Knopf said that it is perfectly just to call a spade a spade; and with all due respect to the sensibilities of some men and women, he believes we should not hesitate to distribute such information to our colleges and to our schools. He said the mother of his office boy called on him the other day and said: "Doctor, won't you please talk to my boy?" He asked her what about. "Well, he has nightly emissions and I scolded him about it; and he went to a certain dispensary" (a New York dispensary attached to a large hospital), "and the doctor patted him on the back and said: 'My boy, you have got to see somebody and relieve yourself.'" Dr. Knopf said he thinks that is criminal. Instead of giving that boy proper instruction and a proper talk, that boy has not only been led into temptation but guided into temptation—directed to temptation. If he had his way he would do what the Germans have done in regard to tuberculosis: Interest some great philanthropist and ask the men versed in this particular branch of preventive medicine regarding venereal diseases to write a pamphlet not longer than 20 or 30 pages, in such language that everybody can read it, and that can be handed to everybody, and printed so cheaply that it would not cost so very much. He would then send it to, first, all the members of the Section; and then tell them, "You can have as many copies as you want—50 or 100 for $1 or 50 cents," and he knows that a good many of them would be willing to contribute a little bit. Then our Section will have enough to give it a starter; and he would be willing to donate whatever his means will permit to start the ball rolling; but let something be done. We talk and talk and talk about the necessity of information and educating the old and the young and the middle aged; now let us go to work and start and let us use some of that material we have already on hand and give it as wide a circulation as possible and begin to do some good and do a little less talking.

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* The article of Dr. Edgar in this "Symposium on the Hygiene of the Family in Relation to the Productive Energy and Health of the Offspring," appeared in The Journal last week.

Dr. G. Lloyd Magruder, Washington, D. C., said he has been a physician to some colleges and has been thrown in close contact with students. Those students were taught that they were to avoid the brothel and were to live an upright life; and they were restricted and especially warned against temptations. He has received valuable information from West Point. He was especially interested in this academy, having had a son there and having been on the board of visitors. He watched the curriculum during the four years while his son was there. Colonel Havard, the present acting surgeon general, wrote a brochure of a few pages and handed it to every cadet and every enlisted man on the reservation. He laid stress on the dangers of gonorrhea and syphilis; he cited the various statistics that had prevailed in the German, the French and our own Army; he also laid stress on the fact that the same rule should prevail for the man as for the woman. Having his son there who was intimately associated with the boys, he questioned him to know how they were affected by Colonel Havard's teachings. That work produced a magnificent impression, and there is no finer set of men ever sent out from any school than from that place.

For a number of years the question of a department of public health has been brought up before this Association, with the recommendation that there should be a department of public health, with a physician in charge, and that that physician should be a cabinet officer. This has never succeeded, because there has been much opposition. The committee of the American Association for the Advancement of Science had a special conference with President Roosevelt on the subject. He gave the committee to understand that he did not want a department of public health, but that if they would advocate the use of the facilities that were now in force under the government and form a bureau of public health with greater power, under one of the departments, he would heartily endorse it.

Dr. G. W. Drake, Hollins, Va., said that the papers which have been read on the subject of prevention of conception should not be ignored. He thinks that there is no greater evil which threatens us to-day than the increasing habit of limiting the number of children in the families; voluntary limitation, in whatever way it is performed. We ought to teach, as selfishness is a governing principle, it seems, of our lives, the deteriorating effect on the father, on the wife and on the husband. When a resolution is passed appointing a committee to take up this subject, let the instruction in regard to this prevention of conception be included. He thinks the time has come when a physician should remember that the word doctor, primarily, means teacher; and a doctor's advice is worth more than his medicine. He should advise his patients; he should advise the community; he should teach on every proper occasion all the rules of health and all the preventives against disease; and he agrees with one of the speakers that a department should be in all of our colleges—male and female—a department of guidance; and in that department everything conducive to health should be taught, nothing omitted. He emphasized the importance of attention to the papers which have been read on the prevention of conception.

Dr. Prince A. Morrow, New York City, said that the question of education is not being neglected by the American Society of Sanitary and Moral Prophylaxis. This past week in New York City there were six lectures given to settlements and to organizations and to groups of the Y. M. C. A. organization; there are regular lectures given twice a week to girls in the settlements and to mothers' meetings. In Chicago there are two lectures given each month to these mothers' meetings, with the idea of instructing mothers how to give early education or instruction in such matters to their children.

So far as pamphlets are concerned, one of the pamphlets issued by this society has had a circulation of over 10,000 without ever appearing on any printed page. It does not speak for the excellence of that particular pamphlet; it simply indicates the avidity on the part of the public for this kind of information—information that is sound and sanative and decent.

He thinks that instead of these individual efforts, if efforts were simply united with these societies that have been organized in different states and organized for the specific purpose of instruction in the physiology and hygiene of sex, a vast deal of good would be accomplished.

Dr. W. F. Snow, Leland Stanford, Jr., University, California, said that among college students, as is true everywhere, there is great ignorance on these questions, combined with an overconsciousness of the moral side of venereal diseases. In the college of which he spoke, experiments had been tried in giving separate lectures to the young men and to the young women on this subject. The lectures were carefully planned and were given in registered university courses in personal hygiene by one of the instructors, but these particular lectures were given separately to the men and the women of the class, and he believes that certain harm and additional accentuation of self-consciousness comes out of just such deference to the moral side of the question.

As an experiment, Dr. Snow began three years ago a course of lectures on infectious diseases, in which he took up tuberculosis, typhoid fever, etc., following with syphilis and gonorrhea, not with regard to the moral side of the subject at all, but simply as infectious, communicable diseases. The classes in this particular institution are open to both the men and the women; and he gave these talks directly to the mixed classes, not attempting to emphasize in class anything outside of the fact that these diseases are communicable. He found a very immediate and wholesome response on the part of the students. The young men, for instance, do not laugh at such a course; they do not think that it is a subject to make fun of outside of the class room. It seems to him to be a wholesome experience to drive these things home to them as epidemiologic facts in the presence of the young women of the university. If these facts are brought before the public as they are brought before physicians, and prostitution is subordinated in the discussion simply to its place among the many other channels of infection, then the public will frankly discuss gonorrhea and syphilis, as they now do typhoid fever, recognizing without undue emphasis or embarrassment that personal contact is one of the very important modes of communication, but only one of the modes.

Dr. J. Newton Hunsberger, Skippack, Pa., said that too little attention is paid to conditions as they really exist. He did not for a moment wish to belittle the harm which a gonorrheal or syphilitic infection may do; but there are other conditions and other evils, of far greater importance, and which are a thousandfold greater factors in race suicide than these infections. The specialist is prone to allow certain ideas to run away with him, especially if they are congenial ones. No one can convince the general practitioner, and no reliable statistics can be produced, to prove that gonorrhea or syphilis are nearly so dangerous and destructive to life and health as they would have us believe. And they certainly are not the great factors in race suicide.

Sir James Barr on Public Health.—The annual congress of the British Royal Institute of Public Health was opened June 29, in London, England. The meeting was made the occasion of a somewhat startling speech by Sir James Barr, the well-known Liverpool physician. In the course of his speech he said that if the money spent on the treatment of disease were diverted to the preservation of health, our large hospitals would not be half filled, purveyors of synthetic remedies and artificial foods might find a suitable place in homes for the destitute, the necessity for surgeons and specialists would largely disappear, and physicians and general practitioners would be fully occupied in advising their clientele on the preservation of health. It was possible, Dr. Barr said, to have some process of artificial selection in the human race, and the nation which would produce the finest race would win in the long run. If the state and parents would do their duty, he thought the decline in the birth rate would soon be arrested.

A CLINICAL METHOD FOR DETERMINING THE ALKALINITY OF THE BLOOD.*

HERMAN M. ADLER, M.D.
BOSTON.

The desirability of a clinical method for determining the alkalinity of blood—that is to say, the OH and H ionization—has long been recognized. The recent determinations of this ionization by Friedenthal,[1] Höber,[2] Fraenkel,[3] Farkas[4] and Tangl and his pupils[5] have shown that the alkalinity is very slight and subject to very little variation. Accordingly a clinical method has seemed difficult to seek. The recent study of indicators by Salm,[6] however, characterizing with the greatest accuracy a whole series of indicators, has suggested the possibility of devising a method at once certain, accurate and easy of application. The present paper is concerned with experiments to this end.

There are two general methods by which the reaction of a fluid may be quantitatively measured: 1. Titration to an end point. 2. Determination of the H and OH ionization. The former yields information concerning the amount of base or of acid present in a solution, but no direct evidence concerning the nature of the equilibrium. According to such a method, HCl and NaH_2PO_4 in equivalent amounts are equally acid. The latter determination of the H and OH ionization yields no direct information regarding the absolute amounts of base and acid in solution, but gives us direct evidence concerning the intensity of alkalinity, that is, the condition of the equilibrium.

All the methods so far described depend on titration. There are two reasons for this: 1. Investigations of the OH and H ionization of blood have hitherto been possible only with the aid of the concentration cell, involving difficult procedure and expert technic. 2. The indicators which have been in use do not change color within the range of ionization found in blood. Recently, however, Salm has carefully studied the exact point of H and OH ionization at which a number of indicators turn, and accordingly it has been possible to pick out from this list a certain number of these that give sharp color reactions at about the H ion concentration of the blood, in particular two, rosolic acid and neutral red.

Rosolic acid is orange-yellow in the presence of acid and red in the presence of alkali. There is an intermediate pink color at neutrality. According to Salm, it is orange-yellow at 1.10^{-6}n.H.; pink at 1.10^{-7}n.H., and red at 1.10^{-8}n.H. The changes are well marked and intermediate shades were easily distinguished. The variations of H ionization of the blood lies between 0.1×10^{-7} and 3×10^{-7} or less, a variation that falls within the bounds of neutrality as ordinarily conceived. It will be seen, however, that this variation lies at about the middle of the color change of rosolic acid from yellow to red or, to be more exact, between the pink and the red, and it was to be expected that, if sensitive enough, this variation would be noticeable in a difference in shade of the indicator. In the present investigation rosolic acid was used. The first examinations were made on rabbit's blood. One c.c. of fresh rabbit's blood was caught in a centrifuge tube in which 10 drops of a 1 per cent. solution of NaF had been placed and 10 c.c. normal salt solution added. This was placed in the centrifuge for a few minutes, and the supernatant liquid then removed with a pipette to a clean test tube. Two drops of a 0.1 per cent. alcoholic rosolic acid solution were added and the pink color produced was compared with a standard. The test was repeated with laked blood from which the proteids had been removed by coagulation by heat. The same degree of color was obtained in this case as in the preceding experiment; that is, the reaction was neutral or slightly more than 1×10^{-7}. The objections to the clinical application of this method are that a comparatively large quantity of blood is required, that a standard to compare it with must be at hand, and principally that the color of the blood itself interferes with the color reaction. It was, therefore, determined to exclude, for the time being, the formed elements and to use the serum alone. The test-tube method also seemed cumbersome for clinical work, so ash-free filter paper was prepared with the alcoholic solution of rosolic acid.[7] The paper was soaked in the solution and then hung up in the air to dry. While still moist, the paper was yellow, but on drying, which occurred rapidly, it became a delicate salmon pink. The serum was obtained in the usual way from the finger or ear of the patient, by capillary tubes, which, after the blood had clotted, were placed in the centrifuge. After the serum had separated, the tubes were opened with a file and a small drop of the serum removed by a capillary pipette and placed on the filter paper. The normal serum produced a strongly marked red color which contrasted well with the unchanged parts of the paper.

The serum in two cases of diabetic coma did not produce this change in color. The same observation was made in the case of a patient suffering with acute meningitis, and at the time of examination, in a comatose condition. The urine of this patient contained acetone, but no sugar. At autopsy the case proved to be one of basillar meningitis. The serum from a large number of cases of coma due to meningitis, without acetonuria, showed the normal alkaline reaction to rosolic acid.

The serum from a case of acute jaundice showed the same reduction in alkalinity that was observed in the diabetic coma. The serum in this case was yellower than normal and left a yellow stain on the paper quite distinct from the pale color of the diabetic reaction.

The blood from a number of athletes was examined in a similar way to determine if a variation in the alkalinity of the blood could be shown to occur after extreme physical exertion. For this purpose the blood was taken from members of the senior class crew immediately after a hard four-mile race, when all the crew were in a state of considerable exhaustion. The reaction was normal. No variation from the normal was observed also in the serum of a runner who had just completed a two-mile race and who was completely exhausted, fainting immediately after the blood had been obtained.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

* From the Laboratories of Clinical Pathology and Biological Chemistry of the Harvard Medical School and the Boston City Hospital.

[1] Friedenthal: Ztschr. für allgem. Physiologie, 1902, i, 56; 1904, iv, 44.

[2] Höber: Archiv für die gesammte Physiologie, 1900, lxxxi, 522; 1903, xcix, 572. Also Hofmeister's Beiträge, 1903, iii, 525.

[3] Fränkel: Archiv für die gesammte Physiologie, 1903, xcvi, 601.

[4] Farkas: Archiv für die gesammte Physiologie, 1903, xcviii, 551.

[5] Other articles on the subject which may be consulted are: Benedict, H.: Archiv für die gesammte Physiologie, 1906, cxv, 106-117. Szili, Alex.: Ibid., pp. 72 and 82.

[6] Salm, Eduard: Ztschr. für physikalische Chemie, 1906, lvii,

[7] The rosolic acid paper mentioned above may be obtained from Dr. R. L. Emerson, 739 Boylston St., Boston.

A number of cases of marked diabetes, with large quantities of acetone and diacetic acid and high sugar percentages, gave perfectly normal reaction. In all these cases there was no disturbance of consciousness, some of the patients being up and attending to their affairs.

A second experiment was carried out to verify these clinical observations. A rabbit was fed 25 c.c. of a 0.9 per cent. solution of HCl daily for two weeks. The serum showed no variation during this time. An increase in alkalinity above the normal has so far not been observed in any case.

At times, in cases of diabetes, an intermediate reaction between the normal and the marked reaction of the diabetic coma has been observed. It appears as a delayed reaction. The paper remains unchanged by the serum at first, but after a few seconds the red color gradually appears and attains its full normal intensity in a minute or two. This appears to be due to the loss of CO_2 by the serum on exposure to the air, and interferes with the use of the intermediate color ractions for quantitative estimation in the present form of the method.

From these observations it appears probable that the reaction of the blood is maintained at the normal point of ionization even in cases of marked acidosis. When, in extreme cases, the entire reserve of alkali is exhausted and the concentration of H ions increases, the result is coma. That this variation is extremely small, probably not more than $1.5^{-1}\times10^{-7}$n.H., is in full accord with the accepted views on the delicacy of the equilibrium that is constantly maintained in the body and the sensitiveness of living protoplasm in general to variations in reaction.

Henderson and Black[8] have shown that in a system containing both free and combined carbonic acid in which there is not great variation in the tension of carbonic acid, the H and OH ionization correspond to those of blood serum and that enormous variation in $NaHCO_3$ results from slight variation (corresponding to that found in blood)in H and OH ionization. Therefore, it follows that variations in reaction to rosolic acid indicate not only H and OH ionization, but also $NaHCO_3$ content of blood, perhaps the most important factor in acidosis.

The present investigation shows that the slight variation in H and OH ionization heretofore detected only by the aid of the concentration cell can quite certainly be observed with the aid of properly chosen indicators, thus making possible the clinical investigation of the subject. It remains to determine which the best method of application may be, and then to proceed to a quantitative clinical study.

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[8] Henderson and Black: Am. Jour. of Physiol., April, 1907.

Diagnosis of Suppurative Labyrinthitis.—W. P. Eagleton has tested the value of v. Stein's symptom in diagnosing suppuration of the labyrinth and gives his conclusions in the *Archives of Otology*, June, 1907. He believes that the symptom has a value in chronic non-suppurative aural disease in which the labyrinth has become affected and that it is a very valuable aid in diagnosing the chronic suppurations of the semicircular canals. The symptom is probably more marked in cases of early involvement of the labyrinth, and may persist in some cases after drainage. The symptom described by v. Stein consists in "a peculiar inability of patients suffering from labyrinthine disturbances to execute delicate co-ordinate movements."

THE VESSEL CHANGES AND OTHER HISTOLOGIC FEATURES OF CUTANEOUS SYPHILIS.*

JOHN A. FORDYCE, M.D.
Professor of Dermatology and Syphilology, University and Bellevue Hospital Medical College.
NEW YORK CITY.

While the literature covering the pathologic anatomy of syphilitic lesions is very extensive, it contains little which tends to elucidate the manner in which the process develops and spreads, many of the descriptions applying equally well to the other infectious granulomata. In order to arrive at any satisfactory conclusion or obtain a proper conception of the reaction the syphilitic organism produces it is necessary to examine an enormous amount of material, not only in different stages of evolution of a given lesion, but also in series. The present article is an endeavor, not by any means to cover the entire histopathology of cutaneous syphilis, but rather to point out some features in the histologic picture of the early and late lesions which are more or less pathognomonic and which perhaps offer some data on which to base a microscopic diagnosis.

Aside from the presence of the spirochætæ in the tissues, the reaction which they excite is more or less peculiar to this condition and should enable one to make a diagnosis in the majority of instances. It is a not infrequent experience of dermatologists to meet with cases where surgeons have excised initial lesions on extragenital parts under the mistaken diagnosis of malignant growths. To the expert the clinical features of such lesions should be sufficiently distinctive to exclude the latter, and where there is a doubt it is often a simple matter to examine histologically and differentiate the growth from carcinoma, which is about the most common condition which comes into question.

Hoffmann[1] believes the spirochætæ enter the lymph spaces of the rete where they are protected against phagocytosis or immediately make their way into the lymph vessels of the papillæ. Only after about three weeks, when multiplication has taken place, does a reaction appear. The first changes then would be an endo- and perilymphangitis, followed by budding of capillaries, infiltration and connective tissue hyperplasia. According to the findings of Ehrmann[2] the lymph vessels are involved secondarily, the earliest change taking place in the connective tissue interstices, followed by new capillary formation and perivascular infiltration. He based his deductions on gelatin injection experiments with initial lesions immediately after their excision. Unless special technic is observed the vessels can not readily be differentiated. In a general way, however, the arteries are distinguished from the accompanying veins and lymphatics by their thicker coats and greater abundance of elastic fibers. In an infiltration the media is relatively free and appears as a band separating the intima from the exudate. The walls of the lymphatics are thinner than those of the veins. The lymphatic capillaries are apt to have a more irregular lumen than the blood capillaries and a less complete lining. Their lumina often contain infarctions of a homogenous substance and sometimes a few lymphocytes.

In practice, as a rule, patients do not present themselves until some days after the appearance of the primary sore, when it has already progressed beyond the classical coat-sleeve infiltration and both blood and lymph vessels are involved. The following are brief descriptions of several chancres, all with the same characteristic changes but in different stages of development:

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Die Ætiologie der Syphilis: monograph, 1906.

[2] Archiv. f. Derm. u. Syph., 1904, lxviii, 1.

In one, less than a week old, the epidermis was eroded over a portion of its extent and compressed into a narrow band with obliteration of the pegs. Beyond the erosion acanthosis and emigration of leucocytes were the chief changes. In the corium the infiltration was quite diffuse superficially, encroaching upon the epidermis, but below it was distinctly "coat-sleeve" (Fig. 1), and consisted of small lymphocytes, plasma cells, mast cells and proliferated fibroblasts, many of the latter being uncommonly long, either spindle-shaped or stellate with fine processes. Large cells also appeared with irregular bodies, granular protoplasm and hyperchromatic nuclei, some eccentric and others central; they were probably cross sections of swollen fibroblasts. Where the cells were confined to the vessels they were several layers deep and consisted of the round and plasma variety. The capillaries were increased in number and, with the exception of a few in the upper cutis which were dilated, the majority had either swollen or proliferated endothelium. The walls of the larger vessels were thicker than normal and their lumina somewhat narrowed. A number of the lymph spaces were simply dilated, others showed proliferated endothelium. There was no apparent collagenous hypertrophy or edema.

In a specimen six days old the epidermis over the most active part of the lesion was converted into a flattened amorphous layer containing many round and polynuclear cells and, superficially, blood pigment. The ridge system was replaced by a dense zone of cells, lymphocytes predominating. On either side the contiguous epidermis showed acanthosis and emigrated leucocytes. In the cutis the area of greatest intensity was made up of many new-formed capillaries and an infiltration of lymphocytes, plasma cells, mast cells and fibroblasts. A number of occluded blood and lymph capillaries were scarcely recognizable in the dense exudate; others had swollen or proliferated endothelium and had their lumina distended with blood or narrowed as the result of proliferation and compression. The larger vessels showed a decided thickening and infiltration of the adventitia, with or without a corresponding change in the intima. The connective tissue of the cutis was the seat here and there of a slight fibrosis.

In an ulcerated chancre there was a great increase in capillaries in the upper layers of the corium, some of which were filled with blood; others were empty. The infiltration, of the same type as in the preceding cases, was so dense that the cells had the appearance almost of a mosaic. Longitudinal, oblique and transverse sections of the capillaries showed proliferation of their lining and narrowing or obliteration of their lumina (Fig. 2). The larger vessels in addition were the seat of a periarteritis and infiltration. In the inferior portion of the cutis were present several large vessels containing organized thrombi, their walls presenting the characteristic changes of a panarteritis. There was no appreciable hypertrophy or edema of the collagenous tissue.

In a chancre at the height of its development there was an acanthosis of the epidermis, with clubbed and knobby rete pegs, some edema and parakeratosis. The cutis was very cellular, only a few strands of connective tissue being visible here and there. A narrow band in the inferior portion of the cutis had the appearance of condensation. A number of blood and lymph capillaries in the papillary layer were dilated and empty, with no apparent change in their endothelium. In those situated more deeply, however, an endarteritis obliterans was present and only solid cords remained to indicate their previous position. Many of the vessels contained thrombi of a homogeneous material which partially or completely filled their cavities. Evidences of fatty degeneration and retrograde metamorphosis were present in patches of cloudiness and vacuolization.

In sections from the edge of a fully-developed chancre, including healthy tissue, were seen some acanthosis of the epidermis, the pegs being more widened than lengthened, and an invasion of leucocytes. In the papillary and upper reticular layers of the corium through the edge of the chancre the infiltration was diffuse and the blood and lymph capillaries were markedly dilated and increased in number, some containing thrombi. Endothelial proliferation was slight, the cells being more closely packed but not encroaching on the lumen. Passing through the reticular layer of the hypoderm the infiltrate was very dense and many of the cells so distorted from pressure that it was difficult to say to which type they belonged. In this area no lumina were visible, only the thickened occluded vessels. In the adjoining tissue an endo- and periarteritis were present and the perivascular exudate was composed largely of plasma cells. Bands of hypertrophied connective tissue surrounded some of the vessels and part of the active infiltration.

Summing up, then, the main features of the primary lesion we have: 1, An increase in blood vessels and consecutive changes in their walls; 2, cellular infiltration; 3, involvement of the connective tissue; 4, secondary epidermic changes.

Many causes have been assigned to the hardness of the sclerosis, as capillary lymphangitis with suffusion of the neighboring connective tissue;[3] infiltration cells, thickening of the vessel walls, new growth of connective tissue and dryness and rigidity of the cutis; hypertrophy of the collagenous tissue;[4] swelling of the collagenous tissue, distension of lymph spaces with lymphocytes and an edema.[1]

Of those that have come under my observation only a few showed fibrosis and, with the exception of two, in so slight an amount that it does not seem sufficient of itself to produce the degree of hardness clinically appreciable. The two referred to are the last one above described and a flat chancre in which hyperplasia was a noteworthy feature. In another lesion of the chin, which was very hard clinically, the sections were almost entirely cellular, with numerous vessels and but little connective tissue, so that the collagenous tissue hypertrophy as the factor which has been evoked by Unna and others does not seem to explain the condition. The closely aggregated sclerosed vessels probably play a greater rôle than has been given them.

The erosion is analogous to the central involution of the later lesions and is due to necrosis of the infiltration and the overlying epidermis. In phagedenic chancres one or several elements are to be considered; either secondary infection, lack of resisting power on the part of the affected individual, vessel changes and possible toxins capable of producing local necrosis.

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[3] Ricord, quoted by I. Neumann: Syphilis, 1906, p. 74.

[4] Unna: Histopathology of the Diseases of the Skin, p. 529.

The involution of a chancre is brought about by fatty degeneration, the compression and narrowing of the vessels leading to disturbances in nutrition and retrograde changes. Ehrmann is of the opinion that spontaneous healing takes place by phagocytosis.

When it comes to secondary manifestations of the disease, as a rule, all doubt is removed and a histologic examination as an aid to diagnosis does not come into question, excepting, perhaps, in certain drug eruptions, as bromid and iodid, which may simulate very closely certain ulcerative and fungating syphilitic lesions. A case of this sort recently came under my observation, where fungating lesions were present about the face and genitals of a young woman along with a general rash, which were distinguished with great difficulty from a possible specific infection. Fungating growths of the vulva resembling flat condylomata were examined very carefully for spirochætæ with negative result.

The evolution and histology of the roseola and papule seem to show that these lesions are embolic rather than toxic. A possible explanation of the development of circinate and gyrate lesions by the involvement of a terminal vascular cone has been suggested.

In the roseola Hoffmann[1] found spirochætæ in the dilated end capillaries of the papillæ, and the long interval which elapses between their entrance in the body and the appearance of the efflorescence suggested that the organisms give off few toxins, which only after a longer period are capable of producing a deleterious effect. Or, according to Thalmann, an endotoxin liberated on destruction of the body may be causative.

Histologically, a macular lesion presents a mild reaction. The epidermis may be unchanged or flattened out with loss of the ridge system. In the upper corium the vessels were moderately dilated, filled with blood and ensheathed by a slight infiltration of round cells. The endothelium was swollen, and round and spindle cells were seen in the adventitia of the larger vessels. The cutaneous appendages were normal and surrounded by a few lymphocytes.

The small miliary papule, lichen syphiliticus (Fig. 3), is a follicular process extending from the epidermis into the cutis below the hair papilla. The infiltrate was located about the hair follicle, which remained intact and sent outgrowths into the surrounding nodule, which nodule was composed of a reticular structure holding new-formed blood vessels, round, plasma and connective tissue cells in its meshes. Most of the vessels inside of the nodular area were obliterated, but at the periphery they were filled with blood. A number of the superficial ones were thrombosed and appeared like giant cells. Away from the perifollicular disposition the vessel walls were thickened somewhat and mantled by round and plasma cells. The coil glands were frequently the seat of a marked fatty degeneration and surrounded by an effusion of round and plasma cells. The erector pili muscles were likewise infiltrated. The epidermis was slightly edematous and thinned. There was present sometimes a pustule, produced by the instability of the tissue matrix and liquefaction of the syphilitic infiltrate.

In the large papular syphilide there were present in the epidermis parakeratosis, acanthosis and edema, with a marked invasion of polynuclear leucocytes. Epithelial mitoses were rather frequent. The cellular infiltration in the early stages (Fig. 4) of the lesion was limited to the vessels in the upper part of the corium, and the papule was produced chiefly by the epithelial hyperplasia, but later it was more diffuse and surrounded all the vessels of the deep and superficial plexuses. Most of them had thickened walls and consequent diminution of their caliber, but here and there a few remained dilated and showed little if any change. Some were partially thrombosed. Not infrequently immediately about some of the vessels and coil glands there occurred a degeneration of the connective tissue, reducing it to a fibrillary network which took the basic stain faintly and was probably toxic in origin. The cellular exudate was composed of round cells with a few plasma cells scattered between them. There was also hyperplasia of the fibroblasts. The pustulation which occurs in the large papule represents in a major degree the central involution which takes place.

The rupial syphilide showed a very marked parakeratosis with leucocytic infiltration of the entire horny layer and here and there an aggregation of cells, coagulated serum and detritus entering into the crust formation. The overgrowth of the rete was irregular, many of the pegs being narrow and pointed, others widened and bulging into the cutis. It was edematous, in places necrotic, and lymphocytes were so numerous in it that many of the epithelial cells were completely hidden.

The cellular effusion in the corium was quite superficial, being almost limited to the papillary and immediately subjacent layer, except where it followed along the course of a hair follicle or mantled a few of the deeper vessels and coil glands. In the papillæ blood and lymph capillaries were markedly dilated, some containing a homogeneous substance. Where the inflammatory reaction was most intense the vessels were narrowed, the larger and deeper ones showing more of an adventitial proliferation. The fibroblasts were increased in number; no giant cells were present. A mucinous degeneration appeared about the coil glands and some of the vessels.

In the nodular or tubercular syphilide the entire cutis from the epidermis to the subcutaneous fat tissue was involved, under a low power showing alternating light and dark areas, the former representing the altered blood vessels and the latter a cellular effusion. Under the high power the infiltration was composed of plasma and giant cells, lymphocytes and hyperplastic fibroblasts. The vessels, increased in number, showed the effects of an obliterating endarteritis (Figs. 5 and 6), their former site being marked by solid cords, groups of irregularly-disposed cells with pale staining nuclei and giant cells with peripheral or central nuclei or both. Near the edge of the section were a few vessels with narrowed lumina and a hyperplasia of all their coats. A number of the lymph spaces were thrombosed. The few remaining bundles of connective tissue had here and there a vacuolated appearance, the result probably of a fatty degeneration and beginning regression. The epidermis was flattened out into a very thin band.

The gumma (Fig. 7) compromises the derma throughout its entire extent with marked vascular changes, a diffuse infiltration and necrotic foci. Viewed with the low power, there was apparently a decrease in the number of blood vessels, but on careful examination it was found that many were obliterated or had their caliber reduced and their walls thickened. The infiltration consisted of lymphocytes, plasma cells and a large number of hyperplastic fibroblasts. One or more areas of caseation were observed and about them fragmented nuclei. When intact the epidermis usually presented no changes beyond a reduction in thickness.

From the foregoing descriptions it will be seen that the differences existing between the various specific lesions are of degree rather than kind. With the exception of the macular syphilide, all consist of a dense infiltration of the same kind of cells, as a rule the lymphocyte being the most common. However, in some specimens lymphocytes in others plasma cells predominate, but not with sufficient constancy to accept their presence, numerically, as of pathognomonic value. The exudate begins in the papillary layer about the superficial plexus, from thence involving the deeper tissue.

Changes in the collagenous tissue, except as it is replaced by granulation tissue, are not regular and are often so slight that they are not worthy of comment. In viewing a series of lesions from a given number of cases I found that ordinarily the changes were not sufficiently well marked to be of any practical diagnostic aid. Nevertheless, both hypertrophy and atrophy of the connective tissue, as a result of vessel changes, do occur. An instance of the latter was reported by me in a case of symmetrical cutaneous atrophy with the coincident development of syphilis of the skin and nervous system,[5] the alterations in the vessels' walls (Fig. 8) and the perivascular infiltration pointing strongly to these structures as the primary seat of the trouble. Or a productive interstitial inflammation may be secondary, which is illustrated in the accompanying photomicrograph (Fig. 9) of a syphilitic laryngitis, the larynx having been extirpated under the mistaken diagnosis of a malignant growth.

It is not uncommon to find an epithelioma developing on a syphiloma (Fig. 10), especially about the oral cavity. The epithelial hyperplasia is probably brought about by irritation, increased hyperemia, as well as by changes in the underlying connective tissue permitting an epithelial downgrowth.

Coming to the vascular system, in all the lesions except the macule the reaction is marked, being of greatest severity in the late secondary and tertiary stages of the disease and showing all grades from swelling of the endothelium to proliferation of all the coats and obliteration of the lumen. It is very likely that there are two processes, one taking its origin in the adventitia and the other in the intima, possibly simultaneously, or, as investigations on the cerebral arteries suggest, independently of each other.

Hansemann[6] is of the opinion that the syphilitic virus has a special predilection for the endothelial cells, whether of the endocardium, large or small arteries, veins or lymphatics; all the rest may be involved secondarily. To the vascular changes may be attributed the formation of giant cells so frequently encountered in the nodular and tubercular syphilide and in some of the early secondary papules. It is rare to find them in gummata, and it has not been my experience to find them in initial lesions, although Unna and Rieder claim to have done so. They appear to be a more constant feature of the tubercular and serpiginous lesions, in which they are often present in groups. In many instances it is simple enough to trace their formation to proliferated endothelium and thrombosed lumina. In others it is much more difficult to establish such a relationship, but if sections in series are studied it is demonstrable. The type most frequently met with is the Langhans with peripheral nuclei; the myeloid with central nuclei occasionally. In one case a double row of nuclei appeared whose formation it was difficult to explain.

Giant cells of specific lesions differ from those found in lupus in being less completely formed, in showing in many instances only a partial thrombosis and in their irregular nuclear multiplication, suggesting that the process is a more acute one. As they are more numerous in serpiginous than other lesions, it has occurred to me that the extension of those lesions could be explained by the progressive thrombosis of the vessels. Many specimens support this idea, but especially one from a serpiginous lesion of the thigh (Fig. 11), in which the histologic findings consisted of foci of groups of thrombosed vessels with a moderate cellular effusion.

While apparently true of cutaneous syphilis, it is not intended to impute to metamorphosed vessels the origin of giant cells in all specific processes. Versé[7] found in arteritis syphilitica cerebralis giant cells in all layers of the vessel wall in one of his cases, but especially in the intima where they flanked the entrance to an aneurism and had an enormous number of nuclei. In other cases they were found in the necrotic media. He believed that many of them were foreign body giant cells. v. Baumgarten[8] has expressed the belief that the presence of giant cells in syphilitic processes indicated a combination of tuberculosis and syphilis, but in none of the cases that came under my observation was tuberculosis demonstrable anywhere.

The syphilitic products show a greater instability in some lesions than in others, as in the pustular, rupial and gummatous. In the two former, perhaps, the question of soil is the more significant, while in the latter the severe vessel alterations interfering with nutrition offer an explanation. The involution of the efflorescences is brought about by necrobiosis, fatty metamorphosis and caseation.

Recurrences in pre-spirochæta days were explained by Neumann[3] as due to the proliferation of cells which remained at the site of the original lesion. Now, however, the multiplication of remaining spirochætæ is invoked as the cause by Neisser.[9]

An important aid in the clinical diagnosis of syphilitic skin lesions is often rendered by the observation of the so-called pigmentary syphilide of the neck, which is occasionally seen either as a primary condition or as a sequel to a pre-existing erythematous or papular eruption. It occurs more often in brunettes and is an important corroborative evidence of syphilis after other manifestations of the disease have disappeared. Pigmentation in syphilis is favored by a cachectic condition of the individual and also by the presence of an old nephritis. In my service at the City Hospital it is not infrequent to see a syphilitic infection in a patient with an antecedent nephritis, in whom the development of pigmentation is a common occurrence and often very marked.

Recently Hoffmann[1] has ascribed to the spirochætæ a rôle in the diminution and increase of pigment in specific lesions. He found that in the areas invaded by the organisms the pigment in the epidermis was entirely lacking or very much reduced in amount. This depigmentation he considers the result of a local action—the body toxins—of the spirochætæ. The deeper marginal pigmentation surrounding spots of leucoderma is probably brought about by their peripheral progression, which occasions at first an increase and later, by intensity of action, a disappearance of pigment. The diffuse bronzing of the skin, seen especially about the neck, he believes to be due to the action of the spirochætæ on the suprarenals, for which they appear to have a special predilection.

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[5] Jour. of Cutan. Dis., April 1904, xxii. 255.

[6] Trans. V. Internat. Derm. Kongress, Berlin, 1904, p. 205.

[7] Ziegler's Beitr., 1907, xl, 409.

[8] Verhandl. der Deutsch. Patholog. Gesell. iii.

[9] Die experimentalle Syphilisforschung nach ihrem gegenwärtigen Stande; monograph, 1906.

The conditions from which syphilis is to be differentiated are tuberculosis, lichen scrofulosorum, blastomycosis, leprosy, epithelioma and drug eruptions. It often requires the minutest examination to draw a distinction between specific lesions and lupus, as exemplified in several specimens in my collection, notably a syphilide from the flush area of the face (Fig. 12) and another from the back of the finger. The latter had been diagnosed clinically as a lupus. The following points may serve as a guide: In syphilis there is a greater degree of proliferating endarteritis and other vascular changes; many of the giant cells are incomplete and can be traced to the vessels, and progressive and retrogressive changes are more rapid than in lupus.

The small follicular lesion presents a picture so closely resembling that of lichen scrofulosorum that it can scarcely be differentiated from it microscopically, and we are obliged to take into consideration the clinical features, as the age of the patient, the presence of concomitant symptoms of syphilis and the absence of scrofulosis.

In blastomycosis and leprosy it is such a simple matter to demonstrate their respective organisms in the tissue that the histologic changes are of secondary importance. Epithelioma is readily excluded by the presence of an epithelial growth in the corium.

The most frequent drug eruption that comes into question is the bromid, the lesions of which present epithelial hyperplasia with miliary abscesses and a diffuse infiltration of round and polynuclear cells, often with eosinophiles through the derma. Giant cells and vascular sclerosis are lacking.

All clinicians have observed that certain specific lesions yield to treatment with great facility, while others are obstinate in their response to therapeutic measures. It does not seem possible from ordinary histologic examinations to offer any explanations or draw any conclusions as to why this is the case. It may be that in one the spirochætæ are more malignant and in another the resisting power of the patient lowered. On the other hand, the reason may be sought on anatomic grounds, the implication of certain structures, as the vascular apparatus, for instance, where proliferation may interfere with the permeability and absorption of the therapeutic agent. However, these are simply hypothetical questions for which as yet no satisfactory solution is offered.

DISCUSSION.

Dr. A. Ravogli, Cincinnati, said that, although the alterations in the blood vessels produced by syphilis have been well recognized, it is difficult to understand how they are affected in that way. We do not know whether the blood, carrying the spirochætæ, affects first the intima or the adventitia. He has come to the conclusion that the adventia is first affected and then the intima, probably not from the spirochætæ in the blood current, but from the spirochætæ carried to the tunics from the lymph-vessels. He has been fortunate enough to secure one very fine specimen showing two spirochætæ just inside the adventitia surrounding the vessels. He was unable to photograph these small micro-organisms. The examination of the specimens of syphilitic tissues all show the tendency of the tissues to hyperemia and proliferation, the same as is found in leprosy and tuberculosis. He believes this peculiar proliferation to be the result of irritation produced by the presence of the spirochætæ in the connective tissue.

Dr. W. H. Mook, St. Louis, emphasized the difficulty of distinguishing between tuberculosis and the tertiary lesions of syphilis. He had in mind the two cases under Dr. M. F. Engman's and his own care of the frambesial form of syphilis, in which the diagnosis of tuberculosis verrucosa cutis or syphilis could be made. Sections showed typical plasma and giant cells, and it was only after two months of antisyphilitic treatment that the diagnosis of syphilis was decided on. Dr. Mook said that the differential diagnosis by histologic methods is sometimes very difficult in these cases, especially where there is any complicating infection.

Dr. W. G. Gottheil, New York City, said that he had seen very few photomicrographs equal to those illustrating Dr. Fordyce's paper. The usual picture of a syphilitic lesion bears such a close resemblance to so many other things, he said, that work of this kind, which gives us some definite data for the recognition of syphilitic lesions, is especially valuable.

Dr. M. B. Hartzell, Philadelphia, said that the difficulty in making a microscopic diagnosis between the lesions of tuberculosis and syphilis and some other infections is not to be wondered at when we recall that all these lesions are probably due to the presence of toxins in the blood. We formerly supposed that they were due to the direct presence of the micro-organism which is the cause of the disease, but we now know that the active agent in the production of most of the tissue changes is some toxin circulating in the vessels, and in consequence of this, the most striking changes are such as occur in the vessels themselves.

Dr. Charles A. Kinch, New York City, said that we should look to the lymphatic system for the tissue changes produced by syphilis rather than to the blood vessels. The changes in the blood vessels are secondary to those in the lymphatic circulation.

Dr. John A. Fordyce, New York City, said, in reply to a question by Dr. Schamberg, that to some of the types of giant cells in syphilis it is difficult to assign any origin. In other cases it is very easy to trace their development to obliterative changes in the vessels. The usual type seen in late syphilis is the Langhans giant cell, the peripheral nuclei of which are the proliferated endothelial cells of the smaller vessels, he has, however, encountered the myeloid cell in sections which could also be assigned to a vascular origin. He interpreted these nuclei as leucocytes entangled in a thrombus formation or endothelial cells which, through rapid proliferation, had lost their normal relations. In regard to the primary involvement of the blood or lymphatic vessels, to which Drs. Ravogli and Kinch referred, Dr. Fordyce said that in the early stages of syphilis, it is probably the lymphatic and in the later stages the larger blood vessels in which the chief changes take place.

Cream Puff Poisoning in Buffalo.—There have been many cases of ptomain poisoning in Buffalo from eating cream puffs and chocolate éclaires said to have been obtained from Faxon's bakery. Dr. Andre Le Coq, a chemist of Paris, France, who investigated many cases of poisoning from cream puffs and éclaires in Paris last summer, stated that the toxic action is always the fault of the eggs, never of mineral poison introduced accidentally, nor of the other ingredients of the cream. In a report to Mr. Faxon, Dr. Le Coq states: "The white plays a more important part than the yolk and it is generally at fault when the poisoning is due to fresh eggs, since it is commonly beaten up raw, while the yolk is sterilized by cooking. The microbes in it find in the sugar, milk and gelatin of the custard an extremely favorable culture medium. The yolk does its work when the poisoning is due to decomposed eggs, for cooking can not destroy the toxins and ptomains of putrefaction. Chemical analysis shows the presence, in the poisonous cakes or in the bodies of the victims, of alkaloidal substances not identifiable with any hitherto known, but as these analyses have been made after a considerable lapse of time, it can not be positively affirmed that these toxins are not simply due to putrefaction." It is safe to conclude that, in hot weather, éclaires, cream puffs and the like should be eaten within twenty-four hours after they are made. An investigation is being made by the department of health.

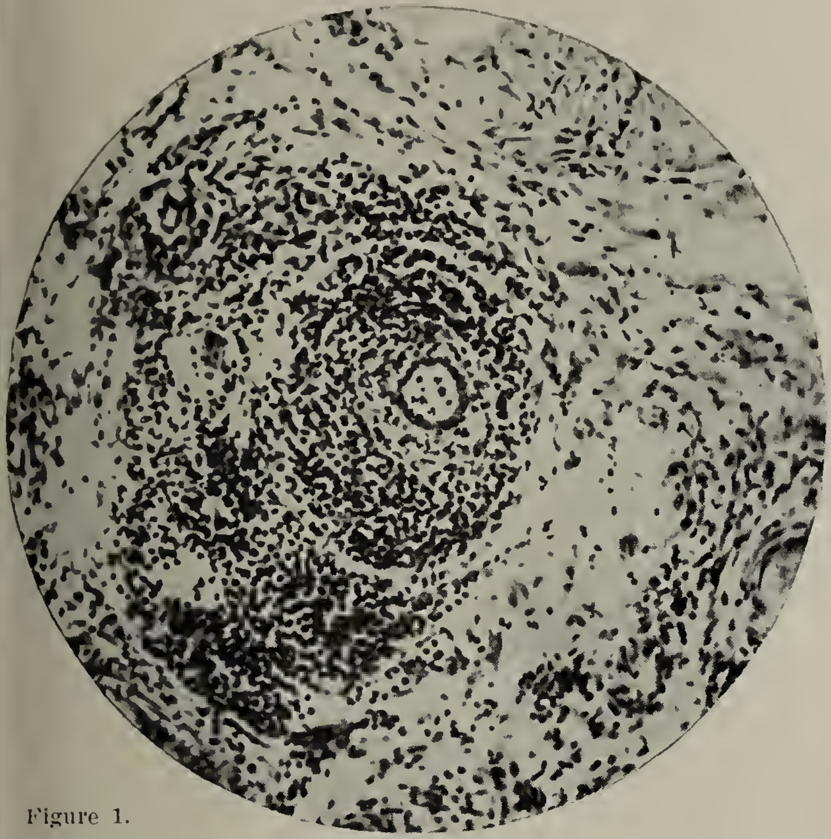


Figure 1.

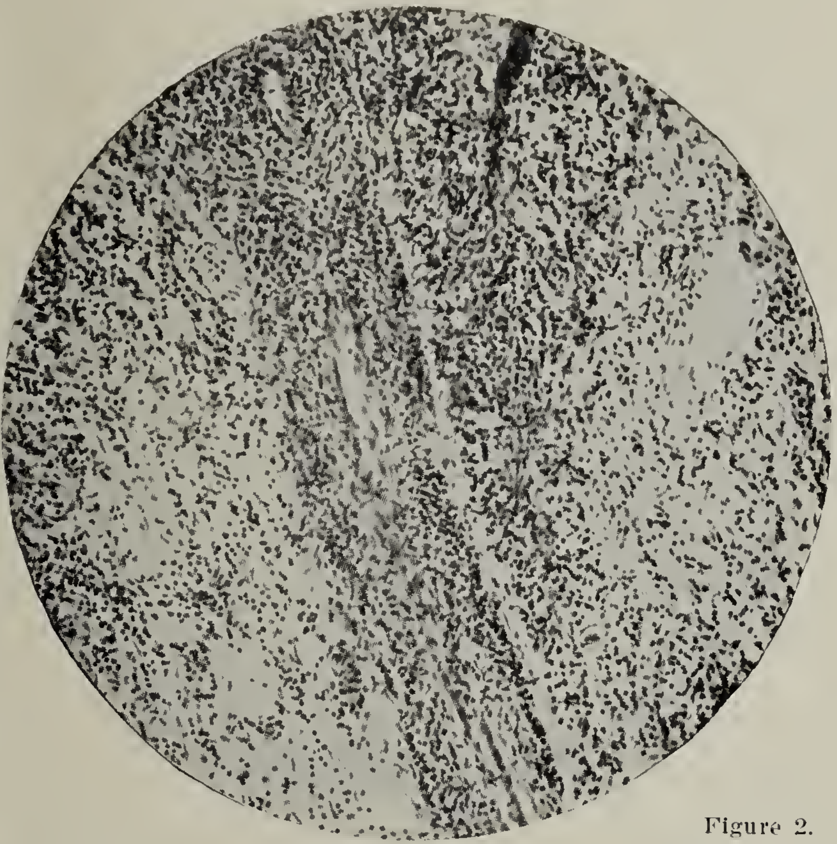


Figure 2.

Fig. 1.—Chancre of the penis. (Zeiss 8 mm., comp. oc. 4.) An early lesion with mantle of round and plasma cells about vessels. The latter are increased in number and show an endothelial proliferation. The intervening connective tissue contains hyperplastic fibroblasts and a few plasma cells and lymphocytes.

Fig. 2.—Chancre of the penis. (Zeiss 8 mm., comp. oc. 4.) An older lesion still showing the ensheathing of the capillaries with lymphocytes and plasma cells, but with the infiltration more diffusely distributed through the remaining tissue. All the vessels have a proliferated lining. In the center is seen a longitudinal section of a capillary.

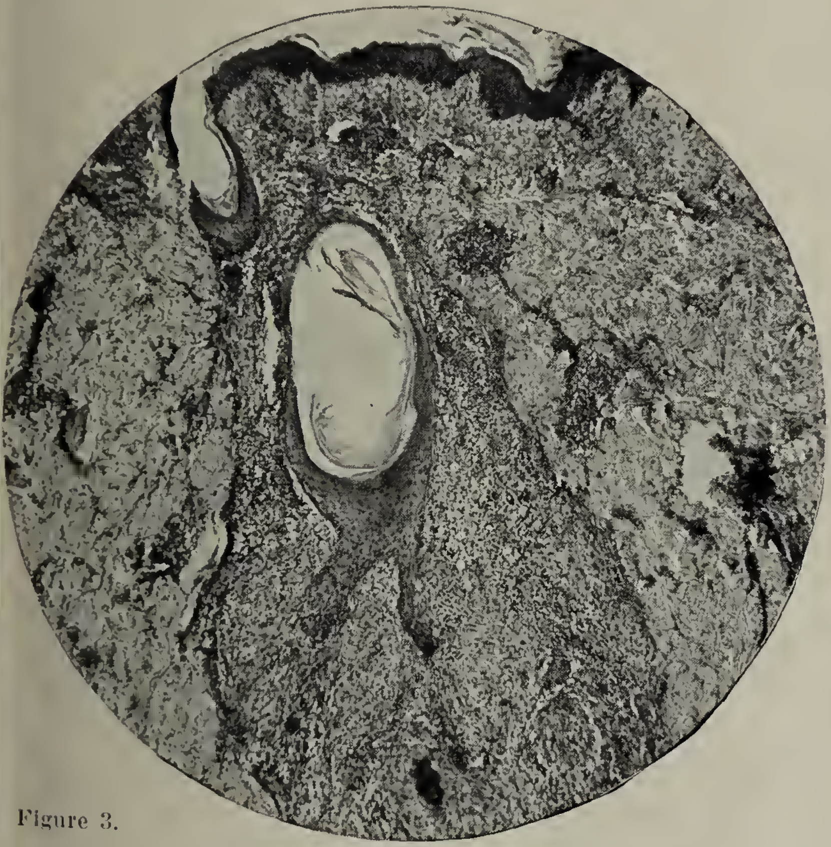


Figure 3.

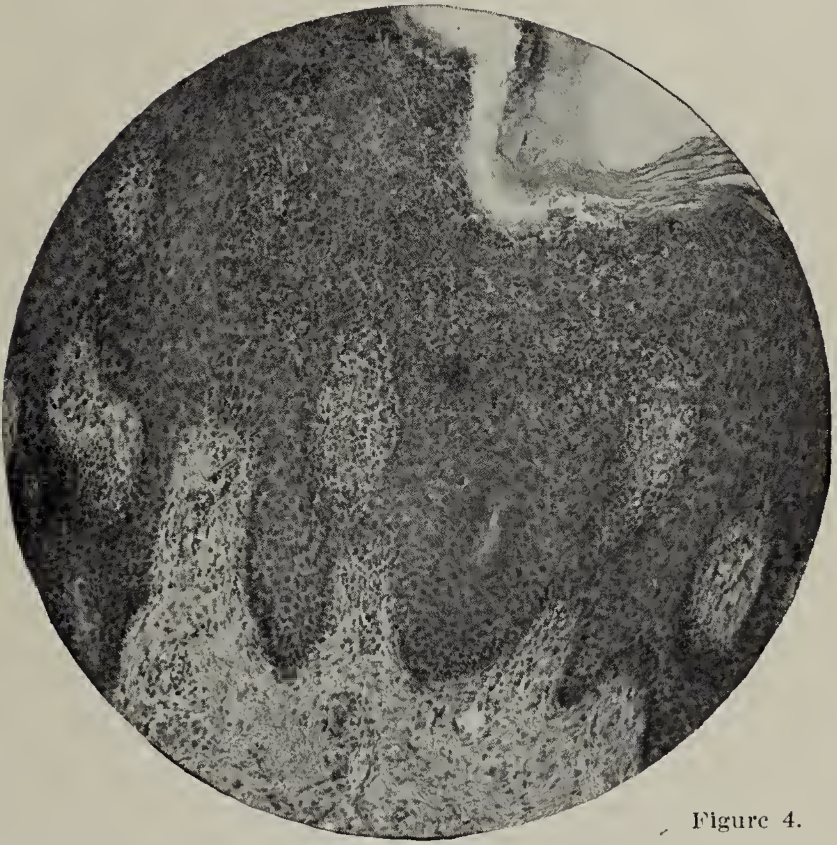


Figure 4.

Fig. 3.—Small papular syphilide, *Lichen Syphiliticus*. (Spencer 1 in., comp. oc. 4.) Illustrating the follicular nature of the lesion. The process extends along the hair follicle into the cutis below the hair papilla and consists of a reticular structure with round, plasma and connective tissue cells in its meshes. Inside the area many of the vessels are completely obliterated; others are thrombosed and simulate giant cells. At the periphery of the infiltration a few engorged vessels are present. Away from the perifollicular part the vessels are thickened and sheathed by a few round and plasma cells. The coil glands are surrounded by the same cellular elements and are the seat of a marked fatty degeneration. Two outgrowths from the affected hair follicle penetrate the active process. The epidermis presents no noteworthy changes.

Fig. 4.—Papular syphilide. (Spencer ½ in., Zeiss comp. oc. 4.) A lenticular papule removed in the early stage of the disease, showing acanthosis of the epidermis, with dense infiltration of leucocytes and necrosis of the upper layers. In the papillary bodies there is slight sheathing of the vessels with round and plasma cells. The lesion is produced chiefly by epidermic hyperplasia.

ILLUSTRATING ARTICLE OF DR. FORDYCE.

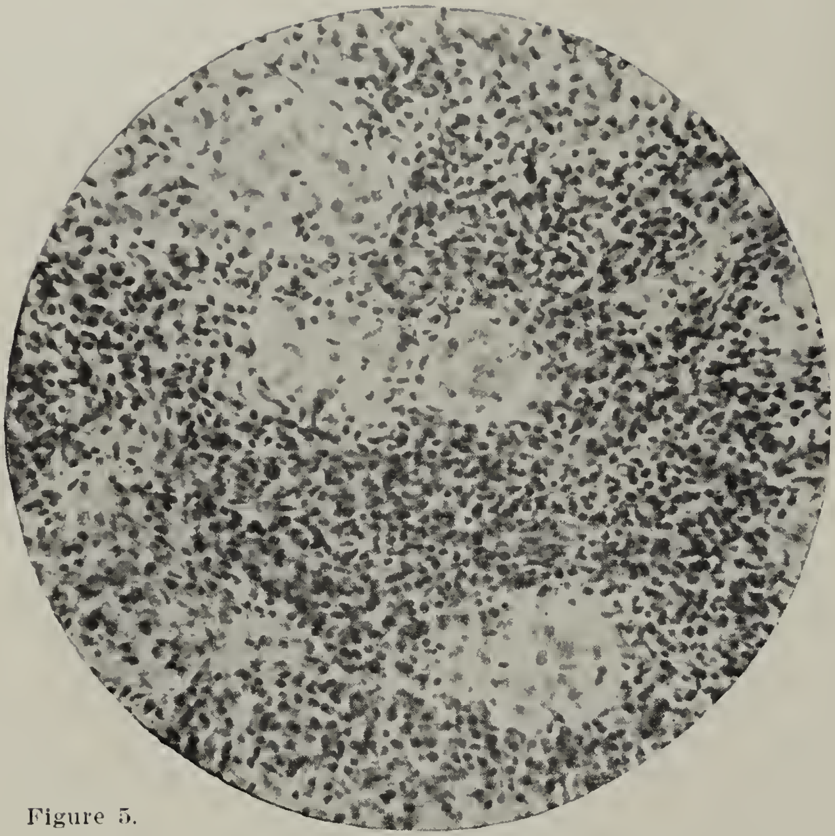


Figure 5.

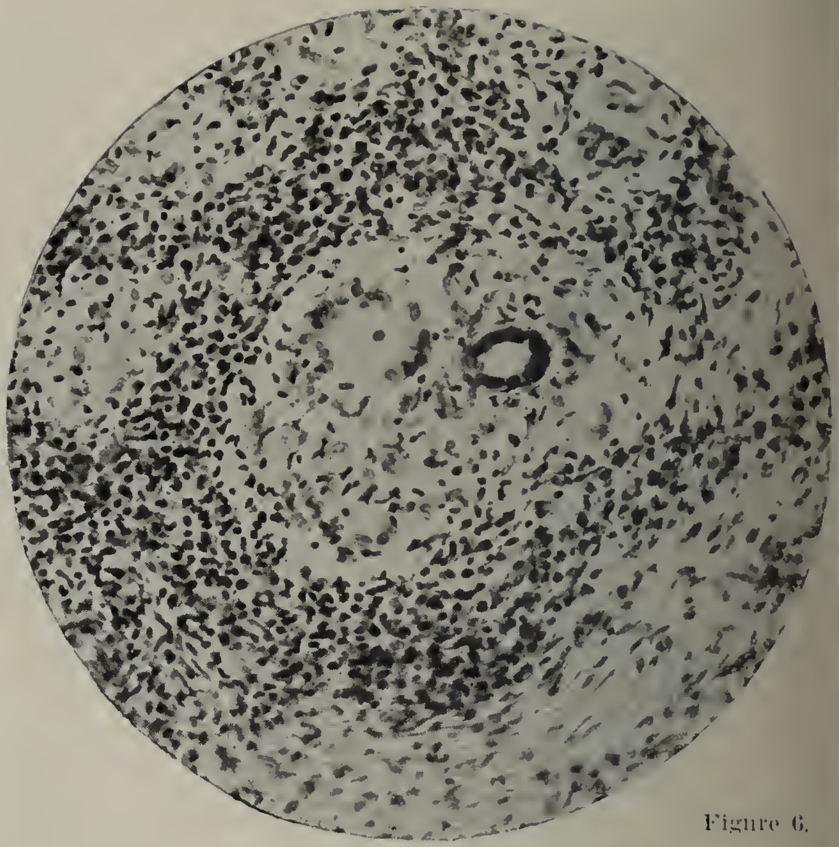
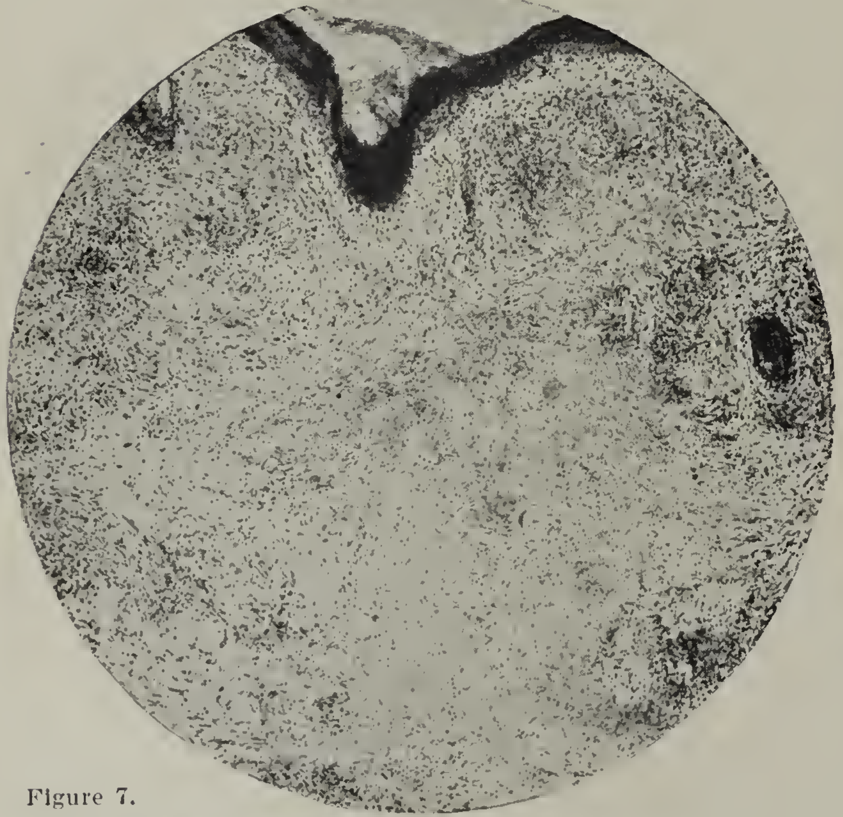


Figure 6.

Fig. 5.—Tubercular syphilide of the face. (Spencer ¼ in., Zeiss comp. oc. 4.) Showing obliteration due to endothelial proliferation and mantling of the transformed vessels by round and plasma cells.

Fig. 6.—Tubercular syphilide. (Zeiss ¼ in., comp. oc. 4.) A section showing obliterated and thrombosed vessels with a perivascular infiltration of round and plasma cells. A number of the vessels show simply an endothelial proliferation. The one in the center is, in addition, thrombosed and simulates a giant cell.



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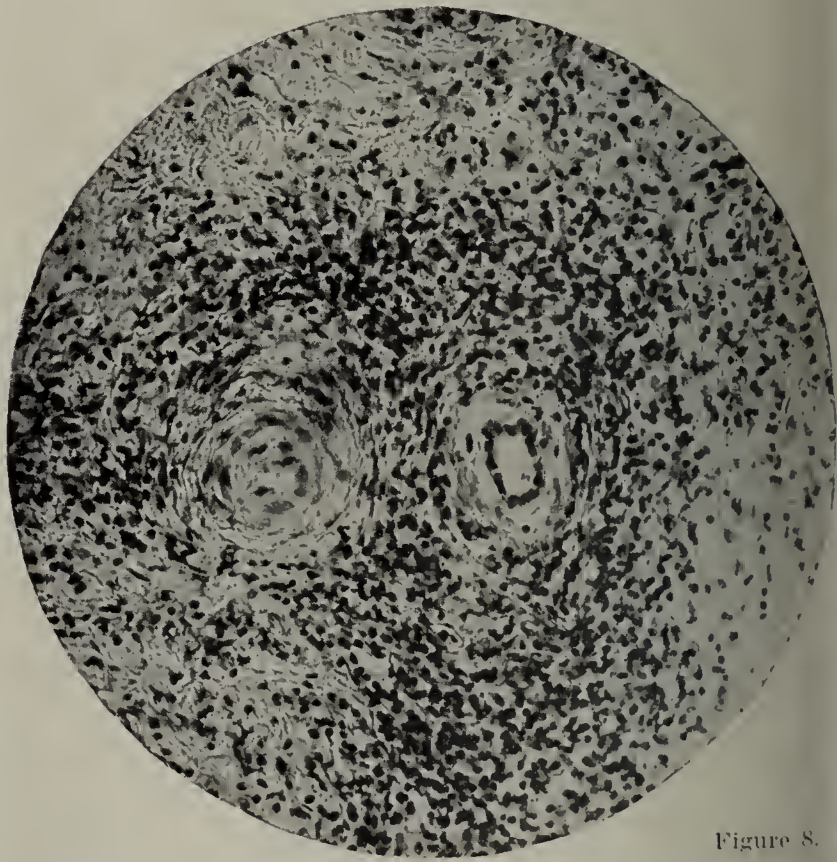
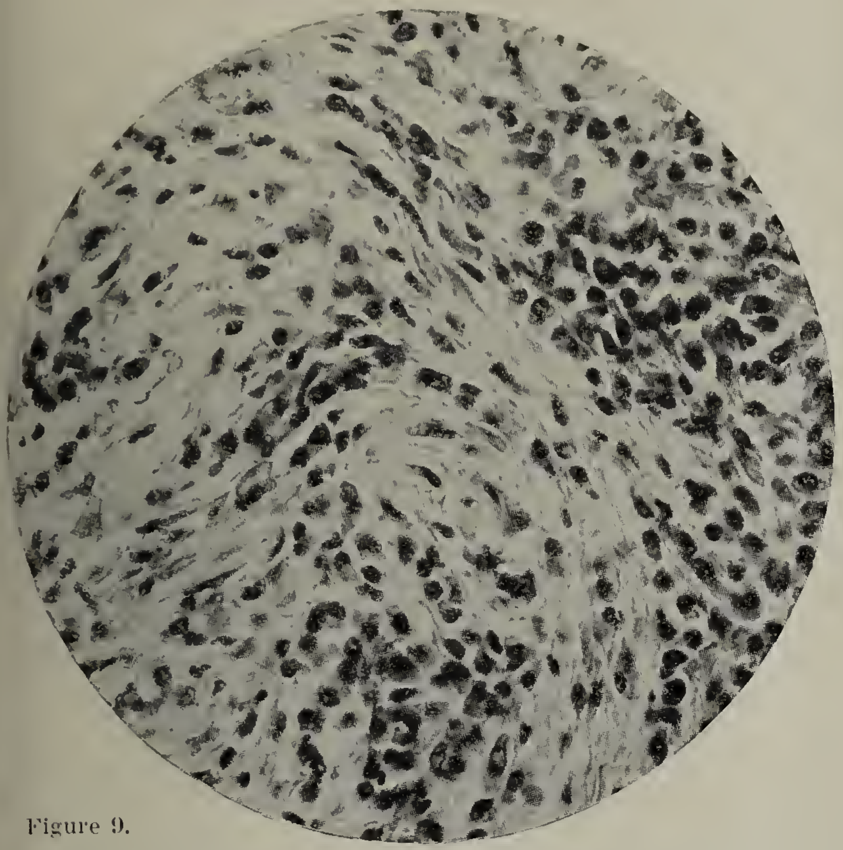


Figure 8.

Fig. 7.—Miliary gumma of the skin. (Spencer 1 in., comp. oc. 4.) The cutis is uniformly infiltrated with round, plasma and proliferated connective tissue cells and here and there shows areas of caseation. One is seen in the illustration in the middle third of the corium just to the right of the median line. The vessels have their caliber reduced in size or are entirely obliterated. The epidermis is thinned and its pegs are flattened out.

Fig. 8.—Symmetrical atrophy of the skin with syphilis. (Spencer ¼ in., Zeiss projection oc. 2.) Cross sections of an artery and a vein. The former shows a proliferation of its intima and adventitia with narrowing of the lumen; the latter is completely occluded by intimal proliferation. Surrounding them is an infiltration of round and plasma cells.

ILLUSTRATING ARTICLE OF DR. FORDYCE.



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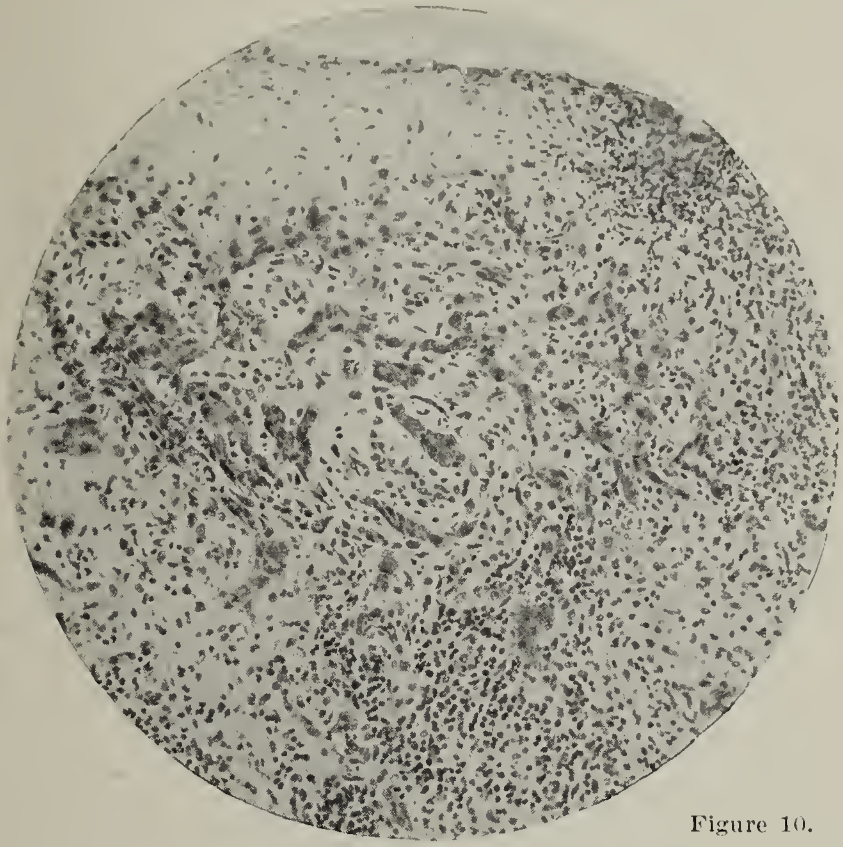


Figure 10.

Fig. 9.—Syphilitic laryngitis. (Spencer ¼ in., comp. oc. 4.) A productive inflammation of the larynx, showing hyperplasia of the connective tissue and an inflammatory infiltration of round cells and large numbers of plasma cells. The vessels are the seat of an endarteritis or panarteritis.

Fig. 10.—Epithelioma developing on a syphiloma of the lip. (Zeiss 8 mm., comp. oc. 4.) One portion of the lesion shows an ulceration extending to muscle of the lip. It is the seat of an intense infiltration of lymphocytes, through which are scattered some plasma and many polynuclear cells. There is a marked increase in the blood vessels and some hemorrhage is present. A number of the vessels are dilated and filled with blood, their walls presenting no perceptible change. Others are simply thrombosed, or again, their walls are thickened and the lumina occluded by proliferated endothelium. Several giant cells with peripheral nuclei are traceable to vascular changes. At the edge of the lesion are seen fine processes of proliferating epithelium peretrating the derma.

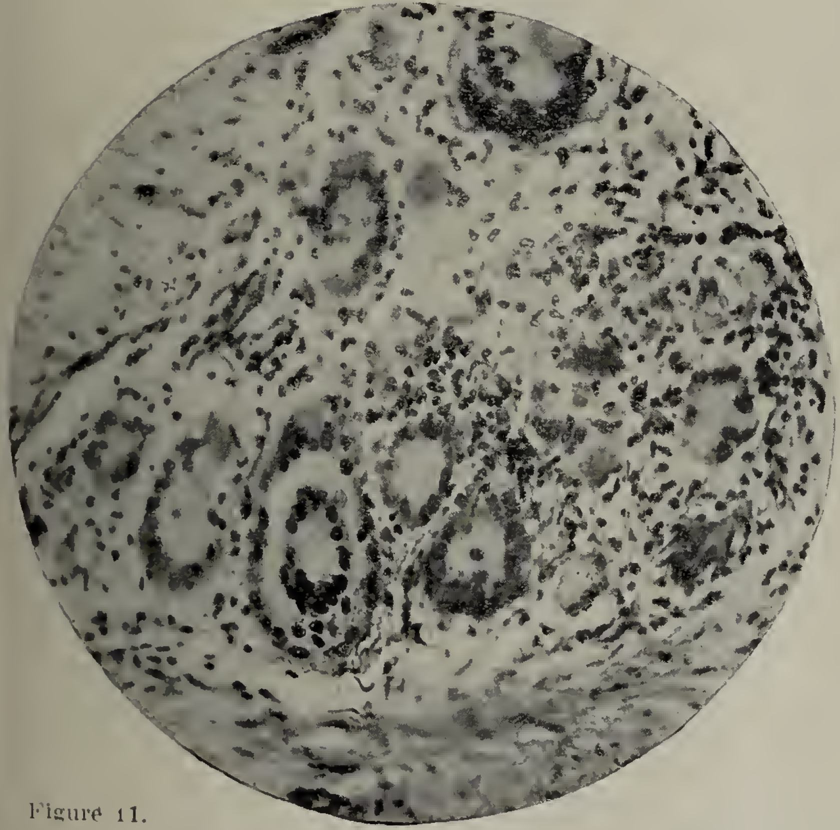


Figure 11.

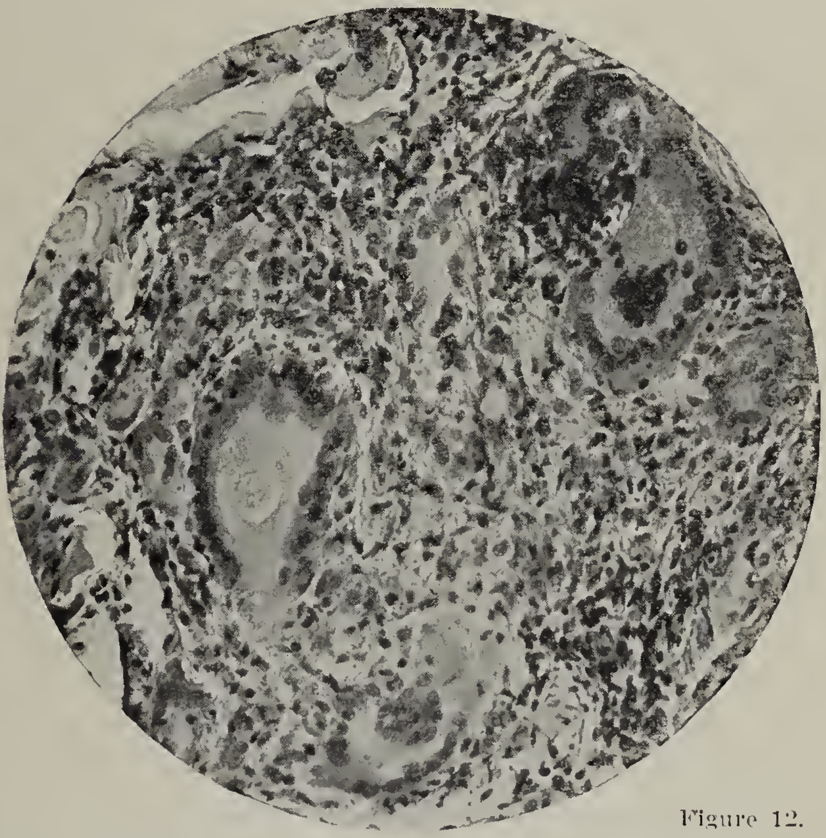


Figure 12.

Fig. 11.—Serpiginous syphilide of the thigh. (Spencer ¼, projection oc. 2.) A group of vessels giving rise to giant cells, one of which shows very distinctly the double row of nuclei. The surrounding infiltration is composed of round, plasma and connective tissue cells.

Fig. 12.—Late syphilide of the nose simulating hypertrophic lupus. (Spencer ¼ in., projection oc. 2.) A section through an area containing a group of capillaries which have been completely obliterated and present the appearance of giant cells. The connective tissue is increased in volume and pervaded by fibroblasts, round cells and plasma cells.

Illustrating article of Dr. Fordyce.

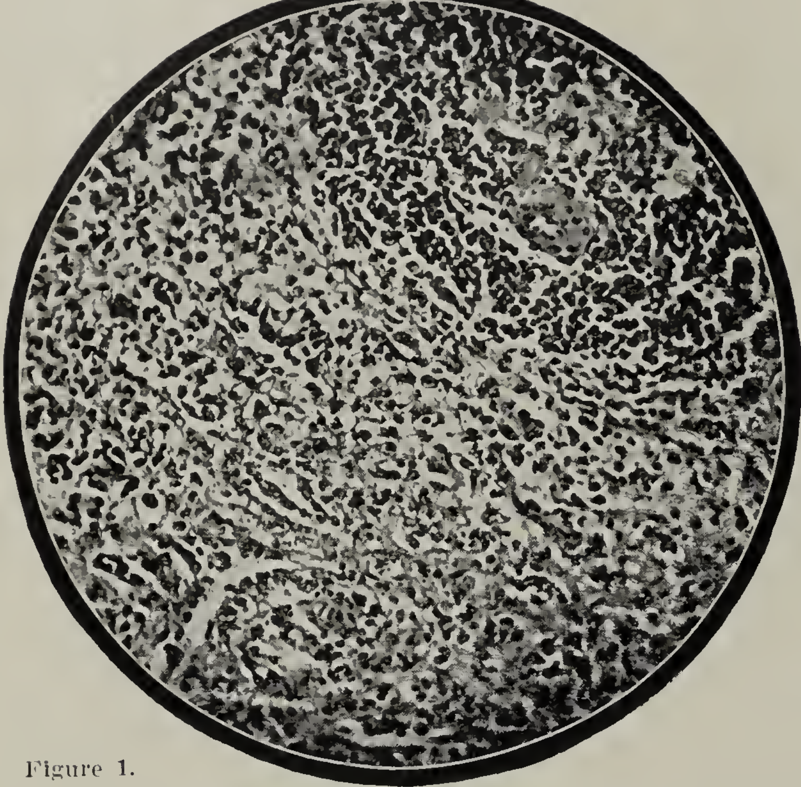


Figure 1.

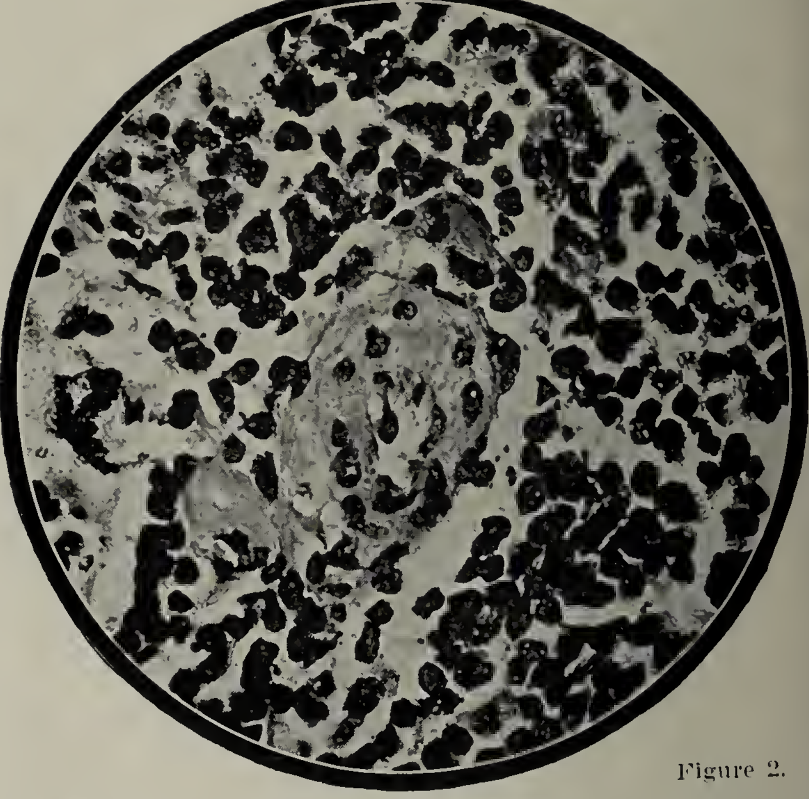
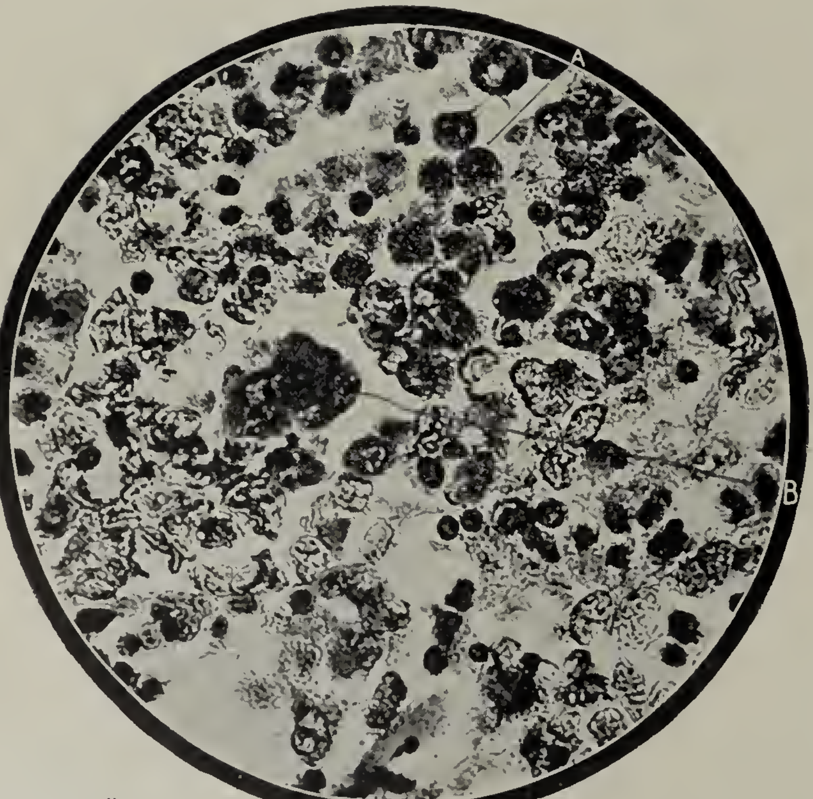


Figure 2.

Fig. 1.—Photomicrograph of spleen in uncinariasis, × 200. By Dr. W. M. Gray. All the sections from which these four illustrations were made were from the organs of two individuals dying of very extreme and uncomplicated uncinariasis, chronic type. Hb. of one case of 10 per cent. The sections are from 4 to 5 micra in thickness. The specimens were hardened in Zenker's fluid.

Fig. 2.—Photomicrograph of spleen in uncinariasis, × 500; same specimen as in Figure 1. Showing central artery, Malpighian corpuscle and hyaline degeneration. By Dr. W. M. Gray.



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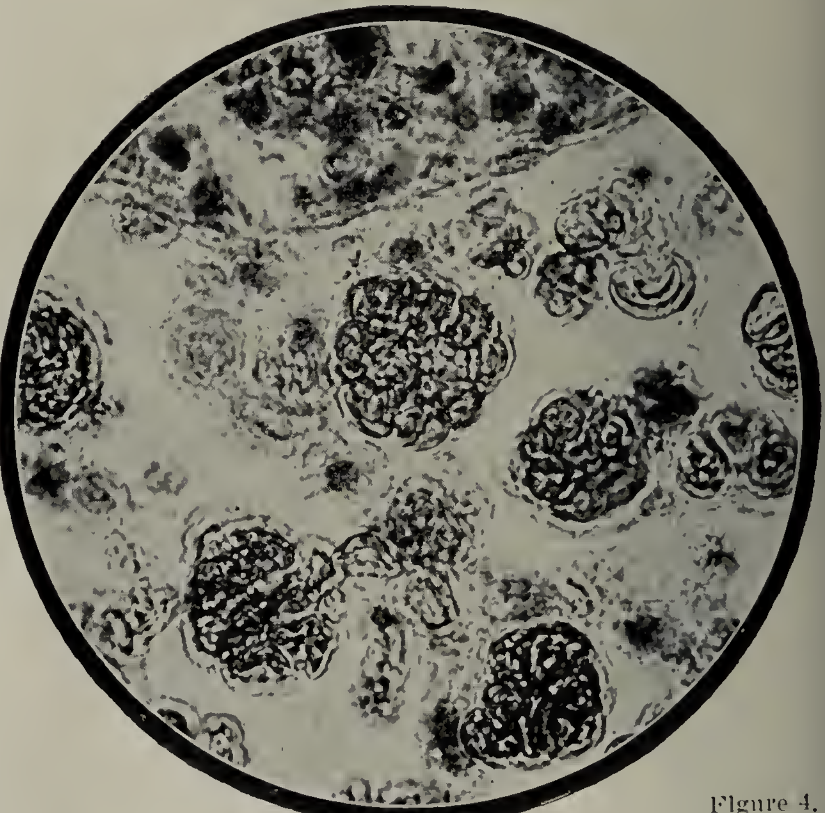

Figure 4.

Fig. 3.—Photomicrograph of bone-marrow in uncinariasis, × 750; A, group of eosinophilic myelocytes; B, myeloplax. By Dr. W. M. Gray.

Fig. 4.—Photomicrograph showing large phagocytic cells in blood channel of a hemolymph gland in uncinariasis. These cells have engulfed great numbers of red cells; × 750. By Dr. W. M. Gray.

Illustrating article of Drs. Ashford and King.

UNCINARIASIS, ITS DEVELOPMENT, COURSE AND TREATMENT.*

BAILEY K. ASHFORD, M.D.
AND
WALTER W. KING, M.D.
Captain, Assistant Surgeon U. S. Army, and Passed Assistant Surgeon U. S. Public Health and Marine-Hospital Service, respectively; Honorary members Porto Rico Anemia Commisson.
WASHINGTON, D. C.

In this paper we purpose to confine our attention to the disease uncinariasis, inasmuch as a detailed description of the methods of the Porto Rico Anemia Commission in combating the present epidemic in Porto Rico has been made the subject of other papers written by us. Suffice it to say that, at the beginning of its operations, the commission found itself confronted by an epidemic affecting about ninety per cent of the rural population of the island, with an average of 20 per cent. to 25 per cent. of the total death rate for some years previous to the year 1905 (*Health Reports of Porto Rico;* deaths from anemia, 1898-1904, inclusive).

Our experience extends over the period 1899-1906, in the last two years of which the commission treated about 30,000 persons, fully 12,000 of whom came under our personal care and attention. Dr. Pedro Gutierrez, of Porto Rico, the other member of the commission, shared with us the difficulties of that work and took an active part in conclusions drawn from it. He is now chairman of the present commission, which has already treated, since June, 1906, about 85,000 patients.

UNCINARIAL DERMATITIS.

We believe the skin route to be the only efficient mode of invasion of *Necator americanus* in producing uncinariasis, as infections by the mouth are not only rare, but, if thus consummated, the larvæ are so few in number as to be an insignificant factor in producing symptoms. That larvæ may be introduced into the digestive canal by the mouth and become parasitic therein seems to have been proved. Ninety-six per cent. of our patients acknowledge having had "mazamorra" or ground itch, a lesion abundantly shown to be due to invasion of the healthy skin by these larvæ, and the well-shod were practically never infected, though living in the midst of this tremendous epidemic. We feel justified, therefore, in considering that the remarkable claim of Loos, Claude Smith and others, has been established on a sufficiently extensive scale as the usual mode of invasion, in Porto Rico, at least.

Contact of the skin with mud laden with encysted larvæ for a time not necessarily longer than from a few minutes to half an hour, causes first itching, then redness and swelling of the part, with the formation in a couple of days of papules, rapidly becoming vesicles. In favorable cases pustulation does not occur, but when the invasion of many larvæ has profoundly inflamed the part and the ordinary organisms of pus have gained a foothold, not only do pustules form, but extensive ulceration may result which is extremely resistant to treatment. In the case of an American officer, the severity of these ulcers caused his invaliding to a military hospital in the United States, the manner of his infection having been from mud which during a "hike" had oozed between the top of the shoe and the legging.

Extensive ulceration and the scars left by it on the lower third of the leg were very frequent among our patients. Such ulcers were those dubbed "tropical" by the uninitiated, "syphilitic" by those whose knowledge of the country people of Porto Rico was not extensive.

Generally, in milder invasions the dermatitis subsides in a week or two. We believe that skin infection can take place without manifest dermatitis, judging from a number of cases in which mouth infection seems to have been improbable. In fact, we accomplished, by the skin route, an infection of a guinea-pig which was so severe as to cause its death in three and a half days, although the outward signs of ground itch never appeared.

It is of paramount importance to distinguish between the laboratory diagnosis of uncinariasis and the clinical picture of the disease. The presence of ova of this parasite in the feces is not evidence of the clinical entity now to be described; even ova in large numbers. True it is, that feces heavily laden with eggs are liable to pertain to an anemic individual, but this is not always so, as we have repeatedly seen great immunity enjoyed by some whites, and especially notable racial immunity of the negro to the effects of infection. Beyond a certain point, and in conditions of reduced vitality from lack of food or the presence of other diseases, this relative immunity may be, and often is, lost. The same immunity we have noted in the negro is said to be enjoyed by Asiatics. As a rule, however, heavy infections cause uncinariasis. Usually these infections are multiple and cumulative in their effects on the host, and the anemia and other symptoms come on gradually. At times severe single infections cause an acute form of the disease. All depends on the relative number of larvæ in the infected earth, a factor dependent on density of a population which practices earth pollution; and the exposure of the skin to invasion, in tropical countries chiefly through bare feet. It is of little practical importance to attempt the determination of the minimum average number of uncinariæ that will produce symptoms, but generally the greater the number harbored by an individual, the more abrupt will be the onset, the more pronounced the symptoms, and the more rapid the course of the disease. Thus we may speak of acute and chronic, mild and severe cases, with every gradation from one to the other; also of a chronic case becoming acute when additional infections take place. This latter occurrence is frequent in places like Porto Rico, where opportunities for constant infection abound.

SYMPTOMS, COURSE AND USUAL COMPLICATIONS.

Uncinariasis presents a most varied symptomatology and a full discussion of it can not be included here. We shall omit mention of symptoms of minor importance and interest. A month or so after one or more such infections the subjects become languid and mentally inactive. Indefinite, fugitive pains in the epigastrium annoy them and tenderness in the right hypochondrium may generally be elicited. Pain in the sternum and chest are commonly complained of and slight breathlessness after exertion and occasional palpitation of the heart are noticed. A febrile movement of from 37.5 C. to 38.5 C. (99.5 F. to 103.3 F.) is not uncommon, but it is apt to be overlooked. The preliminary symptoms are obscure and the patient sums up his ill-defined condition by stating that he feels unable to work.

Little by little the predominant feature of the disease, anemia, makes itself manifest. The fever disappears, the hemoglobin goes steadily down and the train of symptoms dependent, in part, at least, thereon, come sharply into prominence. Most of the vague initial symptoms become positive. Headache, vertigo, tinnitus aurium, a louder and louder hemic murmur, weakening of the pulse and dyspnea ensue until, with the hemoglobin below 30 per cent., or even 20 per cent., graver signs present themselves. The pains in the sternum are an almost universal cause of complaint at this stage. An ever increasing debility and a more pronounced mental hebetude are noticeable. The patellar reflexes are generally reduced and later may even be abolished, and paresthesias of the lower extremities are common. Impotence in the male and amenorrhea in the female are constant and striking phenomena in severe cases and are by no means rare in moderate ones.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907 A portion of the section on symptomatology is omitted from The Journal. It appears in the Transactions of the Section and in the author's reprints.

A very little more and the patient reaches that point where even the result of anthelmintic treatment is problematic. We now have before us a very sick patient. The circulatory system is profoundly affected. The heart, slightly hypertrophied at first, is now not only weakened but is often dilated, a condition adding to the already complicated picture the familiar lines of a broken compensation. Edema of the feet and legs and puffiness of the face now become a general anasarca, and pericardial, pleural and peritoneal effusions are apt to take place. The hemoglobin falls below 30 per cent., even to 8 per cent., and the muddy yellow, pasty pallor eloquently testifies to its great reduction. The patient is bedridden, passive to his surroundings and gradually passes away as if narcotized, save that in the fatal cases of acute cardiac dilatation, cerebral effusion or violent diarrhea supervene, not uncommon accidents in our experience.

The prognosis is generally good, even in severe cases, under appropriate treatment. Less hopeful are those complicated by persistent diarrhea, due to an enterocolitis, or other grave accident, especially marked anasarca from cardiac dilatation. To show, however, what results may occasionally be obtained by anthelmintic treatment, an example mentioned in our first report is worthy of quotation:

> The patient's whole body was water-logged. She could hardly walk, could not see, the eyelids looked as if dry cups had been applied, and when her pulse was taken, the impression of the whole hand was left deeply sunken; yet she recovered and became perfectly well, rosy and fat, running from 20 per cent to 90 per cent. hemoglobin.

Extremely low percentage of hemoglobin is not in itself an unfavorable sign. With a few exceptions, our cases of 10 per cent. to 15 per cent. responded readily to treatment; even some of 8 per cent. and 9 per cent. made complete recovery.

MORBID ANATOMY.

Despite the great amount of literature on uncinariasis in recent years, no subject is so barren of data as its pathologic anatomy, and yet this is decidedly one of its most interesting and instructive features. Not only are uncomplicated cases, suitable for the drawing of conclusions, difficult to acquire, but the consent of the relatives to autopsies is by no means easy to secure. Above all, deaths occur far out in the country, and usually before an autopsy can be performed, postmortem changes are well advanced. The latter obstacle was our most troublesome one, as the death rate in our field hospital was very small; indeed, it was but one-third of one per cent. for the entire number of 18,865 treated between May and December, 1905, at all stations combined.

In spite of these difficulties, eleven out of twelve autopsies were made in such manner as to furnish accurate information, in so far as the gross anatomy is concerned; nine supplied us with tissue in a very good state of preservation for microscopic study. The minute anatomy of the other two is not included on account of the length of time after death at which the autopsy was made. Of the nine specified above, one subject was five years of age and had never received any anthelmintics, one was fourteen, and the remainder between twenty-five and fifty. Six showed extreme anemia, one other was an intense case and two more were moderately severe. Only two were complicated by other conditions; in one a healed lesion of pulmonary tuberculosis was found; the other presented the intestinal lesions of amebic dysentery. Nothing was shown in the latter to invalidate our conclusions.

GENERAL OBSERVATIONS.

As a rule, the body shows no emaciation and the amount of adipose tissue is apparently normal. There is not only much edema but all soft parts, including skin, muscle and internal organs, have suffered great change in color due to the intense anemia. The skin and subcutaneous tissue are very pale and sodden with fluid. The muscles are brownish gray, friable and often atrophied. On microscopic section the individual muscle-cells are frequently separated and the protoplasm seemingly starved and reduced in amount, an observation which, indeed, applies to nearly all organs.

On opening the abdomen, an excess of pale yellow or straw colored peritoneal fluid is observed, the amount reaching enormous quantities in certain cases where ascites is a prominent feature. In one of our cases this serum was reddish yellow, but no adhesions or other signs of inflammation were found. Serous effusion is also generally demonstrable in the pleuræ, pericardium and, sometimes, in the cerebral ventricles.

THE HEART AND LUNGS.

There was often hypertrophy, although, not rarely, a heart of normal size was encountered. It was not unusual to see an excess of pericardial fat. Not uncommonly, however, dilatation had occurred and the organ was remarkably flabby and easily torn. Microscopically, in two of three autopsies, brown atrophy was well marked and a slight degree of myocarditis was discovered. Fatty degeneration of the muscle fiber was clearly seen in two cases after fixation of the tissue by Fleming's solution. The separation of individual cells was particularly noticeable and this was irrespective of the fixing reagent employed.

The lungs were frequently the seat of edema and passive congestion.

THE LIVER.

This organ was practically never normal. Great increase in size was only once discovered, although never was there diminution. Its most frequent color was a light brownish yellow. In some cases it was very light yellow, soft and greasy to the touch and extremely friable. Microscopic sections demonstrated that it was often extensively affected in uncinariasis. Extreme fatty degeneration was the prominent feature of four cases and in two scarcely a normal liver cell could be found, the condition of the liver here simulating marked types of fatty changes in other diseases characterized by such changes. In none of our autopsies was fatty degeneration absent. In its least exaggerated form it chiefly affected the outer third of the lobule.

In three cases there was increase of connective tissue in the portal spaces, but in two of them the change was only slight, and, in at least one, where there was great increase, the condition was probably due to chronic alcoholism. Connective tissue increase is evidently not a feature of uncinariasis. Daniel's observation that the liver contains considerable yellow pigment could not be confirmed, save in one case, although small amounts were found in others. The pigment was not stainable by potassium ferrocyanid. Extreme dilatation of capillaries was found in two cases.

THE KIDNEYS.

These organs were also profoundly involved. They were very pale and were apt to be slightly enlarged. As a rule, the capsule stripped easily. Microscopic sections showed us a practically constant picture of chronic parenchymatous or chronic diffuse non-indurative nephritis. In persons of middle age, who had suffered for some years from uncinariasis, there was increase in connective tissue, but this was marked in only one case. Usually, there was little or no connective tissue increase and polymorphonuclear leucocytes were conspicuous by their absence.

Changes were always found in tubules and glomeruli, but the convoluted tubules suffered most severely and fatty degeneration and desquamation in them was marked. The collecting tubules were much less affected. There was extensive exudation into Bowman's capsule with desquamation of its endothelial lining and much dilatation of the intracapsular space. Hemorrhages into Bowman's capsule, intertubular hemorrhagic areas and blood and epithelial casts, were found in four of the nine bodies sectioned, and the picture was that of an acute condition superimposed on the usual chronic one described. All four of these had received betanaphthol. In one case, yellow pigment was found, but only in small quantity. In two instances embolic abscesses existed.

STOMACH.

It was not usual to encounter uncinariæ in the stomach, although 83 were found in its lumen in an autopsy previously reported by us.[1] We discovered several adherent to the wall of this organ in this year's series. A gastric catarrh was common and marked dilatation was noted in two subjects.

INTESTINE.

The jejunum contained most of the uncinariæ found at autopsy. Some were unattached, others were adherent to the mucous membrane. In the first part of the duodenum were to be found most of the rest, a few being discovered in the ileum. None were encountered in the colon.

In more than one instance the parasites were alive twelve to fifteen hours after the death of the patient, whether attached or free. They were rarely red, generally white or grayish. On one occasion they were removed with some little force by fine forceps and placed in physiologic salt solution, where they lived and remained active for about sixty hours longer and then were killed for experimental purposes.

The lesion of the intestine is confined, as far as we know, to the mucosa. It was found to be a tiny superficial erosion, not a deep ulcer, as many suppose, about 0.5 mm (1-50 inch) in diameter and not usually characterized by any redness, save at one autopsy. These erosions were very difficult to find without a hand lens, unless a parasite had just been removed from its feeding ground, and the locality marked. The duodenum, and especially the jejunum, are the seats of a chronic intestinal catarrh and many times after we supposed that all parasites had been removed in the course of the examination of the intestine at autopsy, many more were found buried in the thick mucus which more or less completely covered them.

The rest of the intestine, and even the colon, is apt to share in less degree in the general chronic inflammation. Degeneration and atrophy of the mucosa of the intestine, as well as of the stomach, were commonly observed. We have purposely left to the last a consideration of the really striking changes in the spleen, hemolymph glands and bone marrow, as these are marked and, until now, neglected in all treatises which we have read on uncinariasis.

THE SPLEEN.

Most authors state that the spleen is not enlarged, but lead us to believe that it is normal. As a matter of fact, the spleen frequently is reduced in size, soft, and possesses a wrinkled capsule.

Dr. Rafael Cesteros, of Guayama, Porto Rico, the director of the commission's substation in that city, reporting on one autopsy, writes of this organ as follows:

> The atrophy of the spleen attracted my attention. It was as small a spleen as I have ever seen in my professional career and at no autopsy, whether made for scientific or for medicolegal purposes, have I encountered this organ of such reduced dimensions. Its color was that of wine lees and its size was not greater than that of the kidney.

Microscopic sections revealed in every one of the eight autopsies in which a portion of the spleen was preserved, a great paucity of lymphoid elements, even decided decrease in the protoplasm of the cells. The Malpighian corpuscles were greatly reduced in size, the cells were scanty and widely separated, and the central artery presented, almost uniformly, considerable hyaline degeneration. Not only were the tufts smaller than normal but they seemed fewer in number.

The apparent increase in connective tissue we explain by the decided reduction in lymphoid elements and blood, and it seemed relative rather than absolute, although in some instances, thickening of the capsule was observed. Pigmentation was only once very prominent, and the pigment was of the same character as that seen in the liver. There was unusually little blood in the organ.

HEMOLYMPH GLANDS.

The following notes were made by us at one of our autopsies:

> Great abundance of glands in the region of the abdominal aorta was noted, especially at its bifurcation. They were enlarged, and of a dull reddish hue, like pale muscle tissue. Some of these glands were as large as hazel nuts, yet there was not a trace of inflammation in the surrounding parts and the peritoneum over them was normal and glistening.

They were only sought for in one other autopsy and then were found with the same characteristics, but in smaller number. Microscopic section showed that they were hemolymph glands, usually of the type described as splenolymph glands. Mitoses and phagocytoses of red cells were noted.

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[1] Amer. Med., Sept. 5 and 12, 1903.

BONE MARROW.

The marrow of the midpoint of the shaft of the femur was examined in two autopsies. It was grayish red and very soft. Microscopic section disclosed, in addition to the changes described in the marrow of subjects dying of pernicious anemia, groups of eosinophilous cells, generally myelocytic. These cells were abundant, as were myeloplaxes. No attempt has been made to describe in detail the changes to be found in the organs referred to in this brief summary.

THE ANEMIA.

The anemia of uncinariasis is not merely such a condition as would result from repeated small hemorrhages. One of its marked peculiarities is its irregular eosinophilia and another is its severity at times in subjects harboring but few parasites, at others its failure to become marked in very heavy infections.

HEMOGLOBIN.

The average hemoglobin in 579 cases, taken at random before treatment, from among our 1904 series, was 43.09 per cent. Eight per cent. has several times been registered by both the Dare and the von Fleischl instruments. Fifteen to 20 per cent. was very common in severe cases and 35 to 50 per cent. was generally the range of moderate ones. The hemoglobin percentage is the steadiest guide to the condition of the patient, as a very low percentage may exist with a fair number of red cells, 0.5 being about the average color index.

Some phenomenal rises in hemoglobin were noted after simple expulsion of uncinariæ without any ferruginous or other regenerative treatment, rises which seem impossible were it not for the fact that fully as remarkable improvement takes place in the patient himself, the gain in healthy color testifying to the actual return of his blood to normal. For example: In one case, a woman, aged 38, with a hemoglobin of 35 per cent. on admission, there was a rise of 61 per cent. in 15 days, although but two doses of betanaphthol were given and 453 of the total number of 497 uncinariæ expelled.

We gradually learned that iron was not a necessary part of the treatment of uncinariasis, as a rule. Certainly a somewhat more rapid rise in hemoglobin occurred when iron was used, but the return to normal came about just as surely without it and we ceased to use it among our average cases, reserving its administration for obstinate ones in which blood regeneration was faulty and all parasites had been expelled. Blaud's pills seemed to us the best form of iron, as stated in our 1904 report, but it is a matter of but little importance, in the end.

In these cases of tardy rise of hemoglobin there was apt to be a period of about two months in which no marked increase was noted, when in the succeeding month the normal was reached by rapid strides. In others the hemoglobin rose steadily without being hurried in the least by large doses of Blaud's pills.

The following résumé of sixty cases in our 1906 series, is of interest in this connection. They are cases of patients in whom the hemoglobin was estimated on admission and discharge, and the actual number of uncinariæ expelled after each dose of the anthelmintic was determined. Twenty are cases of patients to whom betanaphthol was given weekly, with daily doses of iron in the intervals; thirty-two received thymol weekly and iron in the same manner; and nine received thymol or betanaphthol without the use of any drug in the interval. The patients were not always held in the hospital until the hemoglobin became normal, because an expulsion of all parasites was almost certain to be followed by the cure of their anemia, a fact abundantly demonstrated to us in the thousands of other cases under treatment as outpatients, and by our past experience:

Treatment.	Betanaphthol weekly; iron in intervals.	Thymol weekly; iron in intervals.	Betanaphthol or thymol; no drug in intervals.
Number of cases	20	32	9
Average initial hemoglobin, per cent.	33	32.8	42.6
Average days under treatment	40	37.3	17.3
Average rise, per cent., in hemoglobin for time specified	51	52.4	28.3
Average number of uncinariæ expelled	1,064	1,264	591
Average rise hemoglobin per cent. daily	1.2	1.4	1.6

Attention is invited to the fact that the cases treated without iron were less severe, as a rule, and that this alone explains why, with better recuperative power, the blood making organs were enabled to cause a greater daily rise in hemoglobin. Nevertheless, the advantages of iron, in average cases of moderate severity, are not seen to be very great. A fall in hemoglobin is the first sign of the anemia and this fall may be considerable, even as much as to 30 per cent, before the erythrocytes are greatly reduced in numbers. On the other hand, the rise in hemoglobin almost always lags behind the rise in red cells under treatment.

ERYTHROCYTES.

In our 1904 series of 61 cases in which weekly blood counts were made until the normal was reached, 2,406,416 erythrocytes per c.mm. was the average. The lowest count made was 754,000 per cmm. There was polychromatophilia and, in severe cases, poikilocytosis with many macrocytes and microcytes. Normoblasts and megaloblasts were not uncommon, but the latter are generally much in the minority.

LEUCOCYTES.

There is no leucocytosis which is constant, but slight increase in leucocytes is at times seen, especially in acute cases. In chronic cases there is apt to be leucopenia. Our average white cell count was 8,009 per cmm. on admission. In making differential counts, 250 leucocytes were classified, and in this connection we wish to emphasize the decided tendency of leucocytes to degenerate. Stimulation cells of Türck were frequent in some cases, but their appearance was very uncertain and we were unable to assign any special significance to them. Myelocytes, generally eosinophilic, were seen occasionally, but were not common.

Eosinophilia is the chief feature of importance. It is strange that Boycott and Haldane lay so much stress on the importance of eosinophilia, from a diagnostic point of view, for in the more serious cases it is liable to be absent. In 1904 we called especial attention to our belief that eosinophilia was of great prognostic importance and have noticed that some German and Spanish writers subsequently express this same view. Very chronic cases, of severe type, poor resisting power, and lack of blood regeneration, rarely show eosinophilia, or, if at all, only to a slight degree. A rise in eosinophilia is of good prognostic significance and their fall, with lack of improvement in the symptoms, is not a good omen. In general, good resistance to the hypothetical toxin of uncinariæ is expressed by eosinophilia.

TREATMENT.

The prime object of treatment is to expel the uncinariæ, and our choice of the anthelmintics will naturally be the one most rapidly and easily effecting this result.

We attempted to ascertain the relative efficiency of male fern, thymol and betanaphthol by counting the actual number of uncinariæ expelled by each dose. During the twenty-four hours following the administration of the drug, all the feces evacuated by the patient were passed into an individual vessel and treated with a 10 per cent. formalin solution, which destroyed, in most instances, practically all offensive odor. As a rule, the evacuations were liquid, but if not, water was added. The twenty-four hour feces were strained through cheesecloth and thoroughly washed. The residue, which usually was small in quantity, was transferred with a porcelain spoon to a small dish or cup, care being taken to pick off with forceps any worms remaining on the cloth. The counting was done in a trough of convenient size, made by nailing a narrow strip on each side of the board and painting the inside black. A small quantity of the fecal residue was placed in the trough and water was added, a few drops at a time, washing it away bit by bit, the trough being inclined barely sufficiently to cause a flow. The worms can be easily detected against the black surface and be picked out by forceps. Care must be taken that the water is not added too rapidly or some of the worms may be washed away. Lumps of feces should be broken up and all fragments of food, etc., inspected for adherent worms. While hardly esthetic, these operations are seldom particularly offensive.

The results of our counts were interesting and indose of either of these preparations of filix mas was given. We used first an ethereal extract of this drug from one of the most reputable German pharmaceutical laboratories, but although it caused constitutional symptoms, practically no uncinariæ were expelled by it. As we had purchased the drug from a local pharmacist, we thought that possibly it had been some time in the tropics and had become deteriorated from climatic influences, to which it is said to be very susceptible. A fresh solid extract was then obtained direct from one of the best known pharmaceutical houses. It was immediately put into use, with no better results as an anthelmintic, although the constitutional effects were much more marked than those of thymol or betanaphthol.

The highest number of uncinariæ expelled by a single dose of either of these preparations of filix mas was eight, while one of the same patients later expelled 3,686 uncinariæ after a single dose of three grams of thymol. So much time had been spent in these unfruitful trials that had we ordered other preparations of the drug, we could not have completed a series of counts owing to the short time left for the completion of our work. Considering the success which has followed the use of male fern in Germany, we are at a loss to understand why we should have scored such a failure with it, unless this drug very rapidly becomes worthless in warm countries.

In testing these anthelmintics, our intention was to administer them at weekly intervals and to continue for two weeks after uncinariæ ceased to be expelled. We found that it was often impossible to hold the patients in hospital long enough to do this, because by the time they had expelled most of their parasites, they felt so much better that they insisted on going home, and if denied permission to do so, would desert. Hence we were obliged to throw out many counts as incomplete, but we did include those in which less than twenty uncinariæ were expelled by the last dose given, even though there was no opportunity to administer later doses, which might have brought away a few more in some cases and none in others. This slight inaccuracy does not materially affect our results.

In the preliminary report, 1905, of the Anemia Commission, is published a table giving the number of uncinariæ expelled by each dose of betanaphthol. Reference to this table will show with what heavy infections we were dealing; the lowest being 73, the highest 4,395, and the average 1,027. The amount of anthelmintic is not stated, as it varied even in the same patient at different times. The dose had to be based on the age and condition of the patient, and thus the table represents the actual results obtained by these vermicides when properly used in practice. The following figures express the comparative percentages of the total number of uncinariæ expelled by each of these drugs in 70 cases:

PERCENTAGE EXPELLED OF THE TOTAL NUMBER OF UNCINARIAE HARBORED BY THE INDIVIDUAL.

Dose.	Average of 40 patients treated with thymol.	Average of 30 patients treated with betanaphthol
1	76.85	72.24
2	92.89	88.12
3	97.55	93.67
4.	99.06	96.57
5	99.80	98.71

Some time after these counts were begun it was discovered that, at times, all the uncinariæ killed by the anthelmintic would not be evacuated during the first twenty-four hours, even though there had been free purgation, but that others came away in the second and, more rarely, the third twenty-four hour period. Thus Boycott and Haldane are mistaken in supposing that after the twenty-four hours the dead uncinariæ are digested. No doubt some of them are, as we found partially digested ones, but we think their statement too sweeping. Had we recovered all the worms appearing on the second and third days, we would have recorded a slightly greater number expelled, particularly after the first and second doses, but the percentages of results would have been changed scarcely more than a fractional part.

There is a surprising equality of anthelmintic effect after five doses of either drug, though thymol shows a somewhat greater rapidity under equal conditions of proper preparatory treatment. However, when the preliminary purge and, more especially, the abstinence from solid food for a day are omitted, betanaphthol shows much less favorably. We used some hundreds of pounds in the out-door clinic, the patients taking the medicine after returning to their homes. They generally took the purge, but the directions to abstain from solid food were more honored in the breach than in the observance. Many of those to whom betanaphthol was given kept returning week after week and at each time revealed ova of uncinariæ in the feces. In other words, the presence of food in the bowel seemed to interfere with the efficiency of betanaphthol more than of thymol, for those who took thymol in their homes expelled their parasites almost as rapidly as those whose diet we could supervise. Frequently in these resistant cases a dose or two of thymol caused a complete disappearance of ova from the stools, while increased doses of betanaphthol did not have so marked an effect.

Betanaphthol is not only less efficacious, but it is more dangerous. It has, at times, an irritant effect on the kidney, setting up an acute toxic nephritis in an organ so often the seat of chronic parenchymatous changes. This effect was not common, but the accident was so serious as to warrant our return to thymol as a much safer vermicide. Thymol on rare occasions may irritate the kidney, but its effect is much less severe. It may produce, infrequently, more or less severe collapse. The chief objection to its use was its irritating effect on the bowel and several times, we believe that enterocolitis has been initiated by its administration.

Eucalyptol is now being studied by the present commission, but their report has not yet been made. Both thymol and betanaphthol were administered in the same manner except that one-half as much betanaphthol was used at a dose as thymol. Betanaphthol in larger doses did not seem to give proportional results.

The patient was required to abstain from solid food during the day and at night 25 grams of sodium sulphate was given. The next morning, providing free purgation from the salts was secured, after a glass of hot milk or on a fasting stomach, one-half of the anthelmintic was given and repeated in two hours, followed, about noon, by another purge which may be omitted if the bowels are moving freely. This procedure was repeated each week until ova disappeared from the feces.

We have given thousands of doses of thymol without having known of a case of poisoning from it, notwithstanding that at times, we knew that, contrary to our orders, alcohol in some form had been taken to relieve the dizziness and other disagreeable effects sometimes produced by thymol in large doses.

In choosing the anthelmintic we have to be governed somewhat by the circumstances of the case, condition of the patient, and so forth, but, all things being equal, we decidedly prefer thymol for general use. When it is not possible to use it, betanaphthol is an excellent substitute. The taking of either is unpleasant and, naturally, we want to use that one which the least number of doses need be taken to obtain the greatest result.

Our thanks are due to Drs. Carroll, Russell and Gray of the laboratory of the Army Medical Museum and Dr. Rosenau of the Hygienic Laboratory, Washington, D. C., for many courtesies extended us in our work on the morbid anatomy of uncinariasis and acknowledgment is made of painstaking services rendered by First Class Sergeants Neat and Britton, Hospital Corps, U. S. Army.

EXPERIMENTAL ANEMIA.*

C. H. BUNTING, M.D.
Professor of Pathology, University of Virginia.
CHARLOTTESVILLE, VA.

When one considers how incomplete is our knowledge of the anatomy and physiology of the hematopoietic system it is perhaps not remarkable that the diseases of that system should have remained so long shrouded in obscurity. Although the clinical pictures of the anemias and leukemias are sharply defined, their pathology still offers many problems. When in his classical description of pernicious anemia Addison noted that it occurred "without any discoverable cause," he stated the first and greatest problem of that disease and one which a half-century of investigation has not been able to solve, although by clinical, pathologic and experimental studies it has been able to narrow the field of search somewhat. However, this, the etiology of the disease, still remains its great problem.

The second problem arose at a time when the clinical picture, especially the blood picture of this anemia described by Addison, had not been sharply defined, and it arose from the description by Biermer and many others of progressive and pernicious anemias following many well-defined causes, causes almost too numerous to catalogue, and causes which in general are followed by an anemia of the so-called secondary type. This difficulty was partially cleared up by the clinicians who showed that the Addison anemia had a distinctive blood picture. It has left still unsettled, however, the question as to whether or not at some stage secondary anemias of varied causation may not present the blood picture of pernicious anemia.

So the second problem may be stated as the relation of the primary and secondary anemias. To express it more fully, if pernicious anemia be not always due to the same cause, but to many causes, and among them to those that at times produce anemias of the secondary type, what is the factor which determines the type of blood picture?

The third problem is one that arose from the pathologic investigations of the disease. Cohnheim discovered the characteristic bone-marrow lesion of the disease, and it was later thoroughly studied by Ehrlich and others, who emphasized its greatly increased megaloblastic content as pathognomonic of the disease. As a result of these studies many have considered the bone-marrow changes as the primary lesion in the disease and accountable for the blood changes and other lesions.

Exclusive of the bone-marrow changes the pathologic study has revealed in many cases no lesions that could not be considered as secondary to the anemia, with the exception of the lesion emphasized chiefly by Quincke and Hunter. This lesion is the excessive deposition of iron-containing pigment in the liver and kidneys especially, though occurring also in the spleen and other organs. These deposits were interpreted as the result of the action of a hemolytic substance on the red blood cells and formed the basis of the theory accepted by many that the disease is essentially a hemolytic process and that hemolysis occurring in the circulation is responsible for the other lesions of the disease.

This theory received additional support from the facts that infection with the intestinal parasite, *Bothriocephalus latus,* gives the typical picture of pernicious anemia and that an extract of the worm has been shown experimentally to produce hemolysis in dogs. Yet it became evident that hemolysis alone is not adequate to explain the disease, for hemolysis with deposition of blood pigment is a factor in secondary anemias not caused by hemorrhage.

The third problem then concerns the pathology and the pathogenesis of the disease, the value of the claims as to the primary lesion. Is there a primary bone-marrow lesion or is there an original hemolysis with subsequent changes in the marrow?

Briefly, then, the problems of pernicious anemia concern its entity as a disease and the establishment of the blood picture, its relation to other types of anemia, its pathogenesis and its etiology. All of these are not subject to experimental investigation. The establishment of the blood picture and of the disease as an entity has been done by clinicians and patholcgic anatomists. A definite blood picture characteristic of the disease has been made out, and it has been determined that there is a disease corresponding to Addison's description with this definite blood picture and with pathologically a characteristic bone-marrow lesion, signs of hemolysis and no lesion otherwise, apparently adequate to explain the anemia.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

For the etiology one must look to further clinical and pathologic study. On the other hand, the relation to secondary anemia, and the pathogenesis of the disease lend themselves to experimental investigation. The work of Quincke, Hunter and others in establishing the fact that hemolysis is a large factor in the production of the anemia furnished the lead along which profitable experimental work has been done. In this work the extensive study of hemolytic processes, stimulated by the Ehrlich hypothesis, has been of importance.

In the first place, it has been shown conclusively that the blood picture of pernicious anemia can be produced experimentally in such animals as the dog and the rabbit, the animals used most extensively.[1] This picture simulates the picture in human blood as closely as any pathologic picture produced in animals simulates the picture in man produced by the same etiologic agent. The blood picture in rabbits shows the nucleated red cells both megaloblastic and normoblastic, often occurring in showers. It shows further the characteristic changes in non-nucleated red cells: a variation in size, with the predominant cells above the average normal diameter; a certain amount of poikilocytosis, polychromatophilia and in many cases a granular basophilia and even an increased color index (Tallquist). Even the reduced white cell count with a relative increase of the large mononuclear variety may occur. In short, practically none of the features of the blood picture of pernicious anemia is lacking.

Furthermore, a condition of the marrow agreeing with that found in human cases may be produced—a marrow in which there is a predominance of the megaloblastic type of nucleated red cells and of cells of the large lymphocyte type. There seems to be no doubt, therefore, that one can thus produce the picture of pernicious anemia experimentally in animals.

As to the manner in which this picture can be produced it is of interest, as it bears somewhat on the possibility of a multiplicity of causes in the production of pernicious anemia in man, that it may be produced by the injection of a number of substances—but substances which have a common characteristic and that is, that they are hemolytic for the corpuscles of the experimental animal.

I have used artificially produced hemolytic sera, but chiefly ricin and saponin. Others have used pyridin, pyrogallol and other toxins. With large doses of ricin or saponin, injected intravenously and repeated at intervals, one may produce a progressive anemia with the blood picture described to the point at which the animal establishes a tolerance to the poison. The animals react with machine-like regularity to the dose of poison, with a sharp nucleated red cell reaction and a fall in the number of red cells, with a gradual assumption by the non-nucleated red cells of the abnormalities noted.

This reaction, the blood picture and the marrow picture are entirely different from those of a secondary anemia produced in animals by hemorrhage. In these latter cases, with repeated hemorrhage and a constant fall in the red cells, there is no sharp nucleated red cell crisis; megaloblasts are not found in the circulation and normoblasts but occasionally, after the first reaction. The color-index falls rapidly, the corpuscles becoming extremely pale, and the marrow has the characteristic picture seen in cases of secondary anemia where the nucleated cells of the normoblastic type are the predominant cells. It is an entirely different picture. While this picture of pernicious anemia may be produced by several hemolytic substances it is only produced by them if they are injected into the circulation in relatively large doses, which is of importance in considering the pathogenesis of the disease.

If these hemolytic substances are injected, not intravenously but subcutaneously or intraperitoneally, the result is entirely different. The hemolysis goes on; deposits of blood pigment are found in the spleen; there is a reduction in the red cell count, but the blood picture and the marrow picture are different unless very large doses are used. The sharp nucleated red cell reaction in the circulating blood is not seen, the fall in the number of red cells is less sharp, and the marrow shows the picture of a secondary anemia with the great predominance of normoblastic cells so characteristic.

Briefly, by the injection of a large dose of hemolysin directly into the veins, one gets the primary anemia blood picture; by the injection of the same dose, or even larger doses subcutaneously, when absorption into the circulation is slow one gets the picture of a secondary anemia and a similar difference occurs in the marrow pictures.

The explanation of this difference lies, it seems to me, in the appearance of the marrow of animals dying after a recent dose of toxin. Where the toxin has been injected intravenously in sufficient doses it is not entirely saturated by red cells before it reaches the marrow and one finds as a result signs of direct injury to the marrow, in extensive necrosis of cells and in injury to the capillary endothelium resulting in minute hemorrhages. That there is hemolytic destruction of nucleated red cells is shown by naked pyknotic red cell nuclei found both in the marrow and in the circulating blood, and also larger cells in the marrow show pyknotic and fragmented nuclei. Where the injection has been subcutaneous, unless the dose of toxin has been extreme, the injury to the marrow is very slight and may even not appear.

Herein lies the explanation, I believe, of the relation of anemias of the pernicious type to those of the secondary type, due to causes other than hemorrhage. That is, in a disease like tuberculosis, in addition to the general malnutrition, there is a constant but slow absorption into the circulation of substances destructive to red blood cells. This absorption, however, is so gradual that the toxin is completely anchored by circulating red cells, causes their destruction or injury as shown by the splenic accumulation of blood pigment, but does not reach the marrow in an uncombined state. As a result the marrow escapes injury.

As far as the marrow is concerned, the lesion is the equivalent of a hemorrhage. It is uninjured and is able to repair the blood lesion in a normal way in as far as the general nutrition of the patient will permit. On the other hand, in pernicious anemia at some periods large quantities of a hemolytic poison gain entrance to the circulation, are not completely combined with circulating red cells and reach the marrow. There they cause destruction, not only of mature red cells, but of nucleated red cells and the function of the marrow is impaired, leading to a faulty response to the call made on it to repair the lesion—and the blood picture of pernicious anemia is the result.

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[1] The experiments forming the basis of this paper will be found in detail in the following references: Etiology and Pathogenesis of Pernicious Anemia; Johns Hopkins Hosp. Bull., 1905, xvi, 222; Experimental Anemia in the Rabbit, Jour. Exp. Med., 1906, viii, 625.

It seems possible in this way to explain why in certain severe secondary anemias the picture of pernicious anemia is seen in the blood. One need only postulate that in a progressing anemia there comes a time when the pathologic process, the tuberculosis for example, also progresses more rapidly, more toxin is produced to be absorbed into the circulation, there are fewer red blood cells to neutralize it, and enough of it reaches the marrow uncombined to cause an injury to the marrow cells—and then the pernicious type of blood picture results.

Why one finds this blood picture as a result of marrow injury seems to depend largely on the anatomic grouping of the cells in the marrow. As I have emphasized in previous papers, the cells seem to be so arranged in the marrow that by the multiplication of the parent cells in the erythrogenetic and leukogenetic centers the young cells as they mature are gradually pushed toward the periphery of the group and thus the mature differentiated cells, the polymorphonuclear leucocytes or the non-nucleated erythrocytes are found on the periphery close to the marrow capillaries. These mature cells are the reserve stock from which the circulating blood is supplied to fill in deficiences caused in the normal wear and tear of the circulation, and normally the marrow cells proliferate only rapidly enough to keep this supply at par.

Let there be an unusual demand, as for leucocytes in an acute inflammation, and one finds that at first the marrow is cleared of all its mature polymorphonuclear cells, and myelocytes form practically the entire white cell count in the marrow. Mitosis and maturation of the products of division, however, soon produce an abundance, usually a superabundance, of polymorphous cells, and the demand is supplied. Occasionally, as in acute lobar pneumonia, the great demand for leucocytes may cause the marrow to react with immature white cells, myelocytes—which are often found in small percentage just before the crisis in that disease.

A similar story is that of the red cells. In a hemorrhage of moderate severity the marrow responds with its mature red cells and proliferation of nucleated cells takes place to supply the demand. Commonly the demand exceeds the supply of mature red cells and normoblasts are contributed to the circulating blood, but seldom in great numbers. Megaloblasts only extremely rarely are found in the stream.

This is the reaction in a hemorrhage or secondary anemia, and if the cause be withdrawn the blood count gradually returns to the normal as the result of this reaction of an unimpaired marrow. In man one misses a hypererythrocytosis corresponding to the leucocytosis which expresses the pathologic reaction in excess. This probably is due to the fact that serum withdrawals from the tissue keep the red cells diluted to the normal number, even though they be produced in excess. In an animal like the rabbit, with dry tissues, a reaction in excess may be obtained, with high red cell counts in the circulation, and then a gradual return to the normal.

Now in the cases with marrow injury we have an entirely different reaction, for the reason, it appears, that the toxin reaches first these mature red blood cells and the normoblasts and causes their destruction in part. In its first response the marrow throws into the circulating blood the most peripheral and most mature cells left, and these are often normoblasts and intermediates which appear in the circulation in a shower often aggregating thousands per cubic millimeter.

If the injury be more severe, intermediate nucleated red cells and even megaloblasts appear in the circulation as the other cells have been destroyed. This, however, is ruinous to the proliferative power of the marrow; cells capable of mitosis have been lost to it. As a result, with this continued demand for red cells, there is a hasty transition from megaloblast to erythrocyte—without the orderly progression, through intermediate and normoblastic stages. The resulting cell is thus larger than normal, bears more hemoglobin and possibly is an attempt at compensation—an attempt to make quickly a cell which shall be the equivalent of more than a single normal cell. The distorted forms are expression also of this faulty hematopoiesis.

The nucleated red blood cell crises or showers so widely considered as signs of regeneration on the part of the marrow can not be so considered from the results of experimental anemias. They do not occur during recovery from hemorrhage or injury, but only immediately following direct injury to the marrow by toxins, and it would appear must be interpreted as the result of that injury. The marrow deprived of its mature red cells responds with the nearest substitute it has—the immature nucleated red cells. The greater the injury to the marrow, so much less the maturity of the cells which it can offer to supply the deficiency, so after severe or repeated injury the number of megaloblasts which are found in the circulation is increased and they are in a way an index of the gravity of the lesion.

On the evidence then of experimental work and of pathologic study it seems justifiable to conclude as to the pathogenesis of pernicious anemia that it is due to the absorption into the circulation of a substance or substances of hemolytic power toward human red blood cells, and in such quantities that it produces not only destruction of circulating red blood cells, but also destruction of, and injury to, cells of the erythrogenetic groups in the bone-marrow. This results in a defective and atypical blood formation, some phases of which may be considered as an attempt at compensation, others as a sign of injury.

One may conclude further that in secondary anemias there is a loss of red blood cells or a destruction of red blood cells by toxins. In either case the marrow is unaffected except in being stimulated to respond in a normal manner with the orderly production of non-nucleated red blood cells, and that its proliferative power is not impaired. At some point in the disease, however, the amount of toxin may be so increased that the marrow becomes injured and the blood picture becomes of the pernicious anemia type.

As to the source and nature of this poison in pernicious anemia, there is little to add. In one type only, the *Bothriocephalus* infections, has it been determined. In those cases the source is the intestine, the poison a hemolytic substance derived from the worm. Such cases may recover, with a normal blood picture, after removal of the parasite.

In the great majority of cases no *Bothriocephalus* infection exists. In these one must assume another cause. There is a tendency, however, on the basis of clinical and pathologic findings, to regard the gastrointestinal tract as the source of intoxication. From the clinical side gastrointestinal symptoms in pernicious anemia patients are frequent and often severe, the persistent diarrhea with the general weakness furnishing the reason that brings the patient to the doctor.

From a pathologic standpoint a chronic gastritis is a frequent lesion found in the patients, and Hunter has called attention to the frequency with which oral sepsis and in particular a chronic glossitis are found in these cases. He considers that the infection of the mouth extending to lower portions of the gastrointestinal tract is the cause of the disease.

There seems to me much in this theory of Hunter's, and while I can quote no large series of personal investigations of the oral cavity, I would like to record that in two recent cases of pernicious anemia in which the oral cavity was examined there were found extensive dental caries and pyorrhea alveolaris, and also at the base of the tongue a chronic inflammatory process, in one of the cases, with shallow superficial ulceration. In the other case there was no ulceration but a degeneration and numerical atrophy of the tongue muscle and a deep sclerosis with round cell infiltration and hyperplasia of the mucous glands.

In both cases there was also a chronic gastritis. There were no other lesions found to which the anemia might be attributed. I hesitate to lay much stress on the importance of this chronic glossitis, as I am unable to furnish control statistics as to the microscopic condition of the tongue in cases dying of other diseases than anemia. I have, however, failed to observe the glossitis grossly.

If the lesion be due to infection of the gastrointestinal tract the clinical history of partial or almost complete recovery of the patient with subsequent relapse, or repeated alternation of these states, would suggest that the infecting organism was one against which a lasting immunity was not obtained. It may be one which possibly leaves the patient even more susceptible—the common history in infections by the organisms of the streptococcus, pneumococcus and gonococcus groups. There is no absolute evidence that the organism does belong to that group, and yet there appears to be no evidence that it does not. As to etiology, we must still say with Addison as to the great number of cases, that it is a disease without any discoverable cause whatever.

[The discussion on the papers in the Symposium on Anemia (articles by Drs. Ashford and King, Bunting, Cabot, and Meltzr) will appear with the two articles last mentioned.]

Certified Milk.—This term, which has been copyrighted to prevent its misuse and to limit it to products marketed under the direction and sanction of medical milk commissions, had its origin with the Medical Milk Commission of Essex County, New Jersey, which was organized in 1893 to secure a supply of milk which should always conform to a definite standard of purity. There are now 22 such commissions in the United States, chiefly in the eastern states. The original commission has just made its twenty-first report. This commission deals with only one dairyman, who employs in the production of the milk 1,000 acres of land, 515 cows and produces daily 2,900 quarts of certified milk. A new concrete stable has been constructed on the most modern plans. A bacteriologic laboratory is established. It appears from the reports that the objects of the commission are being satisfactorily attained. The report gives a very instructive view of what can be done by private medical supervision to secure the sanitary purity of an important food product.

THE PRINCIPLES OF VACCINE THERAPY.

BACTERIAL INOCULATION UNDER THE GUIDANCE OF THE OPSONIC INDEX.[*]

SIR ALMROTH E. WRIGHT, M.D.
LONDON, ENGLAND.

INTRODUCTION.

I have undertaken to outline to you to-night—so far as I can do so within the limits of a single lecture—the principles of vaccine therapy; i. e., of the treatment of bacterial disease by the inoculation of the corresponding vaccines. Let me preface what I have to say on this subject by reviewing briefly the methods—other than vaccine therapy—which we have to-day at disposal for the treatment of bacterial disease. The following are, I think, the only methods which here come into consideration:

(1) Treatment by chemical antiseptics.
(2) Treatment by the extirpation of the obtrusive focus of infection.
(3) Treatment by the determination of lymph to the focus of infection.
(4) Serotherapy.
(5) Expectant treatment.

TREATMENT BY CHEMICAL ANTISEPTICS.

Antiseptics have found in medicine a threefold application. They have been administered internally with a view to checking microbial growth in the blood, or in regions which can be reached only by the channel of the blood. They have been applied locally with a view to holding in check and extinguishing localized bacterial infections. They have been used for the purpose of checking putrefaction in discharges and devitalized tissues. Neither the first nor the third of these applications calls for any discussion. For some time past it has been all but universally recognized that it is futile to attempt to check bacterial growth in the interior of the organism by our present antiseptics, which have a greater affinity for the constituent elements of the body than they have for any bacteria[1]. Again, there has never been any doubt as to the possibility of suppressing putrefactive changes by antiseptic irrigations. Attention, therefore, may be concentrated here on the issue as to whether or not the antiseptic applications are effective in holding in check and extinguishing localized bacterial infections.

It is, of course, currently believed that this method of treatment is effective. It is in this faith that the surgeon introduces antiseptics into septic wounds, or, when he happens to be so minded, into abscess cavities. It is in this faith that the physician resorts in the case of pulmonary infections to antiseptic inhalations. And it is in this faith that the dermatologist, gynecologist, laryngologist, aurist, and genitourinary specialist are strenuous in the application of antiseptics each to the particular province of the body which he takes under his special care. It will be profitable for us to collate the facts and to consider whether or not there is in reality any trustworthy basis for the belief that inspires all this practice.

Significant in this connection appears to me the fact that antiseptics are now by general consent abandoned in the treatment of ordinary surgical wounds. Significant also is it that the practice of introducing antiseptics into abscess cavities, which was erstwhile so common, is now less and less frequently resorted to. Significant again is it that treatment by antiseptics in case of bacterial invasions of mucous membranes is to-day more and more frequently followed up by curetting, scraping, and so-called radical operations. Above all, significant is it that so distinguished a dermatologist as Sabouraud should sum up the results of antiseptic treatment of bacterial diseases of the skin as follows:

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[*] Editor's Note: This represents a lecture delivered before the Harvey Society, New York, Oct. 20, 1906. The manuscript, however, was only received July 22, 1907, so it is fair to assume that it embodies the author's latest ideas on the subject.

[1] We have a general formula for such antiseptics when we say in technical terms, which perhaps improve a little on those of Ehrlich, that they are more "histotropic" than "parasitotropic."

> Curious indeed is the failure of antiseptics in connection with the treatment of bacterial diseases of the skin. Quite colossal were the expectations which were entertained with regard to what would be effected by these. What antiseptics have accomplished by their agency amounts in point of fact to next to nothing.
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> The results which have been obtained in connection with pulmonary infections by antiseptic inhalations and in connection with bacterial infections of the genitourinary passages by "urinary" and other antiseptics are, I am persuaded, neither better nor worse than those which have been obtained in connection with diseases of the skin. Now all this failure of antiseptics is, I submit, only what might have been expected *a priori.*

Let me put the case as it appears to me.

It is, of course, axiomatic that antiseptics can take effect only on those bacteria with which they come in contact. It is obvious also that in the case of bacterial infections of the skin and mucous membranes the infecting bacteria will not all be lying on the surface, and that they will not when lying on the surface be limited, with respect to their distribution, to those regions which are accessible to antiseptics. It follows, therefore, that it will be unreasonable to expect from any application of antiseptics anything in the nature of a complete sterilization. In every case there will remain a residue of surviving bacteria, and the survivors will inevitably multiply and reoccupy the disinfected surface.

And this is not all. The antiseptic will not, as the unthoughtful assume, add its antibacterial power to the antibacterial power of the living organism. On the contrary, the antiseptic will directly antagonize the protective forces which the living organism has at command, it will paralyze the phagocytes, and will abolish the antibacterial power of the blood fluids. By the action of the antiseptic the disinfected surface will thus be left swept and garnished for reoccupation by the expropriated bacteria.

And again this is not all: The antiseptic application will also injure the histologic elements and in particular the capillaries of the tissues to which it is applied. It will thus lead to an outpouring of lymph from the disinfected surface. That outpouring will not only wash away the antiseptic but when a skin surface is in question it will convert the natural dry and horny epithelial armor into a lymph sodden envelope, which will be easily penetrable by bacteria.

TREATMENT BY THE EXTIRPATION OF THE OBTRUSIVE FOCUS OF INFECTION.

In case the invading bacteria have penetrated into the interior of the body, their destruction by antiseptic applications obviously will be out of question, and the policy of proceeding against the bacteria by surgical methods will come up for consideration.

I can understand that extirpation may be imperative when an organ has been completely disorganized by invading bacteria and when there is danger to life from the spread of the infection. I can understand also that a case can be made out for extirpation when there is prospect of removing all the infecting bacteria without danger or sensible mutilation. Lastly, I can understand that it will be an added advantage if an extirpation-operation removes along with the infecting bacteria a useless organ which is specially subject to infection.

But assuredly these are not the conditions under which the majority of scraping and extirpating operations are undertaken. And in particular these are not the conditions which confront us in those extirpation operations which are employed as a routine treatment in localized tuberculous infection. Here, long before the surgeon has been called on the scene, many of the bacteria may have been carried by the agency of the blood and lymph stream, far out of reach of the knife.

It will be clear that it can not be claimed for extirpation operations undertaken in these circumstances that they are in any real sense of the term radical operations. They are operations which aim only at the extirpation of one or more obtrusive foci of infection.

In harmony with this conclusion is, the fact that tuberculous disease so often recurs after operation; exceptionally in the form of general tuberculosis, commonly, as a localized process either in the site of the operation, or in some new site. Such results would at first sight appear to be due simply to the mechanical disturbance effected by the operation in the focus of infection. But another factor probably is at work here—notably when tuberculosis recurs acutely either locally or as a general infection. A reduction in the antibacterial power of the blood may supervene on operative interference.

TREATMENT BY THE DETERMINATION OF LYMPH TO THE FOCUS OF INFECTION.

The method of extirpation by the knife is only one of the methods which can be employed for the treatment of bacterial infections when these have passed beyond the reach of antiseptic applications. Of the other methods, the more important are the application of hot fomentations, the evacuation and drainage of abscess cavities, massage, the methods of Bier and Klapp, and the various forms of radiotherapy. In all these methods—and it is this which has induced me to bring them together here under a single heading—we have as a prime factor a determination of lymph to the focus of infection, and, as a secondary factor, a conveyance into the blood of lymph which in passing through the focus of infection has been impregnated with bacterial products. Before I have done I shall explain to you in connection with the passage of blood fluids into the focus of infection, that these blood fluids will exert in every case some antibacterial effect on the invading bacteria; and in connection with the passage of bacterial products from the focus of infection into the blood that these products will invariably effect very important modifications in the blood both in reducing and in increasing its antibacterial power.

There are thus *a priori* grounds for expecting useful therapeutic effect from each and all of these methods: and such useful therapeutic effects are achieved in many cases. There are also, however, as you will already have appreciated, *a priori* grounds for expecting that there will occasionally result from the application of these methods not only failure but disaster. It is within our knowledge that failures are common in connection with all these methods of treatment and also that disaster has followed massage, the venous congestion of Bier, nd radiotherapy. It will presently become clear that isaster may be expected whenever, by the application f these methods, bacterial products are introduced into he blood in immoderate quantities.

SERUM THERAPY.

All the therapeutic methods mentioned have applicaion only to localized bacterial invasions. Serum therpy has more ambitious aims. After a successful aplication in the treatment of diphtheria, this method—nd this without intermediary trial in connection with imple, localized and correspondingly more tractable orms of infection—has been applied to the treatment f the most desperate and complicated varieties of baccrial infection. Serum therapy has found application ot only in septicemic infections but also in pulmonary hthisis, in which there is practically always a most omplicated mixed infection. In these applications erum therapy, I submit, has everywhere disappointed xpectation.

It is not enough to realize the fact of failure. Wherver, as here, in the application of any therapeutic nethod, repeated failure is encountered, we are called n to make a critical review of the facts and to enquire nto the rationale of the method which has found aceptance. In accordance with this principle we are alled on to consider here whether there is any assured asis for the treatment of bacterial infections by serum herapy. That treatment is, in point of fact, built up n the postulate that the animal organism possesses the apacity of responding to the incorporation of practicaly unlimited quantities of bacterial cultures by a pracically unlimited output of bacterial substances. Now, his assumption, while it might be thought to win suport from the analogy of what occurs when diphtheria r tetanus toxin is incorporated into horses, is entirely ut of accord with the results which are ordinarily obained by the inoculation of bacterial cultures. When t is considered how different are the every day events vhich supervene on bacterial inoculations from that niracle of immunization which has been accomplished vhen as a result of injections of diphtheria toxin there ias been obtained in a volume of some few cubic centineters of horses serum sufficient antitoxin to confer ntitoxic power on the whole volume of a patient's lood, one is prepared to recognize that there is justifiation for the assumption that there will result from he introduction of a moderate amount of serum into patient's blood, anything in the nature of a marked ncrease of his antibacterial power.

EXPECTANT TREATMENT.

I now come to the expectant method of treating bacerial disease—the last of the five therapeutic methods vhich were enumerated at the outset of this paper.

In the expectant treatment we have a therapeutic nethod which is based on the adoption of a policy of on-intervention as between the invaded organism and he invading bacteria. It is agreed that by this method —which consists essentially in feeding and nursing he patient and keeping him at rest in bed—far better esults are achieved in generalized bacterial infections han any that could be obtained by active medication. Ve need only to call to mind here the fact that under he expectant treatment from 80 to 90 per cent. of reoveries are achieved in typhoid fever.

There is also a reverse to the medal. In typhoid ever there is from 10 to 20 per cent. of fatal cases. In streptococcal septicemias and in plague—to mention only two out of the more formidable bacterial infections—there is a mortality in comparison with which the percentage of recoveries is insignificant. Further, in Malta fever there is a considerable percentage of cases in which the fever drags out almost indefinitely. This indictment of failure—of failure in septicemic diseases—is very far from being the only indictment which can be brought against the expectant method.

Comparatively speaking, generalized bacterial infections are rare and transient incidents in life. The really serious ills of life are the various localized bacterial infections which sooner or later fasten on every man, never afterward releasing their hold. It follows from this that a graver allegation is brought against a method of treating bacterial disease when it is alleged that such method has no application in localized bacterial processes than when it is pointed out, as it has been here in connection with the expectant treatment, that it is a method which disappoints in many varieties of generalized infection, and a method which commits the destiny of the patient—so far as that destiny is involved in the issue of his conflict with the invading microbes—entirely into the hands of chance.

Now the graver charge of having no application with localized bacterial diseases may be brought against the expectant method of treatment. It is only, as I apprehend the matter, in case life is threatened by the entrance of bacteria or bacterial products into the blood—and as we shall see later not even invariably in that case—that Nature seriously addresses herself to the task of immunization. So long as a bacterial invasion is still strictly localized Nature opposes to it nothing more than a passive resistance. It follows that in localized infections it is idle to wait on Nature and to expect from her any work of immunization. It would be impossible, I think, to over-rate the practical importance of this generalization. Physicians will realize the importance of this if they will take any series of cases of endometritis, middle-ear disease, chronic bronchitis, lupus, or other localized bacterial disease, and will take into consideration the number of years the infection has persisted.

I can call to mind among patients whom I have treated recently no fewer than three cases in which lupus has persisted for over forty years.

PRINCIPLES OF VACCINE THERAPY AND SKETCH OF THE MACHINERY OF IMMUNIZATION.

Having now passed in review the therapeutic methods which are in use in the treatment of bacterial disease, I propose to turn to the main theme of my discourse and to deal with the treatment of bacterial disease by vaccine therapy. The essential feature of this method is the scientific exploitation for therapeutic uses of the protective machinery with which the organism is equipped.

Two elements come into consideration in the protection of the organism against invading micro-organisms: The leucocytes with their digestive ferments constitute one of these elements; the antibacterial substances in the blood fluids constitute the other.

A word or two will be appropriate in connection with each of these elements of our protective machinery.

(a) *Leucocytes.*—The leucocytes come into consideration in connection with resistance to bacterial infection by virtue of the fact that they are capable of ingesting bacteria and of disintegrating these by intracellular digestion. We may usefully distinguish between "spontaneous" and "induced" phagocytosis. By the former of these terms we may denote that process of ingestion which comes under observation when bacteria which have not been subjected to the action of the blood fluids are brought in contact with washed leucocytes in an indifferent medium such as physiologic salt solution. "Spontaneous" phagocytosis as here defined is distinguished by the facts that it is a comparatively slow process; that the number of bacteria ingested by each leucocyte attains ordinarily only very modest proportions, and that the ingestion is irregular in the sense that individual polynuclear leucocytes differ very strikingly from their congeners with respect to their intake of bacteria—the majority of leucocytes pick up from such a bacterial suspension as is ordinarily employed, very few if any bacteria, while others ingest relatively considerable numbers—and lastly, by the fact that the ingestion of bacteria can be completely suppressed by employing in the phagocytic mixture a concentration of slightly over 1 per cent. of sodium chlorid. Strikingly different from such spontaneous phagocytosis is the "induced" phagocytosis which comes under observation when leucocytes are brought in contact with bacteria which have been or actually are at the moment subjected to the action of serum. The induced phagocytosis which occurs in these conditions is distinguished by the following facts: First, it is an exceedingly rapid process; second, with hardly an exception, every adult leucocyte is here phagocytic (instead of some few leucocytes taking part immoderately while the others abstain); third, when the supply of micro-organisms is unrestricted the leucocytes ordinarily will fill themselves to absolute repletion, and, fourth, the leucocytes will continue to ingest bacteria in a concentration of salt which entirely suppresses "spontaneous" phagocytosis.

Seeing that phagocytosis of bacteria without subsequent intracellular digestion would be meaningless from the point of view of the protection of the organism, it will be plain to you that the digestive powers of the leucocytes would here come up for consideration. For the present, however, I am debarred from entering into such a discussion, not having yet qualified myself to speak at first hand on the matter. Permit me none the less to give here my tribute of admiration to the brilliant initiating work which has been done on this subject by your fellow member, Dr. Opie.[2]

(b) *Antibacterial Elements of the Blood Fluids.*—The blood fluids differ essentially from the nutrient fluids which are ordinarily employed by the bacteriologist for the cultivation of micro-organisms in the respect that while the latter are nutrient fluids pure and simple, the blood fluids, in addition to nutrient constituents, contain antibacterial elements. The antibacterial elements which are here in question are of "bacteriotropic" elements in the sense that they turn toward and enter into combination with elements of the bacterial body. Our knowledge of the modifications which are effected in the bacterial body under the influence of the bacteriotropic substances in the blood fluids is extremely incomplete. It is known, however, that the effect of the blood fluids on the bacterial body may manifest itself in various ways: The bacteria may be killed without being dissolved. The bacteria may not only be killed but dissolved. We may group these together as bactericidal and bacteriolytic effects. The bacteria may be so altered as to agglutinate in the presence of salt (agglutination effect). The bacteria may be so altered as to be readily ingested by phagocytes (opsonic[3] effect). Inasmuch as the blood fluids produce in bacteria the different chemico-physical effects here enumerated, and inasmuch as agglutinating and opsonic effects can be obtained independently of each other and independently of any bactericidal and bacteriolytic effects, we may assume that we have in the blood fluids, in addition to bactericidal substances (or bactericidins) and bacteriolysins, also agglutinins and opsonins.

Of these four varieties of bacteriotropic substances the opsonins appear to be the most important. We may ascribe to them a predominating importance, first, because it can be shown that the opsonic effect is exerted by either the normal or immune blood on every species of bacteria, whereas the agglutinating effect is exerted only on special varieties of bacteria, and the bactericidal and bacteriolytic effects are exerted among pathogenic micro-organisms apparently only on the typhoid bacillus and the cholera vibrio. The opsonins derive further practical importance from the fact that they can be accurately measured (the error of estimation in the case of normal bloods and in the hands of a good worker being rarely greater than plus or minus 5 per cent.) and that it is possible, seeing that the opsonic effect of the normal blood fluids is very marked, to register not only (as in the case of the agglutinating power) an increase but also a reduction in the opsonic power of the blood. Such increase and reduction in the opsonic power is, of course, measured by comparing the amount of purely induced phagocytosis which is obtained with a normal blood with the amount of purely induced phagocytosis which is obtained with the blood of the patient under examination.

HOW FAR IS THE PARTICULAR COMPOSITION OF VACCINE A MATERIAL ELEMENT IN THE SUCCESS OF AN INOCULATION PROCESS?

From the consideration of the protective machinery of the organism let me now turn to the consideration of certain preliminary points in connection with the bacterial vaccines which operate on that machinery. The first question which confronts us here is the question as to how far the success of an inoculation process is dependent on the particular composition of the vaccine. I have in view here in speaking of the particular composition of the vaccine not the axiomatic requirement that it must be affiliated to, or connected by affinity with, the microbes which it is designed to combat, but rather the minute details with regard to its source and manufacture.

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[2] Since the date of this lecture I have confirmed the results of Opie and have found a method of displaying his results by the aid of leucocytes obtained from blood drawn from the finger. It may be of interest, perhaps, to subjoin here the technic I have employed. As you will have recognized, it is modeled on the inoscopic methods of Joussett. A capillary pipette which is fitted with a rubber teat is taken in hand. A puncture is made in the finger, and one volume of blood—a quantity of from 10 to 20 cm. is adequate for the purposes—is aspirated into the stem of the pipette. Filling up each time to the same mark, four equal volumes of distilled water are aspirated into the pipette and these four volumes of water are mixed with the one volume of blood in the neck of the pipette. By this maneuver we hemolyze all the red corpuscles, leaving the white corpuscles intact. The pipette is then placed in an incubator at blood heat and kept there for ten or more minutes. The diluted blood will now have coagulated in the neck of the pipette. The next step is to fill another pipette with physiologic salt solution and to project this in the form of a stream on the coagulated blood. This process is continued till the clot has contracted firmly on the white corpuscles which are held in suspension in its meshes, and until every trace of serum is washed away. The last traces of our wash water are then removed and in its place a quantity of liquefied 15 per cent. gelatin equivalent to twice the original volume of blood is poured into the pipette. Finally the tube is sealed up in an airtight manner and placed in an incubator regulated so as to maintain a temperature of about 50° C. After an interval of from twenty-four to forty-eight hours it is found that the clot has undergone autodigestion and that the gelatin surrounding the clot has lost its power of solidifying on cooling. The fact that these changes do not occur in the presence of serum is demonstrated by a control tube which has been treated in exactly the same manner except that it has received a small addition of serum.

[3] Derived from the Greek *οψωνεω* I convert into palatable pabulum.

Reflection will make clear that the success of an immunization process must depend, in the first place, on the power of immunizing response which the organism may happen to possess with respect to the particular bacterial infection or intoxication process which is in question, and, in the second place, on (a) the composition of the vaccine and (b) the dosage and method of administration.

Up to the present the composition of the vaccine has been considered to the practical exclusion of the question of dosage. Whenever ill success has attended a process of immunization, or whenever it has appeared to any one that it ought to be possible to improve on the result already obtained straightway the suggestion has been put forward that some change ought to be made in the composition of the vaccine. In such cases living vaccines have been proposed as substitutes for sterilized vaccines; vaccines derived from virulent cultures as substitutes for vaccines derived from avirulent cultures; vaccines derived from cultures more closely affiliated to the microbes against which protection is sought as substitutes for vaccines obtained from cultures less closely affiliated; vaccines derived from agar cultures for vaccines obtained from broth cultures; and vaccines obtained by the triturition of bacteria by autolysis, or treatment by caustic alkalies and subsequent precipitation with acids as substitutes for vaccines which have been sterilized in the ordinary way by heat.

It has been claimed in connection with each of the modifications here in question that its employment is dictated both by weighty *a priori* considerations and analogies and by actual experiments. Of the *a priori* considerations and analogies which have been adduced I will consider only the contention that living vaccines ought to be preferred to vaccines which have been sterilized by heat on the ground that inoculations with the former furnish close analogies with actual infections which are known to confer immunity, whereas there are no such close analogies between these last and inoculations with vaccines which have been subjected to the action of heat. To this I could rejoin that even supposing the temperature of boiling water, which the objector has in view, to produce in a bacterial culture chemical changes as fundamental as those produced by that temperature. In egg albumin, a temperature which just suffices for sterilization, might well leave the chemical constitution to a bacterial culture for all practical purposes unaltered, just as there is a temperature short of the coagulating temperature which when applied to a hen's egg will prevent germination, while leaving the chemical characters of its albuminous substances substantially unaltered.

If I refrain from all attempt to meet analogical reasonings of this kind the many other suggestions which have been put forward in connection with the constitution of bacterial vaccines, it is because I hold that in scientific controversy the proper procedure is always to either bring to light proof of a contested proposition, or to make *tabula rasa* by demonstrating that such proof is not forthcoming.

Now analogical reasonings can not supply definite proof, nor can they—seeing that no argument from analogy can ever be effectively discredited by the production of any conflicting analogy—restore to us that *tabula rasa,* which is ever, next after assured knowledge, our best intellectual possession.

Often our returns are profitable when we proceed by the pathway of reasoning from experiment. By this path we arrive always at some intellectual good. When we find a contested conclusion to rest on a firm basis of experiment we are entitled to incorporate it in a definitive manner into our sum of knowledge. When we find a flaw in the chain of reasoning we are entitled to reject and to put far from us the conclusion, recovering for future exploitation unencumbered foundations.

Allow me, in view of these general considerations, to turn to the experimental evidence, and let me try to show that the reasoning which has been held to establish that a vaccine of a particular composition is more effective than vaccine of somewhat other composition has been inconclusive in every case. Let us begin by realizing that when an animal which has been inoculated with a particular vaccine succumbs to a test inoculation this result does not establish the conclusion that the vaccine which was employed is ineffective. It demonstrates only: that the vaccine was ineffective. or that the dosage was ill chosen; that the test inoculation was ill-timed; that the test inoculation was excessive, or that two or more of these factors were at fault.

A fortiori when comparative experiments are undertaken on two animals or on two different sets of animals with different vaccines, and when one of these survives while the other succumbs to the test inoculation all that has been established is that the one vaccine employed in a particular dose x has, at the date of the test inoculation, conferred a greater measure of protection then another vaccine employed in another dose y. Now it is obvious that unless we have assurance that the doses x and y which have been employed in the comparative experiments represent the optimum doses of these vaccines (or doses which stand in each case in the same relation to those optimum doses) we can have no assurance that the survival or nonsurvival of animals is determined by the difference in the vaccine and not by a difference in the dose. Nor no serious attempt has ever been made to employ in comparative experiments exactly equivalent doses of the competing vaccines. Therefore, in the course of our study of the question as to how far the particular composition of the vaccine is material to the success of an inoculation process, there has come to light the fact that we are not yet in a position to affirm that one variety of vaccine possesses an advantage over another from the point of view of its power of conferring immunity. It has also become clear that no progress can be made in the resolution of the ulterior question which has been considered until we have settled the preliminary question as to how the equivalent doses of two vaccines can be arrived at, and how the immunizing efficacy of a bacterial inoculation can be most effectively tested. So material is a comprehension of this last question to the understanding of the principles of vaccine therapy that I need not make any apology for embarking on its consideration.

WHAT IS THE BEST METHOD OF MEASURING THE IMMUNIZING EFFECT PRODUCED BY THE INOCULATION OF A BACTERIAL VACCINE?

The method of test inoculation, i. e., the method of inoculating a living culture into an animal which has been previously treated with a vaccine and of comparing the result obtained in this animal with the result obtained on a control animal inoculated with a similar test dose of living culture, has hitherto been accepted as a perfectly satisfactory method of gauging the immunizing effect of a vaccine. While it is undeniable that when the vaccinated animal survives and the control animal succumbs this method supplies a satisfactory proof of the immunizing power of the vaccine. In case the vaccinated animal succumbs it may deceive us in deepest consequence. When the test inoculation has been undertaken with an excessive amount of the living culture we may fail to obtain evidence of achievement of a sensible measure of protection. Again, when the test inoculation follows hard on the inoculation of the vaccine the animal may—and we shall presently see the explanation of this—succumb as rapidly as even before the control animal, without any fault being attributable to the vaccine. In fact the more rapid death of the vaccinated animal after a premature test inoculation, paradoxical as this may at first sight appear, in reality may be indicative of the excellence instead of the inefficacy of the vaccine.

If these things are so, it is clear that there may well be a more excellent method of gauging the immunizing effect of a vaccine than that which is furnished by judging by the event of a test inoculation. Reflection will show that if we can take it as assured—and I submit that we can—that the machinery of immunization is understood, at any rate in its broad features, and if it is indubitable—as in point of fact it is—that the phagocytic reaction of the leucocytes and the content of the blood in antibacterial substances can be measured with a degree of accuracy which is sufficient for all practical purposes. And if by means of these quantitative methods it is feasible to construct curves showing the march of events and the changes which are associated with the inoculation of a bacterial vaccine, it must be possible by the aid of such curves to gauge in a more accurate manner than by any test inoculation the immunizing effect of a vaccine, and to determine in the case of any two vaccines what are the doses which produce precisely equivalent effects. The method of vaccine therapy which is here in question proceeds on these assumptions. It postulates that we have in the curves which set forth changes in the bacteriotropic power of a patient's blood, and in particular in the curves which set forth changes in the opsonic index of his blood a record of blood changes which in every case exert a dominating influence on that patient's bacterial infection. I am very sensible of the fact that justification for these generalizations can be afforded only by the gradual accumulation of evidence. Allow me, however, pending the time when such evidence shall have accumulated in your hands, to forestall events and to endeavor to call up by the aid of an immunization chart a picture of the facts which were elicited by my fellow worker, Capt. S. R. Douglas, and myself in a case of localized staphylococcus infection which was successfully treated by the inoculation of staphylococcus vaccine.

INCREASED PHAGOCYTIC RESPONSE AND SUCCESSFUL IMMUNIZATION.

Increased phagocytic response is associated with successful immunization, and this increased phagocytic response is dependent on an increase in the opsonic power of the blood fluids and not on an increased capacity for spontaneous phagocytosis on the part of the white corpuscles.

The immunization chart (Fig. 1*) furnishes a typical illustration of the achievement of increased phagocytic response in association with successful immunization. The phagocytic power of this patient's blood, when he came under treatment for an aggravated localized staphylococcus infection, was equivalent, as shown in the chart, to less than half that of a normal man. By the agency of successive inoculations of a staphylococcus vaccine his power of a phagocytic response was augmented till it was equivalent to nearly three times that of a normal man.

At the point which is indicated by an x on the chart —and the clinical condition of the patient had by this time improved in a marvelous manner—an investigation was set on foot with a view to determining whether the increased phagocytic response which had been achieved was referable to an increased power of spontaneous phagocytosis on the part of the white corpuscles or to an increased opsonic power in the blood fluids.

In order to decide between these two alternates a duplicate series of tests was instituted. In the experiments of Series 1 washed corpuscles prepared from the patient were tested (a) in association with his own serum and (b) in association with the serum of the normal man who served as a control. In the experiments of Series 2 the washed blood corpuscles of the normal man who served as a control were tested (a) in association with the immunized patient's serum and (b) in association with his own serum. In each case the technic was that which I have elsewhere described, the same amount of the same staphylococcus suspension being in each case introduced into the mixture of corpuscles and serum. The phagocytic counts which were obtained under these circumstances were as follows:

The phagocytic counts (i. e., average number of microbes ingested by each P.W.B.C.) which were obtained under these circumstances were as follows:

Series 1:—

(*a*) Washed corpuscles of immunized patient employed in association with the serum of the immunized patient, 25.7.

(*b*) Washed corpuscles of immunized patient employed in association with serum of the normal man who served as control, 13.

Series 2:—

(*a*) Washed corpuscles of normal man who served as control employed in association with serum of immunized patient, 28.2.

(*b*) Washed corpuscles of normal man who served as control employed in association with the serum of the normal man, 13.

What now do we learn from these phagocytic counts? We learn from a comparison of the phagocytic counts in experiments (a) and (b) in Series 1 that the serum is a factor which profoundly influences phagocytosis. It does not emerge from a comparison of the two phagocytic counts, Series 1 (a) and (b)—inasmuch as here in each case the same variety of leucocytes was employed—whether or not the phagocytic count is influenced by the variety of leucocytes. A comparison of the phagocytic counts (a) and (b) of Series 2 once more shows that phagocytosis is influenced by the variety o serum. And again—for the same reason as before—a comparison of these two phagocytic counts leaves it undecided as to whether or not phagocytosis is influenced by the variety of leucocytes which is employed.

From consideration of the all but complete identity of the phagocytic counts obtained in Series 2 (a) with the count obtained in Series 1 (a) and again from the identity of the phagocytic count obtained in Series 1 (b) and Series 2 (b) it seems clear that the phagocytic count is uninfluenced by the variety of corpuscles employed. In short, the whole experiment teaches us that the changes which are associated with the acquirement of immunity are changes in the blood fluids and not changes in the white corpuscles. This conclusion, in addition to its theoretical interest, has also, be it remarked, an absolutely fundamental practical importance. It will make it clear that we may take the opsonic index of any blood as an index of the patient's power of phagocytic response.

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*Editor's Note: Chart 1 was not received. A duplicate has bee sent for and will be published on its arrival.

DETAILED STUDY OF THE CURVES OF IMMUNIZATION OBTAINED BY THE INOCULATION OF BACTERIAL VACCINES.

We have next to make a detailed study of the curves of immunization which are obtained by the inoculation of bacterial vaccines and to make acquaintance with the laws which govern the output into the blood of the opsonins and other bacteriotropic substances which are produced in the organism in response to an *ictus immunisatorius*.

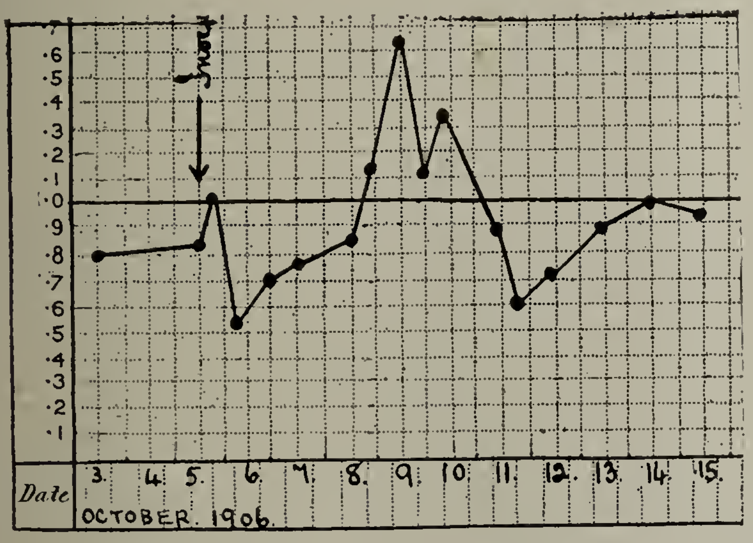

Fig. 2.—Chart of opsonic index. The inoculation at the point marked "inoc." was of 1/2,000 milligram T. R.

Such a record as is furnished by the immunization chart reproduced in Figure 1 gives an inadequate and, be it noted, a fallaciously inadequate account of the events which occur in the blood after the inoculation of bacterial vaccines. When, instead of testing the blood after inoculation at intervals of from seven to ten days, as was done in the case of the patient whose immunization chart has just been considered, the blood is tested from day to day, it is borne in on us that the augmentation of the bacteriotropic power—or, let us rather phrase it, the rise in the bacteriotropic pressure—of the blood is generally preceded by a fall. It is impressed on us also that the rise which is achieved by inoculation is only a transient rise, and that the bacteriotropic pressure generally declines after the interval of a few days, sinking away until it reaches the point at which it started; in other cases, it runs along for a time at a level only a little above the original base line. I have spoken of the sinking away of the bacteriotropic pressure of the "negative phase" and of the rise of pressure as the "positive phase" of the reaction of immunity. And I have tried to delineate in words the whole oscillation by speaking of "the ebb" (*the negative phase*), "the flow" (*positive phase*), "the backflow" (subsequent decline of the curve) and "the sustained high tide of immunity."

This phase describes only the larger features of the curve. When more frequent, and in particular when earlier blood examinations are made another practically constant feature reveals itself. This is the transient initial rise preceding the negative phase. We may think of this as of an anacrotic wavelet which arrives before the main wave of immunity. This wavelet and its position in the general scheme of oscillation is shown in Figure 2.

It is not to be assumed that the form of curve as set forth in the chart (Fig. 2) is universally conformed to. When a dose of vaccine which is only just sufficient to produce a result is administered the negative phase is elided and there is registered only a positive phase. The curve in such a case neither rises so high nor does it maintain itself so long above the base line as when a larger amount of vaccine has been administered.

When an excessive dose of vaccine is administered—meaning here by an excessive dose a dose whose inoculation produces severe constitutional symptoms—the negative phase is proportionately accentuated and prolonged. The bacteriotropic blood pressure may be reduced for a period of weeks, and the advent of a positive phase in such a case may be awaited in vain.[4]

CHRONOLOGY OF THE DIFFERENT PHASES OF THE CURVE OF IMMUNIZATION.

Having now learned the features of the curves which are obtained after the inoculation of different quantities of bacterial vaccines, we may further study the chronology of the successive incidents. The traditional view—a view which would seem to have been derived from experience with vaccinia—is that a period of ten days is always required for the establishment of active immunity. Largely owing to the fact that this view was adopted by Pasteur it became part of the routine religion of the bacteriologist—animals and men being subjected to test inoculations or to reinoculation on the expiration of a fixed period of ten days. So far as I know, Haffkine was the first to claim that a condition of immunity was achieved within twenty-four hours after the inoculation of a vaccine. He put forward this claim in connection with his plague vaccine, basing his contention on the statistical results of antiplague inoculations undertaken in India in the Byculla gaol and in the village of Undhera. Some years afterward—the matter having in the meantime been advanced a step further by the publication, under Haffkine's auspices, of evidence pointing to the successful inoculation of patients who were already in the incubation period of plague—I obtained in the course of a study of the changes effected by antityphoid inoculation in the bactericidal power of the blood evidence of development of increased bactericidal power in the blood on the day subsequent to the inoculation of moderate doses of antityphoid vaccine. Following on that, I obtained in connection with my first therapeutic inoculations of staphylococcus vaccine evidence of increased phagocytic response on the day subsequent to inoculation. One would have thought that this would have constituted a record. During the last twelve months, however, we have obtained in numerous cases conclusive evidence of an augmentation of the opsonic power of the blood within an hour after the inoculation of tubercle vaccine, and also trustworthy witness of associated clinical improvement within that time in case of inoculation of tubercle vaccine in an infection of the eye. In the treatment of furunculosis by inoculations of staphylococcus vaccine we have also obtained trustworthy evidence of clinical improvement within an hour after inoculation. The augmentation of the opsonic power and the clinical improvement which are here in question were correlated—in the case in which very small doses of vaccine were employed—with the development of the ordinary positive phase, and—in the case in which moderate doses of vaccine were employed—with the development of that feature in the curve which was referred to above under the designation of the initial rise.

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[4] It may be interesting in this connection to note the following points: (1) Immoderate negative phases due to overdosage rarely come under observation except in the case of patients who are new to inoculations. After a prolonged series of inoculations it is the rule, but by no means an invariable one, to find that a large surplus of vaccine over that which is required to raise the bacteriotropic pressure of the blood can be tolerated. (2) When by inadvertence an excessive dose of vaccine has been administered it is unnecessary definitely to await the return of the bacteriotropic pressure to the normal. In such a case, the desired rise can practically always be obtained by reinoculating as soon as all constitutional symptoms have disappeared with a minimal dose of vaccine. (3) The forerunner initial rise spoken of above may come into observation also in connection with the inoculation of an immoderate dose of vaccine. It may perhaps be provisionally assumed that such initial rise is the response of the organism to the fraction of the total dose which is immediately absorbed.

WOULD IT NOT BE POSSIBLE BY PILING ONE INOCULATION ON ANOTHER TO ACHIEVE A LARGER OUTPUT OF ANTIBACTERIAL SUBSTANCES AND IN ASSOCIATION WITH THIS A POSITIVE PHASE OF LONGER DURATION?

It will be every man's—at any rate every beginner's—thought that it ought to be practicable to achieve a larger output of antibacterial substances—if not by the employment of larger doses of vaccine, then assuredly by piling up inoculation on inoculation.

I have already discussed this question elsewhere,[5] and have pointed out that while it may be possible when submaximal doses—using the term submaximal doses here to denote doses smaller than those which would give maximal immunizing response—are employed to obtain cumulation in the direction of the positive phase such a result with other vaccines—and in particular with the tubercle vaccine—can very rarely if ever be obtained. When this situation confronts us the proper policy would appear to be to treat each inoculation as an independent event—following up one inoculation by another as soon as the effect of the antecedent one is passing off.

IS IT EXPEDIENT TO EMPLOY IN SUCCESSIVE INOCULATIONS PROGRESSIVELY INCREASING DOSES OF VACCINE?

Close kin to those primitive ideas which suggest that the immunizing response must increase proportionately with the dose of vaccine employed, and that, failing this, it must be possible to obtain an increased immunizing response by piling one inoculation on the other, is the idea that it must be possible to achieve a greater yield of protective substances by employing in successive inoculations progressively increasing doses of vaccine. In point of fact, experiment shows clearly, not alone that no advantage is reaped from a progressive augmentation or the doses of vaccine, but that such a course must inevitably lead on to disaster. Indeed, it is obvious on *a priori* considerations alone that when the dose of vaccine is progressively augmented a point must sooner or later be reached at which the immunizing power of response will give out. I would, therefore, put it to you that the proper principle of dosage in any series of inoculations is never to advance to a larger dose until it has been ascertained that the dose which is being employed is too small to evoke an adequate immunizing response. A dose of vaccine may be adjudged too small as soon as it has been ascertained that its inoculation is not followed by a negative phase and that the positive phase is not well marked and is only of very short duration.

THE SITE WHICH OUGHT TO BE SELECTED FOR THE INOCULATION OF A BACTERIAL VACCINE.

A whole array of observations point to the local production of bacteriotropic and vaccinotropic substances generally at the site of inoculation. In the first place we have the observation that an infinitely greater yield of antitoxins—and it would seem also of antibacterial substances generally—is achieved in horses by the subcutaneous as contrasted with the intravascular method of inoculation. We have further the observation that in antityphoid inoculation a more effective protective reaction is induced in patients who show considerable local reaction at the seat of inoculation than in those who suffer from severe constitutional symptoms apart from any appreciable local reaction. It has also been noted that local immunity may be acquired and retained apart from the acquirement or retention of general immunity. If we may build—as it would seem that we may—on the aggregate of these observations it would logically follow that the site of every inoculation which is undertaken for the therapeutic purposes deserves to be carefully considered in connection with the site of the focus of infection which is to be influenced. It will not suffice to inoculate into any region of the subcutaneous tissue which may happen to present itself as convenient. It is true that for aught we know to the contrary one and the same amount of protective substances would be elaborated in each case. A difference could, however, occur in this way. When protective substances find access to the blood by a channel which does not lead through the focus of infection—let us for the purpose of fixing our ideas suppose that focus to be situated in a lymphatic gland—the newly elaborated protective substances will come into operation on that focus only after they have been diluted by the whole volume of the blood. When on the contrary—if I may so express it—the inoculation has been made "up stream" from the focus of infection, i. e., in some part of the lymph watershed which drains through the focus of infection, the protective substances which are produced at the site of inoculation may be expected to come into application on the focus of infection in a comparatively undiluted condition.

Pending the time when the place of origin of the bacteriotropic substances which appear in the blood after inoculation shall have been definitely set at rest by some *experimentum crucis*, I have made some tentative therapeutic experiments on the relative efficiency of inoculations undertaken up stream from the focus of infection as compared with inoculations made in regions which were not so related to that focus. I feel satisfied that those experiments—though they at the same time indicate that one and the same portion of tissues tires out on too frequent inoculations—have furnished results conformable to those which might have been expected to follow from the theory of the production of bacteriotropic substances at the site of inoculation. To make only one case out of many, I was much impressed by the fact that the theory of the local production of protective substances[6] suggested a procedure which successfully arrested the spread of a tubercular process after all other methods had failed. This result was obtained in the case of an ulcer which, though it had completely healed in the middle, was spreading outward in the form of a ring of indurated tissue. Its arrest and definite cure was achieved when, executing a strategic move, I inoculated in a series of different positions disposed circle-wise around the extending ring.

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[5] Clinical Journal, May 16, 1906; Transactions of the Royal Medico-Chirurgical Society, vol. lxxxix.

ACQUAINTANCE WITH THE PHYSIOLOGY OF THE IMMUNIZING RESPONSE NOT A SUFFICIENT EQUIPMENT FOR AN IMMUNIZATOR.

Up to this point we have been dealing with the physiology of immunization and the nature of the immunizing response. For the successful treatment of bacterial disease by methods of immunization something more is required. We must realize the conditions under which bacteria cultivate themselves in the organism. We must understand under what circumstances bacterial products, or bacteria, as the case may be, are conveyed into the blood stream from local foci of infection. We must appreciate how the organism reacts to such autoinoculations; and we must understand how to bring the leucocytes and bacteriotropic substances which are the instruments of immunization into operation on bacteria which are cultivating themselves inside the organism but outside the blood stream.

(*To be continued.*)

THE MANAGEMENT OF DISLOCATION AT THE SHOULDER JOINT COMPLICATED BY FRACTURE OF THE NECK OF THE HUMERUS.*

HUBERT ASHLEY ROYSTER, A.B., M.D.
RALEIGH, N. C.

The occurrence of four cases of the above injury in my own work within seven months suggested a study of the condition and will serve as the reason for choosing this subject. Even from so limited an experience one is prepared to say at the outset that fracture-dislocation at the shoulder happens more frequently than is usually supposed; that its recognition is not always an easy matter, and that its proper treatment is little understood. There are several causes for this state of affairs. Chief among these is the fact that text-books on surgery do not consider the matter in detail and teachers of surgery do not lay stress on it.

In a list of ten authors consulted, one does not mention the subject, seven deal with it in a short paragraph, while only two treat it with anything like adequate importance. Practitioners must, therefore, find difficulty and uncertainty in approaching such cases. Moreover, much carelessness is manifested in examining shoulder-joint injuries, the physician often being content with superficial manipulations and the application of a sling or a bandage. It must be admitted that a simple dislocation of the shoulder-joint is readily seen and remedied, but when displacement is associated with fracture of the humeral neck the diagnosis and management are questions not easily determined. For the purpose of this paper its title has been made to include fractures both of the anatomic and surgical neck of the humerus, and these will be discussed together.

The four cases occurring in my own practice are as follows:

Case 1. *Old Unreduced Dislocation, with Fracture of the Surgical Neck, United in Abnormal Position. History.*—Mrs. L. H. M., aged 52, was first seen Jan. 5, 1905. About nine weeks previously (Oct. 20, 1904)) she was thrown from a carriage, striking on her left shoulder. A physician saw her soon after and recognized the nature of the injury, but failing in an attempt to reduce the dislocation, he directed his attention to the fractured humerus in order to obtain union of the bone and later to effect restoration of the joint.

Examination.—When the patient came for examination, it was seen that the left shoulder drooped, the muscles were atrophied, the arm exhibited only slight anterior and posterior movements, and the head of the humerus was immovably fixed in its new position (subcoracoid). There was apparently firm union of the fracture at the surgical neck.

Treatment.—Under anesthesia an attempt was first made to reduce the dislocation by Kocher's method. As soon as the arm was rotated outward the bone snapped and the original fracture was reproduced. An oblique incision was then made over the misplaced humeral head through the fibers of the pectoral muscles, with the intention of lifting the upper fragment out and restoring both the joint and the continuity of the bone. This was found to be impossible and the only recourse was to obtain a false joint at the line of fracture. The incision was closed with drainage and the arm was placed in a sling, after bringing the shaft of the bone as nearly as possible at a right angle to the upper fragment, and as far away from it as permissible. The woman remained under treatment for about ten days and left with instructions for massage and passive motion. The result in this case has been far from satisfactory. In spite of every effort to prevent it, the fragments reunited, so that the effect of the operation is *nil.*. The woman can get her hand to her mouth and the arm is of considerable service to her, but all the motions are restricted.

Case 2. *Unreduced Dislocation Showing an Undiscovered Fracture of the Anatomic Neck. History.*—C. P., aged 20, while playing ball at school April 25, 1905, fell on his left shoulder. He was not seen by a physician until five hours had elapsed and during this interval his schoolmates pulled long and hard at the joint in their endeavors to "put it in place." The doctor who first attended the young man said that he reduced the dislocation and some degree of restitution was evidently obtained, for there was no pain or discomfort for a week. After that time, however, he began to suffer and applied to a neighboring physician for relief. It was then found that the dislocation had recurred and the patient was sent to Rex Hospital for treatment, nearly two months after the injury.

Examination.—On June 19, 1905, an examination disclosed a longstanding subcoracoid luxation of the left shoulder-joint without marked muscular atrophy; the head of the humerus seemed unusually large and irregular in shape.

Treatment.—Remembering the experience in the first instance (Case 1), little time was lost in manipulation, but, instead, the open method was immediately resorted to. In this case a straight incision was used, going directly downward from the acromion through the deltoid muscle to the extent of four inches. With the aid of forceps and fingers the humeral head was restored to the glenoid cavity without opening the joint. Close inspection revealed a line of callus-formation, and deformity, indicating a healed fracture through the anatomic neck of the humerus—the cause of failure in retaining the arm after apparent reduction. The wound was closed after inserting a small drain. A shoulder cap of plaster-of-Paris was molded to the joint and secured by roller bandages. In one week's time this was removed and passive movement begun. The outcome of the case was most gratifying.

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[6] In this connection I would throw out as a suggestion that the production of protective substances at the site of inoculation would be definitely set at rest if after the inoculation of a bacterial vaccine into a limb it were shown that an increase of protective substances in the blood could be achieved by either massage and the application of a Bier's bandage.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Before a month had passed the boy had almost perfect use of his left arm and now (nearly two years after) it would be hard to believe that the shoulder had ever been dislocated.

CASE 3. *Old Dislocation of the Shoulder, Complicating a Comminuted Fracture of the Upper Extremity of the Humerus. History.*—H. M. R., aged 48, locomotive engineer, stepped from his cab in the darkness, missed his footing and fell down an embankment, striking on his left shoulder. This happened June 4, 1905. He was seen at the time by a physician who told him that his injury was not serious and placed the arm in a sling. It was not until July 16, 1905, a month and a half after the accident, that the patient came, through consultation, under my care. During the interval he had received massage, electricity, hot water and passive motion. A skiagraph had also been made, which gave the impression of a fracture of the scapular neck. It was confusing rather than enlightening. Afterward it was shown that the shadow of an outlying piece of the head of the humerus had produced the conception of a broken scapula.

Examination.—On examination the region of the joint was found to be swollen so that it was impossible to make out anything definite. The movements were greatly restricted and the gentlest manipulations gave intense pain.

Treatment.—The operation of arthrotomy was performed July 19, 1905. By a five inch vertical incision from the acromion downward, the joint was opened through the torn capsule and there was revealed a comminuted fracture of the whole upper extremity of the humerus. Six separate fragments were found. The largest, which constituted the major portion of the articular surface, was firmly located under the coracoid process, while the rest were more or less in their proper relations to the shaft of the bone. The lines of fracture extended through and beyond the surgical neck to a distance of four inches from the upper end of the humerus. The bone tissue was soft and pulpy, while the pieces were embedded in firm adhesions. The plan pursued was to remove all the loose bone and to pack the cavity with gauze, after closing the ends of the incision, since it was out of the question to bring the upper end of the shaft into contact with the glenoid cavity. The object was to form a flail-joint and the end has justified the means. At this writing (May 14, 1907), nearly two years after the operation, the patient can use the arm for all ordinary purposes and with the assistance of the other hand can put the arm in every position except wide abduction. He says that it is much better than it was a year ago.

CASE 4. *Recent Dislocation of the Shoulder Associated With Fracture of the Surgical Neck of the Humerus. History.*—M. P., a farmer aged 60, July 25, 1905, fell from a wagon piled up with wood, into a ditch 12 feet below. He was picked up and given all necessary first aid.

Examination.—Four hours later, when seen in consultation, it was readily found that, besides a compound fracture of the right femur, the man had sustained a subcoracoid dislocation of the left humerus, with a fracture of its surgical neck.

Treatment.—Under anesthesia in his physician's office a fruitless attempt was first made to reduce the dislocation; the anterior incision was then made from the acromion downward, the head of the bone exposed and replaced without the slightest difficulty. No wiring or suturing of the bone ends was needed, as they came into absolute apposition. The incision was closed without drainage, a large triangular pad placed in the axilla and a plaster of Paris shoulder-cap put on. Both the immediate and remote results here were well-nigh perfect. At the present time the patient has as good use of his arm and shoulder as he ever had.

These cases have furnished valuable lessons. Their order of appearance had much to do with suggesting conclusions which are the natural outcome of this experience. It will be observed that, first, there came a case in which the patient was treated according to one of the formerly-authorized modes of procedure, viz., allowing the bones to unite in their abnormal position with a view to reducing the dislocation later, and that the final result was practically a failure. In the second, difficulty in reduction and in maintaining it was due to an overlooked fracture of the anatomic neck of the humerus, a thing which could not have escaped notice with the open treatment. In the third is shown a failure to ascertain the true condition, even with the aid of the Roentgen ray, until the joint was opened. The last instance is an example of an ideal method with an ideal result.

Concerning the issues raised in the first case, it may be recalled that before the days of anesthetics immediate attempts at reduction were rarely successful. "The older writers," says F. H. Hamilton,[1] "almost without exception, agree in declaring the reduction of these dislocations impossible until the fracture had united. And so late as the year 1828 we have the report of a case treated in this manner by a surgeon in Massachusetts." Hamilton goes on to observe that "in the event of a failure by these means the case ought to be treated as a fracture, and the earliest period after the union of the fragments should be seized on to accomplish the reduction of the dislocation."

But Gross,[2] in 1882, after stating the difficulties of reduction and noting the recommendation "to let the dislocated head of the bone remain in its unnatural situation," says:

> Such an idea, however, it seems to me, must be perfectly delusive; for it is impossible, under such circumstances, for Nature to make a good or useful joint. Instead, therefore, of pursuing such a practice, I should not hesitate, if a case of the kind were to present itself to me, to cut down on the dislocated bone and push it back into its natural position; or if this be impracticable or deemed inexpedient, and the head of the bone be found to compress the axillary plexus of nerves, to perform excision.

It must be evident that anything is preferable to leaving the dislocation unreduced. Most of the cases so treated will come to the surgeon after they are "old," that is, when fixation has occurred, and generally there is then no alternative but excision. Old unreduced dislocations are the source of veritable nightmare to the practicing surgeon, whether he be the beginner or the master, and compared to them ununited fractures pale into nothingness.

Besides the trouble in reduction, one is liable to break the bone in the attempt, as was done in the case reported. This accident has happened to operators many times. T. S. K. Morton[3] records two instances, happening on successive days, in which he fractured the neck of the humerus while applying the Kocher method to old dislocations of the shoulder (without previous fracture). Finckh[4] also mentions two cases. In one in which the arm was dislocated three months before, the bone was broken by rotatory movements, and in the other, a month old, by forcibly raising the arm. Pseudarthrosis was obtained in both with good results. Another case is that of Zschock,[5] who, in an attempt to reduce a dislocation of three months' standing, fractured the humerus in the vicinity of the head and the patient recovered perfect use of the arm.

The second case inculcates the perplexities of diagnosis as nothing else could, emphasizing the fact that so many cases of supposedly simple dislocations at the shoulder are found, after being exposed to view, to be complicated by fracture of the neck of the humerus.

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1. Fractures and Dislocations, 1866.
2. System of Surg., vol. i, p. 982.
3. Philadelphia Polyclinic, Dec. 15, 1894.
4. Beitr. z. Klin. Chir., 1896-7, xvii.
5. Beitr. z. Klin. Chir., 1904; supplement Heidelberg clinic, 1903.

Especially is this true of the anatomic neck. In this condition accurate diagnosis is at times impossible and, therefore, rational treatment can not be applied with confidence. A failure to observe this complication explains the predicament often encountered of a shoulder thought to be restored, because there was free movement, when in reality there was the preternatural mobility of a fracture within the joint. If this were a new matter one would feel much more as if it were necessary to go further into details.

Several important cases are reported in the literature. Engle[6] noted the existence of a former fracture at the anatomic neck in the case of a man 54 years old, who had a dislocation reduced (?) without anesthesia, but whose shoulder had never ceased to give him pain; reduction under narcosis was unsuccessful and an incision was made, revealing the condition as expressed above. Schüller[7] relates the instance of a woman 81 years of age who sustained a fracture of the scapula (through the glenoid fossa), with some doubt as to whether there was also fracture of the humerus. The accident occurred Feb. 28, 1898, and not until May 1898, was a Roentgen ray picture taken, which showed a fracture of the scapula as specified, and, besides this, a healed fracture of the head of the humerus through the anatomic neck.

The same conditions may obtain in fractures of the surgical neck, though this particular injury is more readily recognized. Finckh[4] mentions a case in which, two years after a luxation of the humerus, the patient complained of pains running from the shoulder downward, with a loss of power in the arm and fingers and a weakening of the radial pulse on that side. After incision the arm was replaced, when there was discovered a repaired fracture of the surgical neck of the humerus, with a considerable callous thickening.

That the Roentgen ray is not always reliable is proved by the third case in our series. Interpretation of the findings is the important element, and this may present as many difficulties as the ordinary examination. Other instances are not lacking to show failures of the skiagraphic view. In a demonstration of skiagrams of fractures of the upper end of the humerus, Immelmann[8] thus speaks of the question under consideration:

> Diagnosis is especially difficult in the case of associated dislocation of the fractured head of the humerus, and correct diagnosis is then possible only when the case comes under immediate observation. If there is much swelling and displacement of the fragments, the configuration can not be recognized.

A unique case of C. B. Porter's[9] forcibly impresses the point taken. It was a double dislocation of the humerus in which the Roentgen ray showed no evidence of fracture, but, on a failure to reduce either of the luxations under ether, incisions demonstrated fractures of the surgical neck of the humerus in each and good results followed in both.

The last case on the list was approached in the light of knowledge just gained from the first three and, occurring at such a time, gave a favorable opportunity to apply the principles already settled on as a consequence of this experience. It had been observed that the obstacles in the way of successful management of these cases were, first, the uncertainty of diagnosis; second, the practice of waiting too long before resorting to the so-called radical measures; and, third, the fact that damage was done and nothing accomplished by too severe and prolonged manipulations.

The case in question was a propitious one. The accident had happened but a few hours before, the diagnosis seemed assured and no undue handling of the parts was indulged in. The test was sufficiently rigorous, however, for the patient was the oldest in the series and had other injuries, while the operation was done in the country at the physician's office and none but the simplest means were at hand for securing aseptic technic. The outcome of the case was all that could be wished for.

The question spontaneously comes: Is it not better to cut down at once, in every case of dislocation at the shoulder-joint associated with fracture of the anatomic or surgical neck of the humerus, without subjecting the parts to the traumatism incident to the usually vain endeavors of reduction by the ordinary methods? If the evidence adduced here shall be taken as a guide, this query will be answered in the affirmative. An injury of this sort is to be looked on as an emergency needing a surgeon's immediate attention, just as an acute appendicitis or a strangulated hernia would be regarded. Indeed, the comparison might be pushed further, and it would be proper to place manipulation of the joint under these circumstances on the same footing as taxis in a case of strangulated hernia. No modern surgeon thinks it justifiable to use prolonged taxis, but opens the canal, reduces the hernia and performs a radical cure at the same time. So in fracture-dislocation of the shoulder the deduction is forced on us that quicker recoveries, better permanent results and fewer deformities will be obtained by the early incision. Even in cases of doubt it is preferable to expose the parts to view rather than to wait in the hope that Nature and time will clear it up.

REVIEW OF CASES IN THE LITERATURE.

Though the literature of this subject is not voluminous, there may be seen many instances on record illustrating just the need for enforcing the points developed above. Schoch[10] describes the case of a patient who came to him two days after injury with a temporary setting, in which bloodless reduction, in spite of every possible manipulation, proved impracticable. The patient was then kept in a recumbent position for two weeks with iced bandages applied to the shoulder. A skiagram showed a fracture at the surgical neck of the humerus with dislocation. An incision confirmed this diagnosis, and the reduction was effected with comparative ease, giving a good result after some months. It would appear that a more rational plan was to make the skiagram when the patient first came in and then cut down on the joint, not waiting for fourteen days to pass. In his report Schoch collects from previous writers nine cases, in which arthrotomy had been performed all with more or less good effects. In the discussion of a paper by Dollinger,[11] von Eiselsberg said that "in the complication of dislocation of the shoulder and fracture of the surgical neck of the humerus the surgeon should resort to laying open the injured part by incision, followed by suture and reduction of the dislocation"—a course of treatment that he pursued successfully in one case.

McBurney,[12] who has done much to develop the treatment of this condition, has reported two cases of complicated shoulder dislocation, one associated with fracture of the anatomic and the other of the surgical neck of the humerus. In the first case (1896), seen three weeks after the injury, prolonged manipulation failed, the incision was made, the fragments reduced and adjusted and sutured with catgut. At that time he stated that the "open method is not recommended except in cases where proper and harmless methods to reduce by manipulations have been faithfully tried and failed." Seven years later (1903), however, in reporting the second case, in which the patient was referred to him two weeks after the injury, no account of any preliminary manipulation is given, but the incision was made as before, and such perfect apposition was secured that no suturing was deemed necessary. Four months later the patient claimed that the arm was as good as before the injury. A comparison of these two cases will show that a sounder course is to do a prompt arthrotomy without previous manipulation and that in most instances suturing will not be required.

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[6] Arch. f. Klin. Chir., 1897, lv.
[7] Arch. f. Orthop., 1904, ii, 58.
[8] Deutsche Med. Wochschr., Mar. 12, 1903, 83.
[9] Boston Med. and Surg. Jour., April 2, 1903.
[10] Beitr. z. Klin. Chir., 1900-1, xxix, 103.
[11] Centrbl. f. Chir., Dec. 6, 1902, xlix.
[12] Ann. Surg., 1896, xxiii, 501; Trans. Amer. Surg. Assn., 1903, xv, 323.

FREQUENCY.

A few estimates have been made on the frequency of the injury under consideration. Jones[13] states that out of two hundred complicated dislocations of the shoulder skiagraphed he found sixteen connected with fracture of the surgical neck of the humerus. In all the cases the patients were over 30 years, most commonly between the ages of 40 and 50. Dollinger[11] collected nineteen cases of dislocated shoulder in his clinic and three were associated with fracture of the upper extremity of the humerus. Finckh[4] places the highest rate of plain shoulder dislocations between the ages of 21 and 30 years, while he reports five cases in which there was also fracture of the humeral neck and the ages of these ranged from 49 to 64 years. Apparently, then, the condition occurs more often than many may imagine, and is seen later in life than cases of simple luxation of the shoulder.

METHODS OF REDUCTION.

In regard to methods of reduction, it may be said that there are no specific directions to be given. The difficulties attending replacement, particularly in "old" cases, have been demonstrated and are vividly realized by one who has tried it. There is nothing more unruly than the misplaced head of a bone when its connection with the shaft has been severed. Suggestions, however, are now and then offered which may be of service. Jones[13] thinks that the dislocation should be reduced at the earliest moment. A method which has proved most successful in his experience is the forcible extension of the arm held vertically, with often very hard pushing upward of the fragment. He very rightly asserts that, having reduced the dislocation, the fracture is of comparatively little moment. Within two years Hamilton had two cases in which he could not effect reduction, though he had the patients under ether (one for over an hour), with the result that the fractures united in both cases promptly, and attempts were subsequently made to reduce the dislocation, but "to no purpose." He states further that "it is quite doubtful whether extension in these cases is of any service."

No one will deny that the average practitioner of medicine, or, indeed, the experienced surgeon, can not easily reduce such a dislocation, but that in the majority of cases he will fail.

OPERATIVE TECHNIC.

The technic of the open treatment presents less difficulty, granting an ordinary acquaintance with the principles of surgical procedure. The incision to be preferred, by all odds, is that beginning at or near the acromial process and passing directly downward through the fibers of the deltoid muscle or between that and the pectoralis major. Incisions in any direction over the dislocated head of the humerus are not to be advised, as there will surely be trouble in returning the bone into the glenoid cavity. In recent cases the luxation rarely fails to be reduced with facility; in longstanding ones, reduction is always troublesome and at times impossible. Special instruments are occasionally required. Different operators have employed a gimlet, cork-screw, bone forceps or other device.

McBurney was probably the first (1896) to use a specially-designed hook, which is inserted into a hole previously drilled into the bone and with which great force can be applied. In one case Curtis[14] could not replace the head of the humerus by this instrument, because the bone was too soft and the hook pulled out; so that he divided the capsular bands and, by means of his finger and blunt instruments used as levers, he was finally able to force the head into the glenoid fossa. Gaudier[15] speaks of effecting reduction by the aid of a Jaevël hook.

DRESSINGS.

Having replaced the head of the bone and adjusted the fragment to the shaft, the next step is the retention dressing. The ideal case seen and incised early, will hardly ever need suturing or wiring of the bone ends. The late cases will sometimes demand this. After proper apposition is obtained, some appliance must be put on both to keep the bone in line and to protect the joint. The dressing most in vogue on the continent has been the Middeldorp triangle, which is formed of three narrow wooden splints made together as a frame and having its apex in the axilla. The sole object of this apparatus is to keep the arm in a position of abduction. Such a position may be had in other ways. It can be done by applying plaster-of-Paris bandages to the chest and upper extremity so as to hold the arm abducted at an angle of 45 degrees, as used by Judet[16] in three cases.

Schüller[7] tells of obviating pressure on the thorax by an "angle-iron" bandage of sodium silicate applied, in his case, to a patient 81 years old. The arm in abduction is certainly an important element in the treatment, but one need not feel dependent on any particular form of apparatus. A wedge-shaped pad in the axilla and a shoulder cap of plaster-of-Paris put on with a roller bandage will answer every purpose. The after-treatment may be summed up in a word by saying that under no circumstances should the fixation-dressing be kept on longer than two weeks and that, of course, massage and passive motion should be begun early.

CONCLUSIONS.

1. Fracture of the neck of the humerus, complicating dislocation at the shoulder, occurs more frequently than is usually supposed.

2. The injury is difficult of diagnosis and often escapes the most careful external observation or even the scrutiny of the skiagraph.

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[13] Brit. Med. Jour., June 16, 1896, 1386.

[14] Ann. Surg., 1896, xxiii, 737.

[15] Rev. de Chir., 1904, xxx, 800.

[16] La Presse Méd., Jan. 26, 1907.

3. Ordinary expectant methods have produced many useless arms and functionless joints.

4. The only rational treatment is to cut down over the joint, reducing the dislocation and setting the fracture at once, immediately after the injury.

DISCUSSION.

Dr. Albert Kocher, Berne, Switzerland, stated that he has seen in his country many cases of fracture of the shoulder joint combined with dislocation. He was interested to hear that Dr. Royster has seen cases in which the fracture went through the anatomic neck of the humerus, as he has only observed cases where the surgical neck of the bone was fractured combined with dislocation of the shoulder joint. As to the etiology of the fracture, he thinks that there must be an injury, especially to the joint, to cause a dislocation and fracture combined of the shoulder and the bone itself. That is the experience he has had in these cases. Dr. Kocher regretted that cases are seen in which the fracture is produced by attempts at reduction of the dislocation; that is to say, when the method of reducing the dislocation advocated by his father, Prof. T. Kocher, has been tried. His present opinion is that an exact diagnosis should be made in dislocation of the shoulder joint as to the place of the dislocation so as to make a good reposition. The method is not to be applied to every dislocation of the shoulder. The use of the method in a case where it is not applicable, is followed, not infrequently, by a fracture of the surgical neck of the humerus. Dr. Kocher agreed with the essayist as to the treatment. The diagnosis is to be made at once, and operation should follow the diagnosis. The Kochers cut down in front of the bone without going through the deltoid muscle, but between the deltoid and pectoral muscles, so as to prevent any muscle injury.

DYSENTERIC ABSCESS OF THE LIVER IN THE PHILIPPINE ISLANDS.*

JOHN R. McDILL, M.D.
MANILA, P. I.

As a complication of intestinal amebiasis, hepatic abscess is the most distinct surgical disease of the tropics. It occurs usually in neglected, ulcerative dysenteries of young male adult Americans or Europeans, although amebic dysentery is very common and runs a milder course among Filipinos, Japanese and Eurasians. The Chinese are rarely found in our hospitals, and it is believed that their habit of tea drinking and eating cooked foods protects them, to a great extent, from tropical bowel diseases. Liver abscess is occasionally found in all these races, but the whites furnish over 90 per cent. of the cases.

Since American occupation, dysentery, its cause and its curability have become so generally understood, even among the laity, that often on the first appearance of bowel trouble a specimen of the stool is sent for examination, and when amebas are found patients submit to rational treatment until cured; and, as examination of the stools is routine practice in cases of all kinds, amebic disease is now recognized early. The result is that abscess of the liver is already becoming more infrequent.

Alcoholic excesses are almost always a prominent part of the clinical history. The relative infrequency of liver abscess among the exceedingly temperate natives, who are also sparely provided with fatty tissue, even in the liver, which is normally a most important storehouse of fat, points to overindulgence in drink and food as an important predisposing cause. A liver damaged by alcohol in a man with amebic dysentery, as in typhoid and other enteric diseases, is the constant receptacle, through the portal circulation, of quantities of septic matter, intestinal parasites and micro-organisms, acting as a septic vault and filter for the diseased intestine.

That large amounts of such materials are disposed of by even the best of livers without abscess formation is one of the most remarkable characteristics of this organ; its inherent ability in this respect is no doubt aided by its most important anatomic feature of having two systems of blood supply.

When the intestinal disease is very active and ulcerating, there often occurs an acute parenchymatous, cloudy swelling of the entire liver, creating the general *locus minoris resistentiæ*. A septic ameba-laden embolus from the ulcerated colon, of sufficient size to block a portal capillary in such a liver, is probably the only real beginning of an abscess. Wonder is that abscesses are not more frequent. Amebas and their symbiotic and other bacteria reach the liver through the portal blood stream more or less constantly during an intestinal amebiasis. Musgrave and Clegg[1] began publishing in 1904 a work which plainly established that amebas are amenable to changes of environment and that the power of an ameba to propagate under new conditions depends on the similarity between its new environment and its former one and also possibly on its ability to produce lesions in the tissue. They have shown this to be true of intestinal infections, and might not the occurrence of liver abscess depend, as they point out, not so much on whether amebas reach the liver, but on whether the liver environment had been brought to a condition approaching that of the ameba infected bowel.

Musgrave is continuing his government laboratory experiments, also his clinical observations in St. Paul's Hospital, Manila, and the importance of the possibility of an explanation of the exact mode of action of amebas in producing pathologic lesions can not be overestimated.

The development of an abscess may be exceedingly slow in some cases, and Musgrave has established the fact that an amebic abscess of the liver may exist without discoverable lesions in the bowel at the time of the death of the patient. In some of such cases there was a clear history of dysentery months before; in one case no history could be elicited, but Musgrave's conclusion is justifiable, that all cases in which, at autopsy, intestinal lesions were not discernible, the patient had previously had amebic colitis from which amebas reached the liver during the period of bowel ulceration. Cases of abscess apparently occurring years after a dysentery are probably of an unnoticed and recent attack; diarrhea is not a constant symptom of amebic dysentery. Such cases have also been explained by some as an aroused latency or secondary infection of an old encapsulated and partly resorbed small abscess.

LOCATION, SIZE AND NUMBER.

Abscesses of the liver vary in size and number from the solitary one, in over 60 per cent. of the cases, which may even occupy the entire right lobe, to the multiple, disseminated ones occurring in tens or hundreds and varying in size from a pinhead upward. The cases coming to operation have usually been either single or at most two or three in number which coalesced by in-

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Publications, Biological Laboratory Bureau of Science, Manila, P. I., 1904, xviii, 1.

crease in size. The right lobe is involved in about 95 per cent. of the cases and is usually the only part affected. The favorite location in this lobe is its upper segment. Abscess of the left lobe has been diagnosed and successfully operated on in one instance in our series of about 100 operative cases, and in February, 1907, a patient with perforation into the lesser peritoneal cavity recovered after operation by Dr. F. W. Dudley, of St. Paul's Hospital, Manila. Musgrave's postmortem studies show no relation of abscesses to the location of intestinal ulcers, nor is it yet possible to determine the time of development of liver abscesses with reference to the bowel infection.

COURSE OF THE DISEASE.

In fatal, untreated cases the patients die, without perforation, from sepsis due to mixed bacterial infection which, in turn, hastens the end by aggravating the primary intestinal disease. Perforation into the peritoneal cavity and fatal peritonitis is a common termination. Spontaneous cure commonly follows perforation into the right pleura or lung or both. A pleural or a subdiaphragmatic abscess may open externally anteriorly, and it is possible for cure to follow perforation into the stomach, colon or other hollow viscus, but it is very rare. Sterile abscesses or abscesses with a mild bacterial admixture may exist a long time without symptoms, may heal entirely or become encapsulated and be only accidentally discovered at autopsy.

SYMPTOMS AND DIAGNOSIS.

In most cases the clinical picture with a few of the symptoms lead the experienced physician to an early diagnosis, although large symptomless abscesses have been overlooked entirely by the best of observers. Fever is usually present, but not characteristic; daily or irregular rigors with rise of temperature and perspiration is very suggestive, but cases have been known to run an afebrile course. As an abscess enlarges or approaches the surface of the liver, pain appears and is rarely severe. The pain so often complained of in the shoulder is generally found more exactly beneath the right clavicle and usually indicates involvement of the upper and posterior portion of the right lobe. When the liver is swollen, pressure beneath the costal arch and over the lower right intercostal spaces is usually painful. Sitting, standing or lying on the left side sometimes produces pain. The patient is most comfortable on the back.

Leucocytosis in rapidly developing abscesses is a constand condition and an important diagnostic aid. The primary intestinal disease, which is generally worse during a liver abscess, may alone be responsible for a persistent leucocyte count of 15,000 to 20,000, but this factor can be eliminated to a great extent by colonic irrigations and saline laxatives. A persistent and increasing high afternoon count without many other symptoms has come to be regarded as the most positive indicator of pus, because the white count drops to near normal about 48 hours after drainage.

PHYSICAL SIGNS.

The liver usually enlarges and can readily be palpated beneath the costal arch, and the area of dulness upward shows the extent of the swelling. The fact that the enlargement is often more upward than downward (Osler) is due to the dome of the liver being the favorite site of abscess formation. In old and indolent abscesses no swelling may be demonstrable. Fluctuation, of course, can never be detected.

GENERAL SYMPTOMS.

Jaundice and stomach symptoms are not constant, but a dry, irritating cough usually means that perforation into the lung is imminent, and even immediate drainage does not always prevent its occurrence. Another rare symptom is fatal intestinal hemorrhage, which is never observed in intestinal amebiasis except when complicated by hepatic abscess.

Diagnosis is not difficult in marked cases, but symptoms fail and vary so greatly in some that the diagnosis is long in doubt. We then depend more on the general appearance of the patient and the clinical picture he presents for a provisional diagnosis, and if the condition is not very serious observation is extended another week or two, by which time a diagnosis can usually be made positive. Exploration with a hollow needle and syringe through the abdominal wall or across the pleural cavity is dangerous. If such a procedure is decided on, preparation for operation should be made, and if pus is located immediate incision before withdrawing the needle is the only safe plan.

The best way to examine a liver for pus is to expose sufficient of its surface to allow of deliberate and efficient exploration, both digital and by needle. If pus is not found, pack the wound wide open and explore again every two or three days after adhesions have formed. I have not had an opportunity to test the value of the Roentgen rays in diagnosis.

TREATMENT BY DRAINAGE THROUGH NEW TRANSPLEURAL ROUTE TO THE LIVER.

Unless an abscess is plainly presenting anteriorly, where it is very accessible, and in cases with adhesions, operation amounts only to a simple oncotomy, the best access to the greatest area of the liver for purposes of exploration and drainage is by a transpleural route. This we accomplish, usually avoiding a pneumothorax, by a four-inch partial resection of the tenth rib and, if necessary, the ninth rib in the midaxillary line. The muscle wounds necessary to the rib resection are then closed by catgut. The result is a loose and movable section of the thoracic wall, which is then pressed inward and held firmly against the diaphragm by the fingers of an assistant in order to prevent pneumothorax. The operator meanwhile makes a new incision below and along the upper border of the eleventh rib, at least three inches in length, carrying it to the same extent through the diaphragm, exposing the liver. The two incised edges of the mobilized thoracic wall and diaphragm are then clamped together with two or three forceps, which closes the pleural cavity and prevents the entrance of air. The enlargement of the liver upward facilitates this maneuver by narrowing the base of the pleural cavity and giving a good background for the pressure exerted by the assistant to obliterate the pleural space while the operator is going across it. Catgut sutures can be quickly substituted for the clamps. The right lobe of the liver can now be freely palpated digitally, and if the opening is made large enough a small hand can be introduced; this I have never found necessary. More room upward can be secured by dividing both walls between clamps, first securing what is to be the upper angle by a suture through the entire thickness of both diaphragm and mobilized thoracic wall. A few catgut sutures can replace these clamps. Sometimes no air enters the pleural cavity when any low transpleural route is followed. This can occur when there are no pleuritic adhesions, because the liver when greatly enlarged upward will, in some subjects, obliterate the lower part of the pleural space by pressure from within in exactly the same way as we endeavor to do it by external digital pressure. The liver, in acute cases, is bluish in color, soft and pulpy to the touch, and often bulges freely into the wound. The guides to underlying pus are recent parietal adhesions or an area of induration. The immediate neighborhood of a liver abscess is hard and resistant, the rest of the organ is very soft. When ready to incise or to explore with the needle, pack off with a ring of gauze, perhaps anchoring it to the surface of the liver or parietal layer of peritoneum; open at once directly or by using the needle as a guide. If the operator prefers to wait for adhesions, fasten the needle carefully *in situ* or the pus may not be found again, as the liver invariably reduces rapidly in size after needling. As soon as possible the local treatment of the primary intestinal lesions must be resumed.

CONCLUSIONS.

1. Liver abscess as a complication of amebic disease of the colon always has amebas in its wall as the specific pathogenic organism of the disease.
2. This complication can be reduced to a minimum by early recognition and proper treatment of the primary intestinal amebiasis.
3. Solitary abscesses, which are sometimes formed by confluence of more than one, are the only ones, so far, amenable to successful surgical treatment, which is by drainage.
4. The best route to the liver for exploration and drainage is by transpleural methods, which avoid lung collapse.
5. Early operations are most favorable and over 90 per cent. of operable cases coming promptly under surgical treatment should recover.
6. Most of the fatal operable cases were due to poor surgical judgment before much experience had been acquired.

DISCUSSION.

Dr. Charles A. Powers, Denver, considered the description of the operative procedure a good one. He asked what attempt, if any, Dr. McDill makes to locate secondary abscesses at the time of the original operation. On two occasions on which Dr. Powers has opened an abscess, the patient has gone on to a speedy death from sepsis. At the autopsy other abscesses were found which probably existed at the time of the operation.

Dr. Harvey Cushing, Baltimore, thought that few cases of amebic abscess of the liver have been seen by those present at the meeting, but he thought that in the future more such cases will be seen, because now we have come in possession of tropical colonies in which we may expect to get tropical diseases. After the campaign in Cuba, in 1898, Dr. Cushing saw a number of cases of amebic dysentery and liver abscess as a result of the dysentery. He asked Dr. McDill whether he regards the ameba as a secondary invader, or whether he holds the view of Flexner and others as correct, that the Shiga bacillus is the primary invader, and that the ameba comes next. At least, animals inoculated with the bacillus of dysentery in its pure form have the ameba enter as a secondary invader. Dr. Cushing was very much interested in Dr. McDill's description of his ingenious transpleural operation. All surgeons, he said, who have had an opportunity to operate on these patients realize how difficult it is to approach these abscesses safely. The abscesses he has seen have been large, and probably were not seen at as early a stage as were those seen by the surgeons in Manila, because these patients come to the surgeon through the medical wards, and there is the usual delay that occurs when cases are on the borderline, as these cases must be considered to be, before they are transferred to the surgical side. The fact is, he said, that an abscess high under the dome of the diaphragm is a difficult thing to approach, and, therefore, Dr. McDill's operation is a distinct contribution to operative methods. The evacuation of one of these abscesses is not an easy thing to do, and sometimes they leak, and this tomato soup full of ameba is an appalling thing, at times. The abscess may even be close to the surface, and if evacuated the liver recedes and there is a great chance of the liver becoming infected, though Dr. Cushing believes that many of these abscesses contain no organisms other than the protozoa.

Dr. John R. McDill, Manila, P. I., replying to Dr. Powers with regard to secondary or multiple abscesses, said that they do not concern themselves with that during the operation, unless, with the finger in the opened abscess, they can detect a bulging on the opposite wall. If it appears like another abscess it is needled. If not found at that time, they find the second abscess later, when it has enlarged. If septic conditions persist, a needle is passed through the wound into the liver to find other abscesses. Usually, however, such multiple abscesses coalesce and take care of themselves. Replying to the question of Dr. Cushing, he stated that Dr. Musgrave believes that the intestine must be in a certain condition favorable for the growth and development of the non-pathogenic into a pathogenic ameba. Musgrave believes that there is not more than one kind of ameba, and that the difference in shape, size, etc., is due to environment and symbiosis. Dr. McDill referred to a specimen of dysentery of the colon which he saw in the pathologic exhibit. The patient is said to have presented typical amebic symptoms and a laparotomy was done and suppurating peritonitis found. At the autopsy miliary abscesses of the liver were also found. There was another specimen of "ulcerative colitis," and one of "dysenteric colitis," but not one word as to the presence or absence of the amebas in the stools. He thought that these cases were almost certainly cases of amebic dysentery. The ameba, he said, is universal, but causes a more pronounced disease in the tropics than in temperate climates. He has found that the routine examination of the stool in every case is of the greatest advantage, and it is surprising how many unsuspected pathogenic parasites, or evidence of them in the shape of ova, are found. He advised examining the stools after the administration of a dose of salts; say, the third or fourth watery stool. The examination of an ordinary passage may be negative for ameba, but if a saline purge is given and the watery part of the stool is examined, the ameba will be found almost invariably when present.

Clinical Notes

TREATMENT OF TETANUS BY INTRASPINAL INJECTIONS OF MAGNESIUM SULPHATE.

WITH REPORT OF A SUCCESSFUL CASE.

G. CANBY ROBINSON, M.D.
Resident Physician, Pennsylvania Hospital.
PHILADELPHIA.

The sodium and calcium salts have been shown to have distinct stimulating properties for some of the functions of the animal organism. It occurred to Meltzer that the salts of magnesium, another element found plentifully in tissues, may have an inhibitory action on these same functions. This idea was subjected to a large series of experiments by Meltzer and Auer,[1] and they have obtained some striking results confirming the correctness of the hypothesis. It was found that a certain dose of magnesium sulphate will, when subcutaneously injected, produce a deep, often long-lasting anesthesia, with complete relaxation of the voluntary muscles and abolition of some of the less important reflex activities, which anesthesia terminates in recovery. Not a single instance was observed in which that salt produced an increase in excitation, and the effect of the salt was invariably in the direction of a reduction of excitation or of its complete temporary or permanent abolition. When injected intravenously the magnesium salt was found to effect the centers in the medulla oblongata. There was depression of the respiratory and deglutition centers, but the cardiac mechanism was practically undisturbed. Direct application of the salt to nerve trunks never produced irritation, but caused a block for both afferent and efferent stimuli. Washing the magnesium salt away quickly restored the functions of the nerves.

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[1] Am. Jour. Physiol., 1905, xiv, 386; 1905-06, xv, 387; 1906, xvi, 233.

After having found that general anesthesia could be produced in monkeys by intraspinal injection of a solution of magnesium sulphate, Meltzer[2] recommended that the salt be used in this manner for the production of surgical anesthesia. He advised the use of one-quarter of the dose used in the animals. This method has been used by himself and Haubold,[3] and a few instances of its employment have been reported by others. Blake[4] has collected fourteen cases so treated, several of which were his own, and so gives us a series of cases from which to draw conclusions as to the action of magnesium sulphate when intraspinally injected in human beings. Here it is seen that the action of the salt is identical with the effects on animals described by Meltzer and Auer. Anesthesia and relaxation of the voluntary muscles always occurred, and abdominal operations, as well as operations on the lower extremities and perineal region, were performed after intraspinal injections of a 25 per cent. solution of magnesium sulphate. One cubic centimeter for about every twenty pounds body weight was used. In some cases small amounts of chloroform were given in addition.

Besides the production of muscular relaxation and anesthesia the tendon reflexes were lost, the respiration was usually slowed and there was as a rule a rise of temperature, which occurred on an average of twenty-two hours after the injection and which varied from 100.6 to 105. Six patients lost consciousness, while there was retention of urine in twelve of the fourteen cases. In but one case was there any disturbance of cardiac rhythm. Of the untoward effects, slowing of respiration was the most serious and sometimes required artificial respiration. Washing out of the spinal canal with normal salt solution, however, seemed to relieve this symptom. It can be said, therefore, that in these fourteen cases no permanent harmful effects were seen after intraspinal injections of a 25 per cent. solution of magnesium sulphate.

Meltzer advised the application of his discovery in the treatment of tetanus, where such marked nervous excitability occurs and where muscle spasm is so often the cause of death, for heart failure or asphyxia during a paroxysm usually produces the fatal termination. In spite of the fact that there is evidence to show that the use of the salt intraspinally is safe in proper doses, and that the present generally used methods of treating tetanus are so inadequate, but few cases seem to have been treated by this method, judging by the number found in the literature. I hope to show that the method deserves much wider use, and that an extensive series of published cases is very desirable.

Blake reports the first case, a boy weighing 115 pounds, who was admitted to the Roosevelt Hospital on the second day of a typical and severe attack of tetanus. The incubation period was seven days. Antitoxin was at first used without benefit. Magnesium sulphate, 4.5 c.c. of a 25 per cent. solution, was intraspinally injected on the fifth day with excellent results. A general relaxation, including the muscles of the jaws, occurred and the patient was quite comfortable for 33 hours. The symptoms returned, but repeated injections were given on the seventh, ninth, tenth and sixteenth days, and the patient made a complete recovery. Marked relaxation and almost total suspension of symptoms resulted from each injection.

The same author reports a second case in which 1.5 c.c. of the magnesium sulphate solution were injected into the spinal canal of a 4-years-old child weighing 44 pounds, who had a very severe tetanus and who died 28 hours after the appearance of the first symptoms. The incubation period was seven days. No effects of the injection were noted.

Logan[5] reports two cases. The first was a boy of 11 years, who had an estimated weight of 80 pounds. Tetanus set in nine days after a blank cartridge wound of the hand. After getting no results from the use of antitetanic serum, 4 c.c. of a 25 per cent. solution of magnesium sulphate were injected intraspinally on the second day of the disease. In 40 minutes relaxation was complete and remained so until 13 hours and 45 minutes after the injection, when the rigidity again made its appearance. Respirations became shallow, and a profuse bronchorrhea set in 4 hours and 40 minutes after the injection, but was apparently relieved by atropin. A second injection was given on the third day of illness. Fifty minims of the solution were injected and complete relaxation occurred in 25 minutes, but 2¼ hours later a convulsion occurred. After this convulsion muscular relaxation continued, but respiratory difficulties similar to those following the first injection occurred, the temperature rose, the pulse became weak and rapid, and the boy died on the following morning. Ether was given before each injection.

Logan's second case was a woman 24 years old, whose estimated weight was 100 pounds, and in whom the disease set in 17 days after vaccination. The incubation period was probably shorter than this, however. The onset was violent. Four cubic centimeters of the 25 per cent. solution were injected 30 hours after the onset, and again 17½ hours later. No effect was noticed, except a slight increase in time between the convulsions, and the patient died 50 hours after the onset of symptoms.

A fifth case is reported by Franke.[6] A man of 32 years developed tetanus 12 days after an injury to his fingers, and was admitted to the hospital six days later. The case was typical and the patient had convulsions from time to time. The fingers were amputated and 1 c.c. of magnesium sulphate solution was introduced into the spinal canal. This was followed by decrease in convulsions on the following day, but in four days the spasms were severe again and chloral hydrate was administered, but without effect, and on the next day 2 c.c. of the magnesium sulphate solution were injected. About one hour after this injection apnea was noted. Four days later 2 c.c. of the solution were again injected intraspinally. These injections, although small in amount, had a distinctly beneficial influence on the muscular spasms, and the patient made a good recovery.

The case I have to report is as follows, and for the privilege of reporting it I wish to express my gratitude to Dr. Morris J. Lewis:

History.—Boy, aged 11, who said he weighed 70 pounds. He was admitted to the Pennsylvania Hospital in the service of Dr. Morris J. Lewis, May 11, 1907 (No. 399). He complained of stiffness and "rheumatism." On admission his temperature was 99.6, pulse 112, respirations 40. He had been a healthy, active boy, but had had typhoid fever three years before. He had recently played considerably about a stable, but gave no history of any cut or injury as far as he could remember. Mother of patient said, however, that she had noticed, while combing the patient's hair, a small swelling on the right side of his head. This swelled up considerably and appeared as a small abscess, but did not rupture or "come to a head."

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[2] Med. Record, 1905, lxviii, 965.

[3] The Journal A. M. A., 1906, xlvi, 647.

[4] Surg., Gynecol. and Obstet., 1906, ii, 541.

[5] The Journal A. M. A., 1906, xlvi, 1502.

[6] Zent. f. innere Med., 1907, xxviii, 345.

The illness began May 1, 11 days before admission, with slight pain in the jaws. Soon after this the jaws became stiff, and on the third day after the onset patient was taken to see a doctor, who said the trouble was probably muscular. This stiffness increased, and on the sixth day patient did not go to school. But on the following day he was able to go out and play ball, the stiffness being confined to the jaws. The exercise caused profuse sweating, and on returning home he had stiffness of the right side, especially affecting the leg. On the following day, May 8, general rigidity set in and gradually increased until admitted to the hospital on May 11. At this time he had had abdominal pains for four days. They were shooting in character, and came and went quickly. He had had "nervous spells" for several days, when he shook a great deal, but never lost consciousness. Had partial loss of appetite and had been able to take only liquid food. No vomiting. Bowels moderately constipated. Abdominal pain had been the chief complaint, but he had a slight cough with expectoration.

Note made soon after admission is in part as follows: "Patient is a well nourished, well-developed boy. He is entirely rational and intelligent. He lies in bed in a remarkably rigid condition. The head can not be moved, the jaws are tightly locked, and can be moved but a fraction of a centimeter. The corners of the mouth are drawn down, the eyes are held partly closed, and the patient has 'risus sardonicus' moderately. This is more marked when the features are drawn from time to time on account of sharp attacks of abdominal pain, of which he complains. The arms can be moved somewhat, but are very stiff to both active and passive movements. The muscles of the trunk are hard and rigid. The back is arched and the lumbar region is about 6 to 8 cm. above the surface of the bed. The abdomen shows board-like rigidity, and the legs are held immovably. When one attempts to lift the head the whole body is raised, the patient resting on his heels. The knee-jerks are so exaggerated that a rapid clonus is produced when the patella tendon is struck. No ankle clonus obtained, as the foot can not be moved. When the patient lies on his side the upper leg remains extended in the air without support, and not touching the lower leg. No cut, abrasion or injury of any kind found. Pupils equal and react to light. Somewhat contracted. There is no apparent facial paralysis. No glandular enlargement. Chest well formed. Respiratory movements slightly exaggerated and rapid. Lungs free from râles and apparently normal. Heart sounds are rather rapid, but of good quality, and free from murmurs. The rigid abdomen is not especially tender, except when palpation brings on muscular spasms. Spleen and liver not enlarged to percussion and not palpable. Every few minutes, especially when disturbed, the boy stiffens himself perceptibly, and there are muscular twitchings. At these times he usually moans quietly and complains of pain in his abdomen."

Diagnosis.—The diagnosis of tetanus was made, and on the afternoon of the day of admission, the eleventh day of disease, the first injection of magnesium sulphate was performed.

Treatment.—At 3 p. m. patient was given a small amount of ethyl chlorid as a general anesthetic, but after its use for less than one minute he had a violent spasm, especially affecting the muscles of respiration. He became extremely cyanosed, and of a dark purple color. He was revived finally by artificial respiration, but no more ethyl chlorid was given. Lumbar puncture was then done in the lower lumbar region and clear, watery cerebrospinal fluid rose in the manometer 235 mm. About 8 c.c. were withdrawn, when the cerebrospinal fluid rose to 130 mm. in the manometer. Three cubic centimeters of a 25 per cent. solution of magnesium sulphate were then fairly rapidly injected, and the needle withdrawn. In five minutes after the injection the neck was less rigid. In one hour there was distinct relaxation of the muscles, and at 5:30 p. m., two and one-half hours after the injection, a remarkable change was seen. The boy was drowsy, his neck could be freely moved, his jaws could be separated about 1.5 cm., the abdomen was soft, the legs and arms were relaxed, and no knee-jerks could be obtained. There was no apparent anesthetic effect. The boy seemed in excellent condition, and was comfortable except for a slight headache. Between 9 p. m. and 1 a. m. the patient regained some of his former rigidity, and when seen at the latter hour, ten hours after the injection, his abdomen, neck, and legs were rigid, but not so markedly so as at the time of admission. His jaws could be parted somewhat. On the morning of the twelfth day, 18 hours after the injection, the rigidity had almost reached the extent on admission, there was a return of spasmodic contractions, and a moderate rise in temperature.

The patient's mother was seen on this day for the first time, and she described the lesion of the scalp mentioned above. On examining the scalp there was found a small raised, slightly swollen area, about 1 cm. in diameter, and slightly boggy on pressure.

On the evening of the twelfth day the second magnesium sulphate injection was given. At 10:30 p. m. lumbar puncture was performed. Only one or two drops of spinal fluid were obtained, which did not seem to be under any pressure. Three and a half c.c. of the 25 per cent. solution were injected. At 11 p. m. the neck was less rigid and knees could be flexed slightly. Patient felt drowsy and more comfortable. Relaxation did not occur until 12:15 p. m., 1¾ hours after the injection, and then it was fairly complete, but knee clonus could still be obtained.

On attempting to excise the swollen area in scalp, patient complained of pain, so the area was infiltrated with Schleich's solution. It was excised with practically no pain, although several bleeding points were clamped. The area was carbolized with pure carbolic acid, treated with alcohol, packed with iodoform gauze, and a wet bichlorid of mercury dressing applied. The area excised was examined in the Ayer Clinical Laboratory. No tetanus bacilli were found in either smears or in sections. The tissue contained a subacute abscess.

On the thirteenth day of the illness at 8 a. m., 9½ hours after the second injection, the patient was bright and comfortable. His abdomen and legs were distinctly relaxed, but some rigidity remained. He slept well during the night after the operation, but complained of great thirst and drank much water and milk. During the fourteenth day the patient remained less rigid, and he could flex his knees voluntarily. The knee-jerks were less marked than at the time of admission, he had no convulsions, and but little pain in his knees and in his abdomen.

On the fifteenth day the heart and lungs were in good condition. During the day the rigidity gradually increased, and by night it was very marked. Lumbar puncture was done at 8:15 p. m. The spinal fluid rose 160 mm. in the manometer. About 3 c.c. were withdrawn and 4 c.c. of the magnesium sulphate solution were injected rapidly. At 8:20 p. m. no effect noted, but at 8:35 p. m. legs were distinctly relaxed, knee jerks exaggerated, but no clonus present. Abdomen distinctly softer, and patient was sleeping with his knees drawn up. At 9:20 p. m., one hour after the injection, he could turn himself readily from side to side, and at 10 p. m. he was almost perfectly relaxed, except for his jaws. His teeth could be separated about 1 cm., however, and he felt comfortable and drowsy. Knee-jerks could not be obtained, although the neck was a little rigid. Patient was everywhere very sensitive to the stick of a pin. At 10:50 p. m. he complained of slight headache and some pain in his feet. At 3 a. m. of the sixteenth day, 7 hours after the injection, the rectal temperature was 103. At 5 a. m. the neck seemed a little stiffer, otherwise the relaxation was excellent, while at 10 a. m., the abdomen was somewhat tense, but the legs were moved freely, the jaws could be separated 1.5 cm., the face was relaxed, and the boy had a distinctly improved expression. At 11:30 a. m. abdomen was more tense, clonus obtained in knees and general relaxation was less. This was 15 hours after the injection. Bronchial râles heard in chest.

On the following day, the seventeenth, there was moderate rigidity, but somewhat less than on the day before, and distinctly less than before the last injection of magnesium sulphate. Patient was comfortable and he had no more spasms. The rigidity never increased after this time, but gradually diminished. He had been sweating very profusely and there had been no retention of urine. He continued to complain of much thirst and drank large amounts of milk. On the eighteenth day the temperature was lower, the heart beat was regular but a little rapid, no murmurs heard, but a few coarse râles heard in chest. From the eighteenth to the twenty-second day the patient showed slow but definite improvement.

On the twenty-second day, seven days after the last injection of magnesium sulphate, the temperature, which had varied between 99 and 100 for several days, began to rise rather rapidly, and on the morning of the twenty-fourth day it reached 106.4. Coarse bronchial râles were heard in the chest, but otherwise the physical examination was negative. The scalp wound appeared clean, and nothing to account for the rise of temperature could be found. It quickly subsided on the following day, and reached normal, not to rise again. After this the improvement was marked and the rigidity gradually disappeared, the boy making a perfect recovery. At the time of his discharge, June 28, 1907, on the fifty-ninth day of his illness, the knee-jerks were still somewhat exaggerated, and the gait was slightly awkward.

Blood.—Leucocyte count was 10,750 per cubic mm. at time of admission, but was 16,700 two days later, the highest count obtained. On the twenty-seventh day after the marked rise in temperature the count was 6,300. Widal reaction negative. No leucocytosis later.

Urine.—A faint trace of albumin and a few hyaline casts were found, practically throughout the illness, and on the fiftieth day a few pale granular casts, but no albumin were found.

Besides the use of magnesium sulphate in the treatment, sodium bromid, 1 dram, and chloral hydrate, 30 grains, in twenty-four hours, were used during the first two weeks. Bromids were given throughout the illness, and a few doses of morphia, 1/8 of a grain, were employed hypodermically. The boy weighed 65½ pounds on the forty-sixth day, but weighed 70 pounds when discharged two weeks later.

COMMENTS.

Although no tetanus bacilli were isolated, the case was certainly one of tetanus. The symptoms were severe and were apparently becoming worse when the magnesium sulphate was used. The indefinite incubation period, the somewhat uncertain portal of entry, and the gradual onset of symptoms make it difficult to judge as to the real severity of the infection. The patient might have recovered without the use of the magnesium sulphate solution. But this is certain: the intraspinal injection of the salt did produce practically complete abolition of very severe symptoms for a number of hours. The suffering of the patient was greatly reduced and, although the operation of lumbar puncture must have been very painful, the boy asked to have it done again some hours after the first injection, when the symptoms were returning. The muscular rigidity was never as severe after each injection as it had been before it.

The dose was first 1 c.c. per 23 pounds, then 1 c.c. per 20 pounds, and finally 1 c.c. per 17.5 pounds. These doses are about the same as used in the cases on which surgical operations were performed, but the effect here was distinctly different. Although the patient was slightly drowsy, and this may have been from fatigue, nothing approaching loss of consciousness was noticed. There was no retention of urine, and, indeed, although micturition was usually involuntary and the amount could not be measured, the flow of urine seemed copious. The respirations were never even reduced to normal. After the first injection they fell from 36 to 32 per minute, and after the third from 40 to 32 per minute, but they remained at 48 after the second injection. In spite of this, however, the observations of others should caution users of intraspinal injections of magnesium sulphate to be prepared to meet failures of respiration. Means for performing artificial respiration should be at hand, and the spinal canal should be washed out with normal salt solution if failure of respiration demands it.

The changes in sensation were not carefully studied. After the first injection the feeling to the touch of the finger and to pinching of the skin seemed unimpaired. The scalp was not sufficiently anesthetic after the second injection to allow of excision of the swollen area, but the impression was given that the lack of pain produced by the operation was not wholly due to the use of the Schleich's fluid. After the third injection the boy was sensitive to the pin prick everywhere, but Dr. Meltzer says that there may be a disassociation of the various sense qualities, and that he has often found complete analgesia with the normal sense of pressure. Although there may be sensations to the prick of a pin, the pin may be stuck through the skin or the skin cut without pain. This being the case, my observations in this particular are of little value.

The only untoward effect noticed was slight headache after the first and third injections. There was a moderate rise of temperature coming on after the first injection. The fever was increased slightly four hours after the third injection, but not affected by the second one. The extremely high rise of temperature which occurred eight days after the last injection of magnesium sulphate can hardly be attributed to the salt, although I can offer no explanation for it. The marked thirst and profuse sweating did not seem to have any relation to the use of the salt. No purgative action was produced by the injections and, in fact, the bowels were very constipated. Castor oil and enemata were but weakly effectuál during the early part of the illness. This observation is in accord with the findings of Meltzer and Auer,[7] who report that the effects of certain drugs and maneuvers which produce peristaltic contractions in the intestine can be counteracted by intravenous injections of magnesium sulphate, which do not embarrass the respiration.

It would seem probable that the solution of magnesium sulphate is distinctly better tolerated when intraspinally injected in persons suffering from tetanus than in individuals without the disease. As Dr. Meltzer suggests, a larger dose might be used. In the last contribution to the subject of the action of the salt Meltzer and Auer[8] have shown that in rabbits nephrectomy greatly increases the toxicity of magnesium sulphate, and that probably at least 50 per cent. of the salt is excreted by the kidneys. Therefore, in cases in which renal insufficiency is known to exist or is suspected the salt should be used with more caution.

In conclusion, I plead for a more extensive use of this method of treatment in tetanus, and urge that all cases, whether successful or not, be reported. I am sure that, in at least some cases of this terrible disease, Meltzer has suggested a remarkably beneficial method of treatment. Further study only can show its limitations and its worth. The treatment is probably only symptomatic, but so far specific serum therapy has been but of little value in well developed cases. Even if other methods are being employed, the intraspinal injections of magnesium sulphate may serve to relieve great suffering and may prove a life-saving measure.

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[7] Am. Jour. Physiol., 1906, xvii, 313.

[8] Jour. Exp. Med., 1907, ix, 298.

HEMORRHAGE AFTER TONSILLECTOMY.*

OSCAR WILKINSON, A.M., M.D.

WASHINGTON, D. C.

The infrequency of hemorrhage after tonsillectomy justifies me in reporting two recent cases.

Case 1.—Mrs. S. came to me suffering with a follicular tonsillitis, with a history of frequent attacks of a similar kind. On examination I found the right tonsil very much more affected than the left, lying embedded between the tonsillar folds, to which it was slightly attached. It had a number of follicular cavities which were filled with a cheesy, offensive débris. As soon as the irritation had been relieved I advised her to have the tonsil removed as a preventive of future attacks. The tonsil being small, it was easily raised from its bed with a pair of forceps. I seized it with a pair of forceps, running through the ring of Mathew's tonsillotome, drew it through the opening and thus excised it. The tonsil was all removed and there was a slight peeling of the tonsillar pillars. The hemorrhage at first was not excessive, but it failed to stop as readily as is usual in such cases. I made a local application of adrenalin, 1 to 1,000, which afforded some relief.

Having an engagement in Virginia at that hour, I was compelled to leave the patient with an assistant, with instructions to spray the tonsillar cavity with peroxid of hydrogen if the hemorrhage continued, and if this failed, to use compresses saturated in tannic acid and glycerin. I returned from Virginia in about an hour and found the patient almost completely exsanguinated. The doctor had used adrenalin locally without effect, had sprayed the tonsillar cavity with hydrogen peroxid and had used compresses saturated in tannic acid and glycerin. This latter remedy had given temporary relief, forming a clot which, however, would soon be pushed off by the hemorrhage from beneath. On examining the cavity carefully I saw that the hemorrhage oozed from the entire cut surface. I applied stiptic collodion without effect. I then resorted to Monsell's solution, which gave temporary relief, but within half an hour the clot became loose and the patient vomited about a pint of blood, and was very weak. Realizing that some more radical method must be attempted, I threaded a half curved eye needle with a black silk thread, and passing this needle through the posterior tonsillar pillar and out through the anterior tonsillar pillar, was able, with the assistance of Dr. Stevenson, to draw this needle through. I then packed the tonsillar cavity behind this thread with a piece of cotton saturated in tannic acid and glycerin. I drew this thread tight, drawing the tonsillar pillars entirely together. The hemorrhage ceased and the patient had an uneventful recovery.

Case 2.—Two weeks after my experience with the previous case I operated on Mrs. M., removing her left tonsil, which was a rather small one of the follicular variety. In this case the hemorrhage stopped within a reasonable length of time. The patient walked home, a distance of six blocks, and as she entered the house her throat began to bleed. She attempted to check it by the use of ice gargles and hot solutions, but without success. I was called after she had been bleeding from two to two and one-half hours, and found her almost bloodless, being very weak and faint. I administered stimulants, gave adrenalin internally and applied it locally without avail. I used styptic collodion without results. I ordered a carriage and had her brought to my office. Immediately before leaving the house she vomited a considerable quantity of blood and was practically carried to the carriage. By the time she reached my office the hemorrhage had ceased and I had no further trouble with this case.

While I am an ardent advocate of the entire removal of diseased tonsillar tissue, my experience leads me to believe that we are more apt to have hemorrhage with our more radical operative procedures. The good results obtained justify complete removal, and with better instruments we are able to cope with the excessive hemorrhage when it does occur. I am aware that a different opinion has been expressed by good men, but these two cases of severe hemorrhage, and a similar one which I reported in the *Baltimore Eye, Ear and Throat Journal* in 1905, have all occurred in patients in whom a thorough tonsillectomy had been done. I have had made by the McKee Instrument Company a long-handled half-curved needle with the eye in its point for use in such cases as described above.

UTERUS FORCEPS.

GEORGE B. SOMERS, M.D.

SAN FRANCISCO.

In operating on the female pelvic organs through an abdominal incision, it is often necessary to grasp the uterus for the purpose of fixing, holding or elevating it. The instruments commonly used are vulsella, which often lacerate the fundus so severely as to produce troublesome hemorrhage and cause a waste of time in repairing the injuries.

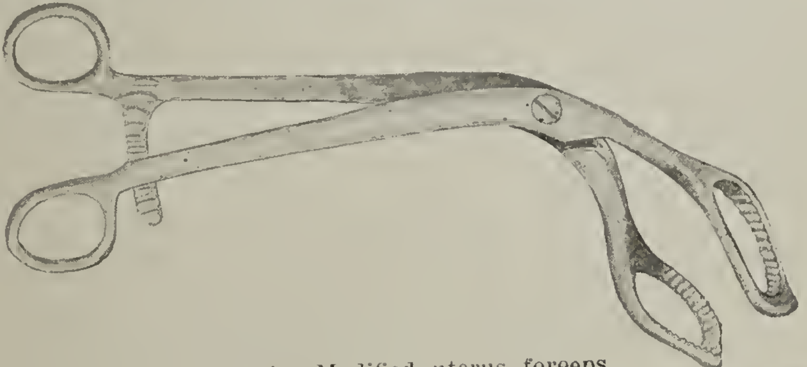

Fig. 1.—Modified uterus forceps.

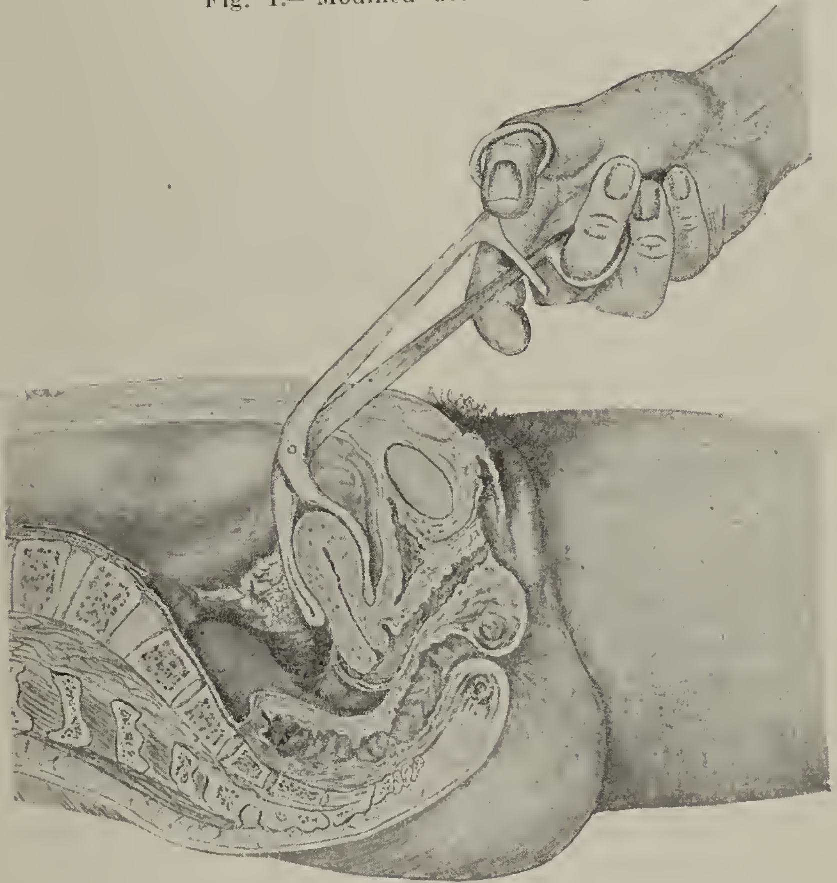

Fig. 2.—Uterus forceps applied.

The only instrument that I know of, devised to hold the fundus without injuring it, is one described several years ago by Cullen of Baltimore. I found his instrument inadequate, as it does not grasp firmly enough and allows the uterus to slip. To hold the fundus firmly and with the least possible injury, I designed the instrument whose appearance and use are sufficiently shown by the accompanying cuts.

It is needless to say that its chief use is in conservative work. Where a hysterectomy is to be performed, the injuries produced by vulsella may be disregarded.

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*Read before the Fairfax County (Va.) Medical Society, June.

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SATURDAY, AUGUST 10, 1907.

THE BRITISH MEDICAL ASSOCIATION ADDRESSES.

Suggestive food for thought is found in the addresses before the British Medical Association which met last week at Exeter. Advance copies of the addresses have been sent us through the courtesy of the editor of the *British Medical Journal,* and we regret that we can not give them in full or quote from them at length.

The main motive in the address of the president, Dr. Henry Davy, is the national importance of the health and the physical culture of the citizen. He points out that modern civilization, with all its labor-saving appliances, has a tendency toward physical deterioration which it behooves the medical profession to consider. He calls attention to recent progress in this direction made in Japan, where physical exercises form an important part of the national system of public education, and its effects as shown in the statistics of military conscription. It would appear from these that there has been a very perceptible effect in improving the stature of the Japanese, even within the short time since the reforms were adopted, and that their results were likewise shown in the hitherto unparalleled freedom from disease of the Japanese soldiers in their late war. In England, as in this country to a considerable extent, there is a tendency to make athletics a profession of the few, while among the mass of the people many of the manly physical exercises, once so popular, have become almost extinct.

In the address in surgery Mr. H. T. Butlin, the well-known British authority on morbid growths, discusses the question of the communicability of cancer and finds what he considers sufficient evidence of the actual autoinoculation of cancer which meets the conditions laid down by him, viz., that the assumed inoculation should be of the same variety of cancer as that from which the contagion has been derived and that there should be actual occasional contact to afford the opportunity for contagion. He admits that, while the evidence is sufficiently conclusive to him, his belief in the parasitic nature of cancer predisposes him to the belief that the disease is capable of autoinoculation. Furthermore, his study of the subject has so far altered his views that, while he formerly held that a broken surface was essential to successful autoinoculation, he is now inclined rather to believe it helpful but not necessarily essential, and that cancer can be communicated to a skin or mucous surface without abrasion. At present he is investigating the question of heteroinoculation in the human subject. The most probable condition of its occurrence would be in coition, and cases of coition cancer have been reported. Such occurrences, however, he thinks must be extremely rare, as the existence of ulcerated cancer in the male would probably deter him from the act, and in both male and female sepsis would be a bar. Moreover, it would be less likely to occur than autoinoculation, for the reason of the varying susceptibility of the individuals. A person having already a cancer may be assumed to be predisposed to the contagion, while a healthy individual may be extremely resistant. A practical point which he mentions is the importance of thorough disinfection of instruments used in cancer operations and the necessity of the avoidance of exposure of other surfaces to cancerous tissues.

The most suggestive of the three addresses, however, is that of Dr. W. Hale White entitled "A Plea for Accuracy of Thought in Medicine." The criticisms he makes are not all new, but he puts them in a way that should attract to them some attention. Too many medical men are susceptible to what he calls the "Mesopotamia-like soothing power of words" irrespective of their meaning, and most of us incur the temptation of sometimes using words to cover our ignorance. We are too often afraid, he says, to say we do not know. All human beings desire to find explanations, but wrong explanations, or the substitution of words, while they may be satisfactory to the questioner, are often worse in their effects than no explanation at all. He gives as examples of these tendencies the uric acid theory, the term "selective action"—so often used but which means so little—and the tendency to overwork certain theories that have a temporary vogue. Thus he thinks that. while we may not have considered the condition of the heart muscle sufficiently in the past, we are at present in danger of believing disease of the cardiac muscle to be present where it does not exist. The orthodiagraph will, he thinks, teach us that we have frequently been in error when we thought the heart altered in size, just as the clinical use of the manometer has taught us the inaccuracy of the estimation of arterial tension by the finger. While we may make a diagnosis, he insists, of a disease of which we do not know the cause, we should not make a diagnosis implying a cause unless we have grounds from experience for prophesying what will be found at a postmortem examination made with all modern aids of histology, bacteriology and chemistry if the patient died then and there.

We also err because we make excursions too often into sciences in which our training is inadequate, and he instances here the science of statistics and its misapplication in estimating the value of surgical and other methods, etc. Even life insurance statistics compiled by actuaries are not always free from fallacies, and White refers to many of the papers written on the subcet of the inheritance of tuberculosis as specially good llustrations of the extreme difficulty of medical statistical problems and the errors in their treatment. During the past few years the opinion has been commonly expressed that tuberculosis is not hereditary and that the children of tuberculous parents are in no greater danger than those of others. Professor Karl Pearson has recently published a paper in which he states that the inheritance of a special liability to tuberculous infection plays a very important part. White's plea is that medical men should not draw conclusions from statistics requiring a special training in figures unless they can obtain the help of those who have that special training.

Another hindrance to the advance of medical knowledge which he points out is the unreflecting adhesion to authority. He would say to all but the youngest students: "Accept nothing on authority, but look for yourselves and see if the usual teaching is true; believe nothing you do not see; be skeptical about everything you are told." This may seem like extreme advice, but it is to be remembered that it is addressed to investigators and applies to their own field of research. We all realize that, until we are competent to enter a certain field—say, for example, astronomy or Egyptology—and dig out facts for ourselves, we must, at least tentatively, accept the conclusions of those who by toilsome research have earned the right to speak with authority. But in one's own field the tendency to implicit and lazy following of authority is perhaps the greatest menace to medical progress. Mr. White's call for a healthy skepticism is timely and wholesome.

THE PATHOGENESIS OF DIABETES INSIPIDUS.

This condition has, in common with diabetes, only the polyuria, and, although cases have been observed in which, after a time, glycosuria developed, yet with most of the typical cases the name diabetes insipidus is a misleading misnomer. At one time the view was advanced that the polyuria is secondary to a chronic polydipsia, and cases have been reported in which this condition seems to have existed, but these cases are of an atypical, transient form, dependent on neuroses, and quite distinct from the typical persistent form of the disease. Strubell found that in the typical cases a rise in the concentration of the blood soon follows a brief period of thirst, showing that the excessive renal secretion is not dependent on an excessive amount of liquid in the blood, as is the case in polyuria resulting from polydipsia. This and other observations have led to the view now prevailing that diabetes insipidus depends on a functional abnormality in the kidneys, which is not the sequel of any evident structural alteration, but rather depends on some change in either the vascular or nervous mechanism of the kidney. In many instances there is definite evidence of nervous involvement, as in two cases studied by Seiler in which the disease followed fracture of the base of the skull, and it may be recalled that Claude Bernard, in his classical experiments on experimental glycosuria, found that lesions of the medulla might be followed by polyuria without glycosuria. There are many cases, however, in which no central nervous lesions can be demonstrated, and some in which hereditary influences bear a part.

According to many observers, the increased flow of urine depends ultimately on a dilatation of the renal vessels, unaccompanied by general rise in arterial pressure; presumably this vasodilatation is the result of the primary nervous lesions, for a similar condition of polyuria is said to be produced in animals by cutting the renal nerves. R. Schmidt[1] believes it possible to modify the course of the disease by reducing this renal hyperemia through artificial hyperemia of other vascular regions; e. g., catharsis in cases with obstipation, and external heat or diaphoretics in patients with dry skins. Spaether[2] also considers diabetes insipidus to be the result of a paresis of the renal vasomotor nerves, of either central or peripheral origin; and he explains the favorable results which sometimes follow the method of treatment by strychnin injections advocated by Feilchenfeld, as due to stimulation of this nerve plexus.

Studies of the conditions of metabolism in this disease seem to prove that it is not the cause or the result of metabolic disturbances, but apparently depends exclusively on secretory abnormalities. Tallqvist[3] made the interesting observation that variations in the amount nitrogenous food cause a corresponding variation in the amount of urinary secretion, so that the proportion of urea in the urine remains practically constant; the same change followed variations in the amount of sodium chlorid in the food. A. Wolf found that the reverse is also true, namely, a reduction in the quantity of the urinary secretion by any means leads to an equal reduction in the amount of urea excreted, the proportion remaining constant. These results are confirmed in a careful study from Sahli's clinic by F. Seiler,[4] who found that ingestion of large quantities of nitrogenous food is not followed by a rise in the specific gravity of the urine, as is the case with normal individuals. Apparently in diabetes insipidus the kidneys can not excrete urine containing nearly so large a proportion of solids as normal urine; therefore, the total excretion of solids can reach the normal only when a sufficiently large quantity of water reaches the kidneys to carry out all the accumulating solids of the blood. Should there not be sufficient water to accomplish this, the concentration of solids in the blood will increase, leading to the sensation of thirst which causes the characteristic polydipsia and polyuria of the disease. Seiler suggests that the polyuria of chronic interstitial nephritis similarly may depend on the sensation of thirst produced by increase in the concentration of the blood due to retained solids. In diabetes insipidus, however, uremia does not follow, because there are no renal lesions to prevent the polyuria being sufficient to remove all excess urinary solids from the blood. Just why the kidney is unable to secrete a normally concentrated urine in diabetes insipidus Seiler does not attempt to explain, beyond ascribing it to nervous defects. He does not believe the view held by Tallqvist, that there is a failure of resorption of water from the tubules, can be the correct explanation.

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[1] Wien. klin. Wochschr., 1905, xviii, p. 1112.
[2] Berl. klin. Wochschr., 1906, No. 30.
[3] Zeit. f. klin. Med., 1903, xlix, p. 181.
[4] Zeit. f. klin. Med., 1907, lxi, p. 1.

As to therapeutics, Seiler believes that the practice of restricting the amount of fluid taken by the patient should not be carried too far, as retention of solids will result with all its evil effects. The mere reduction in quantity of urine is not a desirable result when there is not a corresponding increase in specific gravity, for otherwise retention of solids must be taking place. In some mild cases, in which the primary nervous disorder is either transitory or purely functional, reduction in the amount of fluid ingested, together with such nervous stimulants as strychnin, or vasoconstrictors, such as ergot, may lead to improvement or recovery; but it is imperative that the amount of urinary solids must remain normal as the polyuria decreases. Attempts made by Seiler to improve the function of the kidney by diuretics did not give favorable results.

THE RELATIVE PREVALENCE OF DISEASE AMONG WHITE AND COLORED TROOPS.

In view of the questioned expediency of retaining in service colored troops, in opposition to the sentiment in so many localities against having them in the local garrison, it becomes interesting to compare the relative efficiency of the white and colored troops as affected by disease. For troops serving in the United States proper, a study of the statistics for many years shows that the colored troops almost uniformly have a much lower admission, discharge and non-effective rate for disease, while their death rate is much higher than that of the whites, usually more than twice as great. Suicide is also very much more common among white troops, but, on the other hand, homicide is not nearly so frequent. As causes of non-effectiveness the diseases which are of more importance among white troops are alcoholism and venereal diseases, typhoid fever, malaria, diarrhea, dysentery and catarrhal diseases of the respiratory system. But colored troops are greater sufferers from rheumatism in all its forms, tuberculosis, pneumonia, hemorrhoids and other diseases of the circulatory system, frostbite and freezing. The death rate from tuberculosis, pneumonia and aneurism is many times greater among the colored troops than among the whites. The colored troops appear to be particularly well adapted to service in the tropics; though their admission rate here is a little larger than for white troops, all other rates are lower. The death rate, which in the United States is twice as great as that of the whites, in the tropics is considerably less than that of the latter. The rates for the special tropical diseases, such as dysentery and malaria, are considerably lower in the colored race.

STERILITY AMONG *X*-RAY WORKERS.

The dangers attending the continuous use of the *x*-ray, and especially the dangers which menace the operator, are not yet fully appreciated. Jordan[1] claims that any man who works daily with the ray for a year or two, even if he takes reasonable care, becomes sterile. By reasonable care this observer means the keeping of the *x*-ray apparatus in a protected box, the use of a protective shield for the tube, the wearing by the operator of a protective apron, and keeping at a distance of several yards from the direct ray. This being the case, it seems certain that the ordinary operator of the *x*-ray in this country has been protected in a very inadequate manner. So far as we know, statistics regarding the sterility of *x*-ray workers have not been collected. It would be of interest to gather such figures, and it would also be of interest to determine whether operators who give up the *x*-ray work recover from their sterility. This is a point which has never been settled. In the meantime every *x*-ray worker, even the practitioner who occasionally uses the *x*-ray for diagnostic or therapeutic purposes, should bear this danger in mind and take protective steps. The protection of the tube so far as is possible, the use of a strongly protective apron, and the interposition between the operator and the ray of screens guarded by heavy sheet lead should be carried out in every instance.

RENAL CALCULUS AFTER TYPHOID FEVER.

The relation between biliary calculi and bacteria is now firmly established and has gained a strong hold on the minds of the profession in general. The frequency with which typhoid fever is found to have preceded gallstone formation is also clear, and the isolation of *Bacillus typhosus* from the bile of patients with cholelithiasis is common. The origin of renal calculi is not at present so satisfactorily explained, though for some time there have been observers who have claimed that these also are of bacterial origin. There is some evidence that this may be the case. Graves[2] has recently recorded the history of a patient who, six years after an attack of typhoid fever, had symptoms of stone in the left kidney. Operation showed a phosphatic calculus in the ureter, and the *Bacillus typhosus* was obtained from the kidney pelvis in pure culture. The patient had had no renal symptoms whatever before his attack of typhoid fever. Such a case as this certainly suggests a connection between typhoid fever and renal calculi, but it is not wise to generalize from a single case. Observations along this line must be repeated, for, when we consider the frequency with which the *Bacillus typhosus* is excreted through the kidneys, it would seem strange, if it is the cause of kidney stones, that these do not occur more frequently after typhoid fever. It may be that in the kidney, as in the gall bladder, it is not the sole cause, but one of several causes, and that besides its presence there must be some predisposing factor, perhaps partial stagnation of urine in the pelvis of the kidney.

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[1] Brit. Med. Jour., July 6, 1907.

[2] Brit. Med. Jour., July 13, 1907.

Medical News

ALASKA.

Smallpox Epidemic.—Passed Assistant Surgeon Hobdy, U. S. P. H. and M.-H. Service in charge of Angel Island Quarantine, Cal., reports an epidemic of smallpox at St. Michael's, and in other places along the coast of Alaska. He has issued orders to the boarding officers to inspect vessels from all ports in Alaska.

COLORADO.

Pardoned.—The State Board of Pardons has commuted the sentence of Dr. Carrie L. Johnson, Pueblo, who has been serving an indeterminate sentence on account of malpractice.

June Deaths.—During June 851 deaths were reported, equivalent to an annual death rate per 1,000 of 16.68. There were 26 deaths from scarlet fever; 11 from typhoid fever, and 6 from diphtheria during the last month.

Mennonite Sanitarium.—The Mennonite Sanitarium Association has commenced the construction of a large sanitarium for tuberculosis on its farm, four miles west of La Junta, to contain 40 rooms and to cost about $50,000.

Infectious Diseases.—During June there were reported to the State Board of Health 325 cases of scarlet fever; 116 cases of smallpox; 64 cases of typhoid fever, and 11 of diphtheria. As compared with the previous month, June shows a decrease of 24 cases of diphtheria; 105 cases of scarlet fever, and 42 cases of smallpox, and an increase of 38 cases of typhoid fever. ——There are said to be 75 cases of typhoid fever in La Junta.

Exonerate Physicians.—The Larimer County Medical Association at a meeting held July 4 to investigate a rumor concerning a criminal operation in Fort Collins, has authorized the following statement:

> The Larimer County Medical Society, after a full and careful examination of all witnesses and a thorough investigation of all the facts about the case reported in the local papers, has found that no physician of Fort Collins was guilty of any criminal action in connection with the case, and in the opinion of the society each and all are hereby absolved from any blame whatsoever. Issued by order of the society.
>
> E. Stuver, Secretary.

DISTRICT OF COLUMBIA.

Personal.—Dr. J. Russell Verbrycke has resigned as interne at Garfield Hospital and has accepted a position as resident physician at Mount Sinai Hospital, New York City.——Dr. Murray G. Motter has resigned as chief inspector and deputy health officer of the district, and sailed from New York for Europe, July 20.——Dr. Joseph D. Rogers has been appointed substitute physician to the poor of the district, vice Dr. Richard S. Blackburn.

ILLINOIS.

Many Insane Before the Courts.—The county physician of Cook County states that the insane court passed on 180 patients during July, the largest number on record.

Physician Acquitted.—Dr. Robert Emery, Peoria, indicted for murder in the case of the death of Pauline Schneider, who is said to have died after a criminal operation, was acquitted by the jury, July 9.

Smallpox.—A number of cases of smallpox have occurred at Mechanicsburg since the first of July, and an inspector of the State Board of Health has gone to the village to confer with the local authorities regarding quarantine.——The secretary of the State Board of Health has issued a circular letter regarding the continued spread of smallpox throughout the state, and with it has sent a poster urging the importance of vaccination as a preventive of the disease.

Insane in State Hospitals.—The first step toward removing the insane from county almshouses by redistricting the state into six districts has been taken. The institution at Bartonville has been changed from a hospital for the incurably insane to a district hospital, thus giving a new district. After September 2 new cases will be sent to the hospital for the district in which the patient resides. By this ruling the State Board of Charities hopes to avoid peril, confusion and expense.

Personal.—Dr. John R. Trott, Virden, has retired from active practice.——Dr. Levi W. Carter, Peoria, who has been ill for several months, has been taken to the Proctor Home.——Dr. Fred S. O'Hara, Springfield, has been elected state president of the Order of Eagles.——Dr. Clarence R. Bell, Thayer, has been appointed physician at the Government Insane Asylum, Washington.——Dr. J. F. Duane, Peoria, has returned from Europe.——Dr. Stephen C. Glidden, Danville, has been appointed chief surgeon of the hospital system of the Illinois Traction System.——Dr. Walter W. Greaves, La Salle, who was operated on for appendicitis at St. Mary's Hospital, July 26, is reported to be convalescent.——Dr. Nicholas Senn, who left Chicago July 6, is making a tour of circumnavigation of South America and will return early in October.

Civil Service Medical Positions.—The secretary of the Illinois Civil Service Commission announces that the following individuals have passed the examination recently conducted by the commission, and are eligible for appointment: Dr. Henry W. Miller, Dunning, director of State Psychopathic Institute; assistant physicians, Drs. Fred B. Clarke, Elgin; Emil Z. Levithin, Chicago; Harriet Hook, Lincoln; E. Louis Abbott, Anna; Richard F. Windsor, Hospital; Angelina G. Hamilton, Ann Arbor, Mich.; Rachel A. Watkins, Peoria; Edward A. Foley, Woodstock, and Cyrus H. Anderson, McLeansboro; and first assistant physicians, Drs. Robert B. Hough, Lincoln, and Eugene Cohn, Hospital.

Chicago.

Physician Found Guilty.—Dr. Adolph Buettner is said to have been found guilty of manslaughter August 2, in connection with a criminal operation. The jury included a plea for leniency in its verdict.

Surgeons in Charge of Ambulances.—The chief of police has issued the following order: "Hereafter the following will comprise the detail on police ambulances for each shift: One policeman, one driver and a surgeon, who will be in charge."

Henrotin Memorial Hospital.—The Fernand Henrotin Memorial Hospital is so near completion that the faculty and directors have made a formal inspection of it and are laying plans for the opening. The formal opening will occur late this month or early in September.

New Hospital.—Dr. Alexander A. Whamond and other West Side physicians have purchased the property formerly occupied by the Finsen Light Institute and have equipped the building as a general hospital. It was formally opened by a reception July 15, and was named the Robert Burns Hospital.

July Mortality.—During July 2,217 deaths were reported, equivalent to an annual death rate of 12.39 per 1,000. The deaths numbered 138 fewer than for the previous month and 96 fewer than for the corresponding month of 1906. Chief among the causes of death were: Acute intestinal diseases, with 269; consumption, with 256; pneumonia, and violence, including suicide, each with 196; heart diseases, with 157; nephritis, with 139, and cancer, with 105.

Sanitary Bulletin.—On August 3 the first issue of the *Bulletin of the Chicago School of Sanitary Instruction*, devoted to the dissemination of advice and information of the department of health was issued. The publication is to be weekly and will include the weekly bulletin heretofore issued by the department of health. In addition, the first issue discusses the milk supply of Chicago and quotes at length from a recent paper on the freedom of Chicago-born individuals from cancer.

Deaths of the Week.—During the week ended August 3, 503 deaths were reported, 45 fewer than for the preceding week and 2 more than for the corresponding week of 1906, equivalent to an annual death rate per 1,000 of 12.44. Acute intestinal diseases caused 120 deaths; consumption, 47; violence (including suicide), 42; heart diseases, 37; nephritis, 34, and pneumonia and nervous diseases, each 31. During the week 7 deaths each were reported from scarlet fever and whooping-cough; 5 from typhoid fever; 4 from measles; 2 from tetanus and one from sunstroke.

Tenement Tent Centers.—The Chicago Relief and Aid Society has begun the work of establishing tent centers in the congested districts of the city, where children may play without danger of being overcome by the heat. One of these tent villages is in the yard of the Henry Booth house, one at the University of Chicago Settlement, and the third at the Northwestern University Settlement. Each day volunteer physicians talk to the mothers on the proper care of children during the hot weather. The following physicians are in charge of the tents: Drs. Frances M. Allen, Julia D. Merrill, William J. Butler, John C. West, James W. Van Derslice, May Michael, Frank W. Allin, Thomas G. Allen and Grace F. Hagans.

Increase in Deaths.—During the first seven months of 1907 1,838 more deaths were reported than for the corresponding period of 1906. This represents an increase of 13.6 per cent. in the annual mortality ratio. The causes of death showing important increase are: Whooping-cough, 170 per cent.; measles, 124 per cent.; scarlet fever, 60.2 per cent.; pneumonia, 32.1 per cent.; heart diseases, 24.3 per cent.; bronchitis, 22.7 per cent.; diphtheria, 16 per cent.; tuberculosis, 14.4 per cent.; nervous diseases, 14.4 per cent.; suicide, 14.2 per cent., and nephritis, 9.8 per cent. Of the deaths reported during this period 11,090 were of male and 9,698 of female, an excess of 29.2 per cent. of male and 28.4 per cent. female, over the average excess of the previous two decades.

MARYLAND.

Herter Lecturer Chosen.—Edward A. Schaefer, LL.D., Sc.D., F.R.S., professor of physiology in the University of Edinburgh, Scotland, has been selected as the Herter lecturer for 1903.

Bequests.—By the will of the late Reverdy Johnson, the Union Protestant Infirmary, Baltimore, received $5,000 and Johns Hopkins Hospital $10,000, with an additional reversion of $15,000.

Hospital Notes.—An extensive addition to the Shepherd and Enoch Pratt Hospital, Baltimore, is being constructed which will contain dining rooms, kitchens, storerooms, nurses' quarters and apartments for servants. This addition will be connected with the present hospital by a glass-covered corridor, which will also be used as sun parlors.——The new nurses' home at the Johns Hopkins Hospital has been completed at a cost of about $10,000.

Personal.—Dr. H. K. Beall, Baltimore, underwent an operation at Johns Hopkins Hospital, July 29.——Dr. F. S. Goodman, U. S. P. H. and M.-H. Service, Baltimore, has recovered from his recent illness and will go to Blue Ridge Mountains to recuperate.——Drs. William S. Baer, Charles C. McDowell, Elizabeth Hurdon and E. E. Langley, Baltimore, are spending the summer in Europe.——Dr. Richard L. McNeer has resigned from the faculty of the Maryland Medical College to become professor of surgical anatomy and associate professor of surgery in the College of Physicians and Surgeons, Baltimore.

MASSACHUSETTS. ..

Appeal for Consumptives.—The Boston Association for the Relief and Control of Tuberculosis has made an appeal for $5,000 to support the day camp at Mattapan until November 1.

Smallpox in Lawrence.—During the last four months 113 cases of smallpox have occurred in Lawrence. The last patient has just been discharged from the Isolation Hospital. The epidemic was attended by no fatalities.

Students Go to Labrador.—Four students of Harvard, three of whom are from the medical school, have sailed from West Lynn to Labrador, to assist Dr. Wilfred T. Grenfell during the summer in his hospital and industrial work on that coast.

Personal.—Dr. Adam S. McKnight, Fall River, has been appointed secretary to the board of district inspectors recently appointed to enforce the new ventilation law in factories, and health measures generally.——Dr. J. Teuchter, Boston, has gone to Vienna.——Dr. Malcolm Storer, Boston, has been elected president of the New England Convalescent Rest Home Association.

Boards of Health Meet.—At the quarterly meeting of the Massachusetts Association of Boards of Health, held at Gallup's Island, Boston Harbor, July 25, Henry P. Walcott, president of the board, spoke on "Recent Public Health Legislation," outlining the new law dividing the state into districts, and Dr. Frank G. Wheatley, North Abington, senator from Plymouth County, spoke on health legislation, giving a résumé of the numerous bills relating to public health, and stating that those killed were as valuable as those enacted.

MICHIGAN.

Unlicensed Practitioner Fined.—J. F. Bosworth, an itinerant practitioner, arrested at Battle Creek, at the instance of the Calhoun County Medical Society, is said to have pleaded guilty July 30 and to have been fined $100.

Enjoined from Practicing.—Dr. David G. Austin, Laingsburg, who, it is claimed, sold his practice to Dr. George Robb, Flushing, and agreed not to practice in Laingsburg, has been enjoined from practicing in that place on complaint of Dr. Robb.

Personal.—Dr. Frank W. Shumway, Lansing, secretary of the State Board of Health, has been instructed to make an official investigation of the camp of the Michigan National Guard at Ludington.——Dr. Harley O. Haynes, for five years physician at the State Reformatory, Ionia, has resigned to become assistant physician at the Michigan Home for the Feeble Minded and Epileptic, Lapeer. Dr. W. T. Woodbury, Detroit, has been appointed to fill the vacancy at Ionia.——Dr. Charles W. Niles, Calumet, has resigned as a member of the staff of the Calumet and Hecla Hospital.——Dr Walter H. Sawyer, Hillsdale, has been appointed a member of the board of regents of the University of Michigan.——Dr. Moses A. Fechheimer, Detroit, who has been studying abroad since last October, sailed for this country July 26.——Dr. Charles B. MacCartney and E. R. Johnston, of the staff of the Oak Grove Hospital, Flint, resigned August 1, to pursue medical studies abroad.——Dr. Frank N. Martin, St. Joseph, has gone abroad to study in Edinburgh and Vienna.

MISSOURI.

Typhoid Fever.—It is reported that Springfield has 50 cases of typhoid fever, due to impure milk and water supplies.

Smallpox.—The secretary of the Jackson County board of health reports 17 cases of smallpox in one neighborhood at Sni Mills, in the eastern part of the county.——Dr. J. L. Downing, Eagleville, is reported to be ill with smallpox.

Physician Paroled.—Dr. John S. Davies, St. Louis, said to have been sentenced to serve a five-year term in the state penitentiary on the charge of performing an illegal operation, has been pardoned, it is said, by Judge Sadler, on the ground that the enforcement of this sentence would work hardship to the doctor's family.

Personal.—Dr. John C. Lebrecht, St. Louis, is reported to be seriously ill as the result of internal and spinal injuries sustained from a fall June 23.——Dr. J. Frank Harrison of State Hospital for the Insane No. 1, Fulton, has been selected as superintendent of the Farmington Hospital.——Dr. Paul F. Vasterling, St. Louis, has been appointed assistant chief surgeon of the Missouri Pacific System.

Licenses Revoked.—At a meeting of the State Board of Health, July 13, in Kansas City, evidence was heard against Drs. O. A. Johnson and William O. Bye, charged with "unprofessional and dishonorable conduct by advertising in a way that is unprofessional, dishonorable, misleading and calculated to deceive the public." The charges were sustained and the licenses revoked. Both of the defendants have since appealed from the decision of the board of the Jackson County Circuit Court. (See Miscellany Department, this issue.)

NEW JERSEY.

Cocain Sellers Arrested.—The sheriff of Essex County and the police of Newark made more than 100 arrests of alleged cocain vendors during July.

Tuberculosis Home Planned.—The board of health of New Brunswick is making plans for the erection of a tuberculosis hospital at the Poor Farm, where patients afflicted with the disease may be cared for.

Typhoid in State Hospital.—There have been 82 cases of typhoid fever, with 12 deaths, at the State Hospital for the Insane, Trenton, and the Trenton board of health has informed the managers of the institution that unless the insanitary conditions which prevail there were remedied, legal proceedings would be begun. It is reported that at present the sanitary condition of the institution is excellent.

Personal.—Drs. Frank P. McKinstry, Charles M. Williams and Frederick J. LaRiew have been appointed members of the Washington board of health. At a meeting of the board for organization Dr. Williams was re-elected president.——Drs. Alfred A. Loeb and George W. Corrigan, Newark, have established a private ambulance service.——Dr. Peter P. Rafferty, Red Bank, has been appointed superintendent of the State Hospital for the Insane, Trenton, vice Dr. John W. Ward.

NEW MEXICO.

Typhoid Fever.—It is reported that there are 150 cases of typhoid in Albuquerque and that the disease is spreading rapidly.

New Prison Physician.—Dr. David Knapp, who was physician at the territorial prison during the administration of Governor Otero, has received a second appointment to that position, succeeding Dr. James A. Massie.

New Practitioners.—At the July meeting of the State Board of Health 32 physicians were admitted to practice in the territory on the presentation of diplomas and other credentials, or on passing the required examination. Three of the applicants gave Santa Fé as their address.

Hospital Notes.—A contract has been awarded for the addition to the Miners' Hospital, Raton, at an expense of about $5,000. The addition will include an operating ward and the completion of the third story of the building.——The managers of the New Mexico Cottage Sanatorium, Silver City, have received from Mr. Frank Thompson the gift of a new building for the use of febrile patients.

NEW YORK.

Meeting of Medical Examiners.—The State Board of Medical Examiners met in Albany Thursday to adopt rules and regulations. The secretary of the board, Dr. Maurice J. Lewi, was empowered to take proper steps against W. W. Turver, Buffalo, for revocation of his license. Turver is serving a sentence in Auburn prison for performing an abortion.

Adulterated Milk.—Charles A. Wieting, commissioner of the State Department of Agriculture, in a recent report, states that in spite of many arrests made by the government inspectors, violations of that section of the agricultural law are increasing. The method of adulteration in vogue consists in putting about 36 quarts of milk or a little less, into 40-quart cans. Then other milk, from which the cream has been extracted, is taken to fill up these cans, and this is sent to New York for sale as whole or pure milk. It is very difficult to detect this form of adulteration. In this state there are 591 milk gathering stations that purchase milk from the producers, to reship to the city for consumption.

Personal.—Morris M. Wall has succeeded Dr. Charles F. Howard as one of the managers of the Buffalo Reformatory.——Dr. Thomas Lewis, a recent graduate of the College of Medicine of Syracuse University, has returned to his home in Liberia, West Africa.——Drs. John F. McEncroe and John A. Heatly have resigned from the medical staff of Ellis Hospital, Schenectady. Drs. Frederick C. Reed and Walter L. Huggins have been appointed members of the surgical staff, and Dr. John L. Schoolcraft has been made consulting physician and surgeon to the institution.——Dr. W. W. Waite has been appointed city bacteriologist of Syracuse, vice Dr. William H. May, deceased.——Dr. William C. Gilley, New York, sailed for Glasgow, August 3.——Dr. E. Franklin Smith, New York, has been appointed surgeon to the Union Construction and Waterproofing Company.

New York City.

Hospital Robbed.—About $1,000 worth of jewelry and $190 in coin were stolen from the safe in Flower Hospital by one of the clerks.

Smallpox on Ocean Liner.—On account of one case of smallpox on the North German Lloyd liner *Koenigen Luise*, the surgeon vaccinated all on board, 1,371 in number, and as a result no one was detained at quarantine.

After Cocain Vendors.—The health department is determined to continue its crusade against the sale of cocain and all preparations containing cocain, without a physician's prescription. Since the passage of the ordinance more than 20 druggists have been arrested on the charge of selling cocain illegally.

No Special Diet for Consumptives.—Because of lack of funds the health department can no longer supply free milk and eggs as a special diet for the tuberculous. During 1906 more than 22.000 quarts of milk and 44,500 eggs were furnished in Manhattan alone. Altogether 50,000 quarts of milk and nearly 100,000 eggs have been given away.

No More Hospital Grafting.—Dr. S. T. Armstrong, general medical superintendent to Bellevue and Allied Hospitals, learning that visiting physicians were sending to the hospitals patients who were able to pay, has issued on order that any patient who has more than $50 value in his possession when taken to hospitals may be charged $1.50 a day for treatment.

Fighting Mosquitoes.—Fort Totten, Bayside and Hollis, L. I., have been fighting mosquitoes in their own crude way all summer and now ask the city to aid them.——Mosquitoes in Queens are to be attacked next summer, possibly this summer.——The steamboat *Governor Flower* of the quarantine fleet has been cruising through Hell Gate looking for mosquito incubators.

Eddyite Found Guilty.—The Court of Special Sessions found Clarence W. Byrne, an Eddyite, guilty of violating the penal code by having wilfully neglected to provide medical attendance for his 6-year-old daughter, who died of pneumonia, with no other attendance than that provided by an Eddyist practitioner. The sentence was thirty days in the penitentiary.

Floating Camps for Consumptives.—The Charity Organization Society is making use of old ferryboats as floating camps for those ill with tuberculosis. The *Southfield* has been placed in commission at the foot of West Sixteenth Street, North River, and has accommodation for 60 or more patients, a trained nurse is in charge, and a regular staff of visiting physicians. The society has issued an appeal for $3,000 to continue the advantages of the fresh air, food and nursing provided.

Contagious Diseases.—There were reported to the sanitary bureau for the wek ending July 27, 401 cases of measles, with 24 deaths; 346 cases of tuberculosis, with 143 deaths; 278 cases of diphtheria, with 30 deaths; 180 cases of scarlet fever, with 14 deaths; 81 cases of typhoid, with 14 deaths; 47 cases of whooping-cough, with 10 deaths; 20 cases of cerebrospinal meningitis, with 8 deaths; one case of smallpox, with one death, and 20 cases of varicella, a total of 1,374 cases and 244 deaths.

For Garbage Incineration.—Dr. Alvah H. Doty, health officer of the port, states that the present method of garbage disposal requiring the separation of garbage from other refuse, is impracticable and can not be enforced. Practical sanitarians are unanimous in the opinion that a city's garbage and other waste should be collected and cremated. That this can be done has been practically demonstrated both in Europe and this country. It is declared that New York has exceedingly insanitary and impracticable methods of disposal of garbage and other refuse, and that there is no reasonable excuse for its existence. Josiah C. Pumpelly, president of the City Improvement Society, asks why the mayor does not fulfill his promise, made in 1906, and appoint a commission of experts to examine into this matter, and report at an early date, that our city officials may be prepared to act wisely in the premises.

OREGON.

Personal.—Dr. William K. Haviland has been elected mayor of Estacada.——Dr. Andrew C. Panton, Portland, chief surgeon for the Portland Light and Power Company, and a member of the State Board of Medical Examiners, was found guilty of a technical assault on an employé of an itinerant practitioner, against whom a charge of unprofessional conduct had been made, and fined $15.

State Society Election.—At the thirty-third annual meeting of the Oregon State Medical Association, held at Seaside, the following officers were elected: President, Dr. Robert C. Coffey, Portland; vice-president, Dr. John H. Rosenberg, Princeville; secretary, Dr. William House, Mount Tabor; delegate to the American Medical Association, Dr. Andrew C. Smith, Portland, and alternate, Dr. Walter T. Williamson, Portland.

Hospital Notes.—An emergency hospital is to be equipped at the Union depot, Portland, by the Northern Pacific Terminal Company.——Sister Mary Theresa of the Benedictine order has purchased the home of Dr. D. A. McIntyre, at Oak Grove, between Portland and Oregon City, and will found a sanatorium and hospital for children at a cost of about $50,000.——Drs. Walter Culin and Richmond, Coquille, have purchased the Academy Building in that city, and will remodel and fit it up as a hospital.——The Chemawa Indian School is building a new hospital building at a cost of nearly $20,000, which, it is expected, will be ready by the opening of the fall term of the school.

PENNSYLVANIA.

Whooping-Cough Epidemic.—The health department of Pittsburg has ordered placarding of whooping-cough, as there are 400 cases of the disease in the city, and about 25 new cases are being reported daily. The health bureau intends to enforce strict quarantine on all infected houses.

Personal.—Dr. Lawton M. Hartman, Jr., York, has returned from Europe.——Dr. James Evelyn Pilcher, Carlisle, has been elected censor for the second district, and Dr. Americus R. Allen, Carlisle, delegate to the state society.——Dr. Frederick C. Johnson, Wilkes-Barre, who has been seriously ill with appendicitis at the Harrisburg Hospital, is reported convalescent.

Hospital Opened.—The new Sewickley Hospital, erected at a cost of $60.000, was dedicated with impressive ceremonies July 20. The following compose the hospital staff: Drs. R. McCready, James M. McCready, Frank L. McCready, Robert J. Murray, Robert S. Macrum, Dewitt B. Nettleton, John Walters, Fletcher K. White, Thomas H. Grimes, Samuel Jennings, R. N. Dickson, J. R. McQuaid, R. R. Hill, R. W. Lyons and Joseph R. Hood.

Report on State Antitoxin.—The State Department of Health reports that during the first six months of 1907 the death rate from diphtheria among persons treated with state antitoxin was only 8 per cent., as compared with 11 per cent. for the first six months of 1906. Of the 1,712 cases treated, 1,560 of the patients were restored to health and strength. During the same period 1,073 individuals were treated with immunizing doses, and of this number only 18 contracted the disease.

Philadelphia.

Hospital Report.—The report of the Presbyterian Hospital for July shows that 186 patients were admitted to the institution during the month. There were 1,943 new patients treated in the various dispensaries and 93 ambulance calls were made.

Personal.—Dr. J. Thompson Schell has resigned as clinical professor of pediatrics at Temple College and as pediatrician to the Samaritan and Garretson hospitals.——Dr. Paul J. Sartain sailed for Europe August 1.——Dr. Joseph Garzourka of Budapest, Hungary, is spending a few days in the city, on his tour of the world.

Health Report.—The total number of deaths reported for the week ended August 3 was 606. This is a decrease of 32 from the number reported in the preceding week and an increase of 95 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 9; pertussis, 9; diphtheria, 6; consumption, 59; cancer, 20; meningitis, 3; apoplexy, 21; tetanus, 2; heart disease, 42; acute respiratory disease, 22; enteritis, 153; appendicitis, 6; Bright's disease, 39; premature birth, 10; congenital debility, 28; suicide, 3; acidents, 17, and marasmus, 15. There were 118 cases of contagious diseases reported, with 13 deaths, as compared with 138 cases and 14 deaths in the previous week.

WASHINGTON.

Protest Against River Pollution.—At a meeting of the State Board of Health at North Yakima, the mayor of Prosser entered a protest against Naches City polluting the stream with sewage. The question was left to the state sanitary engineer, who was ordered to make a thorough investigation and report at the next meeting of the board in Seattle, August 3.

Personal.—Drs. Adelbert J. McIntyre and J. F. MacDonald have associated themselves with the Hoquiam General Hospital.——Dr. J. R. Prichard, Chewelah, has been appointed superintendent of the State Institution for the Feeble Minded, Medical Lake.——Dr. Martin L. Adams, Ballard, has filed application for his appointment as assistant health officer of greater Seattle.

Milk Commission Appointed.—The Seattle board of health has appointed a certified milk commission, consisting of Drs. Robert M. Stith, Philip V. Von Puhl, George B. McCullough, William G. Booth and Frank P. Gardner. The law provides for the appointment of a certified milk commission by the board of health. The members of the commission are to serve without remuneration, but are to receive their necessary traveling expenses. An inspection of the dairy and test of the products will be made by the commission on the application of a dairy to sell certified milk.

Defines Duties of Officers.—In an opinion rendered July 24 the attorney general gives the following decision regarding the duties of city and county health officers:

> It would appear that the city health officer has charge of the contagious and infectious diseases within the incorporated limits of cities referred to in the act which includes cities of the third class, subject to a general supervision of the county health officer, and that the county health officer has charge of the contagious and infectious diseases outside of incorporated cities, with general supervisory control over the whole county. The county bears the expense incurred outside of the city and the city those incurred in its behalf.

WISCONSIN.

Smallpox.—The health officer of Monroe announces that the smallpox outbreak at Winslow is now under control, and the eight individuals ill with the disease are under quarantine.

Personal.—Dr. Sherman E. Wright, Marinette, and family, left for Europe, August 1.——Dr. Edward L. Shepherd, Edgerton, submitted to a second operation, June 30.——Dr. and Mrs. Albert G. Jenner, Milwaukee, left for Europe July 29.——Dr. George W. Crosby, Sheboygan, suffered a slight cerebral hemorrhage, July 29.

Increase of Insane.—The report of the State Board of Health shows that the number of insane in state and county institutions has increased from 5,836 to 5,968 during the past year. About 60 per cent. of the insane are men and 40 per cent. women. The ratio of insanity is 1 to about 382 of the population of the state.

Medical Society Meetings.—The physicians of New London met July 29 to form a local organization. Dr. George T. Dawley was elected president; Dr. Henry L. Bacon, secretary, and Dr. August L. C. Borchardt, treasurer.——At the annual meeting of the Lincoln County Medical Association, held in Merrill, the following officers were elected: President, Dr. Michael Ravn, Merrill; vice-president, Dr. William E. Wray, Tomahawk; secretary, Dr. A. R. Wittman, Merrill; treasurer, Dr. Frank R. Winnemann, Merrill, and censors, Drs. E. K. Morris, Wilbert H. Monroe, Merrill, and John D. Cutler, Tomahawk.

GENERAL.

Hospital for Children in Honolulu.—Mr. A. S. Wilcox, Kauai, has given $50,000 for the establishment of a hospital for children at Honolulu.

Few Deaths from Smallpox.—The statistics for smallpox in the United States for the seven months ending in July show a total of 1,870 cases, with only four deaths.

Nurses for the Navy.—Surgeon General Rixey will ask congress at the next session to appropriate $45,000 wherewith to organize a corps of trained nurses for the navy.

American Public Health Association.—The thirty-fifth annual meeting of this association will be held at Atlantic City, Sept. 30 to Oct. 4, 1907. A section of vital statistics and a section of municipal health officers will be organized. Hence the meeting will be of especial interest to boards of health, federal state and municipal, on both executive and technical sides, and to all others engaged in sanitary work. Boards of health and other sanitary organizations are invited to send delegates to the meeting to discuss one or more of the various topics considered. The following subjects have been selected for discussion: Milk; laboratory findings in diphtheria; immigration in its relation to public health; nuisances which should be abated by boards of health; control of the so-called minor infectious diseases; vital statistics and the value thereof; construction and care of streets from a health standpoint; amendments to constitution and by-laws.

Health Report of the Philippines.—Dr. Heiser in his report for the first three months of 1907, states that the incidence of dangerous communicable diseases has been remarkably low for the quarter and that there is a favorable outlook for the entire year. The last case of plague occurred April 20, 1906. A few cases of cholera were reported from northern Samar, from Capiz, and from Occidental Negros. Repeated efforts were made to obtain specimens for laboratory diagnosis, but generally the patient had either died or recovered before a person competent to make a microscopic examination could reach the locality; this was due to the fact that usually only one case occurred in a locality and generally in some remote district. There has not been a single death from smallpox in the city of Manila during the entire year. Systematic vaccination has been practiced. In the provinces in which heretofore about 6,000 deaths have occurred annually from smallpox there has not been one death from this disease reported during the past year. There has been the most marked reduction in the mortality of the city of Manila. The solution of the leprosy problem has passed from the theoretical to the practical stage. Two years ago it was estimated that there were about 4,000 lepers in the islands. To-day the number has been reduced to 2,895, which shows that the policy of segregation is accomplishing the eradication of the disease much more rapidly even than was anticipated. The number of cases of dysentery among Americans is being steadily reduced as the rules of prophylaxis are better understood. There have been no epidemics of dysentery, typhoid or other dangerous communicable disease. Typhoid, the report states, seems to be gaining a firmer foothold in the Philippines than has hitherto been the case. As the changes which ordinarily accompany introduction of modern improvements are more and more introduced in the islands, it is becoming more apparent that this disease is affecting more persons. At present the construction of the new railroads is responsible for the gradual introduction of typhoid in many places at which it has not been encountered heretofore. Fortunately, so far, the disease has apparently been due to direct importation, cases having occurred among Americans and Japanese who have only recently come to the country, and either arrive in the incubation period, or have ingested infected foods obtained in the countries from which these new arrivals come. Filipinos seem to be the victims only in so far as they come in contact directly or indirectly with the former nationalities. It seems probable that the reasons why typhoid has not spread more heretofore in the Philippines are not so much because of the tropical climate, but because the ordinary vehicles by which the disease spreads have not been present. For instance, it is only a few years since milk of local production has been used to any extent in the islands; there were practically no general water distributing systems or reservoirs; in the absence of sewer systems it was practically impossible to infect places in which oysters and other shellfish grow and the comparative absence of flies during the greater portion of the year, are all explanations as to why there has not been a more general spread of the disease heretofore. The report goes on to state that restaurant and hotel keepers are required, for drinking and kitchen purposes, to use water which has been boiled or otherwise sterilized in a manner approved by the Board of Health. The work of introducing artesian wells is being pushed forward rapidly, and many towns in the provinces are using artesian water exclusively.

FOREIGN.

New Medical Society in Australia.—A new society, called the Anatomical and Anthropological Society, was inaugurated in connection with the Medical Students' Society of Melbourne University, June 5.

Personal.—Prof. W. His, the son of the noted anatomist, has been chosen as the successor of Leyden. He is a former pupil of Curschmann, who has distinguished himself as a teacher by his clinical work at Basel and Göttingen, and is already the author of a number of important works.

Additions to London Hospitals.—On July 23 the new department for out-patients at St. Bartholomew's Hospital, London, was formally opened by the prince of Wales.——On July 24 Queen Alexandra opened the new buildings of the Hostel of St. Luke, established in 1892, for the medical and surgical treatment of the clergy of the Church of England, their wives and children.

Plague in Japan.—Passed Asistant Surgeon Cummings reports that the plague situation in Yokohama is becoming rather serious, not so much on account of the actual number of cases, but because of the number of foci scattered throughout the city and the number of infected rats found. The fear of spread to Tokyo is not unfounded, as one man sent from the poorhouse in Yokohama died of plague on the road to Tokyo.

Reception to Ramon y Cajal.—On June 30 a reception was given at the Royal Academy of Medicine, Madrid, in honor of Dr. Ramon y Cajal. The *Siglo Médico* states that, while the reception was given as a mark of esteem, it is a tardy recognition of his eminent ability as a neurologist, and that his work would have been made easier had recognition been given him earlier in life when he was struggling to obtain a foothold in the medical and scientific world.

Typhoid Fever in Scotland.—An epidemic of typhoid fever is reported at Peterhead, a town of about 15,000, in Aberdeenshire. The majority of the cases are of a mild type, and the death rate is a little over 5 per cent. The source of the outbreak has been traced to one of the reservoirs which supply the town with water. Like so many other towns on the north and northeast coasts of Scotland, Peterhead is inadequately supplied with water, and the inadequacy is exaggerated during the herring season, when the population is increased by from 3,000 to 5,000 inhabitants.

Medical Supervision of School Children in Africa.—The *South African Medical Record* states that medical supervision of school children is being brought before the public in the Transvaal. There exists in Johannesburg a committee composed of teachers, physicians and laymen, which has for its object the establishment of a system of medical inspection of schools. Some time ago this committee formulated a practical working scheme for the routine inspection of all children attending the government schools in the colony. The plan provides for the creation of a central school medical department, under the direction either of the department of education or that of public health; and the appointment of a staff of inspectors. The duties of these inspectors will include: The examination of all new pupils on admission, and re-examination of all children at stated intervals; routine biweekly visits to each school; reporting on sanitary conditions of schools; and instruction of teachers in principles of physiology, hygiene and temperance.

LONDON LETTER.

(From our Regular Correspondent.)

London, July 27, 1907.

Women as Physicians; Professor Osler's Views.

In distributing the prizes at the London School of Medicine for Women, Professor Osler said that the profession of medicine, in spite of its difficulties and trials, is a satisfactory one for women, if they realize that it is not all roses and cream, and that they will not get a pecuniary return for everything they do. Four principal avenues are open to women. The first is in the scientific branches in bacteriology, histology, and many departments of pathology, where much of the best work is being done by women and which offers good careers. The second is in institutions, and he said that he would like to see one or two women physicians connected with every insane asylum. The most important avenue is general practice, but only those are fitted for it who among all the worries, anxieties, troubles and annoyances, can come up smiling every time. Women, of course, are specially fitted for dealing with diseases of women and children, but the chief trouble is that women—as a rule, men's women—do not believe much in women. When a paternal government institutes a proper system of school inspection an excellent field will be open to women. Lastly, there is the work in India and in the mission field. During the past year 18 of the students of the London School of Medicine for Women have passed the M.B. of the University of London—the highest degree obtainable in the United Kingdom; four have taken the M.D., and one the M.S. (the most severe examination possible in surgery). Others have succeeded at the universities of Durham and Ireland.

Educational Health and Food Campaign.

The Bread and Food Reform League has held a meeting at the Mansion House in order to spread information about health and, without advocating any special system of diet, to direct attention to healthy economical foods which are much neglected. The fact was pointed out that much of the underfeeding of the poor is due to ignorance as to the value of finely divided ground whole meal, oatmeal, etc., rather than to lack of means. This ignorance is held to be a cause of infantile mortality and physical degeneration It was shown that a pound of protein could be obtained from peas for 14 cents and from oatmeal for 15 cents, while if derived from beef it cost 64 cents. The importance of eating whole meal bread instead of white bread was inculcated in consequence of the poverty of the latter in proteid and mineral constituents. A difficulty in the use of whole meal bread is the coarseness of the meal, which renders the bread indigestible by some persons. The league advocated, therefore, that whole meal should be ground very fine, thus containing all the nourishment of wheat in an easily digestible form, while for weak digestions the outermost skin of the bran should be removed.

VIENNA LETTER.

(From our Regular Correspondent.)

Vienna, July 12, 1907.

Congress of Contract Physicians.

The Austrian "Verband der Aerzte der Krankenkassen" which recently met is an association comprising nearly all the practitioners appointed by the officially recognized "Kassen." The subjects discussed at the meeting were of interest to the profession generally. The law in Austria requires all wage-earners to become members of the "Krankenkassen" (sick club) of their district. This club not only provides for medical services, but also ensures the payment of a daily sum to the individual incapacitated for work by sickness, for a period not exceeding 200 days. The funds for the club are derived from deductions made from the salaries of the employés, to which sum the employer has to add a percentage. The burden on the employer is not a small one, and as the members of these clubs in Vienna alone number over 500,000, the sum contributed runs up into the millions. Still the remuneration of the physicians doing the work for these clubs is far from satisfactory. The sum of $400 a year is seldom paid, while the number of members in the district which pays this amount is seldom less than 1,000, and more often 1,500. The speakers at the congress were unanimously of the opinion that the conditions required changing, as both the club members and the physicians were dissatisfied. Overburdening the physician went hand in hand with less thorough treatment. At the present rate of payment a visit to a patient's house was less than 10 cents and an office visit brought 6 cents. The extension of the compulsory membership of clubs as contemplated by the government would be still more injurious to the medical profession, as the new law requires all people who are not in business for themselves and whose incomes are less than $1,000 a year, to become members of "sick clubs."

Health of Laborers in Austria.

The recent report of the Austrian department of commerce contains some interesting items regarding the health of the laboring classes. The best average health among the working classes was found in the city dweller and not in those living in the country. The iron workers were especially healthy, while masons, yarn spinners and wood workers showed the poorest health. The most prevalent disease was pulmonary tuberculosis; heart disease and granular kidney came next, while arthritis and bronchitis were very frequent. Accidents were comparatively few during 1906, only 16 per 1,000, of which only 7 per cent. were fatal. The electrical industries were the most dangerous to life, as 60 per cent. of all injuries were fatal. The chemical industries and iron and stone industries were about equally dangerous to health, but not to life. The fewest accidents, naturally, occurred among the female workers; the majority of such accidents in 1906 were in the celluloid trade, several explosions having occurred in celluloid factories.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Sending Tuberculosis Patients Away.

As The Journal has many times urged, and as the *Journal of the Outdoor Life*, July, 1907, well remarks, a word of warning to physicians is needed lest they send to distant climates helpless and penniless patients with tuberculosis, who, even at best, will not be able to earn their own support for months to come, and who, even if they are able to work, can find no employment at the places to which they are sent. Such errors in judgment are especially noticeable in New Mexico and Arizona, to which states pulmonary tuberculosis patients are now so frequently sent.

Local sanatoria should be developed in almost every region of this country. Statistical results are positively proving that tuberculosis can often be cured and frequently arrested in the region in which the case develops. Patients who can not be thus benefited will often not find improvement anywhere. Certain selected patients must still go to special climates to be permanently cured, but these are perhaps only 15 per cent. of the total, hence it is not justifiable to send a patient to a distant climate either to die or to be subjected to hardship, or to become a burden on another community. It is really an unjust dodging of a locality's own responsibilities.

Intermittent Fever.

If for any reason quinin can not be given in malarial fever, a number of other drugs may be used. The best substitute is arsenic. The dose must be large, and Fowler's solution should be the preparation used, and it should be pushed to the point of tolerance. Arsenic, however, for any length of time in large doses can do serious harm to the system.

℞.	c.c.	
Liquoris potassii arsenitis	25	fl℥i

Sig.: Take five drops in water, three times a day, after meals, and rapidly increase to the point of tolerance. [If given by drops, begin with 5 and add one to each dose, viz., next dose 6 drops, next 7, next 8, and so on.]

The symptoms that show full physiologic action has been reached are pain in the epigastric region, nausea, perhaps vomiting, diarrhea, sore throat, red eyelids, puffing under the eyelids, especially in the morning, and perhaps a diminished amount of urine. If these symptoms occur the arsenic should be stopped and some iron preparation given, as:

℞.	c.c.	
Tincturæ ferri chloridi	10	flʒii
Syrupi acidi citrici	50	fl℥iss
Aquæ ad	100	fl℥iii

M. Sig.: A teaspoonful in water, three times a day, after meals.

The symptoms having subsided, as they will in two or three days, begin the Fowler's solution again at a little smaller dose than that which was last given when the symptoms appeared, and keep each dose the same, i. e., not increase. If symptoms of overaction again occur, stop again as before, but do not persist in giving arsenic very long after the chills have ceased.

A substitute for quinin now often advocated in malarial fever is methylene blue. It is said primarily to act on the protoplasm, while quinin acts on the chromatin of the plasmodium so that the young forms of malarial parasites are scarcely affected by methylene blue, while they are markedly acted on by quinin. In the late forms the reverse is true. Hence methylene blue is most valuable in chronic cases of malaria, in the same cases in which arsenic is of value. It should also be used when there is marked idiosyncrasy against quinin, and possibly when there is a tendency to hemoglobinuria. Certain it is that methylene blue is by no means as sure to eradicate the malarial plasmodia as is quinin. If one has the belief that quinin will cause a pregnant uterus to contract (but it is many times more likely that a severe malarial chill will produce abortion than that a large dose of quinin will) methylene blue can be substituted. Methylene blue is not methyl blue, which is practically what is sold under the trade name of "pyoktanin." Methylene blue sometimes causes dizziness, nausea and vomiting, and there may be vesical irritability, and even suppression of urine from its use. The urine is always colored green and sometimes bluish. The dose is 10 to 20 centigrams (1½ to 3 grains) every four hours, or 0.30 (5 grains) three times a day, after meals, in capsule or solution, with plenty of water. It is but slightly soluble in alcohol and will dissolve readily only to about 3 per cent. in water. Powdered nutmeg is often given with methylene blue (.10 to each .30) and is said to prevent the tendency to strangury.

℞.	gm.	
Methylthioninæ hydrochloridi	4	ʒi

Fac capsulas 20. Sig.: A capsule with a glass of hot water, every four hours (four times a day).

Gastrointestinal Disturbances in Children.

To prevent gastrointestinal upsets in children over 3 years of age parents should be taught the following:

1. Avoid overfeeding.
2. Allow no food between meals.
3. Insist on the food being eaten slowly and well chewed.
4. Meat, or at least some good proteid, should be given once a day.
5. Do not force feeding, even milk, if the appetite is absent.
6. If the child eats enough of other food, do not allow the use of milk as a drink instead of water with the meals. This does not conflict with the use of bread and milk as a meal, without other food.
7. Do not give a child too many kinds of food at any one meal.
8. Allow no tea, coffee, soda-fountain liquids, iced water, or any except the simplest of home, summer drinks.
9. If candy is allowed, none but the simplest, and that pure, and in very small quantity, directly after a meal.
10. Give no paregoric, morphin soothing-syrup, cholera drops, or any "patent medicine" to "check" a diarrhea.
11. If the stopping of all food and the administration of castor oil or some simple rhubarb or senna preparation does not stop the gostrointestinal upset, the family physician is needed.

Pneumonia in Infants and Young Children.

Dr. William P. Northrup (*New York Med. Jour.*, July 6, 1907), thus sums up the treatment of this disease in children:

I. HYGIENIC.

"Treat the patient as though he had an infectious fever. Avoid treating the patient according to the temperature alone," but take into consideration all the other symptoms. The room should be large, free from dust, sunny, and with plenty of fresh air, without drafts. There should be great care in the cleanliness of the little patient. The eyes, mouth, teeth, finger-nails, genitalia and the whole body and the bed linen should be kept scrupulously clean.

II. PURGATION.

Free evacuation of the bowels with castor oil is the first indication; or calomel followed by castor oil. Later "hot high saline injections serve well to prevent or remove flatulence."

III. FEEDING.

Milk must be reduced in amount or cut out entirely, if there is tendency to flatulence. Clean, pure milk in clean receptacles, taken into a clean mouth and swallowed into a clean stomach, is emphasized. In high fever and in serious illness milk is not well digested, and even diluted or peptonized milk must perhaps be omitted. If milk can not be given, "plain water, barley water, or some thin preparation of food or egg albumin is indicated." The substitute selected depends on the age of the patient and the ability to digest. "In the treatment of pneumonia, put the whole attention on everything but the lungs. Purgation and courageous starvation is the first treatment in time and in importance."

IV. ANTIPYRETICS.

Not the height of the temperature alone, but an added toxemia, as shown by a dull apathetic condition or stupor, restlessness or delirium, call for antipyretics. Coal-tar products should not be used. "Sponging, cold applications laid on, free drinking of water, cold bowel injections, cold air in the room, all these may be used. Tub baths may be used freely if they are found to quiet the patient better and to disturb him less than sponging." The feet of the child should not be allowed to be cold; they should be kept warm. If the feet and body are warm, exposure to fresh, cold air can do the patient nothing but good. Hence he advocates the "outdoor open air day and night."

V. HEART STIMULANTS.

The hearts of young children rarely require stimulation. Flatulency should be prevented as tending to disturb the heart and breathing, and with the feet warm and the air fresh, drug stimulation will not often be needed. If they are needed, Northrup prefers wine, whisky and strychnin. He prepares the wine or whisky in sufficient quantity for half a day and well diluted, the wine with three volumes of water, the whisky with eight volumes. From this diluted wine or whisky the patient is given a small dose, according to the general indications of depression. The pulse should not be watched too carefully in children; it is the general condition that is more important.

"If strychnin is needed, the dose should be from 1/120 to 1/60 of a grain every four hours, according to the age and needs."

Rest and quiet, promoting the general comfort, Northrup regards as the most important directions of all concerning the treatment of pneumonia. It should be remembered that the physician's function is to aid the little patient in his struggle against toxemia, and that "the prognosis in primary pneumonia is good in 90 per cent. of cases. Let us aid, not take charge of its struggle, not handicap the patient. Give all treatment at prescribed intervals, and let the child rest and sleep uninterruptedly for three hours or more. Give food and medicines, and arrange its toilet at the same interruption of rest and sleep. Make the child comfortable and let it rest. Avoid poultices unless for local pain, using them then only intermittently, letting the skin become dry between applications and discontinuing as soon as possible. Do not bind them around the chest, but lay them against the localities only. Cold local applications on the lungs are useful, but, in my experience, distress the child. They are better borne by adults."

The treatment of pneumonia as above outlined by Dr. Northrup is timely and commendatory. Too much is done for a sick child; they are not allowed to rest; poultices have been much over-used in young children. It is possible from over-poulticing so to congest the pleura in pneumonia as to precipitate an empyema.

Impetigo Contagiosa.

Outside of the eczemas, and only slightly resembled by one of them (eczema vesiculosum, commonly called "milk crust"), from which it is generally easily differentiated by the more or less scattered lesions and absence of itching, there is no more common, unsightly and annoying skin condition to which children are subject than impetigo contagiosa. Rebellious to any but the proper treatment, it yields readily when that is pursued, and only a few days are necessary to effect a cure.

First of all, the scabs must be removed and the intestinal tract cleaned. The latter is best done with a simple dose of calomel at bedtime (2 grains if the child is 5 years old), followed by half a siedlitz powder in the morning. Before the child is put to bed the scabs should be thoroughly smeared with either vaselin or olive oil. In the morning they will generally be found soft enough to be readily removed with soap and water. If the lesions are on the scalp, place over them several layers of gauze wet with the following solution:

℞.	gm. or c.c.	
Zinci sulphatis	50	gr. x
Phenolis liquefacti	1	m. xv
Aquæ ad	150	fl℥v

M. et sig.

Next cover with rubber tissue and bandage. This should be done in the morning, and the gauze should be moistened up two or three times during the day and again at bedtime. The next morning the scabs may be removed with soap and water. They must be removed thoroughly and a perfectly clean surface left, otherwise the treatment will not be entirely successful. When this is done apply the following ointment:

℞.	gm.	
Unguenti hydrargyri ammoniati	30	℥i

Sig.: Apply to the affected skin three times a day.

Two or three days are usually sufficient to effect a cure.

After the catharsis a tonic is generally indicated, for which one of the following may be used for a child 5 years old:

℞.	gm.	
Ferri carbonatis saccharati	2	gr. xxx

Fac capsulas 20. Sig.: One capsule three times a day, after meals. Or:

℞.	cc.	
Tinct. ferri chloridi	2	m. xl
Syr. acidi citrici	25	fl℥i
Aquæ ad	100	fl℥iv

M. Sig.: 5 c.c., a teaspoonful, in plenty of water, three times a day, after meals.

Perhaps the best and most easily administered iron for children is the saccharated oxid of iron, given in compressed tablets of three grains each. The child chews up one of these sweet tablets three times a day, after meals.

Hay Fever.

Dr. E. Fletcher Ingals, Chicago, writes: The prescription for hay fever in the department of Therapeutics in The Journal, July 6, 1907, p. 84, and credited to me, I am unable to remember as having recommended at any time, for it certainly is objectionable in several ways: 1, I have not tested resorcinol in this connection; 2, the adrenalin chlorid, one-half grain to two ounces, would be very irritating in most cases of hay fever, and 3, the boric acid I do not use in this connection, as I find the biborate of soda much better. I have found the following prescription very useful in some cases and think it well to try it in every case:

℞.	gm.		
Cocainæ hydrochloridi	15	or	gr. iiss
Sodii boratis	30		gr. v
Suprarenalin (1-1,000)	4		ʒi
Glycerini	2		ʒss
Aquæ camphoræ ad	30		℥i

M. Sig.: Use as a spray to the nose four or five times daily, or oftener if needed.

Correspondence

Taxing Hospitals.

New York City, July 29, 1907.

To the Editor:—May I call attention to a possible blessing which the people of Illinois may receive from the recent decision of the courts in that state, that hospitals receiving pay patients are taxable? Will it not advance the cause of deserving medical charities and do much to make the able-to-pay patient realize that free medical attendance is as much a charity as a free bed or a free meal? Conditions may be different in Chicago, but in New York City many are unabashed at applying for free treatment at the hospital where many pay patients are treated, and yet would be ashamed to go to Bellevue, which is known to be only a charitable institution. Likewise, many who would not send their servants or clerks to Bellevue (or at least, would not wish it known they had done so), will unhesitatingly send them to a semi-private hospital—to the free wards.

As I advocated in *Charities* about two years ago, in an article which you saw fit to quote in your editorial[1] columns, it seems to me that the first step toward the radical cure of the abuse of medical charities must be their total separation from the cloak of medical services which are not charitable. May not the taxing of all but the strictly public institutions be a step in the right direction? John Joseph Nutt, M.D.

The Guide to Current Medical Literature.

Chicago, July 9, 1907.

To the Editor:—When The Journal issued the first volume of its "Guide to Current Medical Literature, with an Index of Authors and Titles," I could not help complimenting you on the excellent work achieved. For several years past I have been watching the progress of this feature of The Journal, and I now again take the opportunity of complimenting you and the staff for having produced such an excellent one this year. The last issue of this index far surpasses any other—particularly as to classification, subject matter and cross index. It would indeed be very strange if the medical profession did not thoroughly appreciate your efforts, for the index has always been an excellent reference volume for the survey of anything and everything appertaining to medicine. It has been my constant companion in doing medical literary work. I hope that others use it as much as I do. George F. Suker.

The Bibliography.

Chicago, July 25, 1907.

To the Editor:—The papers read at the annual meeting of the American Medical Association often represent the results of personal experience and in many instances reference is made to the work of others or to the author's earlier reports. The earnest student is often anxious to learn more and his efforts are greatly facilitated if there is appended to the paper an exact list of references. Such a bibliography is easily prepared if the author will think of it in time. A distinguished Buffalo gynecologist told me at the Atlantic City meeting that, in the preparation of his paper, he had spent two weeks in the Surgeon General's library at Washington. It is to be hoped that we may receive the benefit of his research in the form of specific reference so that all interested may know exactly where to look for additional information. I suggest to all essayists the great value and convenience of an adequate and correct bibliography. Denslow Lewis.

The Established Specialist vs. the "Developing Physician."

Depew, N. Y., July 27, 1907.

To the Editor:—Dr. Normon in his paper published in The Journal of the A.M.A. Number 23, page 1977. In that part of his paper where he described the City Physician vs the Country Physician, he describes a state of affairs the existence of which has been positively demonstrated to me. The difference or unfairness or foul play, however, is not between the Country Physician and the City Physician, but it is between the Established Specialist and the College Professor on the one hand; and the General Practitioner or the Developing Physician on the other hand.

Not only are our state meetings largely run and positively controlled by the Established Specialist and the College Professor but likewise our National Body or the Annual Meeting of the American Medical Association is positively controlled by that same class of men.

Compared to the number of membership what is the percentage of General Practitioners or Developing Physicians or developing Specialists, as you please, that appear on the programme of our annual meetings of the A.M.A. as compared with the number of Established Specialists or "College Professors?

Some may claim that the Common Physician or the Developing Specialist does not want to read papers, but this is a mistake. They do want to read and many of them have something original and of great interest to bring up for discussion, but the Secretary of the section, (if he takes the trouble to answer at all) informs the Common Doctor" that the programe is full etc., and when the programe finally comes out the "Common Doctor" has the pleasure of seeing the same old Professors and Eminent Specialists there on the programme (with their book agent at his door) that have appeared on the programe year after year to talk on some long established facts that all are familiar with and that no one of average intelligence would consider of sufficient importance to waste the time to hear it re-hashed.

Now these are the facts of the case as all well know. What shall we do about it? One of two things.

1st. The Common Physician must become a better politician. Elect your share of officers, organize, go to your county, your state and your national meetings and vote and know who you vote for.

2nd. If the Common Developing Physician and the Established Specialist and College Professor cannot agreeably associate and listen to each others papers, then it would be better and only fair play to divide and have a Common Doctors branch and an Established Specialists and College Professors Branch.

The attendance at our meetings, both state and national would no doubt be twice what it now is and much more agreeable and instructive could the solution of this problem be brought about so that the meetings would be of mutual interest.

Some timid physicians, instead of boldly demanding their rights, silently mope over their trouble and show their grievance at the regular medical gatherings by their absence only.

The extent of the existance of this spirit or condition of affairs is evidenced in a manner that none can dispute by the registration lists of the annual meetings which registration lists always show a great preponderence of Established Specialists and College Professors in attendance as compared to the Common Physicians while in membership the ratio is just the reverse, the Common Physicians out numbering their society "rulers or bosses" by a vast majority perhaps ten to one.

The medical societies of today are run by a set or fixed political machine of appointments which practically disfranchizes its members.

What percentage of members of the county, state and national societies of today are encouraged to take any actual part in the management of its affairs, other then to criticize the appointments after they are made?

In an organization, or nation where the *ballot* is actually or designedly the ruling power all men must be considered equal and are from a governing standpoint equal, therefore, would it not be well to smooth down and eliminate the difference before it ruptures our ranks. Geo. N. Jack.

Diagnosis in Incipient Insanity.—There is no doubt that a training in the accurate observations of symptoms in incipient mental disorders is needed, to give that ounce of prevention which in mental disease is worth its hundreds of pounds of cure.—F. P. Norbury, M.D., in *Charities and the Commons.*

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[1] The Journal A. M. A., May 27, 1905, 1691.

Book Notices

The Home Medical Library. By Kenelm Winslow, B.A.S., M.D., Formerly Assistant Professor Comparative Therapeutics, Harvard University. With the Cooperation of Many Medical Advising Editors and Special Contributors. First Aid, Family Medicines, Etc. In Six Volumes. Cloth. Pp. about 270 each. Price, $7.50. New York: The Review of Reviews Co., 1907.

The first volume is devoted to first aid in emergencies, including emergency treatment of fractures, dislocations, wounds, poisoning, and accidents of various sorts, as well as a popular consideration of germ diseases, with some instructions regarding prevention of contagion, avoidance of disease, etc. The second volume takes up diseases of the eye, ear, throat and nose and the care of these organs, as well as skin diseases, headache, rheumatism and sexual hygiene. The latter part of the volume is devoted to an article on insanity by Dr. Albert Warren Ferris and an appendix on "patent medicines." The observance, by the public, of the three rules laid down by the writer would practically solve the proprietary medicine question. They are: Do not use any remedy that does not show the formula on the label; consult a physician before using very much of any preparation; take no medicine internally without a physician's advice. In this article the pure food and drug legislation as well as the articles in *Collier's Weekly* are reviewed and summarized. Special attention is paid to headache powders and "tonics."

Volume three takes up nervous diseases, the mother and child, diseases of the heart, and diseases of digestion. The chapters regarding the care of infants, infant feeding, etc., are particularly valuable, giving the young mother much information that the physician would be glad to see in her hands. Volume four, on exercise, long life, etc., has a long, copiously illustrated article by Dr. Dudley A. Sargent. The chapter on "Diet and Hygiene for Long Life," by Sir Henry Thompson, and one on the "Preparation of Foods" by Janet M. Hill, complete the volume. Volume five comprises an article on sanitation by Dr. Thomas Darlington, one on water supply and purification by William P. Gerhard, with articles on pure food and management of houses, including plumbing, etc., while volume six, by S. W. Mitchell and S. E. White, take up the value of outdoor life in a practical way. This volume is, in many ways, the most enjoyable of the series.

This little set of six volumes is thoroughly commendable and should have a wide circulation. The only difficulty is that those who need it the most are apt to see the least of it.

The Standard Family Physician. A Practical International Encyclopedia of Medicine and Hygiene, Especially Prepared for the Household. By Prof. Carl Reissig, M.D., of Hamburg, Germany, and Smith Ely Jelliffe, A.M., M.D., Ph.D., Professor of Pharmacognosy, Columbia University, with the Assistance of American and German Specialists in the Treatment of Diseases and Experts in Medicine and Surgery. Vols. I and II. Buckram. Pp. 1,050. Price, $15.00. New York and London: Funk & Wagnalls Co. 1907.

The need of a popular work on medicine that will not cater to unwise self-medication will not be questioned. On the intelligence of the layman in medical questions must depend the final outcome of the struggle between legitimate medicine and quackery and between society and the vicious habits and conditions which endanger the public health. In the education of the lay public great aid may be afforded by an authoritative work on household medicine. This desideratum is claimed to be supplied by the present work. The plan of this work includes a treatise on anatomy, physiology and pathology, and an encyclopedic dictionary treating of those topics in medicine which would be likely to have interest for the average layman. The first part occupies 97 pages of the first volume, while the dictionary completes the first and occupies most of the second volume. The treatment of the anatomic and physiologic part is necessarily brief but, so far as our examination goes, scientifically accurate. The second part deals with special pathology, pharmacology, diet and nursing. No exception can be taken to the accuracy of the facts stated and the descriptions of treatment give no encouragement to self-medication. The attitude toward quackery, proprietary remedies, etc., is excellent. The question arises, however, whether it is necessary to have so large and expensive a book as this. Would not a work of average size and of a price within the reach of the average family be far better? An encyclopedic work like this one can be purchased only by the few and will be thoroughly read by still fewer of those who need to know its contents.

Ulceration of the Cornea. By Angus MacNab, B.A., B.Sc., etc., Chief Clinical Assistant, Royal London Ophthalmic Hospital. Cloth. Pp. 196. Price, $2.00 net. New York: William Wood & Co., 1907.

This is a review of those numerous lesions of the cornea that are attended by loss of substance—no small proportion of the entire list of kertatitic processes. Beginning with a description of methods of examination and pathologic modes of invasion, the author gives a full account of the bacterial lesions of the corneal tissues as primary manifestations. Secondary infections of the cornea include diplobacillary ulcer, the infectious marginal ulcer of zur Nedden and those ulcerative processes that are seen with greater or less frequency in conjunctivitis resulting from the presence of pneumococcus, Koch-Weeks bacillus, and the staphylococcus, as well as from conjunctival lesions in diphtheria and in gonorrhea. MacNab then discusses the corneal ulceration that is so often associated with eczema and with so-called trophic disturbances—keratitis neuroparalytica, corneal herpes, keratomalacia, etc. In an appendix are considered the operations that are frequently demanded in serious ulceration of the cornea, among them Axenfeld's operation for excision of the lachrymal sac.

A useful part of this section is formed by the directions for removal of material from an ulcer for bacterial examination, formulas for smear stains and useful observations on laboratory methods connected therewith. Although the illustrations are poor and inadequate, the text is carefully written and reflects our latest and most reliable information on the subject.

Text-book on Diseases of the Heart. B. G. Steell, M.D., F.R.C.P., Lecturer on Diseases of the Heart in the University of Manchester; Senior Physician to the Manchester Royal Infirmary, with an appendix on the Volume of Blood in Relation to Heart Disease. By J. L. Smith, M.A., M.D., Professor of Pathology in the University of Manchester. Cloth. Pp. 389. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1906.

In the preface the author states that "authority" has been excluded as far as possible in the description of the clinical aspects of the diseases of the heart, i. e., the accounts are drawn "from life." This explains occasional omissions in the book and the fact that the author dwells with particular emphasis on certain points where he is, perhaps, rather at variance with authority. In some places the book is somewhat on the quiz compend order, with mere enumeration of facts rather than logical consideration of them. The chapter on the instrumental examination of the arteries and veins is timely and should whet the student's appetite for a more extended study of the writings of Mackenzie, Wenckenbach and others. The work is hardly to be classed as a systematic treatise to be placed in the hand of the undergraduate, but it is full of suggestive matter based on careful observation and fearless, original thinking and ought to be read by all specialists along the line of heart disease. An interesting chapter of ten pages on the volume of blood in relation to heart disease is added by Dr. J. L. Smith.

Iconographia Parasitorum Hominis, Studies from the Zoological Laboratory of the University of Nebraska. No. 70. By Henry B. Ward. Paper. Pp. 25, Lincoln, 1907.

This is a collation of figures, with brief explanatory text, to aid in the study and diagnosis of the less common parasites of man. The work is in the nature of an atlas and makes a handy reference for students of pathology and comparative medicine. The plates are well made and are sufficiently diagramatic to show the points the author intends to make.

Technic of Operations on the Intestines and Stomach. By A. H. Gould, M.D., of Boston. With 190 Illustrations. Mostly Original. Several of them in Color. Cloth. Pp. 302. Price, $5.00. Philadelphia: W. B. Saunders Company, 1906.

A review of the book described in the above heading appeared in The Journal, July 27, 1907, page 344, but by some mischance the wrong heading was placed on it so that the review appeared to refer to a work on the same subject by Einhorn.

Miscellany

THE GREAT AMERICAN FRAUD.

Nostrum Advertisements in the Religious Press—A Deserved Arraignment of Corruption in High Places.

From time to time we have made reference in these columns to the abuses which have existed and still exist in regard to the class of advertisements carried by religious journals. In last week's issue of *Collier's Weekly* the subject is treated at length by Samuel Hopkins Adams in his latest article on the Great American Fraud.

"Religious journalism," Mr. Adams says, "props one corner of the tottering Great American Fraud. Lend a quack or swindling 'patent-medicine' vender the countenance of the church, and he is a made man. Peruna and Duffy's Malt Whisky will spend freely, even extravagantly, to get endorsements from the clergy; mostly on the strength of the churchly title. 'Father John's' face, exploited shamelessly on the boardings which display the dubious virtues of 'Father John's Medicine,' capitalizes the protesting but defenseless Roman Catholic priesthood for the profits of chicanery. It is worth double his rentals for the scoundrelly Richie, D.D., with his 'drug-habit cure,' of concealed morphin, to head his correspondence 'Presbyterian Building, New York City,' and when the Board of Home Missions, which controls the building, discovered the real nature of his business and promptly turned him out, he lost a valuable asset. For Dr. J. W. Blosser of Atlanta to decorate his quack catarrh advertisements (principally in the religious press) with the ornament 'Rev.' means thousands of dollars of added revenue. What did that prosperous medical rascal and fraud, Dr. W. O. Coffee of Des Moines, do when he found that *Collier's* was looking into his 'blindness and deafness cure' fake? Displayed an endorsement from the pastor of his church as a blanket defense. Religious backing, of whatever kind, inspires confidence; and the only religious backing that is openly on the market is religious journalism."

CREDIT WHERE CREDIT IS DUE.

In the effort to be fair THE JOURNAL has recently[1] given credit to those religious papers who either do not lend their pages to the exploitation of fraudulent nostrums or who are honestly striving to eradicate such as they have already contracted for. Mr. Adams gives a much larger list and comments as follows:

"It must not be inferred, however, that all the prints which serve God in their editorial pages serve Mammon in their advertisements. There are journals, like the Unitarian *Christian Register*, the *Universalist Leader*, the New York *Christian Advocate* (Methodist), the Nashville *Christian Advocate* (Methodist), the Los Angeles *Tidings* (Roman Catholic), the *American Hebrew and Jewish Messenger*, the *Record of Christian Work*, the *Christian Herald*, the *Religious Telescope* (United Brethren), the *American Friend*, and *Forward*, which 'touch not the unclean thing.' Others there are, such as the New York *Churchman* (Episcopalian), the *Southern* (Atlanta) *Presbyterian*, the *Interior* (Presbyterian), and the *Epworth Herald* (Methodist), which, with an honest intention and a general policy of decency in advertising, occasionally, through inadvertence, admit fraudulent or dangerous 'patent medicines' to their columns."

CAVEAT EMPTOR!

One of the stock defenses of the religious journals that advertise nostrums, is, that they refuse, yearly, thousands of dollars' worth of advertising because of its objectionableness.

"Loud and clear in this choral offering rises the voice of the *Christian Endeavor World*. The *Christian Endeavor World*, as the 'official representative of the Christian Endeavor movement,' displays, as its editorial motto, 'Continuing the Golden Rule.' That is very good so far as it goes. But, after studying its medical columns, I would suggest as a second motto, to be printed above its advertisements, the warning, *Caveat emptor!* For the intending purchaser may well beware in reading the man-traps which constitute so large a part of the *Christian Endeavor World's* patronage. Clippings from a few issues, taken haphazard, show, in the line of medical advertising, eight obvious swindles, five dangerous quackeries, and seven promised 'cures' for diseases which are incurable by medicine.

"'Continuing the Golden Rule!' Is this continuing the Golden Rule, to invite the unsuspecting sufferer to cure his own rheumatism by pasting a bit of sticking plaster, surnamed 'Magic Foot Drafts,' on the bottom of his feet, in the hope of 'drawing out the uric acid' by a species of mysterious suction? Or to lure him deeper into the slough of the drug habit by involving him in the toils of the Dr. J. L. Stephens' morphin cure, which consists in giving him, in secret form, all the morphin he craves? Or to point him to the den of that arch faker of optical malpractice, Oren Oneal? Or to deliver him to the tender mercies of Dr. Bye, of cancer ill-fame, or of the remarkably Reverend Blosser, or of Gauss the 'catarrh specialist'? Is it doing unto others as you would have them do unto you, to combine with the swindler Kilmer in the vending of his 'Swamp Root,' or with the bunco artist Cheney in distributing his 'Hall's Catarrh Cure' with its fake $100 reward for any case it can not cure? Does the responsible publisher of the *Christian Endeavor World* really believe that 'crooked spines can be made straight' by mail? And that F. W. Parkhurst, 'the well-known publisher of Boston,' having 'nothing to sell,' yearns to impart to the public, free of charge, his 'cure' for neuralgia and rheumatism? 'Continuing the Golden Rule,' indeed! Continuing the Golden Brick!"

MAKING A VIRTUE OF NECESSITY.

The rejected advertising spoken of is as a rule merely of those products that are either outspokenly alcoholic in content or such as have been so thoroughly exposed through the press that the publishers dare not accept their advertisements. Says *Collier's:*

"The rejections are too often formal and literal, rather than based on any principle. The Duffy's Malt Whisky concern (whose product is both a fake medicine and a poor whisky) told me that they were constantly appealed to by church papers to advertise under the name of 'Duffy's Malt' or 'Duffy's Malt Remedy.' 'So long as you use the word whisky,' say the pious-minded publishers, 'we can not, of course, admit you to our columns.' That the preparation, with murderous mendacity, claims to cure tuberculosis and pneumonia makes no difference to their eagerness for a share of its earnings. The reek of blood itself will not revolt them, but the smell of alcohol sends their hands up in holy horror. Thus a fine old blended quackery like Peruna will be refused, on the ground that it is a known intoxicant, by religious editors who accept readily enough medical lures to the enslavements of morphin, or even the claims of preparations for the producing of abortion."

EDITORIALS FOR SALE.

Even the editorial columns of some of these journals are open to the purveyor of nostrums.

"The *Christian Century* of Chicago formerly performed this service for its patrons, Oren Oneal and P. Chester Madison, through the pen of its editor, Charles A. Young, but either through a change of heart or a change of editor (both, I suspect) it has forsworn such practices and now comes out with a definite announcement that no suspicious or fraudulent advertising will be admitted to its columns, a pronunciamento which its recent issues certainly bear out, so far as medical advertising goes. That so radical a change of policy should have been put in force is indicative of the recent awakening in religious journalistic circles.

"The 'editorial puff' market is not depleted, however. For any who wish to buy, the Rev. C. H. Forney, D.D., LL.D., editor of the *Church Advocate* of Harrisburg, Pa., is on the bargain counter. 'Organ of the Churches of God' the *Church Advocate* terms itself. Among other assorted rascalities, it publishes the advertisement of Dr. W. O. Smith, 'Specialist,' who deals in 'free medical advice by mail.'

"'Dr. Smith,' proclaims the advertisement, 'has adopted a method by which he can diagnose chronic diseases and successfully treat them at a distance. Dr. Smith has discovered a Positive, Radical, and Safe cure for all forms of Nervous, Chronic, and Special Diseases, such as Weakness in the Back and Limbs, General Debility, Impotence, Lack of Confidence, Nervousness, Langour (*sic*), Confusion of Ideas, Palpitation of the Heart, Timidity, Trembling of the Limbs, Dimness of Sight or Giddiness; Diseases of the Throat, Head, Nose, Stomach, Liver, and Kidneys; Skin Diseases of All Kinds; Blood Poison, Nervous and Vital Weakness, Catarrh, Rheumatism, Dropsy, Asthma, Chronic Bronchitis; Diseases of Women and all Chronic, Lingering Complaints of Both Sexes. Take one Candid Thought before it is too late. A Week or Month may place your case beyond the Reach of Hope.'

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[1] THE JOURNAL, July 6, 1907, page 53.

"No intelligent person can read that advertisement without knowing that Dr. W. O. Smith, 'Specialist,' is a charlatan of the most malignant description. But it is not for the intelligent, but for the suffering and hopeful ignoramus that Dr. Smith's bunco game is prepared. And here, in the *Church Advocate's* editorial columns—*editorial*, mind you—we behold the Rev. C. H. Forney, D.D., LL.D., acting as 'barker' for the quack.

"'The use of electricity in therapeutics is of comparatively (*sic*) recent origin, and its value is not generally known today, yet in its application to medicine and surgery it has been found to be of special efficacy. The variety of diseases for which it may be employed with the best results is indicated in the advertisement of Dr. W. O. Smith, which may be found on another page. As Dr. Smith is a well-known specialist in this line of his profession, a worthy and reliable gentleman, we take pleasure in recommending him to our readers. You run no risk whatever in consulting him.'

"The Richmond *Religious Herald*, which is filled with quackery of all kinds, willingly prints as reading matter, in exact imitation of a legitimate paragraph, exploitations of Dr. D. M. Bye's cancer 'cure,' and of Vitæ-Ore. For thus deceiving its own subscribers it receives an extra rate from the charlatans."

EXCUSES THAT DO NOT EXCUSE.

As an excuse for its delinquencies "the *Baptist Watchman* of Boston publishes a defense of patent-medicine advertising which embodies certain of the arguments furnished in the 'canned editorials' sent out by the Proprietary Association of America. 'There are many medicines and much medical practice which ought to be condemned,' writes the editor, 'and the *Watchman* will not knowingly approve or aid either in any way whatever. There are also many proprietary medicines which are simply physicians' prescriptions or methods which have proved successful in private practice, and which are advertised simply to give them a wider usefulness. The *Watchman* rejects advertisements all the time of those things which may reasonably be objected to.'

"An excellent platform if lived up to. But the *Watchman* is jam-full of advertisements of both kinds: the legitimate proprietary remedies and the arrant shams—mostly the latter. Is there no reasonable objection in the mind of Edmund F. Merriam, editor of the *Watchman*, to Piso's Consumption Cure, which, under the Pure Food Law, has been forced to change its name on the labels (though not in its advertising) because its claim to cure consumption is baldly fraudulent? Is not Mrs. Winslow's Soothing Syrup, with its enslaving morphin, a patent medicine which 'may reasonably be objected to'? Will Editor Merriam explain by what phenomenon of logic or elasticity of ethics he accepts the lucubrations of Dr. Bye, or Oren Oneal, of Liquozone, of Actina, that marvelous, two-ended mechanical appliance which 'cures' deafness at one terminus and blindness at the other, and all with a little oil of mustard, and of Mrs. M. Summers of Notre Dame, Ill., who in print yearns to impart to suffering humanity a sure cure for rheumatism, kidney troubles, and women's diseases, but who, in a composite photograph, would exhibit a full beard and a bass voice, and answer to the description of Vanderhoof & Co., patent-medicine fakers? Finally, has the *Watchman's* editor noted, by any chance, that Dr. Farrar of Boston, one of those leeches who claim to cure rupture 'without the knife or pain,' embodies this significant sentence in his advertisement in the *Watchman's* columns: '*Inquire of Publisher of this paper*'. If this does not mean that the *Watchman's* editorial endorsement is thrown in as a bonus when a quack purchases advertising space, then what does it mean? On the other hand, be it said to the paper's credit, its editorials fly in the face of its patent-medicine patrons by advocating a law 'requiring the full formula on all proprietary 'remedies.'"

THE MOTE AND THE BEAM.

The human tendency to magnify the mote in our neighbor's eye and totally overlook the beam in our own, is beautifully exemplified in some editorial writings in the religious press.

"For example, the *Gospel Advocate* of Nashville, Tenn., is quite sure," says Mr. Adams, "that the country is approaching ruin through cigarettes; and it further opines that 'the use of the organ in worship is a growing sin in our churches.' I have heard some pretty bad organists myself, but if I edited the *Gospel Advocate* I should clean up my pages a little before setting out to save my fellows from going to perdition via the music route. As a start, the editor might throw out his cancer cures, Vitæ-Ore, Mrs. Summers (the bearded lady of Notre Dame), Winslow's Soothing Syrup, the Reverend Blosser, and the quack Dr. Hathaway. Later, he might continue the good work by casting out the various lesser chicaneries which dubiously decorate his paper, at the end of which house-cleaning he could, with a better grace, tackle the body-destroying cigarette and the soul-destroying pipe organ.

"To the sensitive spirits of the Baltimore and Richmond *Christian Advocate* it is a lamentable thing that terrified Italians, during an earthquake, should have fallen on their knees and prayed to the saints. An editorial on this topic is headed 'Roman Catholic Superstition.' What kind of superstition is it which the *Christian Advocate* incites in its readers when it points them to A. I. M. (Acid Iron Mineral), purporting to be a cure for anything from eczema to snake-bite, with a special claim as a remedy against bleeding to death? Winslow's Soothing Syrup, Vitæ-Ore, the Kellam Cancer Hospital, the Jackson 'free' rheumatism cure, and Dr. J. W. Blosser of catarrh-cure fame, who is sometimes a Rev. Dr. and sometimes a medical doctor, and at all times a fraud, also appear as appellants to the particular type of superstition which the editor of the *Advocate* fosters. Though not a Roman Catholic, I should much rather appeal for help to a saint in the event of earthquake than to Kellam or Blosser in case of cancer or catarrh.

"'Dr. Buckley has done the Christian public a vast service in his exposures of Christian Science,' approves G. C. Rankin, D.D., editor of the *Texas Christian Advocate*, writing of Dr. J. M. Buckley of the New York *Christian Advocate*.. This is all very well for Dr. Rankin; Christian Science does not advertise in Dr. Rankin's publication, therefore that politic person can commend attacks on it with a free heart. But Dr. Buckley, in the New York *Christian Advocate*, has for years been waging a relentless war not only on Christian Science, but also on the fraud medicines and 'sure cures' which *do* advertise in Dr. Rankin's journal. Does Dr. Rankin exhibit any irrepressible enthusiasm over this phase of his brother laborer's energetic work? Not so far as has appeared. Masterly silence has been the keystone of his strategic policy in this respect. And with sound reason, for if one cuts out from any single issue of Dr. Rankin's *Texas Christian Advocate* all the foul, indecent, dangerous, and mendacious paid matter, the remnant resembles a pattern for a broad-mesh mosquito netting. Cancer quacks, dropsy quacks, private disease quacks, all find equally hospitable refuge, at so much per line, in Dr. Rankin's columns. One enterprising person attains the height of absurdity by advertising, under the self-bestowed title of 'The Texas Wonder,' to cure all kidney and rheumatic troubles by mail for $1. Another advertisement (which most daily papers throw into the waste basket) comes near the depth of degradation in exploiting 'Man Medicine.' Since this reverend gentleman so admires Dr. Buckley, I would respectfully suggest that he make a careful study of that militant editor's advertising pages; for therefrom he will learn, vastly to his surprise, very likely, that it is possible for one of his own faith and church to publish a religious journal, and a successful religious journal, whose advertising pages are clean, honest, and independent of a dollar's aid from any exponent of the Great American Fraud."

THE UNDENOMINATIONAL PRESS

After dealing specifically with the denominational press, Mr. Adams turns his attention to the undenominational press, which he claims does not shine by comparison.

"The *Christian Work and Evangelist* prints the lures of Sproule, Mrs. M. Summers of Notre Dame, Dr. Bye, Piso's Consumption Cure and Winslow's Soothing Syrup, those twin 'dopes,' and Alice A. Wetmore, who has discovered a 'perfect home cure' for heart disease. The *Ram's Horn* excludes from its pages 'everybody and everything that we believe might abuse the confidence of our readers.' What a singularly touching trust is that of the *Ram's Horn* in its advertising patrons, when, to go no farther, it implicitly expresses its confidence in the thieving Dr. Coffee of Des Moines, and in Oxydonor, which modestly promises to cure not only all nervous complications, but such simple ailments as pneumonia and locomotor ataxia! The list might be indefinitely prolonged, extending from publications which will print anything in which there is a dollar to those which exclude open quacks and dangerous medicines, but accept the comparatively harmless but essentially mendacious claims of such proprietaries as Cuticura Soap and Stuart's Dyspepsia Tablets."

The article as a whole is a serious indictment of the religious press, but an indictment, we regret to say, which is deserved. There are several "telling" illustrations, which add immensely to the effectiveness of the article but to which we regret we can not give space.

Right to Practice Taken from Two Advertising Quacks.

The Missouri State Board of Health has shown a singular lack of appreciation of the claims of Drs. Bye and Johnson, the notorious cancer specialists. These enterprising gentlemen after long years of study of the cancer problem (it is said that the preparation of Dr. Johnson's book on cancer took the patient work of two weeks, with the aid of a modern advertising agency) had endeavored to put before the public the results of their work, but the board, in a manner as heartless as that in which these men misled and bled their victims, has decided that such scientific effort is unprofessional advertising and has revoked their licenses. From the *Independent* (Kansas City), August 3, we take some of the details.

In the trial of Dr. Johnson, who proved to be a young man, although he was said to have "devoted long years to a study of cancer," a beautifully prepared pamphlet, entitled "Cancer and Its Cure," was introduced in evidence, with such choice bits marked as these:

> "In this little volume I wish to tell the true story of a wonderful cure for cancer in all its forms."
>
> "The correct principle of my treatment is recognized by all schools of medicine. My Mild Combination Treatment eliminates the deadly cancer poison."
>
> "Warts, moles and scars develop into cancer."
>
> "My method of treatment is indorsed by many capable surgeons and physicians."
>
> "It is easy to be treated at home and treated successfully by my method. You have but to fill out symptom blank which I furnish you and return it."

This philanthropic method received the most cruel treatment from the prosecution before the board, affidavits being introduced to show that these statements were inaccurate and tended to mislead the public, thereby making it possible for Johnson to practice deception on many ignorant but afflicted persons and that his treatment has no standing whatever. The *Independent* gives the following account of part of the examination:

> Like a flash the lawyers dipped into "Doctor" Johnson's life, proved that his "long years of study" consisted of short courses at poor schools, and that his "great work" was written in "two or three weeks" with the aid of an advertising firm. Dr. Lutz, of the board, took charge of the witness for a while and tore his medical pretensions to pieces in a manner that really elicited pity from those around. Dr. Lutz proved that Johnson knew absolutely nothing about cancers at all; that he couldn't even tell the difference between cancer and a common ulcer—that he was a fake of the first water.
>
> Shortly before the noon adjournment the board members asked him if he would have any objection to telling what his "Mild Combination Treatment" consisted of, and appointed Dr. J. D. Griffith as a committee of one to receive the information.
>
> When Dr. Griffith took the stand after luncheon he stated that Johnson had shown him some ordinary salves and pastes, mostly zinc preparations, such as everybody used for ulcers and sores, and that when asked if that was all his "Mild Combination Treatment" consisted of, answered that he had a "secret salve" he would show.
>
> Dr. Frank J. Hall's affidavit was then read. Dr. Hall is professor of pathology in the University of Kansas, and what his affidavit did to Johnson comes under the head of cruelty to animals. He branded his statements as falsehoods, and his claims as being of a "character that tends to mislead and deceive the public, to wrongfully impose on the fears, weakness or ignorance of the sick and credulous, and to defraud the people by false and impossible claims in regard to the treatment of disease."
>
> Dr. Herman E. Pearse, a physician and surgeon known all over the West, took the stand for the state, and looking Johnson square in the eyes, said "Johnson's statements are lies, and he knows that they are lies."

Dr. Johnson's lawyer put in the plea that "every advance in the truth had been met by opposition," but the board seemed determined to follow the precedents of other inquisitors and ignored the fact that scientific investigation had been accelerated and modified by modern business methods. Doubtless many of the long years of investigation were spent in a previous existence and the remarkable Dr. Johnson has come to this earth with some quickened powers which enable him to escape the limitations of ordinary mortals.

Evidently Dr. Bye is a member of a large family in Kansas City and Indianapolis, as was shown up by Samuel Hopkins Adams in his great American fraud articles. The father and three sons have devoted themselves with religious unction and commendable zeal to the accumulation of fortunes by the "Combination Oil Treatment" of cancer. The father is reputed to be a good man; he is said to run a church at his own expense. When arraigned before the board Dr. Bye was not permitted by his attorney to testify, but the board proceeded to quote his pamphlet and on the accusation of making false claims took away his license.

Dr. Bye, like Dr. Johnson, would seem to have discovered the fountain of perpetual youth, for arduous labors and the anxiety attendant on treating thousands of cases of cancer have not aged him, nor have the miseries of his helpless victims depressed his spirits. The *Independent* thus describes his appearance:

> Instead of a gray-headed old man, worn out with laboratory toil, eyes dimmed by poring over huge tomes, there bounced forward a young chap of 25 or 30, goggle-eyed, smooth faced, in no wise differing from scores of other young chaps except for a look of cold-blooded craft.

According to the "American Medical Directory," both Bye and Johnson were graduated in 1897 from Bennett Medical College, Chicago, an eclectic institution. According to Polk's directory, in the same year, 1897, they graduated from the Northern Illinois College of Ophthalmology and Otology, although just what this institution is, or where it is located, we do not know. The Missouri State Board of Health is to be congratulated on what it has done in this particular case. We understand that there are other advertising quacks in Missouri whose cases have been investigated by the board.

The Stria Vascularis.—In describing the origin of the cells found in the deeper layer of the stria vascularis, George E. Shambaugh, in the *Archives of Otology*, June, 1907, says that the blood vessels of the stria are placed directly beneath the surface layer of epithelium and as soon as formed are enveloped in protoplasmic processes from the surface layer. In addition, the cells immediately around the blood vessels are clearly derived from the surface layer of epithelium. The cells found in the deeper layer, therefore, are in part epithelial and in part connective tissue. He believes we are justified in assuming that the stria vascularis represents true vascular epithelium.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Organization Bulletin in Utah.

The first number of the *Physician's Bulletin*, published by the Third Councilor District Society of Utah, contains the registration provisions of the new medical practice act of Utah, announcements of the next meeting of the society and a large number of organization notes. The summer meeting of the society will be held on Tuesday and Wednesday, August 13 and 14. Following the meeting, fishing and camping parties, made up of members and their families, will visit the southern lakes of Utah and the Grand Canyon of the Colorado. Dr. Frederick Clift of Provo, councilor for the district and president of the society, is the editor of the bulletin.

Iowa Law Amended.

The May number of the *Iowa Health Bulletin* contains the text of the amendment to the Iowa practice act empowering the State Board of Medical Examiners to revoke the license of any physician in the state "who is not of good moral character or who solicits professional patronage by agents, or who profits by the acts of those representing themselves to be his agents, or who is guilty of fraudulent representations as to his skill and ability, or who is guilty of gross unprofessional conduct or incompetency or for habitual intoxication or the drug habit, or if the certificate has been granted on false and fraudulent statements as to graduation or length of practice." The amendment also makes provision for the manner of revoking the license and provides that the physician shall have an opportunity to appear for a hearing, in person or by counsel. If he fails to appear the board is authorized to revoke his certificate. If he appears, the board may receive and consider affidavits and oral statements bearing on the case. If five members of the board are satisfied that the licentiate is guilty of the offense with which he is charged, the license shall be revoked, after which the holder thereof shall not practice medicine, surgery and obstetrics in the state of Iowa for such a time as the State Board of Health may determine. Any person aggrieved by any rule or order entered under the provisions of the act is given the right of appeal to the district court in the county where the alleged offense was committed, on giving notice to the Board of Medical Examiners of such an appeal within twenty days after the entry of the ruling, order or judgment.

ITINERANT PHYSICIANS.

The bulletin also contains an opinion from the attorney general of the state on the question of licenses for itinerant physicians, to the effect that itinerant physicians must be licensed the same as any other physicians practicing medicine in Iowa; that such license is obtained on the presentation of satisfactory evidence to the board of the possession of proper qualifications, and that the board has discretionary power as to the granting or refusing of such a license. This decision of the attorney general fully sustains the position of the secretary of the board.

Insurance Fees.

The Hendricks County (Ind.) Medical Society has unanimously adopted the Kentucky resolutions regarding life-insurance examinations.

The Adams County (Ohio) Medical Society has adopted the following resolutions which were drawn up by the committee on life insurance. All the registered physicians of Adams County have agreed to abide by this action.

Whereas, Many of the life insurance companies have notified their medical examiners of a reduction of examining fees from five to three dollars; and

Whereas, We, as physicians, realizing the responsiblity incident to and the time required in completing a proper examination, believe such reduction to be unjust; and

Whereas, Some of the life insurance companies have always paid, and are now paying, a minimum fee of five dollars for examinations where the amount of the policy is not less than one thousand dollars; therefore be it

Resolved, That we, the undersigned members of the Adams County Medical Society, do hereby declare such reduction to be unjust and that any fee less than five dollars for examinations, where the amount of the policy is not below one thousand dollars, is inadequate; and

Resolved, That on and after Sept. 1, 1907, no one of us will make any examination of any applicant for life insurance where the amount of the policy is not below one thousand dollars for a less fee than five dollars; and

Resolved, That the above named rates do not apply to industrial medical inspections without urine analysis for amounts less than one thousand dollars or to examinations for benevolent organizations; and

Resolved, That no one of us shall enter into any contract or agreement with any corporation, society, association, company or individual to examine applicants for any stated salary or lump sum thereby evading the spirit and instinct of the foregoing resolutions; and be it further

Resolved, That the payment of all fees shall be authorized by the home office of the society or corporation to which such application is made and under no circumstances shall an examiner receive or accept any part of the fee from an agent or other person or corporation unless the full fee be paid by authority of the home office.

Marriages

William B. Hanelin, M.D., to Miss Marion Perbohner, both of Chicago, July 31.

Daniel J. Donnelly, M.D., to Mrs. Jennie J. Brown, both of Philadelphia, July 24.

Edwin I. Thayer, M.D., to Miss Minna Lindenmayer, both of Philadelphia, July 17.

James Clement Harkins, M.D., to Miss Mary Clune, both of New York City, June 3.

H. M. Stanley, M.D., Corning, Iowa, to Miss Sarah O. Coy of Sheridan, Mo., June 26.

Albert R. Tucker, M.D., Mohawk, Mich., to Miss Lila C. Foley of Eagle Harbor, Mich., June 26.

S. Alford Blackburn, M.D., to Miss Laura Browning, both of Versailles, Ky., at Midway, Ky., July 24.

Lunsford D. Fricks, M.D., passed assistant surgeon, U. S. P. H. and M.-H. Service, Fort Stanton, N. M., to Miss Edna Grace Beene of Chattanooga, Tenn., at Alamogordo, N. M., July 22.

Deaths

William Thomson, M.D. Jefferson Medical College, Philadelphia, 1855; a member of the American Medical Association; who entered the Army as assistant surgeon in 1861; was afterward on duty at the headquarters of the Army of the Potomac, surgeon in charge of the Douglass Hospital and medical inspector of the department at Washington; was given two brevets, but resigned from the Army in 1866; who is said to have been the first to employ the local application of carbolic acid as a wound disinfectant; for 25 years professor and thereafter emeritus professor of ophthalmology in Jefferson Medical College; consulting surgeon to Wills Eye Hospital; an ophthalomogist of renown, who with Dr. W. S. Norris is said to have made the first successful microphotographic negative in 1864, died at his home in Philadelphia, August 3, aged 74.

William Travis Howard, M.D. Jefferson Medical College, Philadelphia, 1844; one of the founders of the American Gynecological Society, and its president in 1885; president of the Medical and Chirurgical Faculty of Maryland in 1903; for 30 years, up to 1897, professor of gynecology in the University of Maryland School of Medicine, and thereafter emeritus professor; consulting gynecologist to the Union Protestant Infirmary; gynecologist to the Hebrew Hospital and Asylum Association of Baltimore; consulting physician and surgeon to Johns Hopkins Hospital, and one of the founders of the Hospital for the Women of Maryland, died at Narragansett Pier, R. I., July 31, from ptomain poisoning, after a brief illness, aged 86.

William F. Boor, M.D. Jefferson Medical College, Philadelphia, 1853; surgeon of the Fourth Indiana Cavalry, and later surgeon of the First Brigade, Second Division, Army of the Cumberland, during the Civil War; a charter member of the Indiana State and Henry County medical societies; for more than 12 years school trustee; one of the organizers and successively director, vice-president and president of the First National Bank of Newcastle, Ind., died at his home in that city, from paralysis, July 17, aged 88.

James Buckner Killebrew, M.D. University of Virginia, Department of Medicine, Charlottesville, 1896; a member of the American Medical Association; visiting gynecologist to the Mobile City Hospital; president of the Mobile County Medical Society, and adjunct professor of gynecology in the Medical College of Alabama, Mobile, jumped from an automobile to avoid a collision with a freight train, fell beneath the wheels of the train and was killed instantly, July 24, aged 35.

Lucy Hall-Brown, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1878; member of the Brooklyn Pathological Society, Kings County Medical Society, and American Electro-Therapeutic Association; vice-president of the American Social Science Association; a member of the council of the National Red Cross Society, died at her home in Los Angeles, August 1, after a long illness.

Harvey B. Dale, M.D. Rush Medical College, Chicago, 1887; Chicago Homeopathic Medical College, 1888; for several years a member and once president of the board of education of Oshkosh, Wis.; some-time city physician and health commissioner, and a member of the State Board of Medical Examiners in 1895, died at St. Mary's Hospital, Oshkosh, a week after an operation for appendicitis, aged 42.

Orlando S. Reynolds, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1902; formerly interne at the Episcopal Hospital, Philadelphia, and later a practitioner of McDowell County, W. Va.; a member of the West Virginia State Medical Association and Mingo County Medical Society, died at the home of his father in Keyser, W. Va., July 26, from typhoid fever, aged 28.

David R. Sanders, M.D. Medical College of Ohio, Medical Department, University of Cincinnati, 1877; a member of the Illinois State and Union County medical societies; a veteran of the Civil War; first assistant superintendent of the Illinois Southern Hospital for the Insane, Anna, died at that institution, July 22, from disease of the stomach, after a short illness, aged 62.

Morris H. Goodrick, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1881; an alderman of Jacksonville, Ill.; sometime city health officer, health officer of Morgan County and physician to the Illinois State School for the Blind, died at his home in Jacksonville, July 28, from uremia, after an illness of two weeks, aged 50.

Charles E. Davis, M.D. New York University Medical College, New York City, 1878; of Peoria,; a member of the Illinois State and Peoria County medical societies; died at St. Francis Hospital, Peoria, July 24, from nephritis, after an illness of nearly two years, aged 58.

Benjamin Combe Hopkins, M.D. Jefferson Medical College, Philadelphia, 1855; during the Civil War in charge of a military hospital in Philadelphia, after which he removed to Dunmore, Pa., died at his home in that place, July 22, after an illness of several weeks, aged 77.

Lee McElroy, M.D. Northwestern University Medical School, Chicago, 1905; for two years an interne at the Alexian Brothers' Hospital, Elizabeth, N. J., died at that institution, July 26, from cancer of the gall bladder and duodenum, after an illness of two months, aged 30.

Fleet John Cooper, M.D. College of Physicians and Surgeons, Baltimore, 1884; a member of the Medical Society of the State of North Carolina and Sampson County Medical Society, died at his home in Roseboro, N. C., July 11, after an illness of several weeks, aged 47.

John Clark Budlong, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1863; a member of the board of aldermen of Providence, R. I., and surgeon general of the state for 20 years, died at his home in Providence, July 25, after a long illnes, aged 70.

J. R. Howell, M.D. University of Georgia, Medical Department, Augusta, 1904; a member of the Medical Association of Georgia and Irwin County Medical Society, died at his home in Ocilla, Ga., July 24, from typhoid fever, after an illness of one week.

Gideon Raus Gwynne, M.D. Medical Department of the University of Nashville, Tenn., 1869; a veteran of the Civil War and for many years health officer of Lebanon, Tenn., died suddenly from angina pectoris, at his home in that city, July 23, aged 67.

Edgar Eltinge, M.D. College of Physicians and Surgeons in the City of New York, 1852; a member of the Kings County Medical Society, and for many years a practitioner of Brooklyn, died at his home in Kingston, N. Y., July 28, aged 79.

James P. Tormey, M.D. Bellevue Hospital Medical College, New York City, 1891; a practitioner cf San Leandro and Haywards, Cal., died in the Southern Pacific Hospital, Sacramento, Cal., July 23, after a prolonged illness, aged 40.

Philip E. Blesch, M.D. Starling Medical College, Columbus, Ohio, 1868; one of the best-known German practitioners of Columbus, died at his home in that city, July 31, from diabetic gangrene, after an illness of five years, aged 62.

Robert Durham (Examination, Tenn., 1889); a practitioner of Sumner County, Tenn., for more than 40 years, died at his home in Pleasant Grove, June 11, from pulmonary abscess, after an illness of three weeks, aged 74.

Rudolph L. Dodge, M.D. Boston University School of Medicine, 1875; of Portland, Maine; a veteran of the Civil War, died suddenly from heart disease, while riding in his automobile near Pride's Corner, Maine, July 28, aged 66.

John R. Cottongim (License, Tenn., 1889); for 40 years a practitioner of Teague, Tenn.; died at his home in that place May 28, from cerebral hemorrhage, after an illness of more than a year, aged 67.

Kimber Charles Cleaver, M.D. Medico-Chirurgical College of Philadelphia, 1896; of Freidensburg, Pa., died in the Pottsville (Pa.) Hospital, July 18, after an operation for appendicitis, aged 37.

Fred Miller, M.D. Ohio Medical University, Columbus, 1902; once coroner of Tuscarawas County, Ohio, died suddenly at his home in Mineral City, Ohio, from cerebral hemorrhage, July 18.

James Turpin, M.D. Eclectic Medical Institute, Cincinnati, 1882; of Rockport, Ind.; one of the oldest practitioners of the state, died at his home in that city, July 22, aged 82.

Joseph Walter Lesslie, M.D. Toronto University Medical Faculty, 1880; of Toronto, died suddenly at his home in that city, July 17, from cerebral hemorrhage, aged 54.

John B. Summers, M.D. Bellevue Hospital Medical College, New York City, 1876; of Milton, Ind., died at his home in that place, July 17, after a long illness, aged 66.

Carl Gustav Tell, M.D. Homeopathic Hospital College, Cleveland, 1881; of Braddock, Pa., died at his home in that place, July 23, after a prolonged illness, aged 58.

William H. Hill, M.D. University of Louisville (Ky.), Medical Department, 1873; died at his home in Russellville, Ark., from heart disease, July 29, aged 56.

John S. McBean, M.D. Medical College of Ohio, Medical Department, University of Cincinnati, 1872; died at his home in Cadiz, Ohio, July 27, aged 67.

James David Hill, M.D. College of Physicians and Surgeons, San Francisco, 1900; died at his home in San Francisco, July 25, aged 38.

William T. Norris, M.D. Columbus (Ohio) Medical College, 1892; died at his home in East Liverpool, Ohio, July 30, aged 45.

Frank Leslie Hazlett, M.D. Jefferson Medical College, Philadelphia, 1903; of Butler, Pa., died near Parker, Pa., July 26, aged 29.

Belle A. Foote, M.D. Hahnemann Medical College and Hospital, Chicago, 1906; died at Richland, Iowa, July 11.

Death Abroad.

J. J. Grancher, M.D., of Paris, died July 13, 1907, at the age of 64, of a grippal pneumonia lasting only a few hours, although he had been engaged in a struggle against chronic disease for 35 years. He was admitted to the doctorate in 1873 and produced a thesis on the unity of tuberculosis opposing the doctrines of Niemeyer and others who at that time advocated the distinction of phthisis from tuberculosis. Grancher devoted much of his attention to the study of diseases of the lungs and especially tuberculosis in children. He assisted Pasteur in his researches on rabies, and it was to him that the first attempts at antituberculous vaccination were due. He was the first to describe the form of pneumonia known as "splenopneumonia," which has sometimes been called "Grancher's disease." While somewhat difficult of approach, he was of a generous disposition and identified himself with several philanthropic works. The most prominent of these was the work for the protection of childhood against tuberculosis by which he endeavored to save the healthy children of tuberculous parents from this plague. He was honored with election to the Academy of Medicine, and was a member of the consulting committee of hygiene of France, president of the administrative board of the Pasteur Institute, and commander of the Legion of Honor.

Queries and Minor Notes

CHAMPAGNE TABLETS.

Brooklyn, July 28, 1907.

To the Editor:—Has the American Medical Association done anything with "Champagne Tablets," or can you tell me anything about them? From their action I think that they contain cocain.

Louis C. Ager, M.D.

Answer.—Champagne tablets were examined by the Massachusetts State Board of Health and each tablet was found to contain .05 gm., or nearly one grain, of caffein. They have not been investigated by the Council on Pharmacy and Chemistry.

ASKS ORIGIN OF DRAM AND OUNCE SYMBOLS.

Dr. E. H. Terrell, Richmond, Va., asks the origin of the symbols ʒ and ℥, and also of the symbol for a scruple.

RELATION OF ANTITOXIN TO DIPHTHERIA MORTALITY.

To the Editor:—I want any information you can give me on antitoxin, showing the number of cases treated with antitoxin and the number of deaths, and the same without antitoxin, especially in the recent Chicago epidemic.

N. K.

Answer.—The second edition of Hare's "Practice of Medicine," 1907, gives some statistics on a large scale which may be useful. Roux compared the death rate of two large children's hospitals in Paris, one of which used antitoxin and the other did not. The mortality under antitoxin was 26 per cent., while at the same period the mortality without antitoxin was 60 per cent. From Oct. 1, 1894, serum therapy was practiced at the Hôpital Trousseau, with the result that at the end of two months the mortality had fallen from 60 per cent. to 14.85 per cent. Hare says (p. 183): "The largest and most valuable statistics are those of Bayeux, who collected more than 200,000 cases from all parts of the world and found that the average mortality rate was 16 per cent. Making a most conservative estimate of the general mortality of 35 per cent. in pre-antitoxin days, Bayeux's figures prove a reduction in mortality of more than 50 per cent. since the introduction of antitoxin. In the first nine years during which antitoxin was used in Chicago the mortality was 6.088, while during the nine years preceding the use of antitoxin the mortality was 11,488, a decrease of 47 per cent., although the population had increased nearly 600,000, or 52 per cent. If this increase in population is taken into consideration, the decrease in the mortality of this disease under this plan of treatment is 63 per cent. In New York City, out of 1,702 patients injected on the first day, including moribund patients, only 85 died—a case mortality of 4.09 per cent." The Chicago Health Department reports that it has no data on diphtheria treated without antitoxin, but gives the following information: At present very few cases of diphtheria in Chicago are treated without antitoxin at some time in the course of the disease. Sometimes there is a delay in administering antitoxin, as the deaths from the disease show. From Oct. 5, 1895, to Dec. 31, 1906, 8,372 cases of bacterially-verified diphtheria were treated with antitoxin by the Chicago Health Department, with the following results:

	INJECTION MADE ON					
	1st day.	2d day.	3d day.	4th day.	Later.	Totals.
Number cases treated....	624	2,181	2,926	1,578	1,063	8,372
Number deaths	2	33	99	176	234	544
Per cent. of deaths....	0.32	1.51	3.38	11.15	22.01	6.50*

* The average mortality per cent. of all cases is 6.50.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Aug. 3, 1907:

Eastman, Wm. E., asst.-surgeon, granted 30 days leave of absence with permission to apply for thirty days' extension.

Flagg, C. E. B., asst-.surgeon, leave of absence extended thirty days.

Wales, P. G., surgeon, relieved from duty at Fort Wayne, Mich., and ordered to Fort Apache, Ariz., for duty.

Field, Peter C., asst.-surgeon, will, on arrival at San Francisco, proceed to Fort Wayne, Mich., for duty at that station.

Davidson, W. T, asst.-surgeon., assigned to duty as surgeon of the transport *Logan* during voyage to Manila, sailing from San Francisco, Aug. 5, 1907. On arrival at Manila will report in person to the commanding general, Philippines Division, for assignment to duty.

Snoddy, C. A., asst.-surgeon, leave of absence on account of sickness, extended 30 days.

Halloran, P. S., asst.-surgeon, ordered to accompany Battery C, Fifth Field Artillery, to Fort Des Moines, Iowa, for duty during the Iowa Militia maneuvers, near Des Moines, Iowa, from Aug. 5 to 12, 1907.

Banta, W. P., asst.-surgeon, ordered to proceed from San Francisco to Fort D. A. Russell, Wyo., for station and duty.

Winter, F. A., surgeon, left post, Fort Myer, Va., Aug. 1, 1907, on 10 days' leave of absence.

Morris, E. R., surgeon, relieved from duty at Fort Logan, Colo., and on expiration of present sick leave, ordered to Fort Thomas, Ky., for duty.

Long, C. J., dental surgeon, relieved from duty at Fort Snelling, Minn., and ordered to San Francisco, to sail on first available transport for Philippine service.

Treuholtz, C. A., contract surgeon, granted leave of absence for two months.

Hereford, J. R., contract surgeon, ordered from Fort Oglethorpe, Ga., to his proper station, Fort Dade, Fla.

Ashburn, J. K., contract surgeon, granted leave of absence for ten days.

Roberts, E. E., contract surgeon, granted leave of absence for ten days.

Lemmon, Robt., contract surgeon, granted leave of absence for ten days.

Cullen, C. W., contract surgeon, ordered from Fort Sam Houston, Texas, to camp at Leon Springs, Texas, for duty.

Trotter-Tyler, George, contract surgeon, ordered from Fort Hamilton, N. Y., to Fort Adams, R. I., for duty.

Tetrault, C. A., contract surgeon, ordered from Southbridge, Mass., to San Francisco, to sail thence September 5 for Philippine service.

Rion, C. L., dental surgeon, ordered from San Francisco to Paris, Ky., for annulment of contract.

Navy Changes.

List of changes in the medical corps, U. S. Navy, for the week ending Aug. 3, 1907:

Bishop, L. W., P. A. surgeon, unexpired portion of leave revoked; ordered to the *Missouri* August 1.

Bunker, C. W. O., acting asst.-surgeon, ordered to the *Lancaster*.

Chappelear, F. D., acting asst.-surgeon, resignation accepted to take effect July 31, 1907.

Murphy, J. A., surgeon, detached from the *Des Moines* and ordered to the *Dolphin*.

Tolfree, H. M., P. A. surgeon, detached from the *Dolphin* and ordered to the *Des Moines*.

Alderman, C. G., asst.-surgeon, ordered to the Naval Hospital, Puget Sound, Washington.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and non-commissioned officers of the Public-Health and Marine-Hospital Service for the seven days ended July 31, 1907:

Banks, C. E., surgeon, leave of absence granted for one month from June 20, 1907, amended to read 28 days only.

Smith, A. C., surgeon, directed to proceed to Wheeling, W. Va., for special temporary duty, on completion of which to rejoin his station at Pittsburg.

Frick, L. D., P. A. surgeon, granted leave of absence for 7 days, from July 22, 1907, under Paragraph 191, Service Regulations.

Goldberger, Joseph, and McCoy, G. W., P. A. surgeons, directed to proceed to Brownsville, Texas, and other places in that portion of the state, for special temporary duty, on completion of which to rejoin their stations in Washington, D. C.

Warren, B. S., P. A. surgeon, relieved from duty at Boston and directed to proceed to Chicago, reporting to the medical officer in command for duty and assignment to quarters.

Trask, J. W., asst.-surgeon, detailed as recorder of board for completion of examination of applicants for entrance to the service, vice Joseph Goldberger, relieved.

Olsen, E. T., asst.-surgeon, granted leave of absence for 7 days, from July 26, 1907, under Paragraph 191, Service Regulations.

Olsen, E. T., asst.-surgeon, granted extension leave of absence for 7 days, from Aug. 2, 1907.

Stiles, Ch. W., chief Division of Zoology, Hygienic Laboratory, detailed to represent the service at the Seventh International Zoological Congress, to be held in Boston, Aug. 19-23, 1907.

Brinckerhoff, W. R., director Leprosy Investigation Station, Hawaii, detailed to represent the service at the Sixth International Dermatological Congress in New York, Sept. 9-14, 1907.

Spohn, A. E., acting asst.-surgeon, granted leave of absence for 30 days, from July 1, 1907, and excused for a further period of two months from the expiration thereof, without pay.

Townsend, F., acting asst.-surgeon, granted 7 days' leave of absence, from July 29, 1907.

Townsend, W., acting asst.-surgeon, granted extension leave of absence for 7 days.

BOARD CONVENED.

A board of medical officers was convened to meet at Chicago for the purpose of making a physical examination of an inspector of immigrants. Detail for the board: Surgeon G. B. Young, chairman; Acting Asst.-Surgeon William Kimmet, Acting Asst.-Surgeon J. J. Gerkin, recorder. July 25, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 2, 1907:

SMALLPOX—UNITED STATES.

California: San Francisco, July 13-20, 4 cases.
Illinois: Peoria, June 15-July 20, 10 cases.
Kentucky: Louisville, July 18-25, 2 cases.
Missouri: St. Joseph, July 13-20, 3 cases.
Ohio: Hamilton, March 31-June 15, 21 cases; Toledo, June 29-July 29, 6 cases.
Pennsylvania: Homestead, July 14-21, 1 case.
Texas: Houston, April 28-July 27, 50 cases, 1 death.
Virginia: Richmond, July 13-20, 1 case.
Wisconsin: Milwaukee, July 13-20, 2 cases.

SMALLPOX—INSULAR.

Philippine Islands: Manila, June 8-15, 2 cases.

SMALLPOX—FOREIGN.

Algeria: Algiers, June 1-30, 8 deaths.
Australia: Newcastle, May 1-31, 1 case.
Austria: Trieste, June 8-15, 1 case, 1 death.
Brazil: Para, July 6-20, 11 cases, 6 deaths.
Canada: Halifax, July 20-27, 1 case.
Chile: Iquique, June 30, present.
China: Amoy, June 22, present; Foochow, June 23-30, 1 case; Hankau, June 22-27, 1 case, 1 death; Hongkong, June 1-15, 6 cases, 5 deaths; Shanghai, June 23-30, 10 deaths (among natives); Tientsin, June 30, present.
Formosa: June 15-22, 1 case.
Germany: Königsberg, June 30-July 6, 1 case.
India: Bombay, June 18-25, 2 deaths; Calcutta, June 8-15, 20 deaths; Rangoon, June 8-15, 1 death.
Italy: General, July 4-11, 24 cases; Turin, June 30-July 7, 1 case, 1 death; Venice, June 29-July 6, 1 death.
Japan: Yokahama, June 17-24, 1 case.
Korea: Seoul, June 30, present.
Madeira: Funchal, July 7-14, 45 cases, 6 deaths.
Manchuria: Dalny, June 15-29, 4 cases, 1 death.
Mexico: Aguas Calientes, July 13-20, 7 deaths; City of Mexico, June 22-July 6, 18 deaths; Monterey, July 7-14, 1 death.
Portugal: Lisbon, June 29-July 13, 13 cases.
Russia: Moscow, June 15-29, 13 cases, 2 deaths; Odessa, June 29-July 6, 2 cases, 1 death; Riga, June 29-July 6, 1 case; St. Petersburg, June 22-29, 2 cases, 2 deaths.
Spain: Almeira, June 1-30, 8 deaths; Barcelona, July 1-10, 3 deaths; Cadiz, June 1-30, 5 deaths; Seville, June 1-30, 10 deaths; Valencia, June 30-July 7, 16 cases, 1 death.
Turkey: Bagdad, June 8-22, present.

YELLOW FEVER.

Brazil: Para, July 6-20, 8 cases, 6 deaths.

CHOLERA.

India: Bombay, June 18-25, 1 death; Calcutta, June 8-15, 37 deaths; Rangoon, June 8-15, 2 deaths.

PLAGUE.

Africa: King William's Town, June 8-15, 1 case.
Chile: Antofagasta, June 30, 9 cases, 2 deaths.
China: Hongkong, June 1-15, 28 cases, 24 deaths.
Egypt: Alexandria, June 27-July 1, 1 case; Assiout Province, June 27-July 1, 3 deaths; Behara Province, June 27-July 1, 5 cases; 4 deaths; Beni Souef Province, June 27-July 1, 1 case, 1 death; Minieh Province, June 27-July 1, 1 case.
India: Bombay, June 18-25, 16 deaths; Calcutta, June 8-15, 62 deaths; Rangoon, June 8-15, 68 deaths.
Japan: Formosa (Island), June 15-22, 124 cases, 111 deaths; Tokyo, July 6, 2 cases, 1 death; Yokahama, July 6, 2 cases in suburbs.
Mauritius: Port Louis, April 1-30, 3 cases, 3 deaths.
Peru: Callao, June 13, 1 case; Chiclayo, June 13, 1 case, 1 death; Mollendo, June 13, 1 case, 1 death; Palta, June 13, 1 case; Trujillo, vicinity of, June 13, present.

Association News

Davis Memorial Fund.

Dr. Henry O. Marcy, chairman of this fund, asks that the following list of contributors be published as the contribution from Massachusetts:

Massachusetts Med. Society	$300
Dr. Henry O. Marcy	100
Dr. Herbert L. Burrell	25
Dr. James B. Ayer	10
Dr. Clarence J. Blake	10
Dr. Richard C. Cabot	10
Dr. Thomas E. Cunningham	10
Dr. Reginald W. Fitz	10
Dr. Joel E. Goldthwait	10
Dr. Francis B. Harrington	10
Dr. James J. Putnam	10
Dr. Maurice H. Richardson	10
Dr. Frederick C. Shattuck	10
Dr. Edmund H. Stevens	10
Dr. John Collins Warren	10
Dr. John A. Gordon	5
Dr. Robert W. Lovett	$ 5
Dr. George B. Shattuck	5
Dr. Theobald Smith	5
Dr. John E. Somers	5
Dr. A. O. Squier	5
Dr. William D. Swan	2
Dr. George W. Gay	1
Dr. E. G. Cutler	5
Dr. A. P. Clarke	5
Dr. A. T. Cabot	5
Dr. John C. Munro	10
Dr. George H. Monks	10
Dr. Morton Prince	5
Total	$618

NEW MEMBERS.

List of new members of the American Medical Association for the month of July, 1907:

ALABAMA.

Dunster, W. R., Florence.
Elkourie, H. A., Birmingham.
Gibbs, E. T., Birmingham.
Stansberry, C. L., Bessemer.

ARKANSAS.

Duckworth, G. M., Pine Bluff.
Hall, B. A., Pine Bluff.
Haltom, W. C., Jonesboro.
Kirby, H. H., Harrison.
Knott, A. D., Gravette.
Murphy, F. T., Brinkley.
Williams, H. E., Pine Bluff.

CALIFORNIA.

Earing, E. W., San Francisco.
Herzog, G. K., San Francisco.
Parks, J. A., San Diego.
Phillips, W. A., Santa Cruz.
Tuckerman, W. C., Kennett.

COLORADO.

Aberg, Axel, Idaho Springs.
Crook, W. W., Glenwood Springs.
Fowler, C. C., Denver.
Jones, S. F., Denver.
Kent, W. C., Denver.
Matlock, J. A., Longmont.
Parker, O. T., Salida.
Trueblood, Chas., Monte Vista.
Wescott, O. D., Denver.

CONNECTICUT.

Barnes, F. H., Stamford.
Davenport, Annabella K., Hartford.
Willard, F. B., Hartford.

DISTRICT OF COLUMBIA.

Parker, H. P., Washington.
Perkins, W. R., Washington.

FLORIDA.

Cunningham, L. W., Jacksonville.
Warren, W. R., Key West.

GEORGIA.

Bailey, T. S., Newnan.
Barge, J. L., Newnan.
Carlton, W. A., Athens.

ILLINOIS.

Barnes, E. M., Chicago Hgts.
Bartlett, J. D., Chicago.
Blender, Wm., Carthage.
Floyd, T. W., Peoria.
Fortune, H. C., Literberry.
Geiger, L. H., Gilman.
Irish, H. E., Chicago.
Johnson, A. C., Newark.
Lawler, T. A., Taylorville.
Little, R. M., E. St. Louis.
Loeb, L. M., Chicago.
Lofgren, Emil, Rockford.
Miller, I. M., Chicago.
Montgomery, C. C., Lincoln.
Nelms, C. O., Herscher.
Schmidt, C. H., Chicago.
Speed, Kellogg, Chicago.
Stanley, O. O., Urbana.
Titterington, M. B., Jerseyville.

INDIANA.

Caffee, A. H., Terre Haute.
Combs, A. H., Indianapolis.
Field, W. H., Evansville.
Frazer, Chas., Muncie.
Hollingsworth, M. P., Princeton.
Shonkwiler, Jos., Rockville.
Thompson, H. J., La Porte.

INDIAN TERRITORY.

Hawley, S. De Zell, Tulsa.
Holland, J. L., Madill.
Hottle, W. C., Paoli.

IOWA.

Kyle, W. S., Diagonal.
Lowry, N. J., Ely.
McWilliam, C., Ames.
Osborn, W. S., Knoxville.
Winsett, C. V., Princeton.

KANSAS.

Beckner, E. D., Hoxie.
Bostwick, W. H., Cedar.
Boswell, J. H., Baxter Springs.
Clark, F. P., Kansas City.
Hammel, S. A., Topeka.
Jacquith, J. H., Council Grove.
Rogers, A. H., Altoona.
Smith, D. M., Argentine.
Warner, T. W., Parker.

KENTUCKY.

Bateman, C. H., Bradfordsville.
Burnett, E. D., Louisville.
Crume, S. M., Fox Creek.
Green, Winnifred, Louisville.
Hanes, G. S., Louisville.
Kieffer, F. J., Louisville.
Kremer, J. W., Louisville.
McKinley, I. H., Winchester.
Morton, D. C., Louisville.
Oblinger, F. V., Catlettsburg.
Simon, W. F., Louisville.

LOUISIANA.

Block, W. H., New Orleans.
Faulk, R. W., Monroe.
Mohler, D. A., Shreveport.
Norwood, T. S., Torras.
Rector, J. M., Collinston.
Watkins, T. H., Lake Charles.

MARYLAND.

Hemmeter, G. W., Baltimore.
Steuart, C. C., Baltimore.
Stiefel, J. G., Baltimore.
Stoncipher, Claude, Baltimore.

MASSACHUSETTS.

Ascher, Joseph, Boston.
Barnes, F. J., Cambridge.
Bushold, F. G., Lawrence.
Cyr, E. E., Lawrence.
Gage, F. L., No. Chelmsford.
Goldthwaite, R. H., Worcester.
Hartwell, H. F., Boston.
Hoitt, C. L., Lynn.
Jackson, J. P., Fall River.
Packard, Horace, Boston.
Park, F. E., Stoneham.
Phillips, W. F., Boston.
Reed, V. A., Lawrence.
Shohan, Jos., Boston.
Smith, T. D., Boston.
Sullivan, C. B., Hathorne.
Thayer, Eugene, Boston.
Walch, J. F., Lawrence.

MICHIGAN.

Brady, E. J., Kalamazoo.
Burgess, C. G., Detroit.
Cole, H. S., South Range.
Gregory, M. S., Travers City.
Huntley, F. M., Manton.
McIntyre, C. S., Woodland.
Robinson, A. L., Allegan.
Roth, Paul, Battle Creek.

MINNESOTA.

Bergroth, E., Duluth.
Carson, J. H., Duluth.
Chapple, C. L., Rochester.
Eustis, W. C., Owatonna.
Fleming, A. S., Wheaton.
Freligh, E. O. B., Stilwater.
Heyerdale, O. C., Rochester.
Hielscher, J. A., Mankato.
Jones, A. W., Red Wing.
Linton, Laura A., Rochester.
Mathisen, G. B., Evansville.
McKeon, Owen, St. Paul.
Nicholson, Jos., Brainerd.
Ogden, B. H., St. Paul.
Pratt, W. H., Stillwater.
Tilderquist, D. L., Duluth.
Warren, F. S., Faribault.
Wedge, A. C., Albert Lea.
Wellner, G. C., Red Wing.
Wilson, W. F., Lake City.
Wylie, A. R. T., Faribault.

MISSISSIPPI.

Alexander, A. P., Sledge.
Arnold, W. H., Eupora.
Berryhill, W. A., Eupora.
Finch, L. W., Eupora.
Glass, H. D., Lambert.
Halbert, F. M., Greenville.
Small, H. J., Winona.
Wasson, U. S., Moorhead.

MISSOURI.

Baird, J. P., Marionville.
Berry, G. F., Kansas City.
Bogart, T. N., Excelsior Springs.
Briggs, Waldo, St. Louis.
Campbell, A. V., St. Louis.
Cape, L. W., Maplewood.
Clausen, J. J., Kansas City.
Finley, F. L., Anniston.
Godfrey, G. B., St. Louis.
Graul, R. E., St. Louis.
Grindan, Joseph, St. Louis.
Gwinn, G. E., Bethany.
Holley, A. E., St. Joseph.
Johnson, G. L., Kennett.
Klincfelter, M. L., St. Louis.
Kuhlmann, F. C. E., St. Louis.
Luten, J. B., Caruthersville.
McKim, H. W., Labelle.
Munson, C. L., St. Louis.
Myerdick, A. H., St. Louis.
North, W. R., Labaddie.
Ogilvie, F. L., Blodgett.
Owens, N. O., Lagrange.
Patton, C. W., Sampsell.
Richey, L. A., Fairport.
Robinson, A. C., St. Louis.
Wallace, J. S., Brunswick.

MONTANA.

Brice, J. T., Lewistown.

NEBRASKA.

Burchard, C. T., Falls City.
Fritschel, G. C., So. Auburn.
Nielsen, Morris, Belden.

NEW JERSEY.

Barbash, Samuel, Atlantic City.
Burnett, H. J., Montclair.
Carroll, A. J., Morris Plains.
Dyer, Florence A., Riverton.
Freeland, Frank, Maywood.
Koch, G. J., Paterson.
Levy, Julius, Newark.
Stahl, Alfred, Newark.
Teimer, Theodore, Newark.
Taylor, W. A., Trenton.

NEW MEXICO.

Field, W. C., Las Cruces.
Frush, H. L., Watrous.

NEW YORK.

Agostini, V. D., New York.
Barnes, E. A., Plattsburgh.
Baker, J. L., Brooklyn.
Bellows, L. W., Waterloo.
Bookman, Arthur, New York.
Brown, Ethel D., New York.
Brown, J. R., Seward.
Bugbee, H. G., Poughkeepsie.
Bumster, P. H., Long Island City.
Byrne, J. H., New York.
Coopernail, G. P., Bedford.
Coughlin, J. H. F., Troy.
Doty, G. E., New York.
Ernst, P. H., New York.
Ferguson, J. Bruce, New York.
Foskett, Eben, New York.
Fowler, P. Van B., New York.
Frederickson, Victor, New York.
Ginnasi, Francis, New York.
Goodman, Charles, New York.
Hare, G. R., New York.
Hawkins, N. L., Watertown.
Higgins, J. J., New York.
Hoke, F. C., New York.
Hunt, E. L., New York.
Knight, C. A., Peekskill.
Lee, B. J., New York.
Lipset, L. J., New York.
Lloyd, H. W., New York.
Lotz, G. C., New York.
Mabbott, J. M., New York.
Meacham, Leslie, New York.
Meyers, R. E., Tottenville, L. I.
Miller, F. M., Utica.
Morrill, J. L., New York.
Mowry, E. C., New York.
Nicoll, M., Jr., New York.
Osgood, Chas., New York.
Oyler, W. H., New York.
Pamenter, L. A., Corinth.
Phillips, B. G., New York.
Pierce, Eudora, Brooklyn.
Plummer, H. E., New York.
Preston, H. F., Utica.
Pryor, J. H., Buffalo.
Quinlan, T. F., New York.
Robinson, R. W., Auburn.
Schott, Max, New York.
Slote, S. H., Brooklyn.
Stapleton, E. A., Johnstown.
Stark, M. M., New York.
Thomson, J. J., New York.
Tedford, R. H., Jr., Albany.
Torek, Franz., New York.
Wallace, Charlton, New York.
Weinstein, Harris, New York.

NORTH CAROLINA.

Carr, J. R., Durham.
Jordan, W. S., Fayetteville.
Rodman, J. C., Washington.
Stevens, R. S., Raleigh.

NORTH DAKOTA.

McNamara, C. J., Barlow.

OHIO.

Bird, C. W., Continental.
Darby, J. C., Cleveland.
Ellsworth, W. O., Autinbury.
Evans, J. B. K., McGuffey.
Gabriel, S. S., Lockington.
Harris, H. L., Columbus.
Howell, C. A., Columbus.
May, E. S., Cincinnati.
Marine, David, Cleveland.
Phillips, John, Cleveland.
Pirrung, J. E., Cincinnati.
Shepard, C. J., Columbus.
Sidle, C. D., Convoy.

OKLAHOMA.

Baker, R. C., Granite.
Dail, A. W., Cement.
Roberson, J. F., Duncan.
Sloan, E. N., Kingfisher.
Stiles, N., Medford.
Walker, J. D., Caney.
Wolff, L. G., Okarche.

PENNSYLVANIA.

Boyd, J. M., Walnut Bottom.
Campbell, M. D., Plumville.
Condon, W. J., Susquehanna.
Cope, T. A., Philadelphia.
Hannan, C. E., Johnstown.
McGinty, E. F., Pittston.
McKee, J. H., Philadelphia.
Scott, W. McC., Black Lick.
Settle, G. M., Norristown.
Shammo, G. C., Philadelphia.
Wilson, A. R., Monessen.
Wright, W. E., Harrisburg.

SOUTH CAROLINA.

Rosser, H. E., Westminster.

SOUTH DAKOTA.

Baldwin, F. M., Ashton.

TENNESSEE.

Sanders, E. M., Nashville.

TEXAS.

Adair, C. C., Bailey.
Angier, E. L., Huntsville.
Aycock, R. F., Rosebud.
Brown, W. E., Merkel.
Copenhaver, J. E., Aubrey.
Copeland, H. V., Grand Prairie.
Crook, W. J., Cooper.
Davis, W. H., Arlington.
Dunn, J. F., Burelson.
Eargle, H. C., Lingleville.
Earthman, H. W., Conroe.
Freeman, Wm., Pottsboro.
Givens, J. M., Fort Worth.
Gordon, E. C., Brownwood.
Halliburton, B. S., Devine.
Harlan, W. J., Bartlett.
Hayes, M. A., Lott.
Hindman, E. C., Howland.
Horney, H., Van Alstyne.
Horton, R. W., Ottine.
Jones, A. F., Colorado.
Jones, G. M., Taylor.
Kimble, E. W., Gorman.
Kimmins, R. L., Iredell.
King, F. B., Houston.
Maynard, G. P., Cullloka.
McKissick, J. F., Arlington.
McMickin, Dru., Kirbyville.
McNeill, W. T., Valley Mills.
Milton, Solon, Ft. Worth.
Morgan, T. B., Bronson.
Mullins, W. C., Fort Worth.
Mulloy, J. J., Dublin.
Ory, Charles, Comanche.

Payne, J. E., Grand Prairie.
Powell, R. G., Baird.
Puckett, Ezra, Henrietta.
Rhoads, H. H., Vernon.
Ricks, G. N., Pleasanton.
Rice, S. P., Martin.
Rushing, F. E., Mineral Wells.
Rutledge, W. C., Denison.
Shepard, O. H., Morgan Mill.
Smith, S. W., Denison.
Throckmorton, B. E., McKinney.
Townes, J. M., Naples.
Weaver, T. P., De Leon.
Wiley, T. W., McKinney.
Williamson, C. D., Sacul.
Wynn, T. F., Denison.

VIRGINIA.

Cooke, R. P., Riverton.
Harnsberger, Stephen, Catlett.
Kagey, T. J., Newport News.
Leake, L. K., East Leake.
McCue, F. C., Charlottesville.
Miller, R. W., Barton Heights.
Powell, Llewellyn, Alexandria.
Rawls, J. L., Norfolk.
Renn, G. A., Norfolk.
Shipp, J. B., Norfolk.
Winn, J. F., Richmond.

WEST VIRGINIA.

Arnold, J. R., Hurricane.
McCarty, J. L., Berwind.
MacQueen, G. A., Charleston.
Spangler, C. W., Jared.
Roller, R. D., Jr., Wittenberg.
Stewart, W. De Witt, Moundsville.

WISCONSIN.

Carey, G. H., Marrill.
Daly, F. P., Reedsburg.
Epley, F. W., New Richmond.
Fox, P. A., Beloit.
Garner, C. E., Linden.
Giesen, C. W., Superior.
Henke, W. A., Tomah.
Howison, N. L., Menomonie.
Jones, D. T., Wausau.
Koch, A. T., Wausau.

Medical Education and State Boards of Registration

North Dakota Adopts Higher Requirements.—At a recent meeting of the State Board of Medical Examiners of North Dakota it was voted that graduates of 1910 and thereafter, to secure license to practice medicine and surgery in North Dakota, must have had preliminary education equal to the standard adopted by the University of North Dakota, to-wit: In addition to a high school diploma two years' work in a college of liberal arts, having a standard equal to that of the University of North Dakota.

Reciprocity in North Dakota.—Reciprocity, on the basis of an examination, has been established by North Dakota with Illinois, Iowa, Maine, Michigan, Vermont, West Virginia, Wisconsin and Wyoming.

California Board Wins Case.—In the case before the Supreme Court recently of James T. Arwine vs. the Board of Medical Examiners of the State of California, wherein the plaintiff asked for a writ of mandamus compelling the board to recognize his medical diploma, issued by the Medical Department of the University of the South, Sewanee, Tenn., the court refused the writ, thus reversing the decision of the Appellate Court. This decision was rendered in the absence of proof that the requirements of the Medical Department of the University of the South were in no particular less than those prescribed by the Association of American Medical Colleges for the year diploma was granted.

The Carnegie Foundation.—The first annual report of the Carnegie Foundation for the Advancement of Teaching is at hand and gives some interesting information as to the action of the institution in providing pensions for retiring teachers. Fifty-two institutions have been placed on the accepted list; of these Massachusetts has 11; New York, 11; Pennsylvania, 4; Ohio, 4: Wisconsin, 3; Connecticut, 2; New Jersey, 2; Vermont, 2; California, 1; Colorado, 1; District of Columbia, 1; Illinois, 1; Indiana, 1; Iowa, 1; Louisiana, 1; Maryland, 1; Minnesota, 1: Missouri, 1, and New Hampshire, 1. Two of the recognized colleges are in Canada. It is interesting to note that no other state west of New England has more than one except Wisconsin, which is accredited with 3, and that there is only one college recognized in the far South. The 52 institutions contain in their faculties 257 persons eligible to retirement with pensions, of whom 46 accepted retiring allowances. The age for retirement is fixed by the institution to which the professor belongs, but there seems to be a tendency to fix a definite age, probably 65, at which the teacher is expected to retire and after which he shall be kept in active service only by special vote of the trustees of the institution.

Probably the most valuable service rendered by the foundation is the educational standard fixed for determining the eligibility of an institution to receive the benefits of the institution and which tends to determine in an authoritative manner the rank of American institutions claiming the title of college or university. The educational standard adopted by the foundation is as follows: "An institution, to be ranked as a college, must have at least six professors giving their entire time to college and university work, a course of four full years in liberal arts and sciences, and should require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the pre-academic or grammar school studies. A technical school, to be eligible, must have entrance and graduation requirements equivalent to those of the college and must offer courses in pure and applied science of equivalent grade. To be ranked as a college, an institution must have a productive endowment of not less than two hundred thousand dollars."

That portion of the standard relating to preliminary education will be an added influence toward the establishment of four-year high schools, which are much needed in a number of states.

Texas April Report.—Dr. T. T. Jackson, secretary of the Board of Medical Examiners for the State of Texas, reports the written examination held at Austin, April 30-May 2, 1907. The number of subjects examined in was 12; total number of questions asked, 150; percentage required to pass, 75. The total number of candidates examined was 116, of whom 83 passed, including 3 non-graduates, and 33 failed, including 24 non-graduates. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
George Washington University	(1906)	84.
Columbia University, Washington	(1899)	81.8
Rush Medical College	(1907)	80.2
Jenner Medical College	(1902) 75.5; (1906)	80.5
Northwestern Univ. Med. School	(1896) 78.8; (1898)	80.5
Indiana Medical College	(1907)	82.6
University of Iowa	(1902)	83.1
University of Louisville	(1906)	77.5
Kentucky School of Med.	(1898) 82.3; (1906)	77.
Louisville Medical College	(1905)	75.
University of Michigan	(1898) 81.2; (1906)	89.5
St. Louis Coll. of P. and S.	(1906) 75.8; (1907)	75.
Missouri Medical College	(1899)	75.
Barnes Medical College	(1899)	75.
University Medical College, Kansas City,	(1899) 78.8; (1906) 79.3; (1907) 78.9.	
Washington University, St. Louis	(1906)	84.5
University of Buffalo	(1892)	76.2
Ohio Medical University	(1904)	75.3
Western Reserve University	(1901)	86.1
Southwestern University Med. Coll., Dallas,	(1907) 75.7, 77.2, 79.7, 78.9, 79.5, 80.4, 80.8, 93.7.	
Ft. Worth University,	(1906) 82.7; (1907) 75, 75.3, 76.7, 77.9, 80, 80.4, 80.7.	
University of Texas	(1906) 75; (1907) 81.4, 84.9	
Baylor University,	(1904) 83.2; (1907) 75, 75, 75, 75.7, 83, 83.2, 87.4	
University of Nashville	(1902) 77.2; (1904) 80; (1907) 76, 77.2	
Memphis Hospital Med. Coll.,	(1905) 78.3; (1906) 76.3; (1907) 75.4, 76.2, 78, 79.3, 79.4, 78.8, 85.3.	
Tulane University of Louisiana	(1906) 81.7, 76; (1907) 75.7, 77.1, 79.9, 81.4, 83.7.	
Meharry Medical College	(1907) 76.6, 78.2	
Vanderbilt University	(1881) 79.1; (1905) 84.3; (1906)	81.8
University of the South	(1906)	85.
University of Tennessee	(1905)	75.

FAILED.

College.	Year. Grad.	Per Cent.
Harvey Medical College	(1899)	60.4
Eclectic Med. Univ., Kansas City	(1906)	41.4
Kansas City Med. College	(1903)	52.
Missouri Medical College		*8.8
Gate City Medical College	(1907)	67.5
Ft. Worth University	(1907)	68.5
Baylor University	(1907)	61.6
Meharry Medical College	(1907) 66.9, 71.	

*Year of graduation not given.

The following questions were asked:

ANATOMY.

1. Describe the inferior maxillary bone. 2. Describe the internal abdominal ring. 3. Name the openings through which the cranial nerves pass from the cranial cavity. 4. Describe the relations of the femoral artery and name its branches. 5. Describe the duodenum. 6. What is the difference between the dura mater and the pia mater? 7. Describe the cross section of the spinal cord in the cervical region. 8. What nerve supplies the extensor muscles of the fore arm? 9. Which ribs mark the lower border of the lungs in the axillary region and dorsal region? 10. Describe the gross anatomy of the kidney. 11. Outline the external jugular vein. 12. Describe the tonsils. Answer any ten questions.

HISTOLOGY.

1. Give the minute anatomy of the arachnoid membrane. 2. Describe the pia mater. 3. Describe the neurilemma. 4. Of what structure is nerve tissue composed? 5. Describe the conjunctiva histologically. 6. In brief, mention the structures of the iris. 7. What structure gives color to the eyes, as when we speak of "blue eyes," "grey eyes." "black eyes," etc? 8. Divested of its covering, what tissues compose the tongue? 9. Give minute structure of the esophagus. 10. What is the structure of the true vocal cords? 11. What is the structural difference between skin on the palm of the hand and that on the dorsal surface? 12. Give the minute anatomy of a secreting gland. Answer any ten questions.

PHYSIOLOGY.

1. Name the varieties of connective tissue. 2. What are the manifestations of cell life? 3. What is the function of the nervous system? 4. Describe the structure of nerve trunks. 5. Give the physiologic properties of muscle. 6. Describe the digestive apparatus. 7. Describe intestinal digestion. 8. How do the products of digestion find their way to the venous blood? 9. State the physical and chemical properties of the blood. 10. Describe the physiologic anatomy of the heart. 11. What physiologic process takes place in the capillaries? 12. What are the various functions of the liver? Answer any ten questions.

CHEMISTRY.

1. How is chlorin prepared? 2. What is understood by the term chemical formula? 3. Complete the following: $CaCO_3 + 2HCl =$ 4. What is the difference between quick lime and slacked lime. 5. What is the test for lead in drinking water? 6. Mention the chemical and physical properties of phosphorus. 7. Give two tests for sugar in the urine. 8. Give two tests for albumin in the urine. 9. What is the antidote for carbolic acid? 10. Mention three chief adulterants added to milk for its preservation. 11. What is a radicle? 12. Give atomic weight and valence of Hg, Pb, Ag and O. Answer any ten questions.

PATHOLOGY.

1. How does the morbidity of smallpox differ from that of measles? 2. Mention some lesions peculiar to scarlet fever. 3. What apparent differences in throat lesions in diphtheria and follicular tonsilitis? 4. Mention some pathologic lesions that are sometimes the sequelæ of diphtheria. 5. What constitutes the difference between laryngeal or true croup, and spasmodic croup? 6. Mention the usual pathologic progression in pulmonary tuberculosis. 7. What pathologic condition in the lung corresponds to tubular respiration? 8. Grossly speaking, what morbid conditions in the lung would you expect to find when large moist râles are heard on auscultation? 9. Mention difference between embolism and thrombus. 10. What would be the probable result of embolism in the brain? 11. How may you distinguish the morbid condition in cerebral hemorrhage from embolism in the brain by the symptoms? 12. What are the most common causes of dropsical effusions into abdominal cavity? Answer any ten questions.

MATERIA MEDICA AND THERAPEUTICS.

1. What class of acids would you give (internally) to acidify alkaline urine? 2. What is the dose of carbolic acid for internal administration? What are the chemical antidotes for carbolic acid? 3. Mention the antagonists of cocain. 4. How do salines produce catharsis? 5. What is the proportion of mercury in hydrargyrum cum creta; what is the dose? 6. Give the chemical name and dose of (a) epsom salt, (b) rochelle salt, (c) glauber salt, (d) cream of tartar. 7. What is the physiologic effect of cocain on (a) the ocular conjunctiva, (b) the pupil of the eye, (c) and the salivary glands? 8. What is the adult dose of (a) hyoscin hydrobromate, (b) apomorphia, (c) morphia sulphate, (d) pilocarpin? 9. On what chemical change in the intestinal tract does the purgative action of castor oil depend? 10. What effect has pilocarpus on the heart, on the skin and on the salivary glands? 11. Name the ingredients of (a) Fowler's solution, (b) Donovan's solution, (c) Mensell's solution. 12. Name two local and two systemic emetics and give the dose of each. 13. How do strophanthus and digitalis differ in their physiologic action; name the dose of the tincture of each according to the new pharmacopeia. 14. What is the effect of adrenal extract on (a) the heart, (b) the arterioles? 15. Name a drug which causes dilatation of the pupil of the eye when taken internally and one when applied locally. Name a drug which causes contraction of the pupil of the eye when taken internally and one when applied locally. 16. Give the composition and state the dose of Dover's powder. 17. State the composition and dose of pulvis jalapæ compositus. 18. How should poisoning by coal gas—illuminating gas—(carbonic oxid) be treated? Answer any fifteen questions.

MEDICAL JURISPRUDENCE.

1. What do you understand by civil malpractice and criminal malpractice? 2. What is the value of a dying declaration in court and what should be observed by the physician at the time same is given? 3. What do you understand by a coroner's inquest? 4. How would you determine whether a person found dead had committed suicide or was murdered? 5. From a medicolegal standpoint what would you do if called to see a patient before death who was suspected to have been poisoned? 6. If called to view the body of an infant, how would you determine whether it was born dead or had lived after its birth? 7. Mention a few symptoms that would lead you to suspect sanity in a criminal. 8. Give some general rules to be observed in giving expert testimony. 9. What do you understand by the term "medical expert witness." 10. What do you undertsand by personal identity? 11. If called to view the remains of a person at the place found dead, relate briefly what you would do. 12. Give very briefly how you would hold a postmortem on a person found dead. Answer any ten questions.

HYGIENE.

1. Name two diseases communicated to man solely by the mosquito and name the mosquito responsible for each disease? 2. What is the minimum number of cubic feet of air space that should be allowed to each patient in a hospital? 3. How would you instruct a family to fumigate a room after continuous use by a tuberculosis patient for some time? 4. What steps should be taken by the state authorities to prevent the spread of tuberculosis throughout the state? 5. What steps should be taken by the proprietors of hotels and boarding-houses located in health resorts to prevent communication of tuberculosis to uninfected guests? 6. In what way is typhoid fever most frequently communicated from one person to another? 7. How would you prevent the spread of yellow fever? 8. Give your method of handling a diphtheria case in a family of children? 9. Name some of the organic and inorganic matters which may render drinking water unwholesome? 10. If consulted relative to the management of a school, what instructions would you give relative to age for children to enter, hours of study and exercise? 11. Referring to question next above, what instructions would you give relative to light, heat and ventilation? 12. In an epidemic of scarlet fever what requirements would you adopt before permitting infected children to return to school? Explain in detail. Answer any ten questions.

PRACTICING MEDICINE.

1. What is stomatitis? Name the various forms and outline the treatment. 2. Give cause, symptoms and treatment of uremia. 3. Give the different types of malarial fever and treatment appropriate to each. 4. Give the causes and diagnosis of gastric hemorrhage and treatment. 5. Describe the different valvular diseases of the heart and treatment. 6. Give the causes and treatment of incontinence of urine in children. 7. What is cholera infantum? Give cause and treatment. 8. What conditions produce edema? 9. Mention the early signs of phthisis pulmonalis. 10. Outline treatment of acute nephritis. 11. Name the different forms of dysentery. 12. What is ophthalmia neonatorum? Give cause and treatment. Answer any ten questions.

SURGERY.

1. What is the diagnosis and treatment of empyema? 2. How would you treat osteomyelitis of the tibia? 3. What are the characteristics of the initial lesion of syphilis? 4. What do you regard as the best antiseptic solution for general external use? 5. Describe how you would cut your flaps for amputation of forearm. 6. What tumors are most commonly found in the female breast? 7. How would you treat an extensive burn of the first and second degree on the body? 8. What are the symptoms of strangulated inguinal hernia? 9. What measures would you use to combat surgical shock? 10. What permanent dressing would you apply to a simple fracture of the leg at the junction of the lower and middle thirds? 11. What are the best local anesthetics, and in what strength and how would you apply them? 12. What dressing would you apply to a sprained ankle? Answer any ten questions.

EYE, EAR, NOSE AND THROAT.

1. How would you treat ophthalmia neonatorum? 2. What is the treatment of iritis? 3. What are the post-nasal adenoids and what the treatment? 4. What are the symptoms of pus in the antrum? 5. What are some of the most important results of middle ear disease? 6. What are the important sequelæ of diphtheria? Answer any five questions.

OBSTETRICS.

1. What influence does pregnancy have on a tuberculous woman? 2. What changes occur in the nervous system during pregnancy, and what are the symptoms? 3. Give the diagnosis of a fetus dead in utero and the treatment of such condition. 4. Describe the present aseptic method of the conduct of labor, including delivery of afterbirth. 5. Give the diagnosis, dangers and treatment of retained placenta and membranes. 6. What means are used to prevent puerperal infection in private practice? 7. Through what channels are septic germs liable to penetrate, and what conditions of the tissues facilitate their entrance? 8. (a) State what varieties of mental disease occur in the so-called puerperal insanity; (b), give causes and symptoms; (c), give the prognosis treatment. 9. What are the chief points of medicolegal interests in puerperal insanity? 10. Give the definition, causes, premonitory symptoms and treatment of eclampsia. 11. (a) What are the indications for the induction of premature labor? (b) Describe the operation. 12. Give the etiology, symptoms and treatment of cystitis in the puerperal state. Answer any ten questions.

GYNECOLOGY.

1. What do you mean by the terms amenorrhea and dysmenorrhea and give treatment in each case? 2. Give the pathology, symptoms and treatment of acute endometritis. 3. Describe the anatomy and uses of round ligaments. 4. Describe in detail your treatment of extreme retroversion of the uterus. 5. Under what conditions would you operate for carcinoma of the cervix uteri? 6. Give the symptoms and treatment for pelvic abscess. 7. What are the causes of pelvic abscess? 8. What dangers arise from delayed appropriate treatment of pelvic abscess? 9. Give in detail steps of a good operation for repair of the perineum? 10. What tissues are torn in complete laceration of the perineum extending two inches up the rectum? 11. What are the objections to tapping an ovarian cyst? 12. What complications may arise from gonorrhea in the female? Answer any ten questions.

Florida May Report.—Dr. J. D. Fernandez, secretary of the Florida Board of Medical Examiners, reports the written examination held at Jacksonville, May 15-16, 1907. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 41, of whom 39 passed and 2 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
University of Arkansas	(1905)	86.
Atlanta Coll. of P. & S.	(1906) 91.4; (1907)	78.2, 79, 85, 89.2, 98.
Atlanta School of Medicine	(1907)	83.4
Northwestern University	(1905)	94.8
College of P. and S., Chicago	(1902)	95.1
Howard University, Washington	(1894)	77.8
Hospital Coll. of Med., Louisville	(1902)	84.5
Barnes Med. Coll., St. Louis	(1895)	92.5
University of Missouri	(1904)	84.4
College of P. and S., New York	(1874) 90.4; (1888)	86.
Cornell University	(1903)	80.
Miami Medical College	(1906	87.7
Medical College of Ohio	(1897) 97; (1902)	89.5
University of Pennsylvania	(1903)	95.4
Eclectic Med. Institute, Cincinnati	(1907)	90.
Leonard Medical School	(1907)	79.1, 82.7
University of the South	(1906)	85.1, 94.7
Memphis Hospital Med. Coll.	(1902)	81.7
Meharry Med. Coll.,	(1905) 75; (1907)	75, 82.7, 83.7, 85.4, 84.7, 87.5
Chattanooga Medical College	(1907)	88, 90.
Medical Coll. of South Carolina	(1901)	88.1
University of Vermont	(1904)	88.7
University of Havana, Cuba	(1891)	86.5

FAILED.

College.	Year. Grad.	Per Cent.
*Atlanta Medical College	(1894)	50.4
University of Tennessee	(1899)	70.

*This school united with Southern Medical College in 1898 to form Atlanta College of Physicians and Surgeons.

Iowa May and June Reports.—Dr. Louis A. Thomas, secretary of the Iowa State Board of Medical Examiners, reports the written examinations held at Keokuk, Iowa City and Des Moines, May 7-9, June 5-7, and June 11-13, 1907, respectively. The number of subjects examined in was 20; total number of questions asked, 100; percentage required to pass, 75.

At the examination held at Keokuk May 7-9, the total number of candidates was 31, of whom 28 passed and 3 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Keokuk Med. Coll., College of P. and S., (1906) 76; (1907) the grade of 75 was reached by three, 77 by one, 78 by two, 79 and 80 by one each, 81 by two, 82 by four, 83 and 84 by one each, 85, 86 and 87 by two each, 88 and 89 by one each, 90 by two, and 94 by one.		

FAILED.

Keokuk Med. Coll., College of P. and S.	(1904) 66; (1907)	50, 74.

At the examination held at Iowa City, June 5-7, the total number of candidates examined was 54, of whom 53 passed and one failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent
University of Iowa, (1907) the grade of 75 was reached by two, 76 by one, 77 by two, 78 by five, 79 by two, 80 by three, 81 by five, 82 by four, 83 by six, 84 by two, 85 by five, 86 by seven, 87 by one, 88 by four, and 89 by one.		
University of Iowa, Homeo. Dept.	(1907)	80, 82, 83.

FAILED.

University of Iowa	(1907)	74.

At the examination held at Des Moines June 11-12, the total number of candidates examined was 55, of whom 41 passed and 14 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
College of P. and S., Chicago	(1907)	78, 81, 86, 86, 89.
Northwestern University	(1907)	76, 78, 87.
Bennett Coll. of Ecl. Med. and Surg.	(1907)	85, 89.
Chicago Coll. of Med. and Surg.	(1907)	75, 77.
Drake University,	(1907)	75, 75. 75, 76, 78, 80, 82, 85, 86, 87, 87, 89, 89, 90.
Sioux City Coll. of Med.	(1907)	75, 78, 83.
Ensworth Central Med. Coll.	(1907)	76.
Creighton Med. Coll.	(1907)	76, 77, 78, 79, 81, 83.
New York Homeo. Med. Coll.	(1907)	78.
Eclectic Med. Institute, Cincinnati	(1907)	85.
Hahnemann Med. Coll., Philadelphia	(1907)	76.
Jefferson Med. College	(1907)	85.
Queen's University, Kingston, Ontario	(1904)	86.

FAILED.

Northwestern University	(1907)	68, 71.
Drake University	(1907)	65.
Sioux City Coll. of Medicine	(1907)	71, 73.
St. Louis Coll. of P. and S.	(1907)	72.
Ensworth Central Med. Coll.	(1907)	71.
University Med. Coll., Kansas City	(1902)	71.
Creighton Med. Coll.	(1906) 63; (1907)	58, 65, 71, 70, 74.

Wisconsin April Reciprocity Report.—Dr. J. V. Stevens secretary of the Wisconsin Board of Medical Examiners, sends us a report of those licensed through reciprocity at the meeting held April 9, 1907. Five candidates were registered under the exemption clause at this meeting. The following colleges were represented:

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Hahnemann Med. Coll., Chicago	(1900) Iowa; (1904)	Illinois
Rush Med. Coll.	(1896), (1902). (1904)	Illinois
Northwestern University	(3, 1906)	Illinois
Medical College of Indiana	(1904)	Indiana
Kentucky School of Medicine	(1898)	Illinois
Detroit College of Medicine	(1906)	Michigan
University of Minnesota	(1904)	Minnesota
Medical College of Ohio	(1905)	Ohio
Jefferson Medical College	(1881)	Michigan

REGISTERED UNDER EXEMPTION CLAUSE.

Rush Medical College	(1896)
Northwestern University	(1888)
Minneapolis College of P. and S.	(1890)
University of Toronto, Ontario	(1892)
Royal University of Christiania, Norway	(1892)

Wisconsin June Report.—Dr. J. V. Stevens, secretary of the Wisconsin Board of Medical Examiners, reports the written examination held at Milwaukee, June 18-20, 1907. The number of subjects examined in was 21; total number of questions asked, 100; percentage required to pass, 75 The total number of candidates examined for license to practice medicine was 60, of whom 51 passed, 4 failed and 5 were conditioned. Fifteen reciprocal licenses were granted and 4 candidates were registered under the exemption clause. The following colleges were represented:

PASSED.

College.	Year Grad.	Total Num. Ex.
Denver and Gross Coll. of Med.	(1907)	1
College of P. and S., Chicago	(1, 1906), (4, 1907)	5
Rush Medical College	(1, 1883), (1, 1887)	2
Illinois Medical College	(1907)	1
Hahnemann Medical College	(1907)	1
Tufts College Med. School	(1907)	1
College of P. and S., New York	(1903)	1
Milwaukee Medical College	(1907)	21
Wisconsin Coll. of P. and S.	(1, 1906), (17, 1907)	18

FAILED.

Barnes Medical College	(1905)	1
Milwaukee Medical College	(1907)	1
Wisconsin College of P. and S.	(1907)	2

CONDITIONED.

Rush Medical College	(1901)	1*
Illinois Medical College	(1906)	1†
Marion-Sims-Beaumont Medical College	(1894)	1†
Wisconsin College of P. and S.	(1907)	1†
Milwaukee Medical College	(1907)	1†

*Conditioned in practice. †Conditioned in pathology.

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Northwestern University	(1898), (1906)	Illinois
Coll. of P. and S., Chicago	(1905) Illinois; (1906)	Minnesota
Rush Medical College	(1900); (2, 1906)	Illinois
Hahnemann Med. Coll., Chicago	(2, 1906)	Illinois
American Med. Miss. College	(1906)	Illinois
American Coll. of Med. and Surg., Chicago	(1904)	Illinois
Illinois Medical College	(1906)	Illinois
Keokuk Medical College	(1901)	Iowa
University of Michigan	(1906)	Michigan
Trinity Medical College, Ontario	(1895)	Michigan

REGISTERED UNDER EXEMPTION CLAUSE.

Hahnemann Med. Coll., Chicago	(1887)
Rush Medical College	(1886)
College of P. and S., Milwaukee	(1907)
University of Freiburg, Austria	(1889)

Rhode Island July Report.—Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, July 2-3, 1907. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 29, of whom 16 passed and 13 failed, including 3 non-graduates. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Baltimore Med. Coll.	(1907)	75, 75.3
College of P. and S., Boston	(1907)	75
Tufts Coll. Med. School	(1907)	75, 86.7
Harvard Med. School	(1906) 80.6; (1907)	76.1
Cornell University	(1907)	82.2
College of P. and S., New York	(1907)	90.6
New York Homeo. Med. Coll.	(1905)	77.9
University of Pennsylvania	(1902) 77.3; (1907)	78.3, 88.9
Jefferson Med. Coll.	(1907)	88.8
Med. Coll. of South Carolina	(1905)	78.4
McGill University, Quebec	(1902)	82.2

FAILED.

Baltimore Med. Coll.	(1907)	50.8, 60.9, 66
Baltimore University	(1904) 52.8; (1907)	62.8
College of P. and S., Baltimore	(1907)	70.7
Maryland Med. Coll.	(1907)	64.8
Laval Univ., Quebec	(1895) 61.4; (1904) 65; (1905)	51

Medicolegal

Points from Résumé and Construction of New York Legislation Relative to Privileged Communications—Taking of Deposition as Waiver of Privilege.

The Court of Appeals of New York says, in the personal injury case of Clifford vs. Denver & Rio Grande Railroad Company, that the Revised Statutes of that state formerly provided, and the Code of Civil Procedure (section 834) now provides, that a physician "shall not be allowed to disclose any information which he acquired in attending a patient, in a professional capacity, and which was necessary to enable him to act in that capacity." The Revised Statutes, however, did not provide whether or when or how the patient could waive his right to object to the disclosure. The first provision found relating to that subject appeared in the Code of Civil Procedure, as first enacted, which provided that the prohibition should "apply to every examination of a person as a witness, unless" it was "expressly waived" by the patient. And the court goes on to show the way that legislation, starting with no regulation on the subject of waiver, in 1877 allowed an express waiver, in 1891 an express waiver "on the trial or examination," and since 1899 an express waiver "on the trial or examination" when made in open court, with no right to waive, by a paper executed prior to the trial, except by the stipulation of the attorneys for the respective parties. The prohibition applies "to any examination of a person as a witness," unless it is waived as thus provided.

Clearly the legislature did not mean that the patient could not waive the statute by calling the physician and examining him at the trial, or by not objecting if the other party called him. The court thinks it was not intended, in the absence of any specification to that effect, to prevent other acts from constituting a waiver when the necessary result thereof would take the case out of the spirit of the statute. The object of section 834 was to prevent the disclosure of delicate and confidential matters, which might humiliate the patient in his lifetime and disgrace his memory when dead, so as to enable him to consult a physician in safety, knowing that his lips would be sealed by the law, until he himself removed the seal. When, however, the patient forces the physician to tell all he knows on the subject, and thus publishes to the world all that he might have kept secret, he no longer needs the protection of the statute, and withdraws himself from the spirit of the prohibition. That is the logical and necessary effect of such an act, and, if the legislature had intended to prevent that result, the court thinks it would have said so in specific terms.

The special question in this case was whether the plaintiff's causing the deposition of a physician to be taken constituted a waiver under the statute as to the testimony so taken. The court holds that it did. The language of the section limiting waivers to such as are made in open court on the trial of an action or by the stipulation of the attorneys for the respective parties should be construed as to promote, not to defeat, the purpose of the statute. While there is no doubt that the examination of a witness under a commission can not be regarded for all purposes as part of the trial, still the taking of testimony to be used as evidence by either party may well be regarded as a part thereof so far as it affects the question here before the court. The application for a commission is made in open court to take evidence to prove or disprove the issue. It is a proceeding authorized by law to compel a witness to give evidence to be used in deciding the case. Although preliminary to the formal trial in point of time, in substance it may be held so much a part of the trial as to comply with the amendment of 1899, passed for the purpose, already pointed out, of preventing waivers by contract made long before the commencement of the action.

Moreover, when the plaintiff in this case moved for a commission to examine a physician, her attorneys either signed a notice of motion or a stipulation for that purpose. Interrogatories were prepared and signed by her attorneys, calling on the witness to disclose, in full, information which he had acquired while attending her in a professional capacity. Cross-interrogatories were prepared by the other party at some expense and annexed to the commission. The court thinks that the attorneys for the respective parties thus stipulated a waiver of section 834 as permitted by section 836, for they signed papers, in a legal proceeding taken in this action, which could have no practical effect unless they operated as a waiver. Neither the form nor the contents of the stipulation is prescribed, and hence whatever shows a clear intention to surrender the protection of the statute is sufficient.

Interrogatories asking the physician to tell what his examination of the plaintiff disclosed, to describe her injuries and the like, showed an unmistakable intention to make public all the information that he had acquired in attending her. A voluntary disclosure of the privileged testimony is conclusive evidence of an intention to waive the privilege. The questions could not be answered without making a full disclosure, and hence they necessarily showed that to have been the intention, which is the essence of a waiver.

If the plaintiff could thus, through what may fairly be held to be the stipulation of her attorneys, force the physician to give evidence and could then object to such evidence being used in the only way authorized by law, she could mock the court and bring ridicule on its process with impunity. The courts should not permit their remedies to be trifled with, nor at the election of one party, and to the injury of the other, turned into a vain and empty ceremony. The necessary effect of signing the various papers for the commission, including the direct and cross-interrogatories calling specifically for the precise information which the statute keeps secret unless waived, as the court thinks, constitutes a waiver of the prohibition by the stipulation of the attorneys for the respective parties.

Sufficiency of Mental Capacity for Making Wills.

The Supreme Court of Georgia says, in the case of Slaughter vs. Heath, that various attempts have been made to establish some arbitrary test of testamentary capacity, but they have each had to be abandoned or modified as new combinations of facts arose in later cases. At an early date the English courts entertained the view that it was not required that one should be mentally perfectly sound in order to make a will, and that a delusion not of a kind to affect the will would not render it invalid. Then they seemed to incline to a narrower view. Then they returned to their original position that testamentary capacity was not the same thing as perfect sanity.

The American courts have generally held that perfect mental soundness did not furnish the test, but that there may be partial insanity, disconnected from and not affecting the making of the will, which would not render it invalid.

What is needed is a sensible, practical test, intelligible to a jury. Rejecting any arbitrary tests, and looking at the mental capacity necessary in the light of the thing to be done, viz., the making of a will, the courts now have generally reached a fairly uniform definition of testamentary capacity, in the absence of special statutes. It is thus stated in "Gardner on Wills," page 100, section 31: "A testator has a sound mind, for testamentary purposes, only when he can understand and carry in mind, in a general way, the nature and situation of his property, and his relations to the persons around him, to those who naturally have some claim to his remembrance, and to those in whom and the things in which he has been chiefly interested. He must understand the act which he is doing, and the relation in which he stands to the objects of his bounty and to those who ought to be in his mind on the occasion of making his will."

This court holds that a person has testamentary capacity who understands the nature of a testament or will, viz., that it is a disposition of property to take effect after death, and who is capable of remembering generally the property subject to disposition and the persons related to him by the ties of blood and of affection, and also of conceiving and expressing by words, written or spoken, or by signs, or by both, any intelligible scheme of disposition. If the testator has sufficient intellect to enable him to have a decided and rational desire as to the disposition of his property, this will suffice.

An inquisition of lunacy and a return that the person sought to be declared insane or an imbecile was not so, with an entry of the ordinary confirming such return, is not conclusive evidence against third persons, who were not parties to the proceeding, although notified thereof as next of kin.

Unnecessary Information Not Privileged.

The Supreme Court of New York, Appellate Division, Second Department, holds that in the personal injury case of Travis vs. Haan the exclusion of the testimony of a physician of what the plaintiff told him of how the accident happened was reversible error. That he was treating her professionally did not make the evidence inadmissible under section 834 of the New York Code of Civil Procedure on her objection. The prohibition of that section only applies to information to physician "which was necessary to enable him to act in that capacity." She did not need to tell him that she carelessly got her hand into the machine to enable him to treat the injuries to it.

Drainage from Typhoid Fever Place.

The Supreme Court of Errors of Connecticut holds, in the case of Gorham vs. City of New Haven, brought to recover damages for the pollution of a stream running across the plaintiff's dairy farm, that evidence that there were numerous cases of typhoid fever in a building, the drainage from which was conducted by the defendant to the beds for filtering the sewage that ran into the plaintiff's stream, was admissible in connection with evidence that the plaintiff's stream continued to be contaminated by the drainage after the use of the filter beds, as tending to prove both a diminished value of such use, even without further proof that the germs of such disease actually reached the plaintiff's stream, and although it appeared that the water of the plaintiff's stream was not then used for drinking purposes. Under such circumstances the plaintiff could neither be expected to use such a stream for drinking purposes for his own cattle nor to be able to procure others to so use it.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

July 27.

1 *Inoperable Sarcoma. W. B. Coley, New York.
2 Through Physiology to Pathology in Complications of Gallbladder Disease. G. K. Dickinson, Jersey City.
3 *Reinfection with Syphilis. J. Brew, Nashville, Tenn.
4 *The Long-Waisted Woman and Her Movable Kidney. A. E. Gallant, New York.
5 *Apomorphin in Acute Alcoholism. C. A. Rosenwasser, Newark, N. J.

1. **Inoperable Sarcoma Treated with Mixed Toxins.**—Coley reports 42 cases of inoperable sarcoma, treated by himself, with the mixed toxins of erysipelas and *Bacillus prodigiosus*, with 26 patients remaining well after a lapse of from 3 to 14 years since the treatment. Of these cases, 17 were round-celled sarcomas, 17 spindle-celled sarcomas, 2 mixed-celled sarcomas, one chondro-sarcoma and one epithelioma. In 4 cases no microscopic examination was made; yet the clinical features of the cases left hardly any doubt as to the diagnosis. The late results are as follows: Twenty-one patients well from 5 to 14 years; 26 well from 3 to 14 years, and 10 well from 10 to 14 years. Up to the present time Coley has been able to collect 12 cases of sarcoma of the long bones in which the use of the toxins has rendered amputation unnecessary. In 8 of these cases the sarcoma was of the round-celled variety, in 2 spindle celled, and in the remaining 2 no microscopic examination was made, but amputation had seemed the only means of saving the patient's life. Eight of these patients remained alive and well and free from recurrence from 3 to 8 years; one for 2 years; one for one year; 2 patients for less than six months. Coley believes that there is a new field for the use of toxins, and that is their employment after all primary operations for sarcoma, and possibly carcinoma, as a prophylactic against recurrence. In about 25 cases in which he has carried out such prophylactic treatment the number of recurrences has been extremely small. His plan has been to give two or three periods of treatment of from four to six weeks' duration.

3. **Reinfection with Syphilis.**—Brew describes a case seen by himself and treated at various times by two reputable physicians, in which there was every reason to believe that syphilis had existed and had been cured and that a reinfection had occurred. The patient was treated carefully for an undoubted attack of syphilis, from which he recovered and remained without any syphilitic manifestations for fifteen years. He was then treated for a hard chancre followed by a macular eruption and sore throat. Marrying then, a syphilitic child was born to the couple, although the mother showed no evidence of ever having had the disease. The manifestations of the second attack could not have been tertiary in their nature.

4. **The Long-Waisted Woman and Her Movable Kidney.**—Gallant believes that weight of clothing and compression at the waist line, at and after puberty, have an important effect on girls in producing movable kidneys. He reviews 50 cases in which careful measurements were made.

5. **Apomorphin in Acute Alcoholism.**—Rosenwasser speaks highly of the value of apomorphin in doses of from 1/30 to 1/10 grain as a sedative and hypnotic in cases of acute alcoholism. A very few minutes after administering an emetic dose by hypodermic injection vomiting occurs, due to the action of the drug on the vomiting center of the medulla. Just before vomiting the pulse is weakened and increased in frequency, and after vomiting ceases it becomes slower and stronger, often stronger and slower than it was before the injection was given. Vomiting is preceded by salivation and slight nausea. It may occur only once or be repeated several times. Very soon after the vomiting subsides, a matter of a few minutes in most cases, the patient falls into an apparently natural sleep and may sleep from two to eight hours, awakening refreshed, sober, and rational in most cases. It is not necessary, however, to give the emetic dose in order to obtain the hypnotic effect, and in many cases 1/30 grain will induce sleep.

New York Medical Journal.

July 27.

6 *Transfusion in Dogs on which Bilateral Nephrectomy has been Performed. G. W. Crile and H. P. Cole, Cleveland.
7 *Operations for Cleft Palate and Their Result. G. Hudson Makuen, Philadelphia.
8 Ear, Nose and Throat Conditions in Children. C. Graef, New York.
9 *New Operation for Extirpation of Varicose Veins of Leg. W. W. Babcock, Philadelphia.
10 Relation Between the Physiologic Action of Ions and their Physico-chemical Properties. (Concluded.) W. N. Berg, New York.
11 *Phagocytosis, etc., in Sputum as a Measure of Resistance in Tuberculosis. A. H. Allen, Trudeau, N. Y.
12 *Consanguinity: A Factor in Immunity to Scarlet Fever. J. W. Brandeis, New York.
13 Treatment of Gonorrheal Epididymitis. J. J. Valentine, New York.

6. **Transfusion in Dogs After Bilateral Nephrectomy.**—The experiments reported by Crile and Cole were undertaken to ascertain whether the life of a dog could be prolonged beyond its normal time, after bilateral nephrectomy. In the five dogs in which no transfusion was performed the longest duration of life was 72 hours, the shortest 44. In the dogs that were transfused at the forty-eighth hour, one died 44 hours after transfusion, two dogs lived 18 hours, and another 42 hours. The dog that was transfused at the seventy-second hour lived 40 hours after transfusion, or 112 hours after nephrectomy. The dogs transfused at the forty-eighth hour lived, one 92 hours after nephrectomy, two 66 hours, and one 90 hours. Comparing these survivals with those of other experimenters mentioned, it would seem that transfusion after this operation has no material effect on the length or duration of life.

7. **Operations for Cleft Palate.**—Makuen summarizes his paper as follows: 1. An operation for the closure of a cleft palate should be done only when there is a fair likelihood of success. 2. It should be done only by those having acquired special skill in nasopharyngeal and oral surgery. 3. When it is probable that several operations may be necessary the parents or patient should be so informed. 4. The operation should be done as early as possible. 5. In the difficult adolescent cases the operation after a preliminary tracheotomy, as described by Dr. McKernon, may be preferable. 6. There are two reasons for attempting to close a cleft palate, namely, to improve the general health of the patient and to increase the efficiency of the faculty of speech. 7. The general health of the patient is benefited in two ways, namely, by improving the hygiene of the nasopharynx and the oral cavity, and by improving the general morale of the patient. 8. The speech is improved by a course of psycho-physical training, in which the patient is taught first to recognize normal speech and then to make the best use of his still imperfect organs in its production.

9. **Extirpation of Varicose Veins of Leg.**—Babcock has devised a procedure by means of which almost the entire saphenous vein may be removed through two small incisions in from three to ten minutes, under spinal anesthesia. The veins are extirpated by means of a special extractor, resembling a very long double-ended *bougie à boule*. A line is taken from a point one-half inch internal to the center of Poupart's ligament running to the posterior margin of the inner condyle of the femur. Across this line, about 2½ inches below Poupart's ligament, a transverse incision, one inch in length, is made through the skin and subcutaneous fat down to the muscular sheath. The index finger is then inserted to the bottom of the wound, slid backward for a short distance close to the muscular sheath and then hooked inward and forward away from the muscle, when it at once catches the thick resistant cord of the saphenous vein, which is lifted into the wound and at once clamped above by a hemostat. This maneuver enables the vein to be exposed within a few seconds, even in an obese patient. The vein is then incised below the hemostat, and the hemorrhage at once controlled by entering the smaller bulb of the extractor into the lumen. The instrument is then carefully passed down the vein until it meets with an obstruction that can not be overcome. The size and shape of the acorn tip of the instrument enables the extractor to slip through valves which would catch a smaller instrument. At times the instrument readily passes to the ankle; again it is arrested in the middle or upper third of the leg. The upper end of the vein where it surrounds the

sheath of the extractor is now isolated for a short distance and tied firmly to the shaft of the instrument by a strong silk ligature. This controls all oozing from the open vein. The vein is then ligated above and divided below the hemostat, and the stump dropped. The lower end of the instrument is now located. A half-inch incision on the bulb exposes the vessel, the vein is separated from surrounding tissues for a short distance and clamped below; the bulbous expansion of the extractor is exposed, grasped and firm downward traction made on the instrument. This traction pulls the vein loose from its surroundings, tears off the venous branches an inch or more from the main trunk, and causes the wall of the vein to be massed or pleated in small compass just below the upper bulbous expansion of the instrument. The extractor is pulled from the lower incision with a fusiform mass of vein closely packed against the upper bulb of the instrument.

11. **Measuring Resistance in Tuberculosis.**—As the result of a very extensive study undertaken for the purpose of ascertaining whether or not the intracellular position of tubercle bacilli in the sputum, the presence of disintegrated forms, clumps of parallels or variations in acid resistance, gave any evidence of the resistance of the patient, Allen concludes that phagocytosis points but doubtfully to a good prognosis. Fifty-nine per cent. of the cases showed phagocytosis, when the phagocytic index was applied; 82 per cent. showed phagocytosis when all cases showing phagocytosis at any time were included.

12. **Consanguinity and Immunity in Scarlet Fever.**—Brandeis found that the percentage of contagiousness of scarlet fever among members of the same family, as derived from the original cases, reaches only the low figure of 10 per cent.

Boston Medical and Surgical Journal.

July 25.

14 Hydrophobia and Its Prevention. C. P. Sylvester, Boston.
15 Uterosacral Ligaments. D. H. Craig, Boston.
16 *Contamination of the Air of our Cities with Sulphur Dioxid, the Cause of Respiratory Disease. T. W. Schaefer, Kansas City, Mo.
17 *Case of Extensive Resection of the Stomach for Carcinoma. F. Cobb, Boston.
18 Department of School Hygiene. L. H. Gulick, New York.
19 *Acute Inflammation of Tendon Sheaths Following Acute Tonsillitis. E. A. Tracy, Boston.

16. **Contamination of Air with Sulphur Dioxid.**—Schaefer says that the weight of evidence concerning the relation of sulphur dioxid to public health indicates that its effects are really serious if not lasting on certain susceptible persons, and that its presence in atmospheric air is a positive menace to the hygienic welfare of beings.

17. **Resection of Stomach for Carcinoma.**—In the case reported by Cobb, about two-thirds of the stomach were resected, and seventeen months after the operation the patient is alive and in apparently perfect health, and engaged in hard manual labor. Cobb says that the case is primarily of interest because it presents a strong argument in favor of operation, in all cases of gastric cancer, even those which are apparently hopeless. The patient, male, 52 years old, had been ill for seven months prior to the operation. He presented all the typical symptoms of cancer of the stomach. The tumor was situated on the anterior wall of the stomach, extending from the middle line toward the pylorus. The diseased area was exsected and the cut ends were united by end-to-end suture. The patient now eats anything without distress; he does not vomit, and has no symptoms of indigestion. There is no evidence of a recurrence of the disease. The case is interesting also from a pathologic and etiologic point of view, inasmuch as it furnishes a striking illustration of the ingrafting of carcinoma on a previous gastric ulcer.

19. **Acute Tenosynovitis Following Tonsillitis.**—Tracy reports two cases of acute inflammation of the perineal tendon sheaths following an attack of acute tonsillitis.

Lancet-Clinic, Cincinnati.

July 27.

20 Diagnosis and Treatment of Brain Traumatism. J. N. Sluss, Indianapolis.
21 *Head Injuries. W. B. Burns, Memphis, Tenn.

21.—See abstract in The Journal, Dec. 8, 1906, page 1945.

American Journal of Obstetrics, New York.

July.

22 *Appreciation of the Work of Dr. Henry J. Garrigues in Introducing Asepsis into Obstetric Practice. B. H. Wells, New York.
23 *Ectopic Gestation and Treatment of Tubal Rupture. H. Robb, Cleveland.
24 *Dystocia Following Ventrofixation of the Uterus. E. Hurdon, Baltimore.
25 *Abdominal Signs of Pulmonary Disease in Children. J. D. Thomas, Washington, D. C.
26 *Surgical Conditions of the Kidneys. C. H. Chetwood, New York City.
27 *Traumatic Displacement of the Nongravid Uterus. C. Chase, New York.
28 *Volvulus of the Intestine. G. T. Vaughan, Washington, D. C.

22.—See abstract in The Journal, June 1, 1907, page 1895.

23.—See abstract in The Journal, June 1, 1907, page 1894.

24. **Dystocia Following Ventrofixation.**—Hurdon favors ventrofixation for the treatment of retrodeviations and prolapsus of the uterus, because the operation restores the woman to perfect health, and if any dystocia is caused thereby the adhesions may be released through a very small abdominal incision, and thus permit the undisturbed progress of the labor. Hurdon says that the earlier the operation is performed the better, but the seventh month is not too late. If, however, the complication is not discovered until the last month of pregnancy, it is advisable to wait until term, since, if Cesarean section should be found necessary, it could then be performed immediately.

25. **Abdominal Signs of Pulmonary Disease in Children.**—Thomas discusses the abdominal pains occurring during pneumonia and pleurisy, and reports a number of cases.

26.—See abstract in The Journal, June 1, 1907, page 1895.

27. **Traumatic Displacements of Nongravid Uterus.**—Two cases are reported by Chase. One of the patients, a young woman, 17 years of age, was thrown violently from a bicycle, striking the pavement on her buttocks. A rectal examination disclosed the uterus firmly wedged down into the hollow of the sacrum. On sufficient pressure from below it was released and sprang back into normal position. Relief from pain and nausea was almost instant, and the patient recovered completely in a few days. The second case was unique. The patient was under medical care, and had been examined the day before the accident. The accident consisted of falling backward from the fourth or fifth step of a stepladder, the woman striking on her buttocks and back. Vaginal examination showed a retroverted prolapsed and incarcerated uterus, which was restored to its normal position only after the use of a considerable amount of pressure applied in Douglas' cul-de-sac. The woman made a perfect recovery.

28. **Volvulus of Intestine.**—Six cases are reported by Vaughan; four of the patients were operated on and three recovered.

Annals of Surgery, Philadelphia.

July.

29 *Results of Radical Operation for Cure of Carcinoma of the Breast. W. S. Halsted, Baltimore.
30 *End Results of 376 Primary Operations for Carcinoma of the Breast. R. B. Greenough, C. C. Simmons and J. D. Barney, Boston, Mass.
31 *Final Results in 164 Cases of Carcinoma of the Breast. A. J. Ochsner, Chicago.
32 *End Results Following Operations for Carcinoma of the Breast. N. Jacobson, Syracuse, N. Y.
33 *End Results Following Operations for Carcinoma of the Breast. J. C. Oliver, Cincinnati, O.
34 *Carcinoma of the Breast. A. T. Cabot, Boston.
35 *End Results Following Operations for Carcinoma of the Breast. L. S. Pilcher, Brooklyn, N. Y.
36 *Late Recurrences After Operations for Carcinoma of the Breast. J. Ransohoff, Cincinnati, O.
37 *Carcinoma of the Bones Following Carcinoma of the Breast. H. R. Wharton, Philadelphia.
38 *Thymus Gland Treatment of Cancer. F. Gwyer, New York.
39 *Peritoneal Tuberculosis. P. Syms, New York.
40 *Acute Diffuse Gonorrheal Peritonitis. C. Goodman, New York.
41 *Treatment of Appendicitis. L. A. Stimson, New York.
42 *Motor-boat Fractures. H. P. De Forest, New York.

29. **Carcinoma of Breast.**—Halsted makes a very exhaustive and detailed report on 210 traced cases of carcinoma of the breast. Of this number, 35 patients were reported living in 1906-07; 20 in 1905. Sixteen patients are known to have died of causes other than carcinoma of the breast three or more years after operation, and four patients died of other disease less than three years after operation, in which the cure was demonstrated by autopsy. Thus, 75 cases may be regarded as

cures, 53.6 per cent. of the 210 traced cases. In 14 cases metastases appeared after three years, in one instance manifesting itself as late as eight years, and in two instances more than six years after the operation. Four of the 232 patients operated on died in the hospital. Halsted says that the neck operations were responsible for the greatest mortality.

30.—This article also appeared in the *Boston Medical and Surgical Journal*, June 20, 1907.

31, 32.—See abstracts in The Journal, June 22, 1907, page 2150.

33. **Carcinoma of Breast.**—Oliver gives complete histories of 35 cases. Twenty-two of the patients are dead; 12 are alive and well from three to ten and one-half years after operation. One patient is alive more than three years after operation, but has an inoperable recurrence. The radical operation, without removal of the supraclavicular glands was performed 30 times. The breast was removed and the axilla cleared out seven times. The percentage of recovery after radical operations was 33.3; after the simpler operations it was 57.15. The mortality was least in those cases in which the tumor was located in the central area of the breast and in the lower third. Oliver concludes that the most potent factor in prognosis is the histologic character of the neoplasm. The prognosis becomes better when dealing with the hard, fibrous, slow-growing varieties.

34. **Id.**—Cabot reports 42 cases. All the patients recovered from the operation and 9 are entirely free from recurrence after from four to nineteen years. Five patients are still living, though they have had a recurrence. One of these was operated on three years ago, 3 were operated on four years ago, and one five years ago. The remaining 28 patients died of the disease, 17 in one year, 2 in two years; one patient lived three years, 2 others lived four years, and 6 lived five years. Of the 9 patients who are well without recurrence the pectoral muscles were removed in 2. In the remaining 7 the breast and axillary contents were removed without removal of the muscles. In the 5 patients still living with recurrence, the muscles were removed, with the breast and axillary contents. Of the 28 patients who died, the muscles, breast and axillary contents were removed in 12. In the remaining 16 cases the breast and axillary contents alone were removed.

35.—See abstract in The Journal, June 22, 1907, page 2149.

36.—See abstract in The Journal, June 22, 1907, page 2150.

37. **Secondary Carcinoma of Bones.**—Wharton reports 5 cases of carcinoma of bones, following carcinoma of the breast, for which an operation had been done. The bones involved in these cases were respectively the lumbar vertebræ, left clavicle, both femurs, right femur, left femur. One of the patients had not had the breast tumor removed. In the remaining four the symptoms of bone involvement appeared six, five, six and eight months respectively, after removal of the breast tumor.

38. **Thymus Gland Treatment of Cancer.**—Gwyer makes a preliminary report on the treatment of cancer with thymus gland, and reports a case of inoperable cancer of the breast in which this treatment gave the patient great relief from symptoms. The gland is given either dried, and ground to powder, or as a watery extract of nucleo-proteids and other elements. The dose of the powder varies from 1 to 4 drams, three or four times a day. Sodium phosphate, half an ounce, is given once a day to produce elimination. Gwyer also refers to a number of other cases in which marked benefit resulted from this treatment. It diminishes or eliminates pain and lessens the size of the growth. Every patient so far treated has been considered beyond operation, and beyond hope of cure.

39. **Peritoneal Tuberculosis.**—Syms reviews the literature with reference to the treatment of certain forms of peritoneal tuberculosis by laparotomy.

40. **Acute Diffuse Gonorrheal Peritonitis.**—Goodman reports one case to show that the gonococcus is capable of producing a local or a diffuse peritonitis, without the presence of other biogenic bacteria.

41. **Treatment of Appendicitis.**—Stimson reviews his hospital experiences during the past four years, in the operative treatment of appendicitis. During this time he has done 98 operations, with only one fatality. He employs the curved transverse incision, with longitudinal separation of the recti muscles, and the McBurney gridiron incision. The stump was invaginated with a purse-string suture in 37 cases, and in 49 it was simply tied. Stimson believes in drainage, claiming that it gives him a feeling of security. The one death occurred in a series of 13 cases of general extensive peritonitis.

42. **Motor Boat Fractures.**—De Forest reports 9 cases of fracture of the carpal and metacarpal bones, and the bones of the wrist joint, caused by accidents incident to the running of motor boats.

Journal of Experimental Diseases, New York.

July 17.

43 *Histologic Comparison of Six Cases of Multiple Myeloma. H. A. Christian, Boston.
44 Histologic Lesions of Experimental Glanders. C. W. Duval and P. G. White, Montreal.
45 Method of Differentiating in Sections of Tissue Bacteria decolorized by Gram's stain. C. W. Duval, Montreal.
46 *Study of the Effect of Intravenous Injections of Solutions of Pancreatic Tissue. A. Egdahl, Iowa City, Ia.
47 Experimental Pleurisy. E. L. Opie, New York.
48 Transformation of Serofibrinous into Purulent Pleurisy. E. L. Opie.
49 *Differentiation of Streptococci by Means of Fermentative Tests. L. Buerger, New York.
50 Extracellular and Intracellular Venom Activators of the Blood. H. Noguchi, New York.
51 *Influence of Reaction and of Desiccation on Opsonins. H. Noguchi.
52 Spirochæta (Treponema) pallida and Syphilis. S. Flexner, New York.

43. **Multiple Myeloma.**—Christian has made a comparative anatomic study of 6 cases of myeloma. His results show a striking similarity of structure in all the cases, the differences being only minor ones. The cells have a finely granular, slightly basophilic cytoplasm, an eccentric nucleus with nucleolus and nuclei membrane, and show a tendency of the chromatin to mural arrangement. The tumor cells consequently resemble bone marrow plasm cells rather than myelocytes. As most of the cases reported by others show cells with these characteristics, the conclusion is warranted that these tumors form a group within which no greater variation in cellular structure occurs than in other tumor groups.

46. **Effect of Injections of Pancreatic Tissue.**—Egdahl, from experimental injections of solutions of pancreatic tissue, obtains results indicating that the sudden collapse of acute pancreatitis is due to toxic substances derived from disintegrating pancreatic tissue. It is probable that this toxic substance or substances are of the nature of aromatic and amino compounds.

49. **Differentiation of Streptococci.**—Buerger finds that streptococci from various sources vary greatly in their ability to produce acid fermentation of various carbohydrates. In order that conclusions drawn from tests of this nature may have value, they must be made only after growth in the media which are most favorable for the cocci. His results give six groups of streptococci when tested with dextrose, levulose, galactose, maltose, saccharose, lactose, inulin, dextrin and mannite, namely, those fermenting all; all but mannite; all but inulin; all but inulin and mannite; all but inulin and lactose, and all but inulin, mannite and saccharose. Inasmuch as a comparatively small number of strains has been tested in this way, definite classification is not warranted, but large series of tests should be carried out in order to determine whether streptococci are classifiable by fixed fermentative properties.

51. **Opsonins.**—Noguchi shows that opsonins act best in neutral medium. No opsonification occurs in a serum the alkalinity of which corresponds to more than 1.6 c.c. of 1/20 N solution or acid more than 5 c.c. of this concentration per 1 c.c. serum. The opsonic index obtained with a native serum can not be regarded as the expression of the action of all the opsonin, but only of so much as the degree of optimum of reaction permits to act; hence estimation of opsonic power in order to indicate as accurately as possible the exact amount of opsonin present should be made in neutral medium and with diluted serum. All serum increases in opsonic power on diminution of original alkalinity. Opsonins whose action is suspended by unsuitable reaction become active again if the reaction is brought to neutral unless the acid or alkali used approaches the strength of 1 N, when the alteration in the opsonin becomes permanent. Alcohol or dehydration robs serum of its opsonin. Serum remains practically unaltered in opsonic

power on desiccation at 23 C., and in a dry state opsonins are preserved for at least two years. In this state they resist temperature up to 150 C., regaining their original thermolability when dissolved in the proper amount of water. These characteristics of opsonins correspond to properties peculiar to ferments.

Illinois Medical Journal, Springfield.

July..

53 Rôle of Gross Parasites in Diffusion of Infectious Diseases. R. B. Preble, Chicago.
54 *Achylia Gastrica and Its Relation to Diarrhea. F. Billings, Chicago.
55 *Ulcerative Endocarditis. J. B. Herrick, Chicago.
56 Interstate Medical Reciprocity and Our Degraded Certificate. C. T. Robinson, Edwardsville, Ill.
57 Case of Hydatid Disease. L. B. Ashton, Quincy, Ill.
58 Opsonic Therapy in Skin Disease. R. W. McClintock, Chicago.
59 *Opsonins—Opsonic Index and Vaccine Therapy. J. C. Hollister, Chicago.
60 *Report of Two Unusual Cases. G. D. Lockie, Pontiac.

54.—This article also appeared in the *Virginia Medical Semi-Monthly*, June 21, 1902; see abstract No. 78.

55.—See abstract in THE JOURNAL, June 8, 1907, page 1981.

59.—See abstract in THE JOURNAL, June 29, 1907, page 2204.

60. **Unusual Cases.**—The first case reported by Lockie apparently was one of septicemia following confinement, but no evidence of infection was obtainable. The patient suffered severely for four or five weeks, and then recovered without any treatment. This occurred following two confinements. The second time Lockie injected about 30 minims of the patient's milk into each arm, repeating the injection on the second day, and recovery was immediate. The second patient was an epileptic. The seizures were severe and frequent. Lockie secured some of the child's saliva, and injected about 10 minims into the buttock. The child had no epileptic attacks for three days. Lockie gave three injections, with the same results each time. The child left the city, but it is said that the attacks had lessened in frequency.

Dominion Medical Monthly, Toronto.

July.

61 Relation of the Medical Profession to the Public. J. W. S. McCullough, Alliston, Ont.
62 *Case of Congenital Umbilical Hernia. A. E. McColl, Belleville, Ont.

62. **Congenital Umbilical Hernia.**—McCall reports a case of large umbilical hernia, the ring measuring 3½ inches in diameter. The sac protruded over four inches above the abdominal wall, and it was slightly transparent. About one-third of the intestines was in the hernia. The baby was operated on nine hours afterward, under general anesthesia. The hernial ring was removed completely and the edges of the wound were then brought together by means of sutures and supported by wide adhesive straps. The opening closed in about ten days. The child recovered completely, and is now 2½ years old, well and strong.

Medical Library and Historical Journal, Brooklyn.

March.

63 Charles White: Surgeon and Obstetrician. J. G. Adami, Montreal.
64 Ælius Aristides, a Hypochondriac in the Time of the Antonines. W. A. Holden, New York.
65 Biography of François Magendi. (Concluded.) P. M. Dawson, Baltimore.
66 Should the Size or Growth of a Medical Library be Restricted? C. P. Fisher, Philadelphia.

The Laryngoscope, St. Louis.

May.

67 Cauterization of Four Susceptible Areas of Nasal Mucosa. G. Killian, Freiburg, Germany.
68 Chronic Suppuration of Frontal Sinus. H. P. Mosher, Boston.
69 Rapid Entrance of Maxillary Antrum Through Inferior Meatus Without General Anesthesia. H. H. Curtis, New York.
70 Treatment of Chronic Empyema of Antrum of Highmore. J. H. Abraham, New York.
71 Resection of Cartilaginous Septum. D. B. Kyle, Philadelphia.
72 Excision of Intrinsic Malignant Growths of Larynx. J. Solis-Cohen, Philadelphia.
73 Non-Recurrent Carcinoma of Larynx Removed from Natural Passages. E. F Ingals, Chicago.
74 *Trypsin in Laryngeal Epithelioma. H. Dupuy, New Orleans.
75 Frontal Sinus Operation. M. Halle, Berlin.
76 Blunt and Cutting Laryngeal Dilator and Self-Acting Epiglottis Lifter. J. W. Gleitsmann, New York.
77 New Antral Chisels and Technic in Opening Maxillary Sinus. A. M. Corwin, Chicago.

74.—See abstract in THE JOURNAL, July 13, 1907, page 189.

Virginia Medical Semi-Monthly, Richmond.

June 21.

78 *Achylia Gastrica and Its Relations to Diarrhea. F. Billings, Chicago.
79 Is Gaseous Disinfection Reliable? J. F. Armentrout, Staunton, Va.
80 Alkaloidal Therapeutics. J. Burke, Manitowoc, Wis.
81 Prophylactic Pediatrics. C. C. Wallin, White Sulphur Springs, Mont.
82 Principles of Surgery. (Continued.) S. McGuire, Richmond.

78. **Achylia Gastrica and Diarrhea.**—Billings reports 4 cases, which he believes afford sufficient evidence to show that achylia gastrica exists in individuals who apparently suffer from no organic disease of the stomach, and no constitutional dyscrasia, or malnutrition of sufficient degree to cause it, and that it may therefore be caused by a general neurotic condition. The treatment consists in an attempt to improve the general nervous tone of the individual, and in increasing the general nutrition by frequent small feedings of food of such a character that the unavoidably undigested remnants, which remain in the intestine, will cause as little disturbance as possible. Thorough division of food by mastication is essential. The retention of undigested particles in the colon may be overcome by a colonic flushing. Moist hot applications will relieve colic.

Pennsylvania Medical Journal, Athens.

June.

83 Laryngectomy for Malignant Disease. Case of Laryngeal Epithelioma. C. Jackson, Pittsburg, Pa.
84 *Ocular Infections Due to Disease of the Conjunctiva and the Lachrymal Passages. E. A. Shumway, Philadelphia.
85 Postoperative Infection in Eye Surgery. G. E. Curry, Pittsburg.
86 *Treatment of Ulcer of the Cornea. E. Stieren, Pittsburg.
87 Affections of the Eye Arising from Autointoxication of Endogenous Origin. H. F. Hansell, Philadelphia.
88 Quarantine. A. B. Brumbaugh, Huntingdon, Pa.
89 Use and Abuse of Bromids in Epilepsy. M. Woods, Philadelphia.
90 Hematuria Due to Small Doses of Urotropin. J. G. Beardsley, Philadelphia.
91 Case of Abdominal Pregnancy with Postmortem Report. B. F. Myers, Chambersburg, Pa.

84.—See abstract in THE JOURNAL, Sept. 29, 1906, page 1049.

86.—See abstract in THE JOURNAL, Oct. 6, 1906, page 1130.

Wisconsin Medical Journal, Milwaukee.

June.

92 Significance of Traumatic Cranial Defects. A. P. Mueller, Milwaukee.
93 Early and Qualifying Diagnosis of Tumors of the Urinary Bladder. G. Kolischer, Chicago.
94 Plea for Early Radical Operation in Femoral Hernia. R. Elmergreen, Milwaukee.
95 Case of Transverse Rupture of the Membranous Urethra in the Male. K. W. Doege, Marshfield, Wis.

Western Medical Review, Omaha.

June.

96 President's Address of the Nebraska State Medical Association. F. A. Long, Madison, Neb.
97 Disease of the Right Superior Quadrant. C. C. Allison, Omaha.
98 Diagnosis and Treatment of Gastric Ulcer. J. M. Mayhew, Lincoln.

Journal of the South Carolina State Medical Association, Greenville.

June.

99 Arteriosclerosis of the Uterine and Pelvic Blood Vessels with Symptoms Resembling Cancer of the Uterus. C. M. Rees, Charleston.
100 Importance of Routine Examination of the Feces for Intestinal Parasites. J. C. Sosnowski, Charleston.
101 General Paralysis or Paresis. J. J. Watson, Columbia.
102 The Pharyngeal Lymphatic Ring. E. W. Carpenter, Greenville.

Texas State Journal of Medicine, Fort Worth.

June.

103 Unity and Harmony in the Medical Profession. G. B. Foscue, Waco, Tex.
104 Individualism in Medicine as Influenced by Medical Education. W. S. Carter, Galveston, Tex.

Fort Wayne Journal-Magazine.

June.

105 Surgical Corrections of Hook Nose. C. C. Miller, Chicago.
106 Quadruplets. S. V. Wilking, Roanoke, Ind.

Detroit Medical Journal.

June.

107 The Hospital Problem in Detroit. W. L. Babcock, Detroit, Mich.
108 Local Anesthesia in Operations for Hernia and Varicocele. A. McLean, Detroit.
109 Fallacies in Appendicitis. G. R. Cruickshank, Windsor, Ont.
110 Progress in Internal Medicine. F. Smithies, Ann Arbor.
111 Introduction to the Study of the Infant's Stool. (Continued.) P. Selter, Solingen, Germany.

Archives of Otology, New York.

June.

112 Origin of Cells Found in the Deeper Layer of the Stria Vascularis. G. E. Shambaugh, Chicago.
113 Value of v. Stein's Symptom in Diagnosis of Labyrinthine Suppuration. W. P. Eagleton, Newark.
114 Diagnosis of Purulent Inflammation of Labyrinth. Indications for Opening a Purulently Affected Labyrinth. V. Hinsberg, Breslau.
115 Ocular and Orbital Symptoms in Diseases of the Sphenoidal Cavity. H. Schroeder, Erlangen.

Journal of the New Mexico Medical Society, Albuquerque.

June 15.

116 Relation of Christian Science to the Practice of Medicine. S. A. Milliken, Silver City, N. M.
117 The General Practitioner in Prevention of Tuberculosis. C. W. Taylor-Goodman, Albuquerque.

Buffalo Medical Journal.

June.

118 Obstruction of the Intestine. M. Clinton, Buffalo.
119 Achylia Gastrica. I. H. Levy, Syracuse.
120 Conservatism in Modern Therapeutics. M. E. Gregg, Elbridge, N.Y.
121 Case of Pancreatic Cyst. W. D. Johnson, Batavia, N. Y.
122 Case of Monocular Hysterical Amblyopia. D. B. St. J. Roosa, New York.

Annals of Gynecology and Pediatry, Boston.

June.

123 The Obstetric Forceps. J. B. Cooke, New York.

American Practitioner and News, Louisville, Ky.

June.

124 Effects of High Arterial Tension on Tissues of the Eye. W. Cheatham, Louisville.
125 Importance of Medical Research to the Practice of Medicine. J. A. Flexner, Louisville.

American Journal of Urology, New York.

June.

126 Treatment of Infectious Pyelonephritides. H. Juy, Paris, France.
127 Cases of Voluminous Renal Calculi. A. Pérard, Paris.
128 Case of Sarcoma of the Bladder. G. S. Whiteside, Portland, Ore.

Journal of the Michigan State Medical Society, Detroit.

June.

129 *The Uplands in Medicine. C. B. Stockwell, Port Huron.
130 Ventilation of School Buildings. T. S. Ainge, Lansing.
131 Treatment of Cancer. W. T. Dodge, Big Rapids.
132 Case of Endothelioma of Breast. C. E. Simpson, Detroit.
133 Importance of Complete Extirpation in Tonsil Operations. E. T. Morden, Adrian.
134 Summer Diarrhea. J. M. Sattler, Manistique.

129.—See abstract in The Journal, July 6, 1907, page 71.

St. Louis Courier of Medicine.

June.

135 Kidney Congenitally Located in Pelvis. B. Robinson, Chicago.
136 Municipal Control of Measles. J. Zahorsky, St. Louis.
137 Surgery of Tuberculous Peritonitis. E. A. Babler, St. Louis.
138 Roentgen Ray in Practice. H. N. Chapman, St. Louis.
139 Sudden Death in Diphtheria. A. S. Bleyer, St. Louis.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

July 13.

1 *Simulation of Malignant Disease by Chronic Inflammatory Affections of the Sigmoid Flexure. K. W. Monsarrat.
2 *Diagnosis and Treatment of Appendicitis. W. H. B. Brook.
3 *Acute Appendicitis. A. H. Burgess.
4 *Treatment of Complications and Sequelæ of Gastric and Duodenal Ulcers. J. L. Thomas.
5 *Nephrectomy. G. Barling.
6 Case of Pyonephrosis Containing Typhoid Bacilli in Pure Culture. F. L. A. Greaves.
7 Suprapubic Litholapaxy. R. Heard.
8 *Suppurating Vaginal Cysts. J. B. Hellier.
9 *Spreading Peritonitis Cured by Drainage of the Pelvis, Fowler Position and Rectal Instillation of Saline Solution. C. H. Whiteford.
10 Life Cycle of Species of Herpetomonas Found in Culex Pipiens. W. S. Patton.
11 Duty of Restoring Hearing by Operation in Chronic Aural Suppuration. C. J. Heath.
12 Gumma of the Ciliary Body. G. V. Miller.
13 Calcium Chlorid in Hemorrhage. A. C. Lambert.
14 *Treatment of Ménière's Disease and Ménière's Symptoms by Seaton. T. W. Parry.

1. **Chronic Inflammatory Affections of Sigmoid.**—Monsarrat reports two cases. In the first case the symptom suggested a carcinoma of the sigmoid flexure, and acting on this basis, operation was advised. A large mass was removed and on examining it Monsarrat found that there was no malignant growth at all, simply a perisigmoiditis, which gave rise to a considerable exudation and the building up of scar tissue to an extent sufficient to give the physical findings of a tumor. The second patient also presented signs and symptoms suggestive of malignant disease of the sigmoid, but the diagnosis was reserved because of the length and cylindrical shape of the swelling. However, operation was advised, and on opening the abdomen the whole length of a rather short sigmoid loop was found converted into a rigid walled tube and bound down to the parietal peritoneum of the left iliac fossa by old standing adhesions.

2. **Appendicitis.**—That the majority of patients with appendicitis will get over the attack if treated on simple medicinal lines is claimed by Brook, but he advises removal of the appendix during the quiet period. If any sign of fulmination appears during the attack, operation should be done at once. If there is suppuration, and all is going otherwise satisfactorily, Brook defers operation until after the fifth day, care being taken not to open the general peritoneal cavity. If the appendix presents in the wound, it should be removed, but no elaborate search should be made for it. In general suppurative peritonitis Brook resorts to drainage, massive infusions and calomel.

3. **Id.**—Burgess advises early removal of the infected appendix. He reports 47 cases, with a mortality of 8.5 per cent. This, he thinks, is unquestionably the result of the operation being delayed too long. Only 4 deaths occurred, 2 in abscess cases and 2 in general peritonitis.

4. **Gastric and Duodenal Ulcer.**—Thomas discusses immediate treatment of perforation of gastric and duodenal ulcers. In ordinary cases he thinks the proper treatment should be the following: 1. Placing the patient in the horizontal position. 2. The administration of morphin in sufficient doses to relieve pain and to check peristalsis. 3. The avoidance of palpation and manipulation of the abdomen. 4. The emptying of the stomach by means of a stomach pump. Ordinary siphonage is unsatisfactory, because the solid contents of the stomach can not thus be satisfactorily removed. 5. No food nor drink to be given by the mouth. 6. The abdomen should be covered with several inches' thickness of absorbent cotton and bandaged. 7. Water and food to be given by the rectum only.

5. **Nephrectomy.**—Barling always goes into the loin when he wishes to remove a kidney. He ties the constituents of the pedicle separately. He has never attempted partial nephrectomy, nor has he performed nephrectomy for injury of the kidney. He has done the operation 39 times, with one death, a case of pyonephrosis and perinephritic suppuration. In 2 cases the nephrectomy was done for hypernephroma. Ten of the patients can not be traced. Of the remaining 29, 28 are alive and well.

8. **Suppurating Vaginal Cysts.**—Hellier reports two cases in which he thinks the cysts were derived from Gaertner's duct. There was no history of gonorrhea in either case.

9. **Peritonitis.**—In the case reported by Whiteford there was involvement of the peritoneum below the level of the transverse colon. The transverse colon was enormously distended by flatus and required puncture and suture in two places before it could be replaced. A rubber drainage tube was passed to the bottom of the pelvis through a suprapubic incision. No effort was made to wash or swab out the turbid fluid. Continuous rectal instillation of warm saline solution was begun immediately after the operation and was continued for three days. The patient was kept in the Fowler position all the time. The cause of the suppuration was thought to be an infected appendix, ovarian cyst or Fallopian tube.

14. **Treatment of Ménière's Disease by Seton.**—Parry inserts the seton in the nape of the neck on that side on which the ear trouble is most pronounced. Pinching up a good fold of skin, he passes a sharp knife through it in such a way that the entrance and exit incisions lie from one and a half to two inches apart after the fold has been freed. These incisions are best made in a slanting direction, so that what discharge may form will tend to gravitate to the lower one. The knife is kept in position (passed from the lower to upper incision) until one has inserted into the upper incision a sterilized bodkin, threaded with a piece of sterilized tape, about three-fourths inch broad and about 20 inches long. As the knife is withdrawn through the lower incision the bodkin follows it

from the direction of the upper incision, and thus the seton is passed. Parry uses a long piece of tape, as the old practice of pulling the same piece of material from side to side each day does not commend itself to him in that it is both dirty and unsurgical. He pulls a fresh piece of tape through each day and cuts off the old portion that has lain in the wound during the previous twenty-four hours. The long end is bunched up in a small pocket made of boracic gauze (about the same size and shape as the chamois-leather watch pockets provided by jewelers) with a small flap, so as to keep the unused tape sterile. When the long piece is coming to an end Parry stitches on a fresh piece, and so on. The gauze pocket should be placed above the higher incision, so that it may not become contaminated by discharge. Each day the wounds should receive an antiseptic wash and be covered afresh with a long pad of boracic gauze. There is then no fear of sepsis, and the patient may wear the seton for six months practically without any pain or discomfort. Nitrous oxid should be administered during the passing of the seton, and in quick hands the little operation is said to take only a few seconds.

The Lancet, London.

July 13.

15 Plague. W. J. R. Simpson.
16 *Significance of the Most Frequent Hernia in Childhood. E. M. Corner.
17 *Treatment of Lupus. Dr. Dreuw.
18 Acute Lead Encephalopathy Following Use of Diachylon Pills as Abortifacient. H. F. Warner.
19 *New Method for Using Roentgen Rays. A. H. Pirie.
20 *Prophylactic Use of Antitoxin in Epidemic Diphtheria. E. E. Norton.
21 *New Fluid for Hematocytometer. A. Edington.
22 Bread as Source of Uric Acid. R. Saundby.
23 *Symptoms and Treatment of Hay Fever. J. A. W. Pereira.
24 Case of Appendix in Femoral Hernia. F. C. Doble.

16.—See abstract in The Journal, July 20, 1907, page 280.

17. **Treatment of Lupus.**—The treatment employed by Dreuw consists in thorough surface cauterization, from two to four times, every four or six weeks, of areas previously frozen by means of ethyl chlorid, or by carbonic acid gas if a deeper effect is desired. Over this frozen surface crude hydrochloric acid is rubbed thoroughly and with a certain degree of force. Dreuw claims for this method cheapness, simplicity, ease of appplication and good cosmetic results. It can be applied in all forms of lupus and in all situations, with the exception, perhaps, of the eye. It is said to be an excellent preliminary treatment for later Finsen treatment.

19. **New Method for Using Roentgen Ray.**—Pirie describes a device invented by him for the purpose of measuring the dose of the Roentgen ray. It is called the quantimeter and enables the operator to accomplish in an hour what formerly took four hours.

20. **Prophylaxis in Diphtheria.**—Norton discusses an epidemic of diphtheria which occurred in a school in which the arrest of the spread of the epidemic is attributed to the prophylactic use of antitoxin. The dose was 500 units and about 180 children were injected.

21. **New Fluid for Hematocytometer.**—The solution employed by Edington has the following composition: Neutral citrate of sodium, 7.5 grams; formalin, 2 c.c.; dahlia (Gruebler), 0.03 gram; chloroform, 5 drops, and distilled water, 250 c.c. After standing two or three days the solution is filtered.

23. **Hay Fever.**—Pereira maintains that hay fever begins as a hyperemia of the conjunctiva and that the other symptoms are mostly reflex. He associates hay fever with pterygium, and claims that sufferers from pterygium are invariably great sufferers from hay fever. He advises that sufferers from hay fever wear colorless glasses, and that the eye condition is the one to be treated.

The Practitioner, London.

July.

25 *Diabetes Mellitus from the Physiologic Standpoint. W. D. Halliburton.
26 *The Pancreas and Diabetes Mellitus. J. R. Bradford.
27 *Basis of Therapy in Diabetes. I. W. Hall.
28 *Diet in Diabetes. M. Labbé.
29 *The Heart in Relation to Diabetes. L. Brunton.
30 Carlsbad Treatment of Diabetes and Glycosuria. F. Kraus.
31 Nervous Symptoms Associated with Glycosuria. J. Taylor.
32 *Skin Disease Associated with Diabetes. M. Morris.
33 Ocular Complications in Diabetes Mellitus. W. H. H. Jessop.
34 Pulmonary Complications of Diabetes. J. J. Perkins.
35 Diabetes and Insanity. T. B. Hyslop.
36 Diabetic Gangrene. C. Wallace.
37 *Diabetes in Children. H. M. Fletcher.
38 Urine in Diabetes. A. P. Beddard.
39 Clinical Significance and Treatment of Acetonuria. W. L. Brown.
40 *Testing for Sugar in Urine. W. G. Smith.
41 Gouty Glycosuria. A. W. Sikes.
42 *Treatment of Diabetes Mellitus and Chronic Glycosuria. R. T. Williamson.
43 Treatment of Diabetes Mellitus by Drugs. A. R. Parsons.
44 Glycosuria and Life Insurance. B. Dawson.

25. **Diabetes Mellitus.**—Halliburton agrees with those who claim that the term diabetes mellitus includes many pathologic conditions, which all possess, in common, the symptom of excess of sugar in the blood, and therefore in the urine. He gives an outline of the subject from the physiologist's point of view.

26. **Pancreas and Diabetes.**—Bradford discusses the diseases of the pancreas as a cause of diabetes. Three cases are reported. Two of them present many points of similarity, and suggest the view that some pancreatic lesion, such as chronic pancreatitis, gave rise to signs suggesting the presence of a malignant growth, and the subsequent disappearance of the tumors was accompanied by the development of very severe diabetes. The third patient apparently suffered from an attack of so-called catarrhal jaundice. When the jaundice subsided diabetes of a very severe type suddenly developed. Bradford suggests that, perhaps, an inflammatory swelling of the head of the pancreas was responsible for the jaundice and the diabetes.

27. **Basis of Therapy in Diabetes**—Hall atempts to show that the main object in the management of diabetes is to raise the carbohydrate capacities of the tissue cells by the use of conditions which increase the utilization of the fed carbohydrates, diminish the amount of unused sugar and decrease the acetonuria and the acidosis. He reviews the work of von Noorden, Naunyn and others.

28. **Diet in Diabetes.**—Labbé discusses this subject with reference to two varieties of diabetes: 1. Cases associated with loss of nutrition. 2. Cases in which there is no loss of nutrition. The dietary he prescribes consists of four parts: 1, The fundamental carbohydrate; 2, the accessory carbohydrates; 3, the albuminous, fatty and alcoholic foods; 4, the forbidden foods. He urges that each must be prescribed by weight and never left to the patient's caprice. He says that the diet, which has a powerful and positively curative effect on diabetes without loss of nutrition, is most frequently ineffective in cases of diabetes in which there is loss of nutrition.

29. **The Heart in Diabetes.**—Brunton says that in young diabetics there is a tendency to malnutrition of the cardiac muscle and the cardiac nerves, leading to functional disturbance and possibly to sudden death. There seems also to be a tendency to the appearance of atheromatous change in the vessels generally and in the coronary arteries especially, leading fatty degeneration, feebleness of the heart, and angina pectoris. He insists on the administration of calcium phosphate or lactophosphate in any case of tachycardia, palpitation or cardiac weakness and dilatation occurring in patients with diabetes uncomplicated by gout. In such cases a proteid diet with a minimum of carbohydrates is indicated. Brunton says that while digitalis is useful in a case of diabetes, without gouty complications, it must be used with great care in cases of gouty glycosuria. In such cases the tendency of digitalis and strophanthus still further to increase the tension should be counteracted by the administration at the same time of nitrite of soda. He thinks that the combination of salicylate of soda, or some of the other salicyl derivatives, with codein is sometimes serviceable.

32. **Skin Diseases and Diabetes.**—Morris emphasizes the importance of treating the underlying constitutional state. Locally, daily alkaline baths are said to be particularly useful. Weak solutions of permanganate of potash or sodium borate should also be applied several times a day, and the parts should be powdered with some soothing powder, such as bismuth, or oxid of zinc, and contiguous surfaces should be kept apart with muslin bags. When the acute symptoms have subsided Morris applies a weak resorcin ointment. Ulcerated surfaces and gangrenous conditions must be dealt with in the usual manner.

37. **Diabetes in Children.**—Fletcher gives a short account of the clinical features of diabetes mellitus, occurring in children. The treatment, he says, differs in no essential details from that to be followed in the case of adults. If the urine does not give the iron reaction, the carbohydrates may be gradually reduced, but if the reaction is present the greatest care should be exercised in their reduction. The onset of the reaction, or of drowsiness, should be met with an addition of carbohydrates to the diet. Fletcher declares that in the case of the child a strictly carbohydrate free diet can rarely, if ever, be adopted, without bringing about an increase in the acetone and aceto-acetic acid reaction, and a greater liability to coma.

40. **Testing for Sugar in Diabetes.**—If any doubt or difficulty arises as to the result of the copper test, Smith advises recourse to the bismuth test of Boettger.

42. **Drugs in Diabetes.**—Williamson insists that before beginning the treatment of any case of diabetes with drugs it is important to determine the form of the disease, and to make a very careful examination for various complications. If a moderately restricted diet causes the sugar excretion to cease, no drug treatment is required. But in the other cases in which the sugar excretion can not be arrested by diet, or can only be arrested by a most rigid diet, which the patient finds it difficult to tolerate for a lengthened period, drug treatment is desirable.

Annals of Tropical Medicine and Parasitology, Liverpool.

June.

45 Automatic Oiler for the Destruction and Prevention of Mosquito Larvæ in Cesspools and Other Collections of Water. E. H. Ross and H. C. Ross.
46 Anatomy of the Proboscis of Biting Flies. J. W. W. Stephens and R. Newstead.
47 Trypanosome Transmission Experiments. J. E. Dutton, J. L. Todd and J. W. B. Hanington.
48 Cattle Trypanosomiasis in the Congo Free State. J. E. Dutton, J. L. Todd and A. Kinghorn.
49 Treatment of Experimental Trypanosomiasis. B. Moore, M. Nierenstein and J. L. Todd.

Bulletin de l'Académie de Médecine, Paris.

50 (Year LXXI, No. 23, pp. 695-716.) *Treatment of Syphilis with Sodium Anilin-Arsenate, according to Salmon's Technic. (Traitement de la syphilis, etc.) H. Hallopeau.

50. **Treatment of Syphilis with Sodium Anilin-Arsenate.**—Hallopeau reports the results of the use of this drug in 120 cases of syphilis, his conclusions being that it has a powerful action on the infectious agent. He protests against its common name "atoxyl," as this is purely a fancy name and conveys an erroneous impression, as the drug is toxic to a high degree. In his experience with syphilis, secondary associated infections seemed to be uninfluenced by the drug, as well as what he calls the syphilitic deuteropathies. If the injections could be continued long enough, he says, there is no doubt that the disease might be cured, but this is not possible in practice owing to the symptoms of intolerance which are observed after a variable number of injections. The signs of intolerance include gastrointestinal pain, nausea, vomiting, general malaise, painful sensations in the limbs, dysuria, fainting and chilliness. These symptoms are generally mild and transient, but sometimes they are severe and distressing. They can be avoided by restricting the number of injections and using very small doses after the first two injections, lengthening the intervals and suspending the injections at the first sign of abnormal sensations. Small persons, the aged and those with organic affections are predisposed to these disturbances and should be given smaller dosage. The drug has a cumulative action so that the effect can be kept up even when the dose is reduced and the intervals lengthened. It seems to be probable, he states, that in the organism the drug splits up at the end of a certain time into toxic products; this seems to be the only explanation possible for the abrupt onset of signs of intolerance without any premonitory symptoms. The greater or less rapidity and extent of this splitting up into toxic products explains the difference in the tolerance observed in different patients. He declares that a more stable compound should be sought for. The drug is soon eliminated from the body; not a trace can be found in the urine by the end of two weeks. Salmon believes that the course of treatment can then be commenced anew. Further experience will show whether there is danger of chronic arsenic intoxication or whether immunity might not be obtained, like that of the arsenic eaters. He discusses the part played by the anilin and that of the arsenic in the origin of these accidents, suggesting that the drug should be given a trial in combination with mercury and iodid and also in local injections. The experiences of Metchnikoff and Salmon indicate that this drug administered to monkeys, after contact infection, aborted the disease.

Presse Médicale, Paris.

51 (XV, Nos. 35-38, pp. 281-312.) *Intestinal Occlusion by the Foramen of Winslow. (Occlusion intestinale par le hiatus de Winslow.) P. S. R. Branca.
52 Pathogenesis of Orthostatic Albuminuria. (Albuminurie orthostatique.) A. Chalier.
53 Instrumentation for Thermocauterization. (Cautérization ignée.) Concluded. P. Desfosses and A. Martinet.
54 Valuable Therapeutic Properties of Small-Grained Electric Colloid Metals. (Métaux colloides électriques à petits grains.) H. Iscovesco.
55 Structure of the Nerve Cell during its different Functional States. (Struct. de la cellule nerv.) A. Policard.
56 Present Status of Spinal Anesthesia with Stovain. (Rachistovainisation.) L. Kendirdjy.

51. **Intestinal Occlusion by Foramen of Winslow.**—Branca shows the varying anatomic conditions and modes of intestinal occlusion at this point, in twenty illustrations, and advises access by loosening the descending portion of the duodenum. The route between the portal vein and the bile duct, advocated by certain writers, he asserts, is far more difficult and dangerous.

Archiv f. klinische Chirurgie, Berlin.

57 (LXXXII, No. 2, pp. 281-614.) Vaginal Process of the Peritoneum and Origin of Interparietal Inguinal Hernia. (Proc. Vag. Perit. und Leistenbrüche.) S. Cohn.
58 Bacterial Appendicitis, especially Streptococcal. (App.) E. Haim.
59 Pathologic Anatomy of Multilocular Echinococcus Cyst. (Ech.) K. Elenevsky.
60 Aseptic Suture of the Intestines. (Darmnaht.) M. I. Rostowzew.
61 Fistula between gall-bladder and bronchus; Recovery after Laparotomy. (Gallen-Bronchus-Fistel.) O. Klauber.
62 Diagnosis and Treatment of Congenital Enlargement of the Colon. (Hirschsprungsche Krankheit.) F. Neugebauer.
63 Amputation of Thigh by Gritti Technic. (Amp. des Oberschenkels.) A. Bloch.
64 Treatment of Uncomplicated Fractures of the Malleolus and late Results of Treatment. (Malleolarfract.) E. Bibergeil.
65 Plastic Operation on Esophagus. (Oesoph-Plastik.) W. Rokitzky.
66 Regeneration of Gall Bladder after Partial Removal. (Gallenblase nach partielle Cholecystektomie.) von Stubenrauch.

Beiträge zur klinischen Chirurgie, von Bruns', Tübingen.

67 (LI, No. 3, Pp. 503-782.) Dissecting Osteochondritis and Free Bodies in Joints. (Ost. dissecans und Gelenkmäuse.) Lindenstein.
68 *Abdominal Injuries. (Bauchverletzungen.) W. Hagen.
69 *Jejunostomy. (Jejunostomie.) A. Loyal.
70 *Ideal Cholecystectomy. (Zur Frage der id. Chol.) O. Thorspecken.
71 Superficial Lymphangioma, especially the Cystic Form, in the Neck. (Oberflächliche L. mit bes. Berücks. der cyst. Formen des Halses.) Paetzold.
72 *Absorption by the Peritoneum and its Importance in Bacterial Peritonitis. (Perit. Resorption.) A. Peizer.
73 *Affections of Abdominal Cavity due to Ascarides. (Askaridener Krankungen.) E. Sehrt.
74 *Hemorrhages from Uterine Adnexa. (Blutungen aus den Adnexen.) W. Noetzel.
75 Absorption of Bacteria by way of Lymph and Blood and Rôle of Lymph Glands. (Bakt.-Resorption auf dem Lymph- und Blut-Wege.) Id.

68. **Injuries of the Abdomen.**—Hagen reports about 100 cases of abdominal injuries observed in Göschel's service at Nuremberg. The outcome was much better in the cases with stab or shot wounds or other open injuries of the abdomen than in cases without an external wound, as operative treatment was always undertaken more promptly. This arrests the diffusion of infectious agents through the abdominal cavity much earlier than in case of contusions in which the uncertainty of the diagnosis leads to more expectant treatment. The total mortality was 49 per cent. of 94 cases. In 45 cases in which some viscus was injured subcutaneously the mortality was 68 per cent., while it was only 54 per cent. in the 26 open injuries of abdominal organs. None of the 8 patients with isolated injury of the kidneys died, but 27 died out of the 37 with injury of the stomach or intestines, or both. About 80 pages are devoted to the article, which concludes with an extensive bibliography.

69. **Jejunostomy.**—Loyal reports the details of 25 operations in which jejunostomy was done by Garrè at Königsberg. The operations were for cancer in 20 cases, and for ulcer or its complications in the others. One patient succumbed to hemorrhage from a hemorrhagic ulcer, another to peritonitic compli-

cations of a very large cancer, another to marasmus from carcinomatous peritonitis with ascites, and another with cancer to pulmonary embolism—a total mortality of 4 out of 25 cases. The most rapid technic is always chosen, the Witzel fistula, with special care to insure favorable mechanical conditions for the outflow, the opening into the intestine being made as low down as possible. The fistula answered its purpose perfectly and healed after withdrawal of the catheter without complications. In a few cases there was considerable atony of the stomach afterward, but this disappeared at once after pumping out the stomach.

70. **Cholecystectomy.**—Thorspecken states that the gallstone affection was completely cured in twenty-six out of twenty-nine cases by this operation, but three others presented evidences of recurrence. Surgery is an empirical science, he remarks, and if experience shows that better results are obtained by operation, then the theoretical benefits of drainage should be disregarded. The choice of cases in which to operate is the main point, the failures in his experience being always in the cases with strong indications for drainage. Cholecystectomy is indicated only when it is possible to exclude the presence of a stone in the common bile duct, and only when the composition of the concrements in the gall bladder or cystic duct render it improbable that any can be overlooked, as might occur in case of numerous small stones or gravel. In these cases it is necessary to slit the common duct and to drain the hepatic. It is also generally necessary to drain in case of considerable infection of the biliary passages, even although it is scarcely possible to avoid local peritonitic processes by so doing. Even these restrictions leave a large number of cases in which the simpler method can be applied with the best results. The number will increase when the indications for cholecystectomy are enlarged at the expense of cholecystostomy, which the Heidelberg experience, as well as Kehr's, shows will be a gain in every way.

72. **Peritoneal Absorption.**—Peiser has continued his experimental studies on absorption by the peritoneum and reiterates his former distinction between acute and chronic absorption. By this he means that after the first phase of acute absorption the peritoneum seems to regulate the amount absorbed, not allowing so much to pass as before, this second phase of inhibited or chronic absorption seeming to parallel the elimination through the kidneys. The more promptly the acute phase passes into the chronic phase, the better the prognosis. The text-books teach that a disturbance in peritoneal absorption favors the development of peritonitis, but his experimental work speaks directly against this idea. The toxins contained in the bodies of the bacteria are set free by bacteriolysis, and when enough of these toxins has been absorbed to reach the fatal dose then the animal succumbs. Rapid, extensive bacteriolysis is, therefore, liable to prove injurious unless the bacteria can be removed and these endotoxins drained away. This suggests the possible benefits of a combination of serum treatment and prompt surgical intervention, with drainage.

73. **Abdominal Affections Due to Ascarides.**—Sehrt's patient was a woman of 49, who was operated on for supposed cancer of the stomach, but the organ was found sound and the trouble was traced to a large tumor in the lesser omentum. The surfaces of the liver and of the tumor were studded with numbers of miliary nodules. Large numbers of eggs of the ascaris were found in the necrotic masses in the tumor and in the nodules. A female had probably made its way to this point and died after depositing its eggs. Both the worm and its eggs had become encapsulated in time after a local inflammatory process. Each egg was found in the center of a large giant cell. The eggs in the pus were still viable.

74. **Hemorrhages from the Uterine Adnexa into the Abdominal Cavity.**—Noetzel reports 30 cases and urges immediate laparotomy, with scrupulous removal of all the blood and relics of old hemorrhage. Since losing one of the patients from peritonitis, he always drains for twenty-four hours. The pelvis is lowered at the close of the laparotomy and the abdominal cavity thoroughly rinsed out with salt solution. It must be borne in mind that the patient after such loss of blood is peculiarly non-resistant to infection. The latter is more to be feared than the hemorrhage.

Correspondenz-Blatt f. Schweizer Aerzte, Basle.

76 (XXXV, Nos. 21-22, pp. 665-728.) Buttermilk in Infantile Gastrointestinal Affections. (Buttermilch zur Ernährung magendarmkranker Säuglinge.) M. Stooss.
77 Automatic Apparatus for Permanent Extension of Fractures. (Permanentextension von Knochenbrüchen.) H. Zuppinger.
78 *Treatment in Total Loss of Scalp. (Ueberhäutung und Wundbehandlung bei totaler Skalpierung des Kopfes.) E. Enz.
79 (Nos. 23-24, pp. 729-792.) Indications for use of the High Forceps, with special regard to Axis Traction. (Anlegung der hohen Zange.) T. Wyder.
80 Operative Treatment of Backward Displacement of the Uterus. (Op. Behandlung der Rückwartslagerungen der Gebärmutter.) S. Stocker.
81 Principles of Morphologic Examination of Blood. (Morph. Blutuntersuchungen.) H. Naegeli.
82 Internal Treatment of Streptomycoses with Formaldehyd. (Behandlung der Streptomykosen mit Formaldehyd.) Schwarzenbach.

78. **Total Loss of Scalp.**—Enz describes a case of complete loss of the scalp, including eyebrows; the hair was caught in the gear of a centrifugal cream separator. He also gives summaries of twenty-five similar cases which he has collected from the literature. The ultimate outcome is not known in two, but twenty patients were cured. The defect was covered with Thiersch flaps, and in the case reported the flaps healed so perfectly in place that there is no cicatricial retraction, although the defect extended to the back of the neck. The main points in treatment are to protect the flaps against pressure and the wound from infection. Attempts to apply flaps taken from the scalp proved only partially successful as only a few of the flaps—prepared according to the Wolfe-Krause technic—healed in place. The rest of the defect was covered with Thiersch flaps from the thighs, five different sittings being required for this Thiersch flap transplantation. The illustrations show an apparently normal bald head as the final outcome.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

83 (XXXIII, No. 22, pp. 873-912.) *Action of Sodium Anilin-Arsenate on Syphilis. (Wirkung des Atoxyls auf die Syph.) P. Uhlenhuth, E. Hoffmann and K. Roscher.
84 Giemsa Staining of Pale Spirochete in Section Specimens. (Färbung der Sp. pall. im Schnittpräparat nach Giemsa.) G. Schmorl.
85 Reflex or Disuse as Cause of Atrophy of Muscles. (Muskelatrophie.) P. Sudeck.
86 Bilateral Neuritis of Crural Nerve with Pentosuria. (Neuritis des N. cruralis bei Pentosurie.) Cassirer and Bamberger.
87 *Accidents with Murphy Button. (Anwendung des Murphyknopfes am Dickdarm.) K. Vogel.
88 *To Learn Technic of Symphysiotomy or Pubiotomy. (Wie soll man die Technik der Symph. oder Hebosteotomie lernen?) H. Sellheim.
89 Cure of Gonorrheal Affection of Lachrymal Sac by Intercurrent Erysipelas. (Tränensackblennorrhoe, etc.) H. Feilchenfeld.
90 External Eye Affections in relation to Nasal Affections. (Aeussere Augenerkrankungen in ihrer Beziehung zu Nasenleiden.) Commenced in No. 21. A. Gutmann.

83. **Action of Sodium Anilin-Arsenate in Syphilis.**—The experiments and clinical experience related indicate, Uhlenhuth and his coworkers assert, that this drug, given in sufficiently large doses, has an unmistakable action on the manifestations of syphilis, especially striking in the malignant forms. The drug does not influence the movements of the spirochetes in the test-tube, even in a 1 per cent. solution, but it seemed to banish the spirochetes from the blood completely in an infant with inherited syphilis, while no influence was apparent in another case of the kind. Six of the eleven syphilitics treated systematically with the drug exhibited symptoms of intoxication, loss of appetite and sleeplessness, accompanying severe colic-like pains or diarrhea, while one of the patients exhibited albuminuria, with casts and blood corpuscles in the urine. The return of these symptoms after resumption of the drug established its causal relation. See also abstract No. 50, page 527.

87. **To Avoid Mishaps with the Murphy Button.**—Vogel describes two cases in which the button was used after resection of a cancer in the sigmoid flexure. In each case the lumen became obstructed with a hard scybalum with resulting perforation of the bowel above. He warns against the use of the button at points where such hard masses are liable to be encountered.

88. **How to Learn Technic of Symphysiotomy and Pubiotomy.**—Sellheim advises practicing the pelvis-enlarging operations on the sheep, as the conditions approximate those in the human very closely. He prefers to operate just before the mother sheep has been hit on the head to benumb it before it

is slaughtered. He places the animal on a table in a position approximating conditions in the clinic and then performs the operation, the legs of the animal held by assistants. The various technics proposed can thus be practiced and compared, and conditions afterward examined as the animal is slaughtered. The findings are remarkably instructive, especially as it is a little more difficult to perform the operation on the sheep than on the human subject. The findings also show that the injury to the soft parts is more considerable than one would suppose from the accounts in the literature. They also reveal the dangers and means of avoiding injury of the bladder, urethra and peritoneum.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

91 (LXXXVI, Nos. 2-4, pp. 117-390.) Dislocation in calcaneoscaphoid Articulation. (Luxation im Talonaviculargelenke.) R. Morian.
92 Dislocation of Foot below Astragalus and Fractures of Latter: 2 Cases. (Luxatio pedis sub talo.) Luxembourg,
93 Isolated Subcutaneous Fractures of Certain Carpal Bones. (Frakt. einzelner Handwurzelknochen.) M. Hirsch.
94 *Catgut fresh from the Slaughtered Animal Treated with Iodin or Silver before being twisted. (Katgut, steril vom Schlachttier, etc.) F. Kuhn and M. Rössler (Kassel).
95 Dislocation of Foot below Astragalus. Mechanism. Reduction. (Luxatio pedis sub talo.) Reismann.
96 Inherited Congenital Anomaly of Finger Bones. (Anomalie des Fingerskelettes.) B. Bauer.
97 Incarceration of Mesentery of Small Intestine in Crevice in Great Omentum. (Einklemmung von Dünndarmgekrose.) H. Lorenz.
98 Fractures of Metacarpal Bones. (Frakt. der Metacarpalknochen.) E. Boerner.
99 *Resection of Chest Wall with Plastic Operation on Exposed Lung. (Plastik auf die freigelegte Lunge.) F. Sauerbruch.
100 Experimental Study of Spiral Fractures. (Spiralfrakt.) F. Kroh.
101 *Lymphangiectasia. (Lymphangiektasie.) P. Albrecht.
102 Echinococcus in the Neck. (Echin. am Halse.) J. P. Haberern.
103 Sarcoma of Female Breast. (Sarkom der weibl. Brust.) J Finsterer.
104 Fragmented Sesamoid Bones of Big Toe. (Teilung der Sesambeine.) Momburg.

94. **Fresh Catgut Impregnated with Iodin or Silver Before Twisting.**—Kuhn and Rössler devote nearly six pages to the bibliography of mishaps with catgut, and review all the methods of preparation, showing their defects. Many methods of preparing catgut give tolerably fair results, but none is absolutely reliable. They think that this is because the catgut gets so thoroughly impregnated with germs during its manufacture that the subsequent sterilization is unable to dislodge or to destroy them entirely. The sterilization should be done, they think, before the catgut is submitted to the final processes of manufacture, and they describe the method of preparation in use in their service which they believe gives results never before attained. The method is illustrated. The intestine is removed from the slaughtered animal by a person trained in asepsis, and is kept free from contamination while it is first cleansed, rinsed again and again, and sent to them in an antiseptic fluid. They believe that the intestine of a healthy herbivorous animal may be regarded as free from very virulent germs, tetanus, anthrax and virulent pyogenic cocci. It acquires them and filth when the gut is thrown on the floor of the slaughter-house, as is the general custom. When the intestine is received it is transferred with every precaution of asepsis to a rectangular glass pan. The end of the intestine is then drawn over a little horizontal plate of ivory, in front of which stands a perpendicular knife. The intestine is then pulled along over this plate, the knife slitting it in two, and each half falling and coiling in a separate glass pan on each side of the standard on which the knife is mounted. The slit halves are then manipulated to render them transparent and pliable by passing them over rollers at each end of a box in which several combs are mounted, alternately with the teeth up or down. By turning a crank at each end in turn the catgut is wound from one roller on the other and back again. Every step of the process is aseptic. After the catgut has the desired aspect it is disinfected and then impregnated thoroughly with iodin or silver, when it is ready to be twisted, and disinfected again before using. Ordinary catgut is twisted first and then disinfected. They agree with Paterno that silver fluorid possesses the most powerful disinfecting properties while it has certain advantages over other silver salts. This communication is to be followed by a report on the properties of catgut thus prepared, its absorption, strength and freedom from irritating properties.

99. **Resection of Chest Wall with Plastic Operation on Exposed Lung.**—This operation was rendered possible by the use of the compressed-air cabinet. The large defect left after removal of an adherent mammary cancer was repaired by twisting the sound breast over the defect and suturing it directly to the lung below. No tamponing was required in the two cases described and illustrated.

101. **Lymphangectasia.**—Albrecht relates a case in which chyle was apparently secreted from the swollen lymphatics on the thigh. Some of them ruptured. In structure they resembled a cavernous lymphangioma. Operative treatment is of no use in such cases, he asserts, although symptomatic measures are indicated. The trouble is evidently a congenital malformation in the lymphatic apparatus, the condition being aggravated by secondary inflammation. In the tropical form the filaria induces the inflammation without the necessity for a congenital predisposition.

Münchener medizinische Wochenschrift.

105 (LIV, No. 21, pp. 1017-1064.) *Reduction of Puerperal Mortality. (Zunehmende Kindbettsterblichkeit.) O. v. Herff.
106 *Present Status of the Streptococcus Question in Obstetrics. (Streptokokken-Frage.) W. Zangemeister.
107 Transference of Experimental Syphilis of Rabbit Eye to another Rabbit. (Augensyphilis des Kaninchens.) E. Tomasczewski.
108 *Clinical Test for Alexin. (Alexinprobe.) E. Moro.
109 When to Operate for Myoma. (Myom.) Weisswange.
110 *Dorsal Reflex. (Dorsaler Fussrückenreflex.) Lissmann.
111 *Use of Fluid Rubber to Protect Field of Operation. (Operationen unter Gaudaninhautschutz nach Döderlein.) A. Littauer.
112 Multiple Neurotic Cutaneous Gangrene in its Relations to Hypnosis. (Hautgangrän.) L. v. Szöllösy.
113 Hysteric Fever during Pregnancy and Pains Simulating Labor. (Seltenere Störungen der Schwangerschaft.) Krummacher.
114 Varicella assuming form of Pemphigus Neonatorum. (Pemph. neonat. non syphiliticus). Kaupe.
115 Steel Ribbon Spring for Flat Foot Insoles. (Stahlbandfeder für Plattfusseinlagen.) K. Lengfellner.
116 *Present Status of Percussion of Heart. (Lehre von der Perk. des Herzens.) Commenced in No. 20. G. Treupel.

105. **Increasing Puerperal Mortality.**—O. von Herff writes from Basle to comment on the increasing puerperal morbidity and mortality. He attributes it to defective disinfection of the hands and to overzeal in examining and operating. He commends Ahlfeld's technic of hot water-alcohol disinfection as simple and sure, and urges that the obstetric trauma should be reduced to the minimum with strict avoidance of every intervention not actually indispensable. There is no necessity for training students in the refinements of gynecologic rarities, he adds; what they need is to be able to deliver the ordinary run of cases such as they will encounter in every-day practice.

106. **Present Status of Streptococcus Serum Treatment.**—Zangemeister considers the subject mainly from the standpoint of obstetrics, his conclusion being that, to date, antistreptococcus serum has not proved reliable in the clinic for inducing either active or passive immunity. He thinks, however, that it is only a question of time when effective antistreptococcus sera will be produced which can be depended on for passive immunization and treatment.

108. **Test for Alexins.**—Moro uses for his test 0.1 c.c. of a 10 per cent. suspension of washed red corpuscles, from sheep, in physiologic salt solution. To this is added 0.05 c.c. of a 10 per cent. solution of sheep blood immune serum and 0.045 c.c. of human blood. With normal human blood the sheep red corpuscles are entirely or nearly entirely dissolved in the course of two hours of incubation. In case the human blood is lacking in alexins, more or less of the corpuscles escape destruction, and the proportion which thus escapes is the index of the proportion of alexin in the human blood. The corpuscles that have resisted hemolysis are dissolved in 0.1 c.c. of decinormal hydrochloric acid. The tint of the resulting fluid is then compared with that of the standard solution. The findings harmonized with those of other tests in 200 examinations made by him at Pfaundler's clinic.

110. **Dorsal Reflex.**—Mendel and Bechterew have called attention to an organic reflex in affections of the central motor system with increased nervous excitability. The latter styles it the "tarsophalangeal reflex." When the side of the dorsal surface of the foot, over the cuboid and external cuneiform bones, is lightly tapped with the hammer, the second to the

fifth toes or the second and third alone turn up toward the back of the foot. Lissmann reports that this occurred in 900 tests of healthy persons, without a single exception. The same was observed also in 41 patients in various stages of tabes, in 2 cases of paralysis agitans and in 8 of sciatica. On the other hand, no reflex contraction followed in the cases of spastic infantile paralysis, while a reverse flexion, a pathologic reflex contraction—the toes contracting toward the plantar surface of the foot—was observed in nearly every case of a nervous affection in which the Babinski sign was positive. Plantar flexion was never observed in cases with negative Babinski. In infants the plantar reflex was also observed so long as the Babinski sign was positive. In 10 out of 12 infants with negative Babinski sign the flexion of the toes was dorsal and dubious in the others. These findings suggest that the sign is connected with the pyramidal tracts, and it is thus liable to prove useful in the diagnosis of nervous affections of central origin.

111. **Ruober Film to Protect Field of Operation.**—Döderlein reported a short time ago that he had succeeded in effectually protecting the field of operation by applying a solution of rubber in benzine and formaldehyd. It dries rapidly and forms an impervious coating over the field of operation. The skin is first disinfected as usual and then painted with tincture of iodin; as soon as this has dried the rubber solution is applied. (Döderlein's communication on the subject was summarized in The Journal, xlviii, page 911, 1907.) Littauer has used the rubber solution in sixty laparotomies and has been much pleased with the results. Convalescence seemed to be hastened and shortened.

116. **Present Status of Percussion of Heart.**—Treupel thinks that extremely accurate information can be obtained in regard to the heart by combining the various methods of percussion: Ewald-Goldscheider's threshold percussion (SP.), Moritz's moderate percussion (MP), and touch percussion (Tasperkussion—TP). He gives the findings in 150 cases, tabulating also the orthodiagram, the maximal distance of the right margin of the heart from the median line (Mr), the maximal distance of the left margin of the heart from the median line (Ml), and the length of the heart, from the cava-auricle corner to the apex. He urges others to use these abbreviations for comparison of findings.

Virchow's Archiv, Berlin.

Last indexed page 95.

117 (CLXXXVIII, No. 2, pp. 181-394.) Parathyroid Glands. Aberrant Cells therefrom included in Thyroid Gland, and Remains of Postbranchial Body. (Glandula parath., etc.) S. Getzowa.
118 Case of Retroperitoneal Hernia. (Hernia retroperit. Treitzii.) H. Schöppler.
119 Study of Histomechanic Development of Skeleton and Interstitial Bone Growth. (Synostosis suturæ sagittalis cranii.), R. Thoma.
120 Tumors of Pituitary Body and that Region. (Geschwülste der Hypophysis und-Gegend.) L. Bregman and J. Steinhaus.

Gazzetta degli Ospedali, Milan.

Last indexed page 95.

121 (XXVIII, Nos. 21-27, pp. 209-288.) Influenza Bacillus in Blood and Spleen in Influenza. (Bacillo di Pfeiffer.) G. Ghedlni.
122 *Epidemiologic Study of Typhoid. (Epidemia tifoide di abitazioni.) A. Galluzzi.
123 Study of the Blood in the Insane. (Ricerche ematologiche sugli alienati.) G. M. Fratinl.
124 *Mosquito Traps. (Mezzo di distruzione delle zanzare malariche.) E. Bosurgi.
125 Spinal Anesthesia. (Anestesia del midollo spinale.) O. Marchesini.
126 *Steam Sterilization in Country Practice. (Sterilizzazione a vapore compresso.) A. De Cortes.
127 *Syphilis Transmitted to the Third Generation. (Eredo-eredosifilide.) E. Imparati.
128 *Instrumental Dilatation in 3 Cases of Placenta Prævia. (Metodo Bossi.) E Guasoni.
129 *Typhoid Bacillus in Blood during Convalescence. (Presenza del bac. di Eberth nel sangue.) C. Gennari
130 *Autosiphonage in Lavage of the Stomach. (Nuovo metodo du gastrolisi.) L. della Valle.

122. **Epidemiologic Study of Typhoid.**—Galluzzi relates that sixty barrels of manure and garbage from a town were dumped from a train on a tract of land in the country from 180 to 300 feet to the windward of four farms sheltering thirty persons. The water supply of this group of farms was mainly from a spring in a hill on the other side, and could not have been contaminated from the garbage dumped on the low ground near the river. In less than two weeks twenty out of the thirty persons on the farms developed symptoms of typhoid. Galluzzi ascribes the infection to typhoid germs in the manure dump, liberated possibly by the gases of putrefaction, favored by the extremely hot weather, and transported to the farms by the strong winds prevailing at the time.

124. **Mosquito Traps.**—Bosurgi applies the principle of sticky fly paper to the destruction of malaria-bearing mosquitoes. A kind of screen or trellis work, about 6 feet by 4.5 feet, is smeared thick with heavy crude oil, which is sticky enough to catch and hold mosquitoes. They can be attracted to the screens by hanging a small lantern in the center. It is not necessary to put the screens out of doors until toward night. They should be raised about 4.5 feet from the ground, as a rule, but they can be placed on the ground close to the edge of waters where mosquitoes are breeding. The deodorized crude oil is not expensive and answers every purpose, as it takes a long time to dry.

126. **Steam Sterilization in Rural Districts.**—De Cortes advises a small portable steam sterilizer such as are used by specialists and shows how it can be adapted for the sterilization of everything the physician or surgeon may need in country practice.

127. **The Second Generation of Inherited Syphilis.**—Imparati reviews 22 cases on record in which syphilis reappeared in the grandchildren in a virulent form. There is no evidence of sterility in the families with inherited syphilis, as many as 15 pregnancies are recorded in some. Jullien has reported an average of 2.75 pregnancies in 93 families and Fournier 3.16 in 116 families, but only about 50 per cent. of the children survived the first year after birth, and only a very small number were free from signs of syphilis. The stigmata seem to be about the same for both the first and the second generation of inherited syphilis.

128. **Instrumental Dilatation in Case of Placenta Prævia.**—Guasoni reports three cases in which the advantages of rapid instrumental dilatation were conclusively shown. There was no laceration in any case, although craniotomy was required on account of hydrocephalus in one case.

129. **Typhoid Bacilli in Blood in Convalescence from Typhoid.**—Gennari states that with Conradi's ox-bile method he was able to detect typhoid bacilli in the blood in 8 cases, even one and two weeks after all fever had subsided.

130. **Autosiphonage in Lavage of Stomach.**—Della Valle introduces the stomach-sound and pours through it the fluid for lavage. The patient then changes his position until every part of the stomach has been thoroughly rinsed with the fluid. He is then told to draw a deep breath and then, holding the tube tightly closed between his lips, to make a profound expiration. This starts a siphonage action in the tube and the entire contents of the stomach are thus expelled.

Books Received

Warum Kommen die Kinder in der Schule nicht vorwärts? Zwei Vorträge vor der Schulkommission des Aerztlichen Vereins in München von Der Albert Uffenheimer. Privatdozent für Kinderheilkunde in München und Dr. Otto Stählin. Professor am Kgl. Maxgymnasium in München. Paper. Pp. 56. Price, 1.4 mk. Munich: Verlag der Aerztlichen Rundschau (Otto Gmelin), 1907.

A Dictionary of Medical Diagnosis. A Treatise on the Signs and Symptoms Observed in Diseased Conditions. For the use of Medical Practitioners and Students. By Henry L. McKisack, M.D., etc., Physician to the Royal Victoria Hospital, Belfast. Cloth. Pp. 583. Price, $3.50. New York: William Wood & Co., 1907.

Rational and Effective Treatment of Hip Disease. By P. B. Bennie, M.A., M.D., etc., President Melbourne Medical Association. 1896. Founded on Experience of Numerous Cases in Hospital Practice During 28 Years. Compiled by A. B. Bennie, M.A., M.B., etc. Cloth. Pp. 108. New York: William Wood & Co., 1907.

The Essential Similarity of Innocent and Malignant Tumors. A Study of Tumor Growth. By Charles W. Cathcart, M.A., M.B., etc., Surgeon Royal Infirmary, Edinburgh. Illustrated. Cloth. Pp. 79. Price, $2.50. New York: William Wood & Co., 1907.

Cook County Hospital Reports. 1906. Compiled and Edited under the direction of the Publication Committee of the Cook County Hospital Attending Staff. Cloth. Pp. 304. Chicago: The Henry O. Shepard Co., 1906.

Seventh Annual Report of the Eye, Ear, Nose and Throat Hospital of New Orleans, La. Jan. 1, 1906, to Dec. 31, 1906. Paper. Pp. 71. New Orleans: A. W. Hyatt Stat'y Mfg. Co., 1907.

Treatment. By Harry Campbell, M.D., B.S., etc., Physician to the Northwest London Hospital. Cloth. Pp. 421. Price, $3.00. New York: William Wood & Co., 1907.

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Addresses

THE RELATION OF THE HOSPITAL TO MEDICAL EDUCATION AND RESEARCH.*

WILLIAM H. WELCH, M.D.
Professor of Pathology, Johns Hopkins University.
BALTIMORE.

The most urgent need of the medical schools of this country at the present time is the possession of well organized and well equipped hospitals, available for teaching, and I esteem it a great privilege to bring greetings and congratulations to the Jefferson Medical College on this splendid addition to its educational resources. Coming, as so many of us do, directly from the meeting of the American Medical Association in Atlantic City, my colleagues, representing the medical profession of this country, will surely be glad to have me express on this happy occasion in their behalf congratulations to this college and to this city. We must all rejoice in the enlarged opportunities for bedside teaching supplied by this fine hospital to the Jefferson Medical College, which from its foundation over eighty years ago has laid especial emphasis on clinical instruction, which has sent forth so many graduates who have achieved professional success and eminence, and which has possessed such distinguished teachers and ornaments of our profession as McClellan, Eberle, Dunglison, Bache, Drake, Meigs, J. K. Mitchell, Dickson, Pancoast, Mütter, the Grosses, Brinton, Da Costa, whose worthy, living successors will not deem it invidious if I add to this incomplete list the name of that leader of American surgery, their absent colleague, Keen, who, resting from his many years of brilliant and successful work in behalf of this college, will in a distant land be glad with us to-day.

The Jefferson Medical College is indeed singularly fortunate in the possession of this large general hospital, admirable in construction and arrangement, entirely under the administration of a single board of trustees common to the college and the hospital, who control all of the appointments to the hospital staff and who in serving the best interests of the patients are in the fullest sympathy with the needs of medical education and active in its promotion. It is precisely the lack of hospitals under the control of our medical schools which constitutes one of the most serious obstacles in the development of medical education in this country, and all interested in the advancement of medical science and teaching in America have reason to be grateful to the State of Pennsylvania and the private benefactors whose enlightened generosity has made possible this enviable possession of the Jefferson Medical College.

The theme of my remarks on this occasion—the relation of the hospital to medical education and medical research—is naturally suggested by the event which we are assembled to celebrate.

The discussion of the problems of clinical teaching and investigation by one engaged in laboratory work, although actively interested in all that pertains to the advancement of medical education, may have the advantage, so useful to a speaker, of a certain detachment of view, of length, if not clearness, of perspective, and of the absence of too disturbing a consciousness of all the difficulties inherent in the working out of details.

It would be interesting to trace the evolution of methods of clinical instruction from their inception, or rather revival, in Padua by Montanus about the middle of the sixteenth century to the present time. We should follow the conveyance of these methods by the elder van Heurne toward the end of the sixteenth century from Padua to Leyden, where in the course of a century they reached the high development attained under the great Boerhaave, *communis Europæ preceptor,* and whence influences, spreading in the eighteenth century first to Göttingen, Halle, Vienna, and Edinburgh, can be traced continuously down to this very day and to the medical schools of America. But such a historical survey, hitherto imperfectly drawn, is a theme by itself, which I must forego, although commending it as an attractive one to medical historians.

While the early history of medical education in this country is a story of feeble resources, but still of high endeavor and of just appreciation of the requirements of training for a learned profession, we can not contemplate with similar satisfaction and pride the deplorable period which followed through many years of lowered standards of preliminary education, of shortened courses, and of faulty arrangement of the curriculum. Nevertheless, these unfortunate conditions, attributable mainly to the circumstances of rapid, pioneer development of the country and to the absence of any responsible supervision outside of the medical schools, were saved from giving results as bad as they are often depicted and as the system seemed to demand by a measure of practical, clinical instruction, by the high character and gifts of many of the teachers, and by the preservation of sound traditions of the physician's calling.

Nothing is more remarkable in the history of medical education in this country than the rapidity with which our better schools have emerged in the last two decades from this low state. Especially noteworthy during this period is the development in these schools of laboratory teaching from the weakest to the strongest position in the curriculum, with the corresponding and most gratifying growth in this country of the sciences of anatomy, physiology, pathology, biologic chemistry, pharmacology and bacteriology. Hygiene, unfortunately, has lagged behind, mainly, I believe, through lack of careers for trained hygienists in this country, especially on our boards of health.

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* Address at the opening of the new Jefferson Medical College Hospital, June 7, 1907.

The introduction and development of laboratory teaching has had a profound influence on our ideas of methods of medical education. In the laboratory knowledge is acquired not by reading or being told about things or even by seeing them demonstrated by another, but by immediate contact with the object of study, by power to use technical instruments and procedures, and by personal observation and experiment. A final adjustment has not yet been reached between this practical method of acquiring knowledge and the older didactic or expository method, to which within proper restraints I am not unfriendly, but the days of dominance of didactic teaching in our medical schools are numbered.

A pertinent inquiry in this connection is whether improvement in the teaching of medicine and surgery has kept pace with that of the laboratory subjects. Improvement in the former there has been, but it is, nevertheless, true that the so-called theoretical subjects are to-day taught most practically and the so-called practical branches most theoretically. It is above all familiarity with the methods and results of teaching in the laboratory which has emphasized this contrast and has indicated directions of improvement. Such contrasts, however, as those implied in the distinctions so commonly drawn between theoretical or scientific subjects on the one hand and practical subjects on the other in the medical curriculum, and between the methods of teaching in the laboratory and those of teaching in the hospital are unfortunate and not inherent in the nature of the subjects. Both classes of subjects are practical in that they admit of application to practical use and in that their common aim is to serve the training of practitioners, and both are scientific in that they rest on and are furthered by co-ordinated knowledge gained by systematic observation, experiment and reasoning. The justification for the presence of any obligatory subject in the medical curriculum and for the amount of time devoted to it is its importance for the training of sound practitioners of medicine and surgery. Nor should there be any difference in the general principles underlying the methods of teaching the laboratory subjects and those of teaching the clinical branches. For the latter the hospital is the laboratory where the results of Nature's experiments are to be studied and alleviated by the methods of science.

Training in the laboratories in the early years of the medical course should be a preparation for the final work in the hospital where the ultimate goal of medical education is approached—the ability to interpret and to forecast, and the power to prevent, to remove or to relieve the manifestations of disease and injury. Important as clinical teaching must have been even in the relatively undeveloped state of medicine and surgery in past centuries, it is vastly more important in these days of accumulated medical knowledge and experience, of refined methods of diagnosis by physical examination and by a multitude of technical procedures, and of improved methods of medical and surgical treatment.

Do the methods of teaching the clinical subjects generally adopted in our medical schools at the present time bring the student sufficiently into that intimate, prolonged, personal contact with the object of study, in this case the living patient, which secures that abiding, vital, useful knowledge, the possession of which alone is power for good, and the lack of which is helplessness and even power for harm? As I have intimated, I believe that the clinic falls behind the laboratory in this regard, and that the greatest strength of the curriculum is not where it should lie.

It is not many years since practically the sole method of clinical teaching in the medical schools of this country was the amphitheater clinic. Not a word need be said against the value of this important form of clinical instruction, but no argument is needed to show that by itself it does not suffice for the practical training of students in the science and art of medicine.

A distinct advance was marked by the introduction in recent years of the system of ward classes, by which students in groups are admitted to the hospital wards and given opportunities to examine patients and to receive personal instruction. It is not necessary for my present purpose to discuss the various forms of these ward classes or the methods of conducting them, or similar classes for practical, clinical instruction, or to point out in detail their great value to the student, which is universally recognized.

Neither the amphitheater clinic nor the ward class meeting under an instructor at stated hours and for short periods of time, useful as they are, represents the full ideal of the laboratory method of teaching. They correspond rather to demonstrative courses, which have their own place and value. Such courses alone would represent the attempt to teach a subject like bacteriology by demonstrations of methods, cultures and microscopic slides instead of having the student make his own media, plant and cultivate the bacteria by his own hands, and follow and study from day to day with his own eyes the characters of the growing organisms. It is only by the latter method that bacteriologists are made and it is only by a similar method that capable practitioners of medicine and surgery can be made, and if this essential training is not at least begun in the undergraduate days in the medical school, it must be secured, if at all, later, often under disadvantageous circumstances and at great cost both to patient and to physician.

This kind of clinical training means practical work in the dispensary and especially that students in their final year of study have patients assigned to them in the public wards of the hospital, where under proper restrictions they can freely come and go, that they take histories, make necessary examinations for diagnosis, follow the course of disease from day to day and become familiar with methods and results of treatment, all of this work being, of course, under competent supervision and undertaken only after suitable preliminary studies. Privileges and opportunities for practical training of the kind indicated are at present enjoyed in most of our hospitals only by the fortunate internes, but the system is familiar in Great Britain as that of clinical clerks and surgical dressers, and in Germany as that of *Praktikanten*, hospital service in this capacity being a requirement in these countries for admission to examinations for the license to practice. The system has been in successful operation at the Johns Hopkins Hospital since the opening of the medical school.

It should be emphasized that the system, unlike that of ward classes, constitutes a part of the regular, orderly machinery of the hospital, that the students do work important for the the interests of the patient and which, if not done by them, would have to be done by others. How important this kind of clinical training is deemed by that country which has long held the leadership of medical science is indicated by the recent addition in Germany to the formerly required period of study of the so-called practical year of continuous service in a hospital before the student is eligible for the license to practice.

I believe that it is incumbent on our medical schools and public hospitals to furnish students with opportunities for the kind of clinical training which I have briefly sketched and have indicated as comparable to the laboratory method of teaching. Let us briefly consider what objections can be urged against this method of clinical training and what obstacles stand in the way of its general adoption in this country.

The difficulties are not to be sought primarily in the lack of desire or willingness on the part of medical schools to advance along these lines of improved clinical teaching. It may be that the advantages of the newer methods are not so widely and fully appreciated as is to be desired, but the leaders and especially the younger generation of clinical teachers are alive to the importance of reform.

The difficulties and objections come from that other essential arm of medical education—the hospitals. Under the prevailing system of medical education in this country the most valuable asset of a medical school is the possession of an endowed, good general hospital, the appointments to which are controlled by the school and a main purpose of which is to serve the interests of medical education, while serving the best interests of the patients. There are few hospitals which stand in this relation to a medical school and of these still fewer capable of furnishing the requisite clinical opportunities, for it is self-evident that the system of ward-work which I have outlined is practicable only when the ratio between the number of patients and the number of students does not fall below certain limits.

Most of our schools must look to outside public hospitals to aid them in this most important part of the training of medical students, and the appeal of the schools and the students, an appeal which should be supported by the entire medical profession, is one which should receive the most careful consideration from the trustees of these hospitals. The source of the appeal should be heeded. Our medical charities could not exist without the free gift of their services by physicians, and the mere pecuniary value of these services, amounting annually to many millions of dollars, exceeds that of all the funds contributed to their endowment. The welfare of the community is vitally concerned with the supply of well trained physicians, never so much so as to-day when the power to relieve suffering and to check the incalculable waste to society from preventable disease has been greatly increased and is constantly growing. If the public wants good doctors it must help to make them.

A hospital which includes, as most public hospitals do, among its recognized legitimate functions not only the care of the poor sick, but also the training of physicians and nurses and the advancement and dissemination of medical knowledge adds no function which is new in principle when it admits advanced undergraduate students to work in its wards, while by so doing it greatly increases its usefulness and service to the community, and I believe also to the patients. There is no very material difference between the qualifications of these advanced students to undertake this work and the qualifications of internes when first admitted to the hospital staff. The introduction of these students into the hospital in accordance with the plan of ward work recommended interferes in no way with the orderly discipline and quiet of the wards.

The objection concerning which the greatest misapprehension exists and which doubtless weighs heaviest in the minds of managers of hospitals and of the lay public, unfamiliar with the actual facts, is the fear that harm will be done to the patients by permitting them to be examined by students. The primary purpose of the hospital is, of course, the care and treatment of the patients and the first duty of hospital trustees and physicians is to the patient. Nothing which prejudices the welfare of the patient can for a moment be permitted, and if it were true that the kind of clinical training which I am advocating inflicted any injury whatever on the patient, no other considerations could outweigh this objection.

The objection, however, is entirely unfounded. Every one acquainted with the conditions knows that our clinical teachers and the attending physicians and surgeons of hospitals are keenly solicitous for all that conduces to the comfort of their patients and makes for their recovery, every whit as much so for the poor as for the rich. They can be safely trusted to take every precaution to guard patients from harm and to imbue their students from the start with the same spirit of anxious solicitude for the welfare of the patients. A main purpose of the kind of clinical training under consideration is precisely to teach students when and how to examine patients, and I am informed by my clinical colleagues that students are, if anything, overcautious in their anxiety to refrain from any possibly injurious disturbance of the patient and that they carefully observe any directions which may be given regarding patients. Your own Dr. Keen in his admirable presidential address to the Congress of American Physicians and Surgeons on "The Duties and Responsibilities of the Trustees of Public Medical Institutions" expressed himself on this point of possible harm to the patient from bedside instruction in these forcible words:

> I speak after an experience of nearly forty years as a surgeon to a half-dozen hospitals and can confidently say that I have never known a single patient injured or his chances of recovery lessened by such teaching.

So far from being detrimental, the teaching of physicians and students is distinctly advantageous to a hospital and its patients. The teaching hospital is in general more influential, more widely useful and more productive in contributions to medical knowledge than a hospital not concerned with teaching. Such a hospital is more attractive to physicians and surgeons of distinction and, therefore, more likely to be able to attach such men to its attending staff, and thereby secure the best medical service. The stimulating influence of eager, alert students on the clinical teachers in hospitals has been so delightfully depicted by Dr. Keen in the address just cited, and which should be widely read by trustees and physicians, that I can not refrain from quoting his remarks on this point in full. He says:

> Moreover trustees may overlook one important advantage of a teaching hospital. Who will be least slovenly and careless in his duties, he who prescribes in the solitude of the sick chamber and operates with two or three assistants only, or he whose every movement is eagerly watched by hundreds of eyes, alert to detect every false step, the omission of an important clinical laboratory investigation, the neglect of the careful examination of the back as well as of the front of the chest, the failure to detect any important physical sign or

> symptom? Who will be most certain to keep up with the progress of medical science, he who works alone with no one to discover his ignorance; or he who is surrounded by a lot of bright young fellows who have read the last *Lancet* or the newest *Annals of Surgery*, and can trip him up if he is not abreast of the times? I always feel at the Jefferson Hospital as if I were on the run with a pack of lively dogs at my heels. I can not afford to have the youngsters familiar with operations, means of investigation or newer methods of treatment of which I am ignorant. I must perforce study, read, catalogue and remember, or give place to others who will. Students are the best whip and spur I know.

There is no teacher who will not subscribe to these words of Dr. Keen.

It should furthermore be emphasized that the efficiency of the teaching hospital in its main function of treating diseased and injured patients is increased not only by securing the most skilful medical staff, by the constant stimulus of their interest and activity and by the spirit pervading the institution, but also by the participation of advanced students in the work of the dispensary and the wards in accordance with the system of clinical training which I am urging on your attention. When one considers all the time-consuming microscopic, chemical and physical tests applied in modern diagnosis and necessary to secure complete records of cases of disease, it can be readily understood that the increased force of those trained to make these examinations conduces to more accurate diagnosis, and to more satisfactory control of the progress of the patient from day to day, and therefore to better treatment. In advocating improved methods of clinical training and the introduction of such training more generally into public hospitals I plead and plead earnestly for the student, but I plead also for the hospital and the patient.

It is really lamentable to contemplate the immense clinical material which exists in the public hospitals of our large cities and which could be made available for the education of students and physicians and for the advancement of medical knowledge, but which is utilized for these purposes either not at all or very inadequately. Medical schools of these cities do not begin to secure the advantages of location which rightfully belong to them and they allow themselves to be outstripped by schools less favorably situated and the hospitals themselves are less useful than would otherwise be the case.

I am well aware of the practical difficulties in establishing the necessary relations with hospitals not already connected with medical schools. These difficulties, however, are not insurmountable if the trustees, teachers and medical staff sincerely desire their removal. The new order doubtless involves readjustment of existing conditions both in the schools and in the hospitals concerned. In many instances there will follow a considerable increase of the force of clinical teachers and a wider recognition of work done outside of the college walls and of the immediate direction of members of the faculty, a recognition, it may be, of something on the order of the Scottish extramural teaching or of the German privat-docent system, but adapted to our own special conditions. Careers will be opened to hospital physicians and surgeons, especially to young men, ready and fitted to teach but who now find the doors closed to them.

My remarks thus far have related mainly to the needs of undergraduate medical students and to methods of undergraduate clinical teaching. Education at best is only begun in the school, and the most the medical school can hope to do is to send its graduates forth fitted to begin their professional work and to continue their lifelong education with the greatest advantage to themselves and to others. I have on another occasion discussed the serious lack of opportunities in this country for the training of young men who aim at the higher careers in clinical medicine and surgery, and I contrasted these opportunities with similar ones now open in our laboratories for those who desire to become teachers, investigators or directors of laboratories of anatomy, physiology, pathology or other medical science. Training for the higher clinical careers requires a long apprenticeship after graduation from a medical school and after the ordinary hospital internship and is best secured by prolonged service in a hospital as resident physician or surgeon under conditions which secure more thorough practical experience and better opportunities for scientific study and investigation than those which now exist under the customary arrangement of the medical staff of our hospitals. I shall not now occupy time by renewed consideration of this aspect of my subject further than to state my belief that the reorganization of the resident and interne medical staff of the hospital indicated for this higher training of graduates of medicine is also that best adapted, if not essential, for the successful operation of the system of ward work for undergraduates which I have sketched and for the highest efficiency of the hospital.

A teaching hospital, such as the new Jefferson Medical College Hospital, will not be content solely with making the best possible provision for the treatment of injury and disease and for imparting knowledge, it will recognize as one of its most important functions also the increase of knowledge. Although I am approaching the end of the time allotted to this address, I can not pass this subject by without reference, albeit necessarily a hurried one.

For purposes of accurate diagnosis and treatment by modern methods a general hospital must nowadays be supplied with no small equipment for clinical laboratory examinations, and a good pathologic laboratory is now generally recognized as essential to such a hospital even in its routine work. Practical courses in the clinical laboratories are among the most valuable additions of recent years to the medical curriculum.

The problems of disease presented by living patients are the most difficult and complex in the whole range of the physical and natural sciences. Much light can be shed on them by investigations conducted in physiologic, chemical, pathologic, pharmacologic and bacteriologic laboratories, especially by experimentation on animals, but it is increasingly clear that the scientific study of many of these problems can be undertaken with the greatest advantage in well-equipped, special laboratories connected with the hospital clinics and in charge of investigators trained in chemical, physical and biologic methods, with convenient access to the material for study and in close touch with the clinicians. I may cite as good examples of such laboratories those of the university clinic in Munich under the direction of Professor Friedrich Müller.

The familiar analytical and statistical study of cases of disease, based on simple clinical observations, and first extensively and fruitfully applied by the great French clinicians of the early part of the last century, has been of immense service to medicine and will continue to be of service. A good clinical observation has precisely the same scientific value as a fact demonstrated in the laboratory, and, even if more difficult of interpretation, is often the safer guide for the action of the physician.

It is, however, from the special clinical laboratories that we may reasonably hope for a more penetrating insight into the causes and nature of many diseases, an insight which perhaps may arm physicians with a saving power of prevention and treatment of some of the organic diseases of advancing life comparable to the inestimable gifts of bacteriologic laboratories to the prevention and treatment of infectious diseases. We must welcome the establishment of such laboratories and the new directions which they are giving to medical research. When the purposes of such laboratories are made clear, their foundation and support should make an especially strong appeal to public and private philanthropy.

The medical laboratories of whatever kind and the clinics, while each must cultivate its own special field, are fundamentally one domain, one in their scientific methods and spirit and one in their common purpose to advance medical knowledge and thereby bring healing to the nations.

In this great domain and with this high mission may the Jefferson Medical College and Hospital, with their past of honorable achievement and their future of larger opportunities, grow and prosper, serving skilfully the sick under their care, and blessed with wise counselors, with able and devoted teachers and contributors to medical science and art, with zealous students from far and near, and with loyal graduates—an institution standing in this community and throughout the land as a powerful influence for all that is best in our profession!

THE OLD JEFFERSON HOSPITAL.*

J. CHALMERS DA COSTA, M.D.
Professor of Surgery and Clinical Surgery in the Jefferson Medical College.
PHILADELPHIA.

We meet to-day to dignify with appropriate ceremonies an event of the first importance in the history of this school—an event long hoped for, long despaired of, but which has finally come to pass. The dream of a multitude of yesterdays is realized to-day, and this splendid new hospital is a monument, not to public vanity, not private gain, but to unselfish effort for humanity and science. Those who tracked the toilsome pathway, those who bore the heavy burden, may well be pardoned a feeling of exultation and a sense of triumph.

My first and most agreeable duty is to turn to the Hon. William Potter and his associates of the board of trustees, and, in the name of the great alumni of this school and of my colleagues of the faculty, tender our heartfelt and most grateful thanks.

This event is of the first importance to the Jefferson Medical College, but its influence is of far wider significance. It is of importance to medical science that a corps of the army of healing, a corps in the front of the battle against Death, has been strengthened and enthused. It is of economic importance to the city and the state. When a man is saved from death or rescued from sickness he returns to the support of a family which might otherwise be a public charge, and he becomes again an industrial unit, a factor in the production of wealth, a factor which adds its share to the power and greatness of the commonwealth. From the economic view alone, to say nothing of the humane aspect, it actually pays the state to aid hospitals financially. It particularly pays it to aid teaching hospitals, in which the lessons learned from a single sick or injured man may save valuable lives and cure hundreds in distant places. The event is also of importance to the diseased and hurt of the state and city, for more of them than formerly can come to us for help. The need of hospital accommodation is every year becoming more and more pressing. This is an age when dangerous occupations multiply. The streets are filled with rapidly-moving and death-dealing vehicles; every few stories of a great modern building mean one man dead and many injured; every twenty miles of railroad in the country mean a man killed, and every three miles mean a man injured, each year; great machine shops and factories crush and mutilate, and deadly electric currents are on all sides of us. Closely adjacent to the hospital are the slums, the inhabitants of which, when injured or diseased, know no resource but the hospital; the people of the slums pour into the wards and throng in the out-patient departments. The very situation of the building means a wealth of clinical material, because it is placed where it is most needed. In the slums the slime of humanity gathers; there plagues are ever lurking, ready to burst forth and overwhelm us; there is drunkenness; there is madness; there is pauperism; there is illegitimacy; there is "Vice with her naked talons;" there is "Crime with her dripping fangs." Truly the slum is the shadow of civilization itself, and in that shadow crawls every noisome reptile and springs every noxious plant. The slum is the interrogation to civilization; it is the problem that excites the anxious and apprehensive interest of the scientist, the philanthropist, the statesman and the philosopher; it is the Sphinx's riddle, and to fail to answer it means destruction.

We depart from the old hospital, and truly it is time we did; yet even in going to better quarters there is reminiscent regret at leaving the old home. We leave much besides a building that has outlived its highest usefulness. We leave memories of good work done, of progress inaugurated, of great men and of high achievements. In the arena of that building voices have spoken in tones so authoritative as to sound through this hemisphere and to echo beyond the sea, and the spirits of absent or departed great ones seem to stand beside me as I speak.

In that arena the Grosses and the elder Pancoast operated, and Bartholow and J. M. Da Costa taught. There spoke Levis, Parvin, Wallace, Biddle, Brinton, Maury and others. There, as guests, have stood Esmarch, of Kiel; Mikulicz, of Breslau; Faure, of Paris; Lorenz, of Vienna; Bryant, Durham, Horsley, Ballance and MacCormac, of London; Macewen, of Glasgow; Lawson Tait, of Birmingham; Annandale and Chien, of Edinburgh; Emmett, Weir and Thomas of New York; Senn, of Chicago; our own Marion-Sims, and a host of others. There, until yesterday, one fortunately still living was a tower of strength. I refer to our distinguished Emeritus Professor of Surgery, my well loved master, Keen. I find in these memories strength and inspiration, and I will hold them and cherish them as long as memory remains a portion of my intellect, and until my body becomes again a part of the dreamless dust.

Thirty years ago, in May, 1877, the hospital that we now leave was opened for patients. Our college was, I believe, the second institution in the country to have its own hospital for teaching purposes. When opened it was modern, well equipped, amply satisfactory, an ornament to the city and the pride of the school. In only thirty years it has become completely antiquated, so quickly do conditions change. Thirty years! A comparatively short time, if measured merely by the figures on the calendar, but an infinite period if estimated by multitudinous and revolutionary changes. Thirty years ago vivid chromos, the product of lithography, were immensely popular; they have entirely given place to really beautiful Christmas and New Year cards. Typesetters and compositors were not being pushed aside then by composing machines. Men wrote letters by laborious effort with pen and ink and did not have typewriters. The newspapers did not publish pictures, and the pictures in the magazines were wood cuts, not halftones. In the entire country there were only four establishments for making artificial ice; there are now over eight hundred. The preservation of food by canning was just beginning to become a great industry. Numbers of persons were reading Jules Verne's recently-published book, "Twenty Thousand Leagues under the Sea," but navigation under the water was then but a poet's dream; it is now realized in the submarine boat. The United States Navy was almost extinct, thanks to some of the ablest political engineers of destruction that ever wrought evil deeds. The Philippine Islands were known to but few in this country, and then only in connection with hemp and peculiar-looking cigars, and the man did not live that could forecast the message of progress that Dewey was to write in iron hail on the battlements of Manila, and out of which was to spring that new island empire in the very portals of the distant sunset. The United States Army numbered but twenty thousand men, some of whom were being used to carry elections in the southern states, and some of whom, under General Miles, were fighting Chief Joseph and his Nez Percés in Northern Montana. The small-caliber, long-range rifle and smokeless powder were unknown—the combination that has revolutionized warfare, made cavalry an almost insignificant arm of the service in actual battle and rendered the taking of fortified places by assault almost impossible to any except the "little brown men" of the land of the Mikado. The largest locomotive in general use weighed thirty-five tons; the latest type of freight engine built by the Baldwin Locomotive Works weighs over one hundred and fifty-two tons. Express trains, as a rule, ran at a rate of thirty miles an hour; they now run more than fifty, and often over sixty miles an hour for long distances. The largest ocean steamboat was under five hundred feet in length; the Baltic, of the present day, is seven hundred and twenty-six feet in length. The record passage across the Atlantic was over seven days; it is now under five days, seven hours. There was not a building in Philadelphia above eight stories in height; there are buildings now in the city twenty-three stories high. Yellow brick and terra cotta were seldom used in building, steel and cement were never employed, and our present Babylonian towers with ribs of steel would have seemed to the people of that day as marvelous as Aladdin's palace. There were no hansom cabs on the streets. The bicycle with the huge front wheel was just appearing, and twenty years were to pass before the advent of the automobile. Hand organs were of small size, and there were no huge breweries of din pushed about in carts or drawn around by dejected donkeys. The street cars were dragged slowly by bony and wretched horses. The public squares were enclosed with iron railings. The streets were paved with Belgian blocks and cobblestones. The wizard, Edison, was at Menlo Park, deep in perfecting the incandescent electric light and in inventing the phonograph. Our streets were illuminated by flickering gas jets. The telephone had been exhibited the previous year at the Centennial Exhibition and was regarded as a marvel, but a toy; few guessed that it would soon become a necessity of life—a perplexing and harassing necessity, breeding wrath and bad language. Marconi had not yet beckoned the mystic symbol out of the fogs of the North Atlantic across eighteen hundred miles of lonely sea. Unjustifiable and maddening street noises were less common than now; the trolley with flat wheels, the huge hand organ, the riveting machine and other sin-breeding infamies were not, every minute of the twenty-four hours, producing profanity, insomnia and neurasthenia. Color photography, safety matches, the underground railroad, the elevated railroad, the steel trust, benevolent assimilation and the big stick were unknown. The country was just recovering from the fierce electoral struggle between Tilden and Hayes, and there was no such thing as an eastern question known to the policy of the United States.

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*Address at the opening of the new Jefferson Medical College Hospital, June 7, 1907.

A man could be graduated in medicine after two years of study; only the crudest preliminary education was required; the college professors divided the fees and made enormous incomes by it, and most medical schools were private institutions run for private gain just as truly as groceries and tobacco shops. There was not a genuine trained nurse in any hospital in Philadelphia. Surgery was narrow and limited compared to what it is to-day: it consisted chiefly in litigating for aneurism, performing tracheotomy, amputation and resection; operating for empyema, strangulated hernia, bone disease and stone in the bladder; reducing dislocations; setting and dressing fractures; trephining for head injuries; caring for wounds; removing foreign bodies and extirpating tumors. A few surgeons—notably the Atlees—were doing ovariotomy. Comparatively few operations were done, and most ignorant persons were afraid of hospitals, would go to one only in the last extremity, and then went in deadly terror of the black bottle and the fatal potion.

Year by year there has been a growing confidence in hospitals. During the year ending Sept. 30, 1880, there were 890 in-patients treated in the hospital. During the year ending June 1, 1906, there were 6,118 treated—nearly seven times as many—with the same accommodations. During the year ending Sept. 30, 1880, 483 new patients were recorded in the Surgical Out-Patient Department, and these included genitourinary and orthopedic cases. Last year there were 4,043 new cases, excluding genitourinary and orthopedic cases. During the year ending Sept. 30, 1880, only 267 operations were done, including general, orthopedic, ophthalmic and genitourinary surgery, as well as gynecology. During one day a short time ago twenty operations were done—nearly 10 per cent. of the number performed in an entire year twenty-seven years ago. In other words, at the present time as many operations are performed in two weeks as were done in a year in 1880.

In 1877 the great wave of surgical progress, which is one of the most notable events of a notable age, was beginning to form a moving billow. Appendicitis was unknown and was to remain so until Reginald Fitz, of Boston, published his epoch-making paper in 1886. Mellier had guessed the truth in 1827, but he was suppressed by authority, and thousands died because Dupuytren wrong was believed and Mellier right was doubted. In 1877 drugs producing local anesthesia had not been discovered. Bodies for dissection were difficult to obtain and great abuses sometimes arose in attempting to obtain them. The essential importance of embryology in solving many problems of deviation and of disease was beginning to be appreciated. Pathology, chemistry, physiology were becoming fruitful of marvels.

It was just dawning on teachers that students must not only see and hear but must also do, and that, as anatomy is learned in the dissecting-room, many other branches must be learned in the laboratory. We have had the dissecting-room—that is, the laboratory of anatomy—for centuries; we now must have laboratories for at least a dozen other subjects. A few progressive and able men had grasped the full importance of the recent discoveries of Pasteur, had realized that infectious diseases were probably due to bacteria, and that preventive medicine was destined to become one of the highest callings to which man could devote his brain and consecrate his life. Prof. John K. Mitchell, with the intuition of the poet, had claimed, away back in the forties, that fungi caused infectious diseases, but he was unable to prove it. The evidence of the existence and power of minute fungi was furnished by Pasteur, but the germs of suppuration were not discovered by Ogston until 1881, and the bacilli of tubercle were not discovered by Koch until 1882.

One reason that operations have become notably more frequent since 1877 is found in a great discovery made but a few years before that time. In 1876 a modest, unassuming Scotch surgeon attended the International Medical Congress in Philadelphia, and from that visit dates the beginning of a radical change and an enormous advance in surgery. That surgeon, a few years before, had made a study of the views of Pasteur and had come to the conclusion that microscopic fungi were responsible for many unfavorable changes in wounds, and he sought to prevent the entrance of bacteria into wounds by what he called antisepsis. The profession was slow to believe. In 1877 only two surgeons in Philadelphia employed antisepsis. These surgeons were W. W. Keen and J. Ewing Mears.

Antisepsis has wrought marvels as mighty as were ever conjured by the seal of Solomon. It really made possible most of the surgery of the brain, the chest, the abdomen and the abdominal viscera. It has practically abolished the so-called blood poisoning as a sequel of surgical operations; it has enormously mitigated postoperative pain and fever; it has lessened the mortality of major amputations from over 50 per cent. to under 5 per cent., of compound fractures of the long bones from over 50 per cent. to under 1 per cent., of ovaritomy from at least 50 per cent. to about 5 per cent. Truly the life of Lord Lister has been a greater boon to the human race than the lives of a hundred military heroes or a score of kings. I would be prouder to be Lord Lister than to be any potentate that lives and reigns.

For fifty-two years Jefferson College was without a regular hospital. During these years many notable things were done, in spite of cramped quarters, inadequate means and makeshift appliances. This indicates that able and enthusiastic men can often obtain great results with very imperfect instruments. Fine buildings and ample equipments are of great value, but men are of even greater value. It has been well said that the laboratory in which the *x*-rays were discovered contained little but a Crookes tube, a Ruhmkorff coil and Roentgen himself. Back of every appliance must stand a man able and anxious to use it to the best advantage. Sound college policy seeks to obtain able men as well as costly buildings, and to develop teachers, operators, writers and experimenters, as well as to found laboratories. Let us not be so "charmed with the shell" that we "cast away the pearl"!

Although until 1877 we had no building especially devoted to hospital purposes, we had a sort of hospital from the very beginning, and dispensary patients were cared for and operations were regularly performed before the class in our original college building. That building, the precursor of our present college and hospital, was our home for three years and still stands. It is 518 and 520 Locust street. It is an old building. From the side driveway iron tiebeams are visible in the walls. It is three stories in height. The front door and windows are arched, and access to the interior is obtained by mounting several well-worn stone steps. The front, except for the sign of a business firm, is practically as it was eighty-two years ago. Around it are many modern structures and also some houses that stood in 1825. It was built for a cotton factory, then became the Winter Tivoli Theater, then the Jefferson Medical College and is now a bottling establishment. In 1825 Locust street was called Prune. Directly opposite the college was the Walnut Street Prison for criminals and debtors, one of the rules of which was that the yard must be "kept free from cows, hogs, dogs and fowls." On the east the college looked out directly on the burial ground of the Free Quakers, those apostles of peace whose combative instincts had grown so strong that they had fought under Washington in the War of the Revolution, and had been expelled from meeting for doing so. To the west, across Sixth street, was the potter's field, now Washington Square. Directly back of the college was an ale house, and a block or two away were several churches. Crime and misery in front, death on either hand, and manifold consolations in the rear!

Every teacher wore a swallowtail coat, even in the daytime, and drove a chaise. If a student were hungry he could go forth into Fifth street and purchase hot corn or pepper-pot from colored venders in the street. If he felt convivial his wants could be satisfied in the Goose and Gridiron or in the Robinson Crusoe. If he wished to see a play he chose between the Olympic Theater, at Ninth and Walnut streets, and the Chestnut Street Theater, on Chestnut street above Sixth. If he wished to read he went to the Philadelphia Library on Fifth street above Walnut. If the thirst for combat filled his youthful veins he wandered up to Ninth and Chestnut streets, where he was sure to be promptly accommodated by a university man.

The Philadelphia Dispensary, Christ Church, St. Peter's Church and the Pennsylvania Hospital were where they stand to-day. The law courts were at Fifth and Chestnut streets. The mayor's office was at Sixth and Chestnut streets. The United States Bank, which was a political institution and a national issue, was in the building that is now the Custom House. The almshouse was between Tenth and Eleventh, Spruce and Pine streets.

There were no policemen, only watchmen, who were also lamplighters, and a favorite nocturnal amusement was beating the watch. At this time revolutionary traditions were still active and influential, and many men were living who had crossed the Delaware with Washington, had wintered at Valley Forge, had known Benjamin Franklin, and had gone out in the streets to cheer and build bonfires when Colonel Tilghman rode in with the news from Yorktown.

The year of our opening was the year Lafayette completed his final tour in America, that John Quincy Adams became president, that Henry Clay assumed the office of secretary of state, that Oliver Wendell Holmes went up to Harvard, that Poe prepared for the University of Virginia, that Washington Irving started for Spain, that Longfellow celebrated his eighteenth birthday, that Fitz-Green Halleck traveled in Europe, that Hawthorne was graduated from Bowdoin, that Daniel Webster cast aside his free trade views and that Andrew Jackson really became the St. Andrew of Democratic adoration.

In that old building of the Jefferson College the elder Gross studied as a pupil of McClellan, the professor of surgery. Washington L. Atlee was a student, Nathan R. Smith taught anatomy, John Eberle taught practice of medicine, and W. C. P. Barton taught materia medica. In it George McClellan invented teaching by public clinics and the first operation was performed in it May 9, 1825.

Teaching from actual cases in collegiate clinics, a plan invented by McClellan and first applied in the school he founded, came to be the greatest strength of the institution. Teaching by college clinics was long opposed by many conservatives. It was held by them to be misleading, ineffectual and superficial, but, nevertheless, after much controversy, it came to be adopted as the most prominent feature of the curriculum by the famous faculty of '41, the faculty that contained Pancoast, Dunglison, John K. Mitchell, Huston, Bache, Mütter and Charles D. Meigs—a group that was unbroken until 1856. But we learn as we advance. "The thoughts of men are widened with the process of the suns." The large clinics have played an infinitely valuable part in medical teaching, but the days when they could constitute the sole method of clinical instruction have forever passed away. Accurate and intimate knowledge can be obtained only by close observation, and close observation is possible only to small sections; and the students now personally examine cases, assist in operations and give anesthetics—of course, guided and controlled by a teacher.

A new building was erected in 1828, and the last lecture was delivered in the original college building in March, 1828. The new building was on Tenth street above Walnut. This building was twice enlarged and was finally succeeded by the present structure on the corner of Tenth and Walnut streets. The ground once occupied by the college is covered by the new hospital. Up to the year 1844 patients on whom serious operations had been performed were taken to their homes in carriages and were cared for at home by the professor of surgery and his assistants. In 1844 two rooms were rented over a store at the southwest corner of Tenth and Sansom streets and a miniature surgical hospital was established. Dec. 23, 1846, a patient in this little hospital was operated on by Mütter for tumor of the cheek, and ether was given to him—the first time an anesthetic was used in Philadelphia. In 1850 two floors were rented over a bottling establishment, which stood next door to the college, and were fitted up for a hospital. In 1852 these rooms were opened directly into the college. Fifteen patients could be accommodated. On clinic days a patient was carried into the arena of the upper lecture room of the college, the room in which the professor of anatomy taught, and the room that is shown in Eakins's famous oil painting of Professor Gross operating, which now hangs in the college. The operation was performed and then the patient was carried back to the little hospital. The meals for the patients were cooked by the family below. These rooms constituted the hospital until 1877, and were the hospital of Mütter, the elder Pancoast and the elder Gross. There was no resident physician in this hospital; the clinical assistants took turns in acting as residents.

My late colleague and old teacher, Dr. Brinton, in his address on The Faculty of 1841, says:

> Hard-worked, these latter were, too. For my part, I can remember many a night of waking and bedside watching within those narrow, cramped and musty walls. I have sat, since then, at many a well-ordered table; but never have I relished dainties as I did then the savory oyster and steaming midnight cup of coffee, served by the order of a crafty faculty to insure the watchfulness of the fagged-out watcher.

The school and its hospital had, from the start, a surgical bent. A surgeon created it. It was born of genius, for McClellan was its founder. He was not a Philadelphian, but came here and made his fame. His ancestry was distinguished and the blood of fighting Highlanders and Revolutionary patriots ran hot in his veins. He was born in Woodstock, Conn., in 1796. He was graduated from Yale in 1815. During his boyhood he was called "Little Mac," but he could not have dreamed that a son of his, another "Little Mac," was to come to the command of great armies, to direct titanic battles, to stand on the flaming brow of Malvern Hill, and to ride between the lines at Antietam.

Dr. McClellan studied medicine at the University of Pennsylvania, was an office student of Dorsey, and was graduated in 1819. During his student days he was a resident student in the almshouse (they then had resident students instead of resident physicians). He became almost immediately successful in practice. All his interest was for surgery, and shortly after his graduation he couched for cataract, extracted the lens for the same disease and did many formidable operations. He organized a private class in anatomy and surgery and started a dispensary for the instruction of its members. This class and this dispensary were the germs of our school and hospital. The class became extremely large, numbering 180 men. McClellan knew and loved his subjects and taught them with captivating vim and enthusiasm. By the time he was 25 years of age he was regarded as one of the inevitable men of the future.

He removed the lower jaw for sarcoma; he devised a method to extirpate the parotid gland; he amputated the entire upper extremity; he advocated tearing out certain tumors, instead of dissecting them loose, in order to limit hemorrhage. He was anxious to teach; and, a place in the existing institution being denied him, he founded a new school, and took to it 150 men of his private class. He was energetic, intrepid, rapid in movement, quick in comprehension, positive in conclusion, emphatic in utterance, enthusiastic in everything he undertook. He had a wonderfully retentive memory, a steady hand, and a quick eye. He fought for what he believed to be right, but always in the open, and he never lurked in a dark alley and stabbed the passer by with innuendo or calumny. He was in the thick of all controversies, sure of the justice of his contentions and inspired by the fire of his genius. If an enemy was in the open, he attacked him; if a foe was in disguise, he unmasked him; if something was needed at Harrisburg.

he rode there and got it done—all the time lecturing, operating, practicing, writing, arguing in a perfect fury of amazing and keenly directed energy—an eccentric, lovable, brilliant, formidable and redoubtable man! Troubles came in the faculty, led by small and narrow men. Efforts were made to control, to direct, to suppress the professor of surgery, but the lash of official coercion struck unfelt on the stout shoulders of George McClellan. He resigned his professorship. We lost the name from the school; we were without it for sixty-eight years; but it has, I am proud to say, been restored to us again in the person of the founder's grandson, my distinguished colleague, the professor of applied anatomy. We have done the founder scant justice in the past, and it is with a feeling of peculiar retrospective affection that the least of all his successors pays this tardy tribute to his name.

I wish that time permitted me to speak of some of his successors—of Joseph Pancoast, one of the greatest operating surgeons of his time; a man so celebrated that Sir William Ferguson, then the head of English surgery, referred to him the daughter of Lord Chancellor Lyndhurst for a plastic operation; Pancoast, the dexterous, the dramatic, with a hand as steady as a rock, but as light as a floating perfume; with a heart that was a stranger to fear, and with an eye as quick as a flashing sunbeam.

Of Mütter, he of the musical voice and charming personality: Mütter, the debonaire, the eloquent, the enthusiastic, the beloved of the class: the man that brought to America the views of the great French school of Velpeau, Dupuytien Roux and Lisfranc; who developed in America plastic surgery and orthopedic surgery, then recently founded by Dieffenbach and Stromeyer; Mütter, who had wished the institution to build a hospital in 1841, but was defeated by the stupidity against which Richter tells us even the Gods fight in vain.

Of Samuel D. Gross, the greatest of them all, with whose life and services we are all familiar; Gross, who had fought his way to greatness from humble beginnings, who was graduated from our school in the class of '28, who founded surgical pathology in America, and who came to the foremost position ever occupied by a surgeon in this country; Gross, the author, the operator, the scholar, the teacher, the organizer, the scientist—LL.D. of Cambridge and Edinburgh, D.C.L. of Oxford; the founder of the American Surgical Association; the emperor of surgery in the United States, beloved and respected by all medical men. Whenever I had the privilege of listening to him I felt that fifty years of American surgery were speaking through his lips.

I would like to dwell on the younger Gross—brilliant, positive, emphatic; a teacher of wonderful force; a diagnostician of marvelous power; a determined, impressive and most courageous man—the man that, first of all in America, insisted on the necessity for radical operations in cancer cases. We stood by the corpse of a dead lion when we went to the tomb of the younger Gross!

I would I could speak of Brinton, so lately gone out into the great beyond, my former teacher and late colleague, my father's friend and mine; the trained military surgeon, one of the founders of the Army Medical Museum and one of the originators of the "Medical and Surgical History of the War of the Rebellion." And Keen, the master of us all, fortunately living still and kept from being with us to-day only by the interposition of the ocean—Keen, whose name is written broad and clear on most of the pages of surgical progress during the last twenty-five years. McClellan, Pancoast, Mütter, S. D. Gross, S. W. Gross, Brinton and Keen were the seven men that controlled surgery in Jefferson College for eighty-two years.

They obtained triumphs and made mistakes, but their triumphs were many and their mistakes were few. Let us learn from both. We have had a great instrument for good placed in our hands; let us see to it that it is used to the best advantage. Let us be earnest and energetic; let us have the highest ideals; let us strive for unity of action and harmony of thought; let us suppress as a venomous reptile any one who would breed contention, conflict and hate, and, above all, let us have enthusiasm.

Enthusiasm is the motive-force of progress. No really great deed was ever done in arts or arms, in literature or science, that was not the product of enthusiasm. It took Cook to the southern seas; it lured Gama around the Cape; it called De Haven to seek for Franklin in the awful solitude of the frozen North, and it beckoned Columbus across the ocean, from Palos to the Indies. Because of it the explorer tracks the dusky cañon and the miner "bleeds the veins" of the mountains, the navigator seeks the northern pole, and the student prints on his face the unobliterable lines of thought. It carved the Belvidere Apollo and it painted the Sistine Madonna. It struck fire from cold flint; it gave the wheel to the wagon; it invented the alphabet, and it saw in the steam wreaths from a tea kettle a force greater than that of all the men in the world united. It reared the pyramids; it built St. Peter's; it bridged the Hudson, and it laid the gleaming rails of civilization on the summits of the mighty Rockies. It took signals under the ocean; it carried messages through the air; it stored up speech in reservoirs, and it harnessed the lightning to drag the vehicles of man. It discovered the circulation; it invented the ligature; it introduced vaccination and anesthesia, and it laid the gentle hand of healing on the wounds of humanity through antiseptic surgery.

We note its presence in the aphorisms of Hippocrates; in the orations of Demosthenes; in the demonstrations of Newton, and in the discourses of Pasteur. It was with Alexander in the field as he conquered the world; it was with Plato in the grove as he founded philosophy. It was by the lonely lamp of Celsus and behind the sightless eyes of Galileo. It was on the battlefield with Paré and with Larrey and in the laboratory with Welch and with Leidy. It was in the hospital with Sydenham and Boerhaave, with Agnew and Samuel David Gross. It filled the lion heart of Abernethy, and it stirred the lordly soul of Hunter. It stimulated the labors of Washington and Cromwell, of Shakespeare and of Franklin, and it lit the councils of Cesar and of Lincoln, of the great Napoleon and of England's "Grand Old Man." May we feel it; may we realize it; may we be animated by this immortal principle; may we be driven by this divine fire! If we are, we shall take our college through higher aims to broader destinies, and make of her what she ought to be, the morning star among all the institutions of the land.

> "I hold it truth, with him who sings
> To one clear harp in divers tones,
> That men may rise on stepping stones
> Of their dead selves to higher things."

Comparative Value of Physicians.—One physician of scientific method is worth more to a community than twenty who are guessing and groping.—President Faunce, of Brown University.

Original Articles

THE PREPARATION OF THE SPECIALIST,

A PROBLEM IN MEDICAL EDUCATION.

GEORGE E. SHAMBAUGH, M.D.
CHICAGO.

The rapid development of the medical specialties has been one of the most conspicuous features of modern medical progress. It has been only a few years since the work in rhinology, for example, has been carried beyond the scope of the man doing general practice. The beginnings of laryngology antedate those of rhinology by but a few years, and the man who discovered the use of the laryngeal mirror passed away only last year. The men whose work laid the foundations for modern otology are, many of them, still living.

The short period that has elapsed since the work in the several special fields was begun is in no way commensurate with the extent to which this work has been carried. There has developed in this short time for each of the specialties an enormous literature. In the fundamental sciences alone, in anatomy, in physiology, in embryology and in pathology there has been accumulated for each specialty a great store of facts. To become acquainted with these established facts in any special field the student has before him a work that will require years of painstaking study. The specialist who would understand the real problems in his particular field, who would be able to read intelligently the advanced work that is now being done, must first know what has already been accomplished. To gain this knowledge is no easy task. When we realize that comparatively few of the men actually engaged in the practice of a specialty have an adequate appreciation of the facts that have been established in their own field we need not be surprised to learn that men engaged in different lines of medicine often fail to understand or to appreciate the work of the specialist. These men are sometimes inclined to look on such work as trivial when compared with the problems with which they have to deal. Occasionally even we hear of a practitioner who seems to believe that all there is to laryngology is the ability to use the laryngeal mirror; that the chief work in the training of the otologist is to learn to use the ear speculum, and that the rhinologist is merely one who is familiar with the use of the nasal speculum.

In spite of the rapid development of the specialties and the lack of adequate time for a proper appreciation of this work to reach the men engaged in diverse fields of medicine, the actual practical results obtained by the specialist have called forth a general recognition of the tremendous gain to clinical medicine brought about through the development of the several specialties. This recognition finds expression in the demand from all parts of the country for the trained specialist. This is not to be interpreted in any sense as an indication of the passing of the general practitioner. It is the demand for the man highly skilled in a particular field to step in when the general practitioner can go no further. This demand brings to our large centers of medical education physicians from all parts of the country who see an opening for a trained specialist in their own community and who come to us to get their training. What sort of preparation are we giving these men? Are we giving them what they come here for—an adequate training for practice in a special field?

Before attempting to answer this question let us first consider what should rationally constitute an adequate preparation for the physician entering the practice of a specialty. An appreciation of what is implied in the term specialist in its best sense is of great importance not only to the general practitioner in determining for him what he has a right to expect of a specialist, but this appreciation is all the more important to those physicians who contemplate entering the practice of a special field. Its absence may be the factor which leads them unconsciously to place themselves on the plane of the charlatan by assuming that they are specialists when they have had none of the training requisite to make them competent to do the work of the specialist.

THE PREPARATION.

That the specialist should have the broad training of the regular medical course goes without saying. That in addition to this there is need for special preparation should be as evident as is the difference between the actual work of the internist and that of the man engaged in the practice of a specialty. The general lines which this special training should follow are the same as those followed in medical schools in the training of the man for the practice of general medicine.

In the first place there should be demanded a thorough special training in the fundamental sciences, which training is just as essential to a clear understanding of the clinical problems of a specialty as is the general training in these sciences to an understanding of the problems in general medicine. In the preparation of the student for the practice of general medicine we require a knowledge of general anatomy, general physiology, embryology and pathology. There is in addition to this a special anatomy, a special physiology, embryology and pathology for each special field which clearly can not be required in the preparation of the general practitioner, but which just as clearly should form the foundation work in the preparation of the man entering on the practice of a specialty.

In the preparation of the student for general practice an understanding of the general embryology of the body is considered an essential part. Is there any less reason why the man entering on the practice of a special field should not be required to have a thorough knowledge of the special embryology of this field? Not the sort of knowledge that can be acquired from text-books, but the real knowledge that can be gained only from the study of a large series of actual preparations.

In the training of the general practitioner a knowledge of the general physiology of the various organs is considered of fundamental importance. Is there any reason why a thorough understanding of the physiology of the ear, for example, is of less importance to the otologist? An acquaintance with the mechanism of the middle ear with an understanding of the various problems in sound conductions, a knowledge of the function of the cochlea and of the problems in sound perception are just as essential to the otologist in diagnosing and treating the various disturbances of function arising from disease of these parts as is a knowledge of the functions of the liver to the internist.

In the preparation of the general practitioner the study of anatomy forms an important part. Is there anything peculiar in the practice of a specialty which eliminates the necessity of the specialist's making a thorough, careful, painstaking, exhaustive study of the anatomy of the part with which he has to deal? The regional anatomy of the temporal bone, for example, is perhaps the most difficult to master of any part in human anatomy. A great many vitally important structures are here found crowded together in a very small space and are encased in hard bony walls which render their study by ordinary methods of dissection unsatisfactory. A thorough mastery of these relations can not form a part of the general medical or surgical training, but such a knowledge must of necessity form a part of the training of the otologist who would be prepared to operate in the region of the ear. This knowledge can not be acquired from text-books any more than it can be learned by operating on the ear, as is too often attempted. An adequate training for the otologist in the gross anatomy of the temporal bone, even of the relations having a more strictly surgical interest, can only be acquired through the careful, painstaking study of a large series of actual preparations, each made especially to bring out in a clear manner this or that relation. There is no short cut to the necessary knowledge of these anatomic details. The same close attention must be given to the study of such preparations as the medical student is accustomed to give in the study of a histologic preparation. The absolute necessity for such careful special anatomic training can be best appreciated by considering for a moment the risks taken by the physician who has failed to get this intimate knowledge when he undertakes such an apparently simple procedure as curetting the tympanic cavity. The floor of the tympanum is frequently encroached on by the bulb of the jugular, which often produces a distinct prominence in this cavity, from which it may be separated by a thin bony wall; through this thin wall a curette could be readily passed. Occasionally even this bony wall is absent and the jugular bulb is exposed in the lower part of the tympanum. Along its anterior wall the internal carotid comes in more or less close relation to the cavity of the tympanum, from which it, too, may be separated by an easily penetrated, thin, bony shell. This is particularly the case near the tympanic orifice of the Eustachian tube, a region often requiring a thorough curetting. The facial nerve passes through the tympanum, lying along its inner wall, and its delicate bony covering is not infrequently wanting. Even when this bony covering is present the nerve can easily be injured by the curette when the exact location of its course is not accurately known. The dislocation of the stapes from the oval window in the process of curetting the tympanum is not infrequently the price paid for the lack of knowledge of the exact location of this structure.

Enough, perhaps, has been said to emphasize the necessity of special training for the physician who enters on the practice of a special field and to point out in a general way the scope of this training. That there should be the same careful, systematic training on the clinical side as in the fundamental sciences is, of course, well recognized. It is at once apparent that such a training can not be acquired in six weeks nor in six months. To give the specialist the same sort of training in his subject which we now require of the general practitioner for his work would require at least two years in addition to the regular medical course.

THE TRAINING PROVIDED.

To return now to our question, What is being done in our medical centers to provide training for the men entering on the practice of the specialties? The answer is only too well known. We are doing practically nothing in an adequate way to provide this training. The physician who comes to our medical centers for his preparation finds the only thing offered is an opportunity to attend clinics in this or that postgraduate school. In these clinics a little is heard in a desultory fashion about the symptoms, the diagnosis and the treatment of some of the more common diseases. But, for the most part, not a word is heard of the fundamental science of anatomy, of physiology, of embryology or of pathology. After a few weeks, or, at most, a couple of months' attendance on these clinics the physician, realizing that he has seen practically all there is for him to see, returns to his home town, where he puts out a sign, "Eye, Ear, Nose and Throat Specialist."

Many of these men are not even in a position where they are able to read intelligently the current literature in their subject, except the simpler clinical reports of cases, which are equally intelligible to anyone in general practice. A comprehension of the real work that is being done in their specialty is entirely beyond their reach. Physicians are scattered all over the country to-day limiting their practice to special fields, who have not had as much training for their special work as have the recent graduates from our best medical schools.

There are, of course, many exceptions where, even in the smaller towns, men are located who have realized that six months' attendance on clinics does not make a specialist and who have been willing to spend the years of hard work necessary to get an adequate preparation. These men have worked their way to a position where they have an appreciation of what is actually being done in their special field and they are prepared to do the work required of the specialist. They deserve the more credit because there has been no standard to guide them in this painstaking effort.

The development of the specialties has come about so rapidly that this demand for special training is necessarily a recent one. It presents a new problem in medical education. Recognizing, as we all must, the necessity for adequate special training for the practitioner who enters on the practice of a special field, the problem is, how shall this training be provided? That this task does not come within the scope of work that can be properly cared for in our undergraduate medical schools is, I believe, apparent. The problem of our medical schools is to provide the right sort of training for the men entering on general practice. The work of preparing men for special practice is quite distinct from this and forms no part of the preparation for general practice. Our postgraduate schools can assist in this work by providing, under the right sort of men, some of the clinical instruction which must necessarily form an important part of this preparation. Farther than this our postgraduate schools are not prepared to go. They have none of the facilities for giving the right sort of work in the special anatomy, the special physiology, etc., which as the foundation work must form a large part in the actual training of the real specialist.

THE UNIVERSITY AS A TRAINER OF SPECIALISTS.

The only places in which this work can properly be done are those universities and colleges in which adequate facilities are afforded by well-equipped laboratories.

What the scope of such preparation should be we have already pointed out. In the first place there must be a thorough, detailed and, as far as possible, exhaustive study made of the special anatomy. A similar course covering the special physiology, another covering the special embryology, and still another covering the special pathology must be given. Courses covering the anatomy and pathology of several special fields are already being offered in some of our leading universities. It is but a short step to provide similar courses in each of the fundamental medical sciences. Courses in certain of the allied sciences should properly find a place in such a curriculum. In ophthalmology, for example, a course on the physics of light, and, in otology, on the physics of sound, would be of great assistance in imparting a knowledge of the problems peculiar to these specialties.

These courses should properly be placed on the basis of genuine graduate courses. That is to say, not only the established facts in each subject should be brought out, but the work should lead up to the frontier line where the actual research is being done and where the unsolved problems in the subject can be presented and discussed. The work should be so laid out that the physician who desires could work for a higher degree in medicine—the degree of doctor of philosophy, for example, in ophthalmology or in otology. The incentive which the granting of such a degree would give to the proper training of the specialist would be enormous. The offering of such a course by one or two of our best university medical schools would in itself serve to show the physicians who contemplate entering the practice of a special field that something more is expected of the properly-trained specialist than a few weeks, attendance on clinics in a postgraduate school. The superior advantages afforded by such courses would at once be appreciated by the physician who earnestly is seeking to get the best possible preparation before entering on the practice of a specialty. It is not to be expected, at least for some time to come, that all the men preparing for special fields will work for this higher degree. Well-trained men, competent to do the work required of the specialist, can be equipped without their having completed all the work required for this degree. On the other hand, the best men—those who have the ambition to make a name for themselves—will welcome this opportunity for getting the best possible preparation, together with the training for original research, which is always an important part of the work required for the degree of doctor of philosophy.

A SUGGESTED COURSE.

In order to make more clear what is contemplated in the work required for this higher degree in medicine, we might consider briefly some of the features to be required in a course leading to the degree of doctor of philosophy, for example, in otology. In the first place the time required to complete the work for this degree should be at least two or possibly three years in addition to the regular medical course. One whole year at least should be devoted to the fundamental sciences and at least another year, under capable instructors, to the clinical side. In the fundamental sciences a major of work running through the entire year in the special anatomy of the ear would be none too much. In the special physiology of the ear a similar course should be required. The work now offered in the department of experimental psychology at our leading universities could easily be adjusted to meet all the requirements of such a course. In the special embryology of the ear the material necessary for a thorough, exhaustive course can be readily prepared in any first class anatomic laboratory. In the department of physics a course dealing with the physics of sound could be easily provided. Owing to the fact that most of the advanced work in these subjects is published in French and German, a reading knowledge of these languages should, of course, be required. In the fundamental sciences the work should lead up to a discussion of the unsolved problems in the subject. The training for actual research must be insisted on just as is done in any department where the degree of doctor of philosophy is offered. It is not of vital importance that the student have the type of mind capable of taking the initiative in original investigation. The training for such work, however, under proper direction should be an important part of the work for the higher degree. The value of this training in the preparation for clinical work is inestimable; the delicacy of technic which must be mastered, the training to study a problem from every possible point of view, the training to search out and make use of the literature of a subject, the patience required to carry to its completion a piece of research, these are some of the qualities developed in the training for research that will be of the greatest value in the clinical study of cases.

By demanding in the training of the specialist courses covering the fundamental sciences of his special field, together with systematic clinical courses, we are asking of the specialist only the same kind of preparation which we have long insisted should form the preparation of the men entering general practice. By putting this special work on the basis of real graduate work and giving the opportunity to the specialist, if he so desires, of working for a higher degree in medicine, the degree of doctor of philosophy, we are but doing for the specialist in medicine what has already been done for men in the other sciences. We expect of the man who would reach the highest success in the field of physics, for example, that he devote a term of years doing graduate work in physics until he has earned the degree of doctor of philosophy.

Is it asking any more of the man whose ambition it may be to make a name for himself in a specialty like otology that he put in the same amount of time doing graduate work in his subject until he has earned the degree of doctor of philosophy in otology? Are the men in the medical specialties less willing to make this effort than the men working in the pure sciences? We do not believe that medical men are any less willing than are the men in other fields of work to make the sacrifice of time and money necessary to win the higher ultimate success, especially since the material returns are greater for the successful medical specialist than for the man in other sciences.

The opportunity of obtaining the higher degree for advanced work should not be limited to the specialties already mentioned, but, as a matter of course, should be open to all branches of medicine, including internal medicine and surgery.

To summarize briefly, the need for special training for the men entering the practice of a medical specialty is as urgent as is the training of the physician for the work of general practice. This training should be as much in the fundamental sciences of his specialty as in the clinical side. The only place where this work can be properly done is in our universities. This work should be put on the basis of genuine graduate work, leading to the granting by the university of a higher degree, the degree of doctor of philosophy in medicine. The offering of such courses, even by one or two of our best equipped universities, and the granting of this higher degree would serve to stimulate higher ideals and better preparation in the physicians all over the country entering the practice of the specialties. Finally, it is the duty of the faculties of our university medical schools to solve this problem by standardizing the work required in the preparation of the specialist. Our great need is not for more specialists, but for properly trained specialists.

THE PRESENT STATUS OF PHOTOTHERAPY.*

JAY FRANK SCHAMBERG, M.D.
PHILADELPHIA.

Since the epoch-making researches of Finsen, light therapy has been accorded an established place in the treatment of disease. Finsen and his disciples have conclusively proved the value of this agent in the cure of one of the most disfiguring and distressing of cutaneous maladies—lupus vulgaris. Not every patient with lupus vulgaris can be cured by phototherapy, but this treatment produces a larger number of successes and effects better cosmetic results than any other known procedure. The best results are obtained when all of the details of treatment are carried out in accordance with the teachings of Finsen. In the light institute of Copenhagen, which city has become the mecca of lupus patients, better results are obtained than elsewhere by reason of the skill of the physicians and the experience of the nurses. Treatment with the high power (50 to 80 amperes) Finsen arc lamps is not at all adapted to office use because of the size of the apparatus, the cost of the current, the duration of the individual treatments and the imperative services of a trained assistant. The same reasons militate against the successful operation of such lamps even in hospitals. In the city of Philadelphia there are not enough lupus patients to keep a large lamp going without great cost to the institution or to the patients. We have a large lamp in one of our hospitals in Philadelphia (Fig. 1), but it is only occasionally used. I have been told that no New York hospital is now actually using the large Finsen apparatus.

Many efforts have been made to improve the construction of lamps so as to lessen the cost of operation and the duration of the exposures. With the possible exception of the Finsen-Reyn lamp, these efforts have been unsuccessful. Lamps of the Lortet-Genoud and London Hospital type (Fig. 2) and the iron electrode lamps treat a larger surface and cause more rapid reaction, but are decidedly lacking in penetrative effect.

THE BASIC PRINCIPLES OF LUPUS PHOTOTHERAPY.

The rationale of light treatment in lupus vulgaris is based on three main propositions: (1) The property of certain rays of the spectrum to destroy micro-organismal life. (2) Their ability to penetrate the skin. (3) Their power to produce reactive structural changes. Success in the light treatment of lupus depends, therefore, on the ability of the rays to penetrate, to kill bacteria and to inflame.

The destructive effect of light on bacteria was proved as far back as 1876 by two English workers, Downes and Blunt, in an investigation most remarkable for its accuracy of detail. The results were confirmed by the researches of Arloing of Lyons in 1885. Numerous investigators, including Finsen, Bang, Bie, Busck, Freund, Strebel and others, have further proved the bactericidal influence of light.

Bang showed that unconcentrated light from a 30 ampere arc at a distance of 30 cm. will kill a surface layer of tubercle bacilli in six minutes.

The strongest bactericidal sun's rays are absorbed in the air, and thus an arc lamp has been found superior.

Dieudonné observed that bacteria were killed in half an hour by direct sunlight, in six hours by diffused daylight, in eight hours by electric arc light of 900 candle power, and in eleven hours by the electric incandescent light.

Other investigators have demonstrated that concentrated sunlight will check germ growth in one minute and kill bacteria in from five to seven minutes. Concentrated electric light checks growth of bacteria in from four to five minutes and kills in from fifteen to twenty minutes. Arc light from metal electrodes and the electric spark kill micro-organisms in from five to forty seconds.

Von Jansen demonstrated that a piece of skin inserted between the light source and the bacteria did not prevent their death when the thickness of the skin was 1.2 mm. and the exposure one and one-fourth hours. With 1.5 mm. thickness bacteria were no longer killed. Bacteria were weakened at a distance of 4 mm. in the tissues.

Busck killed pneumococci inoculated into the cornea of rabbits with light, and Nagelschmid destroyed tubercle bacilli experimentally inoculated into the skin of a guinea-pig.

On the other hand, Klingmüller and Halberstädter[1] claim that the Finsen light does not kill the tubercle bacilli deep in the tissues. They exposed pieces of lupus tissue for ten minutes to the Finsen lamp and then inoculated them into the peritoneal cavity of guinea-pigs. That the bacilli were alive was evidenced by the fact that tuberculosis resulted.

It has been demonstrated that the bactericidal effect of light is largely exerted by the blue, violet and ultra-violet rays. The most scientific experiments on this point were carried out by Marshall Ward, who broke up light by passing it through a rock-crystal prism and allowed the spectrum to be cast on an inoculated solid culture medium. He found that the bacteria-killing effect began first in the transition between green and blue, and was strongest on the border between blue and violet. Especially when electric light was employed the bactericidal influence of the light extended far into the ultra-violet region. The dominant ability of the ultra-violet rays to kill bacteria, which was first demonstrated by Ward, was independently determined by Finsen three years later.

More recent studies by Bie[2] have established the important fact that the blue-violet end of the spectrum does not exclusively possess bactericidal properties. He says: "I found that with the application of a sufficiently strong light all portions of the spectrum were able to restrain the growth of bacteria or to kill them. The red rays possess the weakest power; this power then increases as one approaches the ultra-violet end of the spectrum, where it is strongest." Four per cent. of the bactericidal effect was ascribed to the red, yellow and green rays, while the blue, violet and ultra-violet rays exercised about 96 per cent. of the effect. Red, orange, yellow and green act only after long exposures. Pure red requires one and one-half hours to produce a determinable effect on bacteria.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

1. Deutsche med. Wochschr., 1905, No. 14.
2. Die Anwendung des Lichts in Der Medizin, Wiesbaden, 1905.

Some difference of opinion exists as to the manner in which the tubercle bacilli in the skin in lupus are destroyed. Finsen held that their death is due to the exclusive effect of the ultra-violet rays. This view is not universally concurred in, many German workers contending that they are destroyed by changes induced in the tissues by the light. Roux established the fact that light exerts an important influence on nutrient media. He showed that Arloing was in error in regarding certain spores treated with light as dead, and proved that they would grow when transplanted to a fresh unexposed medium.

Richardson demonstrated that the sterilization of urine by exposure to light in the presence of air is due to the formation of hydrogen peroxid. Dieudonné confirmed this observation and agreed with Richardson that the ability of light to kill bacteria is due to the formation in culture media of hydrogen peroxid. Kruse, who carried out the same experiments, did not regard the results as due alone to change in the media, but also to a direct action of light on the bacteria. Bie admitted that hydrogen peroxid is formed in many nutrient media on exposure to light, but claimed that bacterial death is more rapid in media in which no hydrogen peroxid can possibly form.

Downes and Blunt early suggested that the destruction of bacteria by illumination depended on an oxidation process and required the presence of free oxygen. Bie's experiments led him to the conclusion that the destruction of the bacteria is not an oxidation process in the sense that the presence of oxygen is a necessary condition. The stronger the light in the blue violet and ultra-violet rays the less does its bactericidal effect depend on the presence of oxygen, and *vice versa*, the fewer the chemical rays that the light contains the less able is it to kill bacteria without the aid of oxygen.

The researches of Hertel[3] are most interesting in this connection. Hertel claims that the short-waved rays of light (chemical rays) cause a splitting off of oxygen from the blood and cell plasma, much in the same way as oxygen is freed from plants by light, and that this process affects both the tissues and the bacteria.

PENETRATION OF THE RAYS OF SPECTRUM.

It has been shown that the penetrating power of the various rays of the spectrum is in inverse proportion to their bactericidal and chemical power. The red rays are the most penetrating and the ultra-violet the least.

Most of the efforts in phototherapy in the past have been devoted to securing deep penetration of the chemically active rays. Within the past few years the attempt has been made to increase the chemical activity of the penetrating rays. In 1900 Tappeiner and Raab[4] made the important discovery that infusoria can be sensitized to the action of certain rays of light by the addition to their nutrient media of certain chemical agents.

This work was confirmed by Dreyer[5] working in the Finsen Light Institute in Copenhagen. Dreyer demonstrated that the addition to the nutrient medium of a small quantity of erythrosin renders bacteria sensitive to the action of the yellow and green rays of light. The germs which ordinarily are not influenced or but slightly influenced are rendered sensitive much in the same manner that a bromid of silver plate is sensitized to these rays. The microbes thus sensitized may be killed by the passage through moderately thick layers of skin of light from the usually employed sources owing to the increased action of the highly penetrating yellow and yellowish green rays. The *Bacillus prodigiosus*, protected by a layer of skin 1.25 mm., was not killed by exposure to light for eleven hours; after being sensitized death occurred after twenty minutes exposure.

Animal tissues, such as frog's tongue, rabbit's ear, human skin, etc., were also rendered sensitive to the action of the yellow and green rays.

In the treatment of lupus the exposures are greatly shortened by sensitizing the tissues.

Later Tappeiner and Jesionek[6] employed, before exposing to light, a 5 per cent. eosin solution as a paint and also subcutaneously in the treatment of superficial epithelioma, lupus, flat condylomata, tuberculous ulcer, etc., with alleged good results.

Lenkei[7] found that blue and yellow rays penetrated the skin and connective tissue to a depth of from 1 to 2 cm. When no muscular layer was present traces of the blue rays penetrated to a depth of over 3 cm. A small portion of the light penetrated to 5 or 6 cm. even through the muscular layer, but this was exclusively yellow rays. The red rays could not be examined because the ordinary light, sensitive substances are not changed by them, but Lenkei is certain that these last rays penetrate into the depths in larger quantities than the yellow. Five per cent. of the light consisted of blue rays and 80 per cent. of yellow and green.

Finsen and Jansen have compared the penetrating power of light from various lamps, namely, the Finsen, the Finsen-Reyn, the Lortet-Genoud and the Bang. They found that the two latter are distinctly inferior to the first two lamps when deep penetration was required.

It appears to me that these tests, which are based on the influence of light on silver salts, are open to error. It by no means follows that the chemical effect of rays of light on photographic plates is a measure either of the bactericidal power of the rays or of their ability to produce inflammatory changes in the tissues. I have found that an ordinary sixteen-candle-power incandescent lamp with a reflector will emit light which will pass through the skin, subcutaneous tissue and mucous membrane of the cheek and affect a photographic film in the mouth in thirty seconds (Fig. 9).

On the other hand, a light extremely rich in chemical rays (the uviol lamp) was unable to produce any effect in five minutes.

Photographic plates may be affected by the yellow and even the red rays, and these rays are the most penetrating.

Busck[8] found that red, orange and yellow rays passed through his hand and affected a photographic plate in five seconds. The blue, violet and ultra-violet rays from the same light source produced no effect on the plate in ten minutes. This will illustrate the comparative penetrability of the various rays.

HISTOLOGIC CHANGES.

The histologic changes effected in the skin by the action of light have been carefully studied by a number of observers, including Moeller,[9] Sack,[10] McLeod,[11] Schmidt and Marcuse,[12] Zieler,[13] Meirowsky[14] and others.

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[3] Ztschr. f. Allg. Physiol., iv-v.

[4] Münch. med. Wochschr., 1900.

[5] Derm. Ztschr., 1903, x, No. 6.

[6] Münch. med. Wochschr., 1903, No. 47.

[7] Die Durchdringungsfähigkeit der blauen und gelben Lichtstrahlen durch tierische Gewebe. von W. Lenkei-Almadi Orvosi Hetilap. 1906. No. 27.

[8] Mitteilung aus Finsen's Lys Institut, iv, 1903.

The findings are in general agreed on. There is a pronounced dilatation of the superficial and deep cutaneous blood vessels with exudation of leucocytes. Sack believes the first change to be a proliferation of the endothelial lining of the blood vessels. Meirowsky, working in Unna's laboratory, states that the light stimulates the epithelial cells and leads to nuclear division. After intense exposures degenerative changes in the epidermis may take place and the dead cells may be cast off through the formation of blebs.

The light also causes an increase in the number of connective tissue cells and a swelling of the collagen. At the height of the process the rete mucosum is thickened. Unna says that light makes the skin dense and harder, in that under the influence of the light the protoplasm is reduced to keratin. Moeller demonstrated the fact that light caused a hyperplasia of the epidermis and an abnormal cornification.

THE INDICATIONS FOR THE USE OF PHOTOTHERAPY.

The treatment of lupus vulgaris represents the dominant field of usefulness of light therapy. Nevertheless, there are other diseases in which light may be employed with advantage even though it does not supplant other methods.

Light would doubtless have been more used as an auxiliary therapeutic measure in many cutaneous diseases had not the suddenly established reputation of the *x*-rays cast a shadow of obscurity over the milder acting agent. The ability of the *x*-rays to produce rapid and profound changes in cells and tissues constitutes at the same time the advantage and the disadvantage of that treatment. When judiciously and carefully applied in properly selected cases the *x*-rays certainly represent a wonderful addition to our therapeutic armamentarium; but improperly used they are capable of doing harm, often irremediable harm. Light energy, on the other hand, while much slower and much milder in its effect, is a perfectly safe remedy. Patients themselves have discovered this difference and will often permit one to use light therapy while refusing Roentgenization.

The supplementary list of diseases in which phototherapy has been alleged to be of value includes lupus erythematosus, alopecia areata, acne, acne rosacea, flat vascular nevi, certain forms of eczema, leg ulcers, etc.

LUPUS ERYTHEMATOSUS.

In this disease, one of the most refractory of dermatoses, phototherapy may often be used with the happiest of results. Finsen's first report included thirty-one cases with eleven cures and ten patients still under treatment. Since then a larger percentage of cures has been obtained by him. Leredde and Pautrier mention twenty-three cases with eleven cures, many partial cures and three failures. Morris and Dore treated eleven cases with great improvement in seven. Hyde, Montgomery and Ormsby report a total of nineteen cases, with five cures, nine patients greatly improved, three with but slight improvement and one made worse. I have had several cures in lupus erythematosus of the vascular type: it is in this particular form in which phototherapy is apt to be useful. The *x*-rays are often valuable in the hypertrophic variety, whereas they are apt to aggravate the condition in the vascular type.

ALOPECIA AREATA.

This occupies a place among the diseases in which light therapy is indicated. Finsen, Forchammer, Jersild, Leredde and Pautrier, Sabouraud, Hyde, Montgomery and Ormsby, Kromayer and others have reported successes. Professor Kromayer of Berlin has had such remarkable results that special reference to them is deemed valuable:

Kromayer[15] uses an arc light with iron electrodes, without pressure lens; a current of from 15 to 25 amperes is employed. The exposures range from one-half minute to ten minutes for each area, at a distance of from four to ten centimeters. In some cases Kromayer claims that a regeneration of the hair is evident after the first exposure. On the second day new hair points are at times visible. At first this was not believed possible, but was confirmed by independent examinations. Kromayer treated thirty-three cases of alopecia areata, which he divided into two classes: The milder ones with a hair loss of less than half of the head, and the severe cases with hair loss greater than this or complete. The result in the thirteen milder cases was throughout good; nearly all were completely cured. In three, small bald areas were still present; in a few, relapses were noticed. Of the twenty cases of the second group thirteen were total alopecia and the other seven approached total alopecia in various degrees. Of these twenty patients only five were treated with negative results, only one of which was not a total alopecia; hair growth was stimulated, but the hair either ceased to grow further or fell out.

Summing up his results, Kromayer claims twenty-eight successes out of thirty-five cases. In the milder cases the results were all satisfactory. In the severer group there were five failures among twenty cases. Many of these cases had lasted for years and had been treated with all sorts of methods without results. One patient, for instance, was a woman of 50 years of age age whose hair loss was almost total and had dated back twenty-five years. After twenty-seven treatments the hair was restored to normal condition except over the temples, where it is a little thin.

Kromayer concludes that the iron light at the present time is the best and surest remedy in alopecia areata.

The stimulating effect of the chemical rays of light on hair growth has been repeatedly observed in Copenhagen, where the bare arms of the nurses giving Finsen light treatment have exhibited increased piliary development.

HIGH-POWER INCANDESCENT LAMPS.

The much advertised high-power incandescent lamps have been viewed skeptically and not with much favor by dermatologists in general. The skepticism has doubtless been based on preconceived theoretical considerations. Subsequent experience may prove the lack of faith to have been well based, but in the light of newer researches as to the effectiveness of all rays of the spectrum, and as to the efficacy of heat rays, trial of such light sources by properly qualified and conservative men would be desirable. It will be recalled that Bie found that with the application of sufficiently strong light all portions of the spectrum were able to restrain the growth of bacteria or to kill them.

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[9] Bibliotheca Medica, Part D. 11.
[10] Muench. med. Wochschr., July, 1902.
[11] Brit. Med. Jour., Oct., 25, 1902.
[12] Arch. f. Derm., 1903, p. 323.
[13] Derm. Ztschr., 1906, No. 1.
[14] Monats. f. Prakt., Derm., April, 1906, xlii.
[15] Monats. f. Prakt. Derm., July 1, 1905..

Audry and Krösing[16] have been enabled to heal venereal sores rapidly with heat rays. Holländer claims good results in lupus and chancres with his hot air treatment. Scholtz[17] believes that the heat rays in the Finsen treatment of lupus are by no means without effect. He is of the opinion that the chemical rays are absorbed in the superficial layers of the skin and that the death of the bacilli in the deeper layers is due to the heat rays.

MERCURY VAPOR LAMPS.

In 1892 and 1896 Dr. Leo Aarons,[18] a noted German electrician, demonstrated that a continuous electrical current passed through a vacuum tube containing a certain quantity of mercury is capable of creating an arc and of generating an intensely bright light emitted by the incandescent mercury vapor. Peter Cooper Hewitt of New York improved this lamp and made it commercially practical. This light contains few or no red rays and is extremely rich in blue, violet and ultra-violet rays. The latter, however, are largely absorbed by the glass of the tube itself. To obviate this absorption of the most chemically active rays Dr. E. Zchimmer, working in Schott's glass works, produced a glass (said to be a barium phosphate-chrome glass) which is pervious to the ultra-violet frequencies and which, according to Schott, permits by far the greater portion of the short waves originated in the glass tube to emerge. These tubes, which are made of varying lengths, must be tilted to make the arc and to start the light.

The lamp made by Schott is called the "uviol" lamp, the name being a convenient contraction of the term ultra-violet. Another mercury vapor lamp made of quartz with a water-cooling jacket is made by Heräus of Hamburg. For several years these lamps have been in use in Germany.

Axmann[19] treated with the uviol lamp thirteen cases of leg ulcer with cures after a treatment of some weeks; some of these cases had lasted years.

Acute and weeping eczema, after a ten-minute treatment were alleged by him to be so far improved on the following day as to require no further treatment. Acne, furunculosis and alopecia areata are also said to have been cured.

Hans Meyer[20] found that the uviol light acted on photographic paper through a piece of epidermis of a thickness of 0.5 mm. in three-fourths of a second at a distance of 1.5 mm. (The epidermis was taken from bullous lesions.)

Keller determined that the uviol light had a bactericidal influence, but acts only superficially. Plates exposed immediately after inoculation were affected, but later growth was not influenced.

Meyer had no success in ringworm of the skin, but secured favorable results in tinea versicolor. He believes that the uviol light, like the iron light, constitutes a method that surpasses others in the treatment of alopecia areata.

Meyer noted, as did Kromayer with the iron light, that fine hair tips begin to be visible after one treatment. That the light is the exclusive factor may be determined by comparing areas treated by the light with those that are not. He obtained good results in severe acne indurata. The acne nodules under the influence of the hyperemia undergo resorption.

In a case of bullous dermatitis herpetiformis Meyer obtained an apparent cure. The blebs dried up in a very short time under the influence of the light erythema. Excellent results were also obtained in the prurigo of Hebra.

Kromayer[21] considers the following indications for the use of the mercury vapor lamp (the author employed the quartz lamp made by Heräus): Lupus and superficial epithelioma, vascular nevus, alopecia areata, acne rosacea, eczema, rebellious syphilitic affections (psoriasis linguæ) and ulcers that are often refractory to ordinary general and local treatment. Kromayer obtained successful and sometimes brilliant results in isolated cases rebellious to all other methods.

Assfalg of Frankfurt[22] used the uviol lamp for one year. He believes that it is necessary to produce a light reaction in order to obtain therapeutic results. He treated three patients with alopecia areata and cured them with an average of fifteen sittings of from one-half to one hour in duration. The cases had lasted for at least a year and the patients had been treated in various ways without result. In several cases he saw extension of patches of alopecia areata on the border at the same time that new hair was growing in the center. He believes the hair returns more quickly under uviol treatment.

Acne was found to be very favorably influenced, Assfalg preferring the light treatment to the *x*-rays. A case of furunculosis of the entire back and chest of four years' duration and treated with various remedies was completely cured after ten treatments of from one-half to three-fourths hour in duration. There was no return within nine months. Two patients with chronic seborrhoic eczema were completely cured after five and eight treatments respectively. Two patients with acne rosacea were considerably improved after three treatments and are still under treatment. One is cured now for six months. A number of patients with chronic eczema, dry and moist, have also been cured.

Two patients with varicose ulcers were treated. One, the ulcer the size of a half-dollar, was healed after six irradiations, the other, still under treatment, was much improved after three treatments.

Gaston and Nicholas[23] report several patients treated with the Heräus quartz lamp; patients with lupus erythematosus, nodular tuberculid and glandular swelling were cured. The writers prophesied a great future for the lamp.

The uviol lamp has been employed in the Philadelphia Polyclinic for about a year. The breaking of the lamps interrupted the treatments, and some of the patients were obliged to be treated by other therapeutic measures. I have also used the uviol lamp in my office for some months. I have had constructed a tilting lamp-holder on a stand to receive two short tubes run in series and so arranged that the lamps could be used horizontally or vertically (Fig. 6). Above the lamps is a reflector covered with aluminum paint.

With this lamp a light reaction may be produced after five minutes' exposure at 4 centimeters distance. Several times, after ten minutes' illumination at from 4 to 8 cm. distance, I have produced an erythema with some puffing of the eyelids. The erythema largely disappears at the end of twenty-four hours. The parasiticide properties of this lamp in my experience appear to be rather feeble. Petri dish agar cultures of the *Staphylococcus aureus*, *Bacillus coli communis* and the *Bacillus capsulatus aerogenes* were not killed after twelve minutes' exposure at 4 cm. with the Petri dish lid off. The cultures were about twenty-four hours old and it is possible that the effect of the light was insufficiently penetrating to kill the bacteria growing down into the medium.

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[16] Arch. f. Derm., xliii.

[17] Berlin klin. Wochschr., 1904, No. 18.

[18] Wiedemann's Annalen, 1892 and 1896.

[19] Deutsh. med. Wochschr., 1906, p. 583.

[20] Einige Erfahrungen mit der Uviol Lampe, Med. Klinik., September, 1906, p. 990.

[21] Deutsh. med. Wochschr., 1906, No. x.

[22] Muench. med. Wochschr., Oct. 9, 1906.

[23] Bull. Med., 1905, No. 57, p. 668.

I have used the light in alopecia areata, acne, eczema, lupus vulgaris and leg ulcers, but in entirely too few cases to justify any definite conclusions. I will briefly narrate the results and state my impressions:

Case 1.—A. G., an Italian boy, aged 12, had an extensive alopecia of 14 months' duration. A partial regrowth at one time took place, but was followed by a subsequent loss of hair. The usual local remedies were used without much effect. About fifteen light treatments of ten minutes' duration, at a distance of from 4 to 6 inches, were given in the course of from six to eight weeks. The hair soon began to grow and is now fully restored over the entire scalp except at the nape of the neck, which received no illumination (Figs. 3 and 4). This fact strongly suggests the actual curative influence of the rays in this case.*

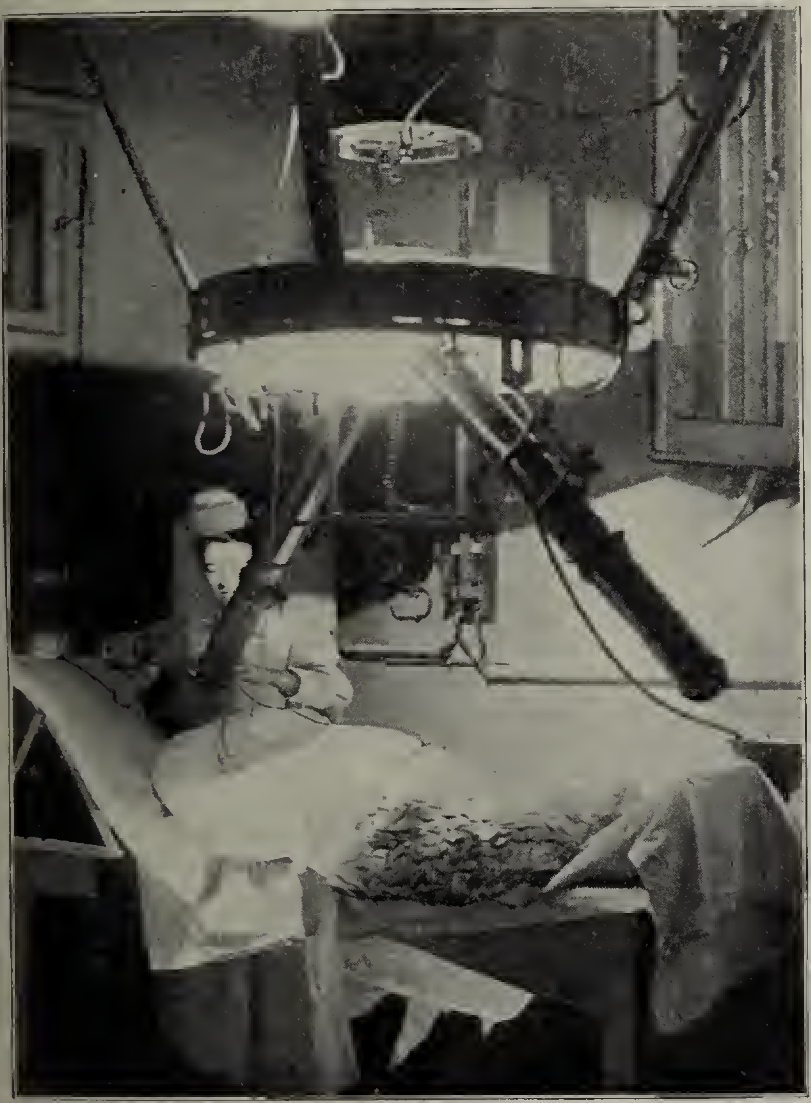

Fig. 1.—Large Finsen lamp in use at the Stetson Hospital, Philadelphia.

Case 2.—J. F., aged 12, a robust blond boy with a total alopecia of nine months' duration. The usual treatment was entirely without avail. Under uviol exposures a fine down appeared, which subsequently vanished. Fourteen treatments were given, but without any successful result.

Case 3.—M. R., aged 21, a young woman with a half dollar sized patch of alopecia in the right temporal region of two weeks' duration. Three light treatments of from 15 to 20 minutes were given. There was extremely rapid restoration of hair. A stimulating antiseptic wash had been used and the cause of the unusually prompt result can not be definitely stated.

Case 4.—In connection with these cases of alopecia areata, and bearing on Kromayer's successful results, it is proper to note a failure in the case of a 12-year-old girl with a total alopecia of ten years' duration. The girl was treated in the light laboratory of the Philadelphia Polyclinic with the London Hospital lamp. Thirty-two twenty-minute exposures were given without result. The accompanying illustration (Fig. 5) shows the light reaction in areas covered by the lens.

Case 5.—T. S., man, aged 69, with damaged heart and kidneys and arteriosclerosis, had an extensive almost universal erythematous eczema of many years' standing. There was considerable thickening and lichenification. Itching was severe. Internal and local treatment of varied character had given no relief. The itching and infiltration were distinctly lessened by the light treatment. On the breakage of the tubes, x-ray treatment was substituted with more benefit than that derived from the light treatments. The patient is now vastly improved.

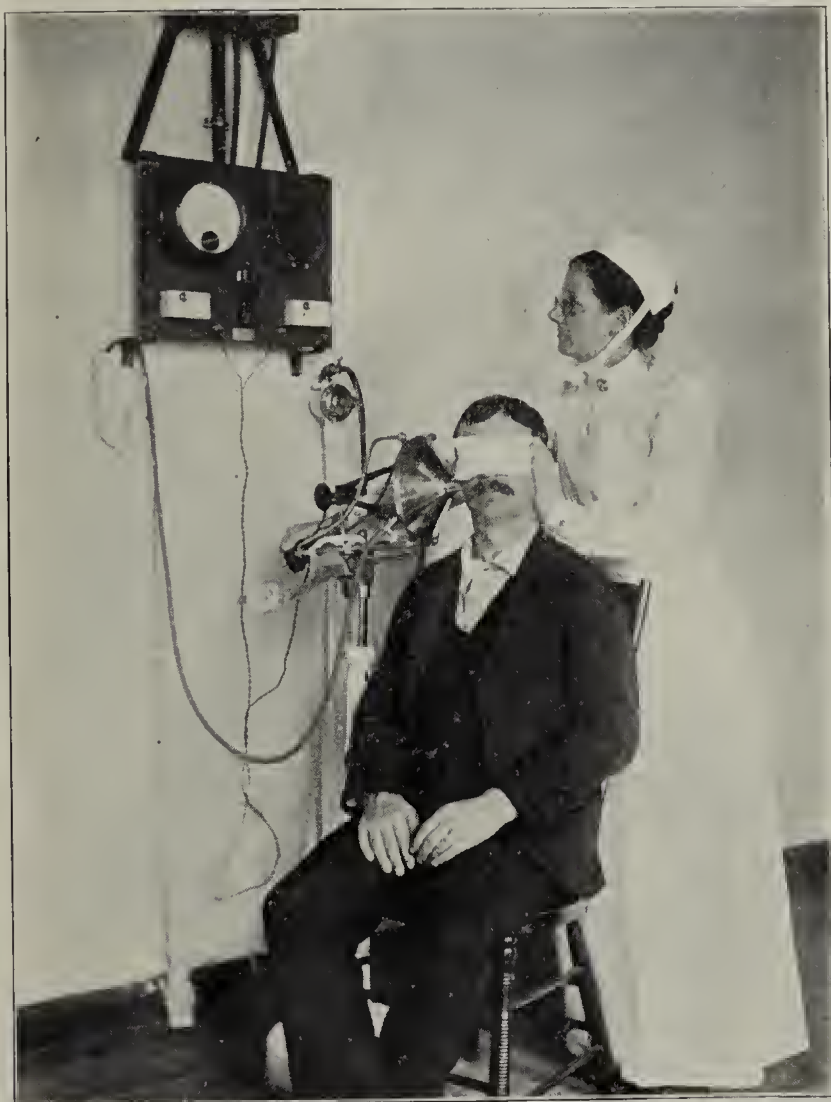

Fig. 2.—London Hospital lamp in use at the Philadelphia Polyclinic.

Case 6.—M. M., a girl, aged 9, with a severe papular eczema of the face, hands and arms of several years' duration. Uviol treatments of fifteen minutes' duration were given twice a week. After four treatments, the itching was markedly diminished and the eruption greatly improved. Treatment was discontinued on account of breakage of apparatus.

Several cases of acne were treated, but inasmuch as these were private patients sole reliance was not placed on the light treatment. In non-suppurative papular or nodular lesions rapid resorption is effected by ten minute light exposures. The influence of the light is much more prompt but less permanent than that of the x-rays.

In several leg ulcers treated granulation was markedly stimulated by a few treatments. One severe case appeared to be on the road to cure, when the breakage of apparatus caused substitution of mild x-ray treatment, with immediate aggravation and extension of the ulcers.

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* The patient has remained well now for five months.

In this connection the observations of Strebel are pertinent:

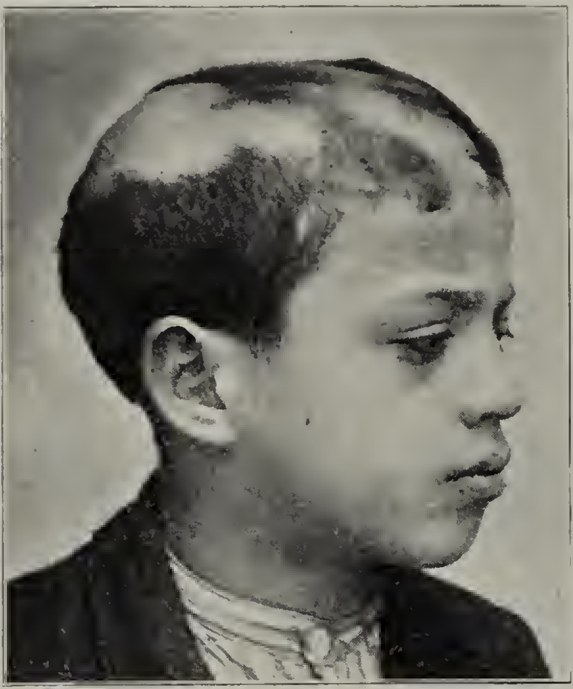

Fig. 3.—Patient in Case 1. Alopecia areata of 14 months' duration cured with the uviol lamp.

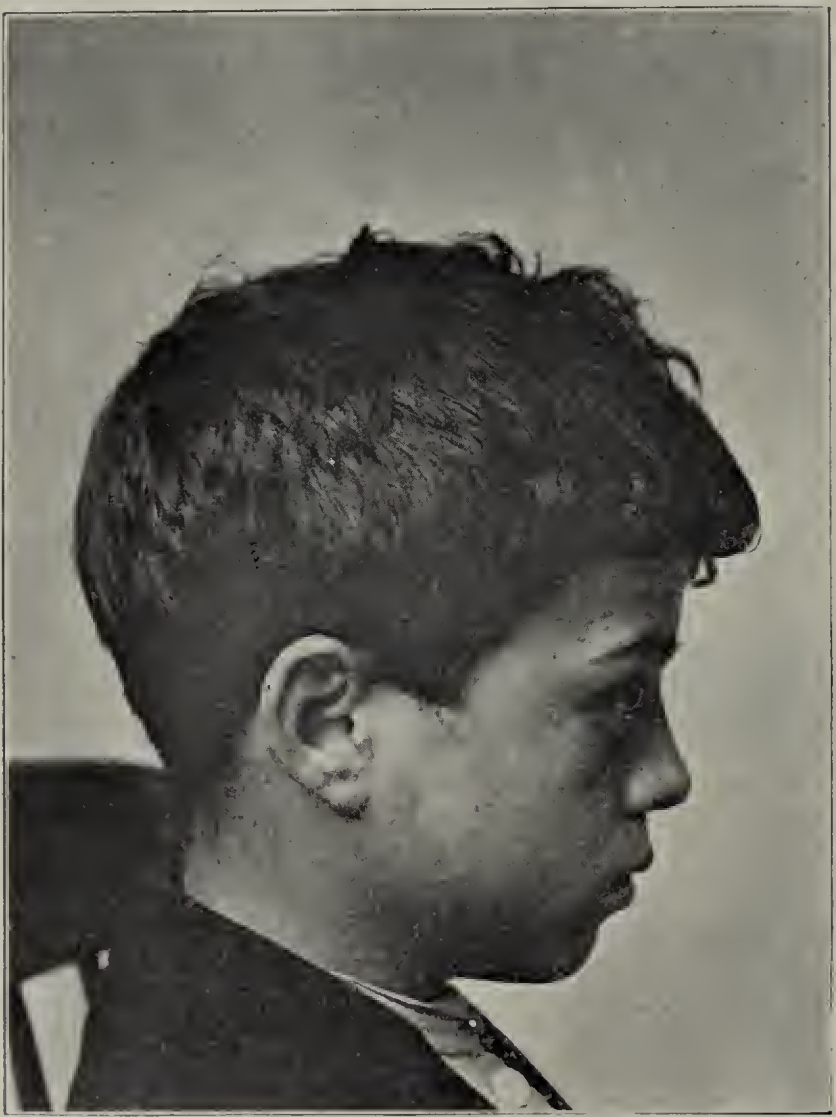

Fig. 4.—Showing restoration of hair.

Strebel showed that ultra-violet irradiation of open wounds causes rapid granulation and skinning over. He explained this by the favorable action of the ultra-violet light on the blood vessels and trophic nerves. He recommended ultra-violet light in the treatment of leg ulcers.

Axman found uviol light of great value in leg ulcers.

In summing up my impressions as to the value of the mercury vapor lamp I should say that it appears most capable of accomplishing good in alopecia areata, leg ulcers and certain forms of eczema. The light is rich in chemical rays, but lacks deep penetration. These lamps have the advantage over others that a broad volume of light is emitted which can be conveniently applied over large areas. Another very pronounced advantage is that the grade of light erythema desired may be produced and even predetermined by the distance and duration of the exposure. The histologic changes produced by light have already been referred to; that a dilatation of blood vessels with exudation of fluid and corpuscles and regressive changes in pathologically altered cells occurs after the production of a distinct light erythema is evidence that in properly-selected cases such treatment may prove beneficial.

Such phototherapeutic measures are not to be regarded as panaceas but as aids to other approved agents in the treatment of certain cutaneous diseases.

DISCUSSION.

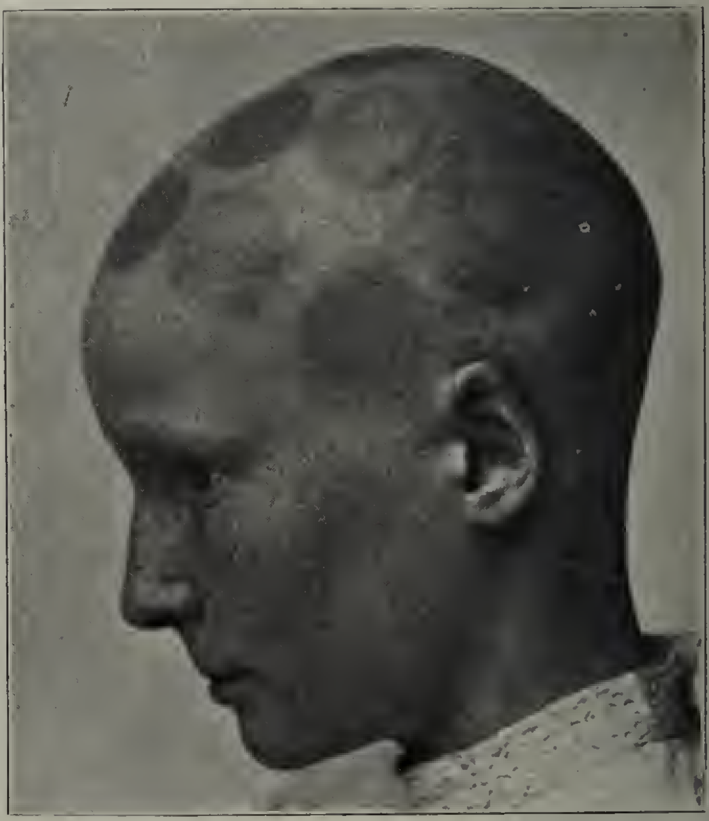

Fig. 5.—Patient in Case 4.—Alopecia areata of 10 years' duration treated without success with the London Hospital lamp. Areas of light erythema shown.

Dr. W. S. Gottheil, New York City, said that in a corner of his waiting room there stands a big apparatus containing a 60-ampere arc light—the American form of the Finsen apparatus—unused for many months. He employed it persistently for a long time, and did get results, some of which have been published; but he hardly uses it at all now. His experience can probably be paralleled by some of the members present. He knows of one case, at least, in which a very costly Finsen apparatus was imported, and, when he last heard of it, it was still unpacked, owing to the amount of space that it required, and the time that its use would consume. In Copenhagen it may be possible to give daily treatments of an hour each for months at a time, but Dr. Gottheil's experience is that patients here will neither submit to it nor pay for it. Furthermore, the applicability of the method is limited. In alopecia areata he has obtained no results that were not attainable by simpler means. Some patients with lupus erythematosus were greatly improved and apparently cured, but some relapsed, and he has come to believe that one can never tell when this treacherous disease is ended. In lupus vulgaris the x-ray and ordinary mechanical methods of treatment are generally preferred. The Copenhagen results, according to all reports, are the best that have yet been attained in this disease, but there must be great simplification of the method and shortening of the time required before it can be used extensively here. So far as penetration of the body by light rays is concerned, Dr. Gottheil proved some years ago that a sufficiently powerful beam of light can be made to penetrate the entire thickness of the human body and print on a photographic plate. All the rays, even the ultra violet, can be made to pass through the surface of the body and reach the internal organs. A necessary condition, however, is to have a light beam of sufficiently high candle power; 50 or 100 candle-power incandescents are toys, not efficient therapeutic agents. A 30,000 candle-power arc ray, concentrated as much as possible, and cooled, from a 60-ampere current, is as small a light as should be used for action on anything deeper than the epidermis.

Dr. L. Duncan Bulkley, New York City, said that several years ago he went to Copenhagen, and, after a careful investigation of the Finsen method of treatment, became enthusiastic regarding it, and purchased one of the lamps. He had it shipped to New York, properly set up and wired from the street, with a special attachment to allow water to run through the lens. That was two or three years ago. He has used it in two cases of lupus, and for the past year or two it has remained untouched. He is still strongly in favor of the Copenhagen method of treatment, and if a bad case of lupus vulgaris, with lesions about the face, should come to him to-morrow, he would advise the patient to go to Copenhagen. Finsen's results, as shown at the dermatologic congresses, both in Paris and Berlin, were very brilliant, and Dr. Bulkley said that Dr. Hyde of Chicago is very enthusiastic regarding them. In Copenhagen Dr. Bulkley saw 150 patients treated, men and women who had had the disease for ten, twenty and even thirty years, and the results were simply superb. By the method pursued there the lens must be held over one little spot for an hour at a time, and afterward a salve is applied. A corps of nurses makes these applications, and some of the patients have had as many as 600 or 800 of them, the treatment sometimes continuing over a period of from three to five years. The results obtained are better than he has ever seen by any other method of treatment, but he thinks that if the *x*-ray is used rightly, excellent results can be obtained in lupus. It is not so satisfactory, however, as the method followed in Copenhagen, and it is apt to result in scarring and burns. He has had little experience with the other forms of light.

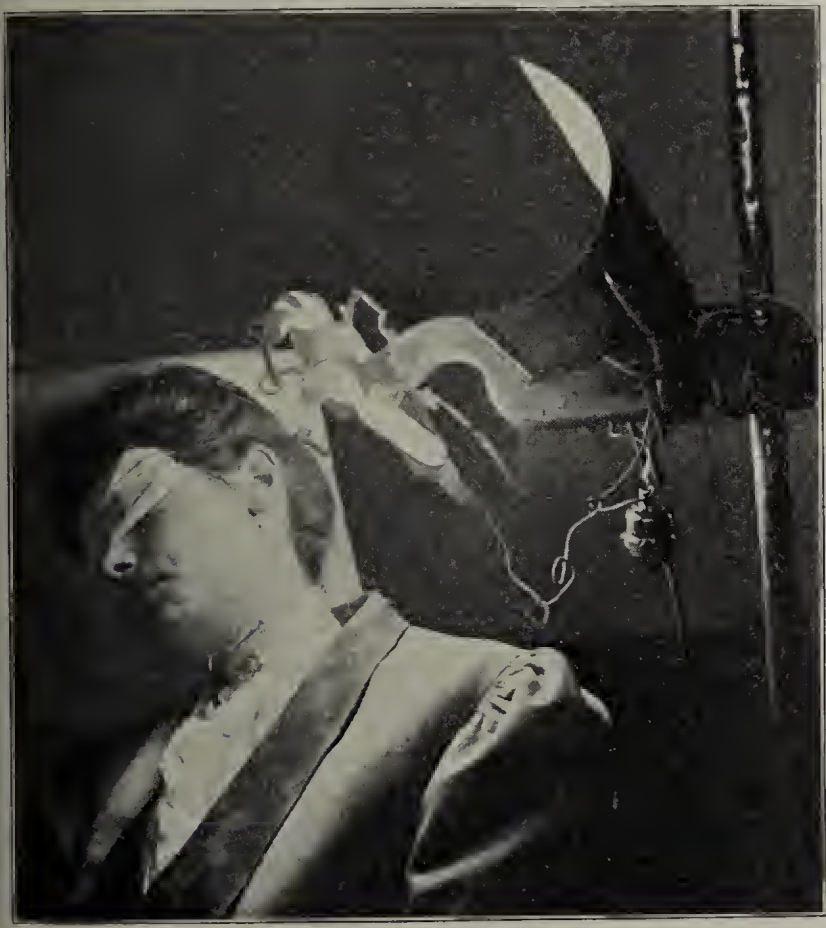
Fig. 6.—Method of using two uviol lamps in series.

Dr. W. T. Corlett, Cleveland, said that four years ago he visited Copenhagen and spent some time at the Finsen Light Institute, and saw many patients treated. He was impressed with the great care with which Finsen's assistants employed this method and by the benefit that was derived from the treatment, especially in lupus erythematosus and nevus. After getting better acquainted with some of the assistants, he learned that the consensus of opinion seemed to be that the best results are obtained in lupus erythematosus and vascular nevi. Like Dr. Bulkley, he became enthusiastic regarding the treatment, and made arrangements to have instruments and nurses sent to this country. He afterward visited Berlin and saw Finsen's apparatus employed, but the important details of the technic, such as the proper pressure and focus, were not observed. The results obtained were indifferent, and he believes the operators regarded it as an indifferent method. He then visited the clinic of Lange, who was carrying out two series of experiments, one by the well-known surgical methods, and another series by the Finsen light, but did not remain long enough to see the results of these experiments. He afterward saw a report in print that the light method has no special advantages over the ordinary surgical methods that Lange was using. In Paris he found that the Finsen light treatment is applied in an indifferent manner, but in London it is given as in Copenhagen, under specially instructed nurses. In short, the result of his tour of investigation made him somewhat skeptical as to any special advantage the Finsen light possesses over other less complicated methods, and he gave up the idea of ordering a lamp.

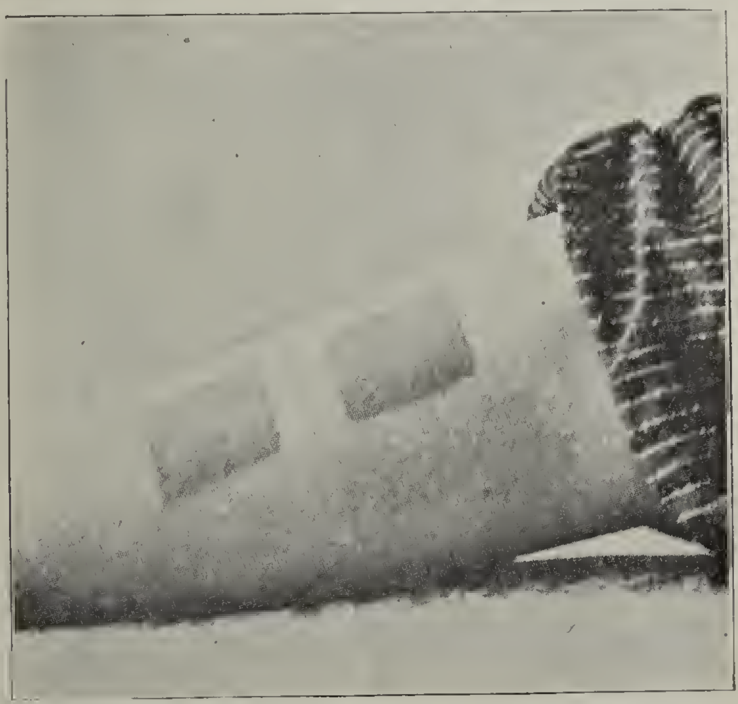
Fig. 7.—Condition of redness two days after a radiation of 15 minutes' duration with the uviol lamp. One of the squares was kept under water during radiation in order to ascertain if the heating of the skin by the lamp during radiation had any particular effect. The two places did not differ in any respect. (Schott.)

Fig. 8.—Shadowgram of a triangular piece of lead on a photographic film in the mouth, the cheek in contact with the pressure lens of the large Finsen lamp (50 amperes current).

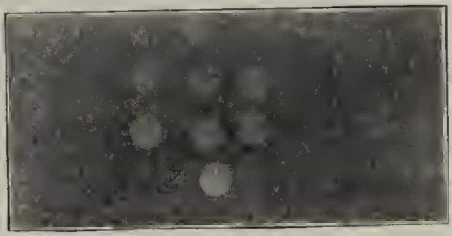
Fig. 9.—Shadowgram of a perforated piece of lead on a photographic film in the mouth, the cheek being one inch from a 16 candle power incandescent lamp, backed by a parabolic reflector. Exposure 30 seconds.

Dr. J. Frank Wallis, Norristown, Pa., showed a hood, made of sheet iron, with an aluminum reflector, and which is attached to the ordinary arc lamp. From this lamp he can obtain intensely blue or violet rays, and with it he has from time to time treated small acne lesions. One advantage of this lamp is that the nearer the carbon, the stronger is the blue light. In addition to acne lesions, he has used it for small abscesses and sebaceous glands. There are also some cases of eczema that react very quickly to this light.

Dr. M. L. Heidingsfeld, Cincinnati, said that he has used a Heraeus quartz mercury lamp with the greatest satisfaction. He said that, in his opinion, it possesses decided advantages over other instruments used in phototherapy, particularly in the furuncular type of acne and in the treatment of small abscesses, on which it exerts an influence superior to any other form of light therapy that he has ever tried. In many of these cases he has used the x-ray and the London Hospital lamp, but mostly with indifferent results. He has also used a Kromayer quartz mercury lamp, and he has found the effects of this and the Heraeus instruments rather remarkable. They emit practically no heat at a distance of from six to eight inches, and, after an exposure of three or four minutes, they give rise to a decided bullous reaction. The effect of these instruments on certain forms of skin affections is striking and is almost remarkable in indurated and pustular acne; chronic forms of eczema and dermatitis, particularly infectious types, will be favorably influenced by a few applications of this form of light treatment. Cases of folliculitis and kerion, which resisted all forms of simple measures and rather prolonged x-ray treatment, yielded almost completely to one thorough application of this form of light energy. Some cases of lupus erythematosus, which baffle all other forms of treatment, x-ray and topical applications, have yielded very rapidly to this form of treatment. Others, however, have not been favorably influenced. Unlike Dr. Schamberg, he has not obtained any favorable influence from this form of treatment in alopecia areata, but it may be due to the fact that he did not push the treatment. In other respects his results do not differ materially from those of Dr. Schamberg, and he heartily endorses all the latter's favorable comments concerning this form of treatment.

Dr. J. H. Mudgett, Philadelphia, said that he has had considerable personal experience with light therapy, and he does not see how so many physicians, especially dermatologists, are so skeptical regarding it, and wonders whether or not they have any right to form an opinion about something they have never tried. With phototherapy it must be the same as with anything else; one must have experience with it before any opinion can be formed regarding it. Dr. Mudgett had five cases of ulcers of the leg last October which he treated successfully with an ordinary 500-candle power incandescent light, making hour exposures, and repeating the treatment every day and every other day. Some of them took two or three months to heal, but they were all long-standing cases—as long as ten years. In addition to the phototherapy he only used ordinary antiseptic applications, such as dermatologists recommend. In conclusion he suggested that dermatologists give this method of treatment a fair trial, in comparison with other methods.

Dr. Jay F. Schamberg, Philadelphia, said he believes that it is pretty well agreed that the treatment of lupus vulgaris remains the dominant field for phototherapy. Nevertheless, there are other dermatoses in which light treatment may be found useful. There is a distinction between phototherapy and actinotherapy. The blue, violet and ultra violet rays are not the only frequencies capable of influencing tissues. It has been shown that there is real efficacy in heat rays in certain conditions. The high-power incandescent lamps should be given a trial by competent and conservative workers. Extravagant claims have been made for various forms of light treatment which can not be indorsed. It has been shown that the penetrative power of light rays is in inverse proportion to their bactericidal effect.

Tainted Air.—The man who is 60 years old has spent 20 of those years in his bedroom. If his mind has been saturated with the old-time delusion that night air is dangerous, he has probably proceeded to make it a hundred-fold more dangerous by breathing over and over again the poisons that have been thrown off from human lungs.—*Good Health.*

BLASTOMYCOSIS IN AN INFANT.*

J. B. KESSLER, M.D.
Lecturer on Dermatology and Clinical Dermatology, State University of Iowa.
IOWA CITY, IOWA.

This is a peculiar disease, from a geographic standpoint. Its home so far seems to be confined to America, and only in a few localities, largely in the Mississippi valley, if we also include the city of Chicago. The forms on the Pacific coast seem to differ from those found in other localities in the United States and are named protozoic and coccidioidal.

In cases of protozoan infection the organism develops by endogenous spore formation and not by budding, while in blastomycosis the only way of development in the tissue is by budding. The cultures also differ somewhat from those obtained in blastomycosis.

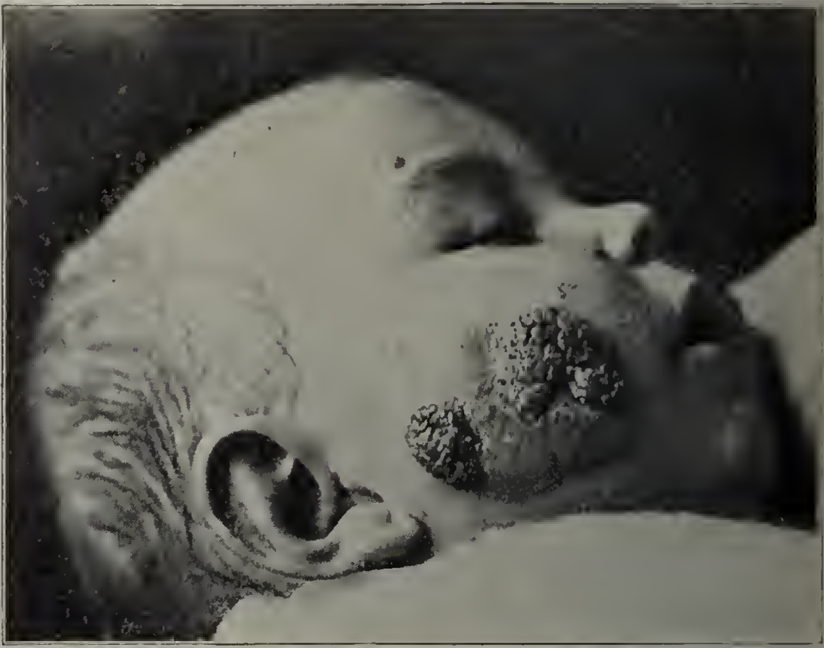

Fig. 1.—Blastomycosis. E. J., at 8 months, showing lesion on right cheek.

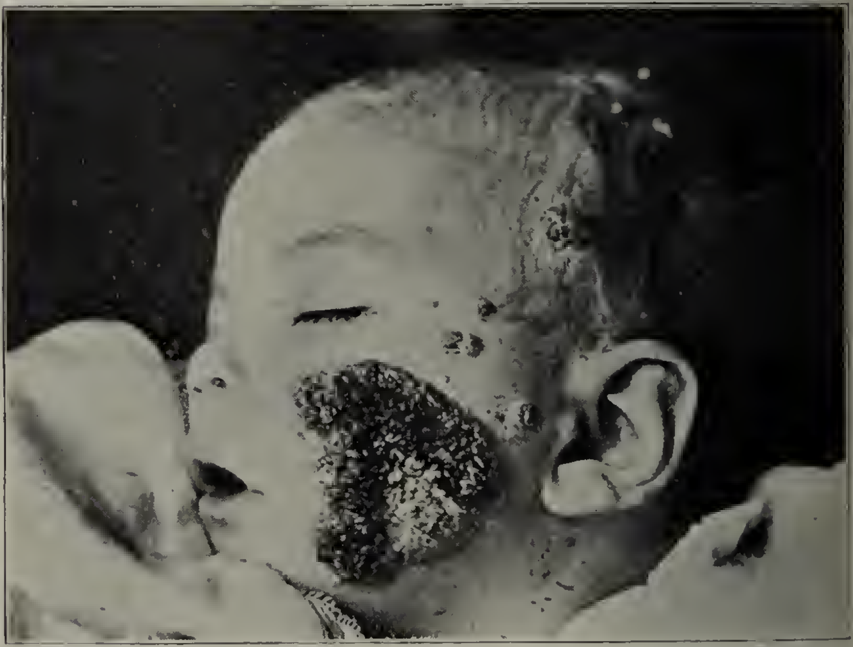

Fig. 2.—Blastomycosis. E. J., at 8 months, showing lesion on left cheek.

The first case reported from Boston was in the latter part of 1906. There were no recognized cases in England up to 1903; a doubtful one was reported from Madrid the same year. I have seen three cases in the past eight years, one of them somewhat doubtful.

I am indebted to Dr. W. W. Jones for referring to me the patient who is the subject of this paper and for the previous history as well as the family history.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

History.—E. J., when she was four to five months old, was brought for treatment of an eruption which had appeared on her head and cheeks a week or ten days previously. The lesions consisted of patches about the size of a silver dollar, the one on the left cheek was oblong in contour, those on the right cheek and scalp were more or less circular. The patches consisted of crusts which were raised and warty in appearance, with red borders; there was a small amount of pus under the crusts and especially at the edges. In a few days other pinhead sized patches appeared around these, and formed crusts which gradually enlarged until, coalescing with the larger crusts, they formed large patches. An ointment was applied, which seemed to stop the extension of the lesions, but did not remove them. This treatment was continued for about three weeks. Then the little patient passed into the hands of a second physician, and later to a third. The disease had been named eczema, double eczema, etc. About three months later, Jan. 24, 1906, the baby was returned to the first physician and by him referred to me for a diagnosis and to recommend treatment.

Family History.—Mother of child had had two attacks of appendicitis, was of a nervous temperament, fairly well nourished, and had never had any skin lesions. The father had always enjoyed good health, and never had any skin disease. Father's mother had heart trouble. Aunts and uncles on both sides had been free from integumentary lesions.

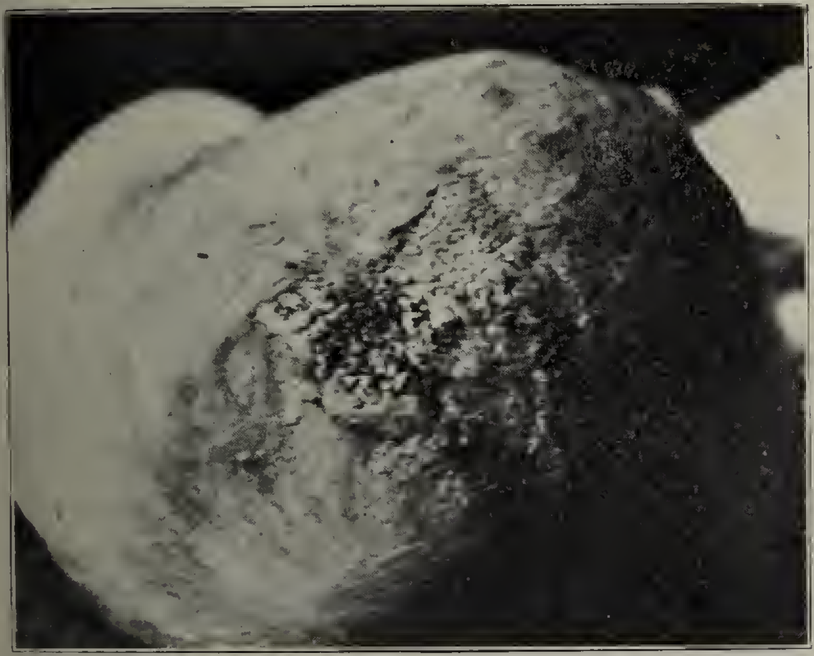

Fig. 3.—Blastomycosis. E. J., at 8 months, showing scalp lesion.

Examination.—The child, aged eight months, white, female, weighed twenty pounds and seemed to be well nourished. I found a lesion on the right cheek (Fig. 1), two and one-half by three inches in area, on the left cheek (Fig. 2); one a little larger, which was inclined to be circular in outline; one large patch on the scalp (Fig. 3), extending from the anterior of the occiput nearly or quite to the frontal bone, in width about three and one-half inches, with small split-pea sized lesions scattered from the facial to the parietal lesions, and many small patches on the buttocks and hips, which were devoid of crusts or warty appearance, but retained the red border—probably due to the contact of urine and frequent bathing. The patches on the face were elevated from one-eighth to one-fourth of an inch above the surrounding skin, the surface was covered by papilliform elevations separated by small clefts of varying depths, giving them a warty or cauliflower appearance. The borders sloped more or less abruptly from the elevated roughened surface to the surrounding skin. In color the lesions were not as dark as are those usually encountered in older patients, but were set with as many small abscesses as are usually found, but the warty projections were more delicate and a small amount of pus could be made to exude on pressure. The subjective symptoms would naturally be few in one so young, she seemed to be well nourished and nursed with a relish. When she became too warm she would scratch her scalp, indicating that it itched slightly. Removing crusts, for culture and microscopic examination, caused the little one to cry out, indicating that the lesions were very sensitive to trauma; the base was very friable and vascular.

The clinical diagnosis was that the disease was probably blastomycosis. This was confirmed by microscopic examination.

Microscopic Examination.—An examination was first made of the dry scab covering considerable portions of the lesion proper, and it was found to consist principally of serum, dead epithelial cells and the powder which had been used for treatment. This dry scab was treated with a 5 per cent solution of potassium hydroxid, but none of the specific micro-organisms were discovered. On squeezing the tissue a purulent fluid escaped. Under the microscope this was found to consist principally of pus cells, broken down tissue elements and a few blastomycetes, with some bacteria, principally staphylococci. Next a piece of the proliferating newly formed tissue of the lesion proper was grasped with a forceps and excised with a sharp knife. A part of this was used for making a microscopic section, another part for the inoculation of culture media, and a third piece was macerated in a 5 per cent. solu-

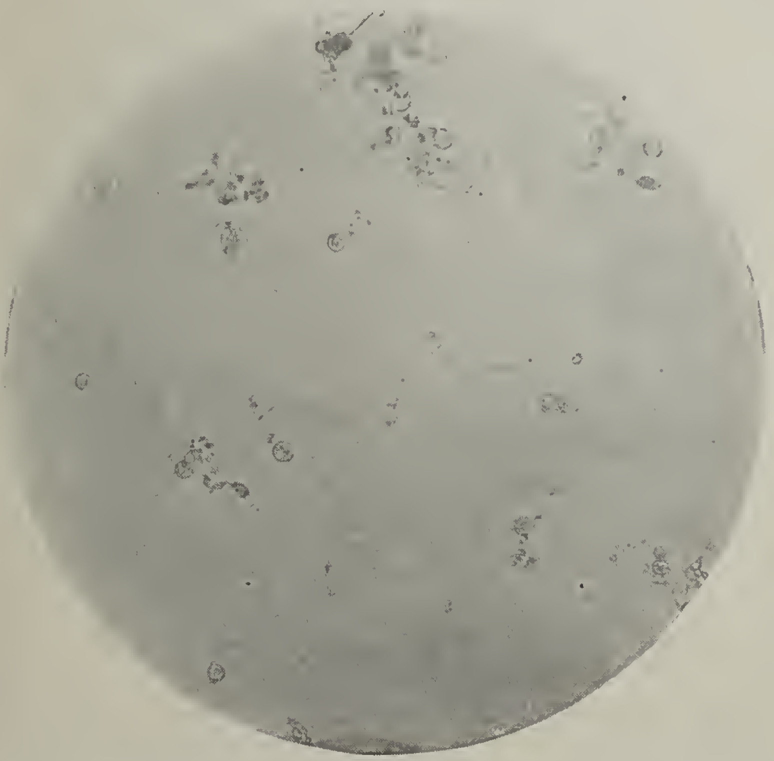

Fig. 4.—Photomicrograph showing budding blastomycetes. Objective 1/6.

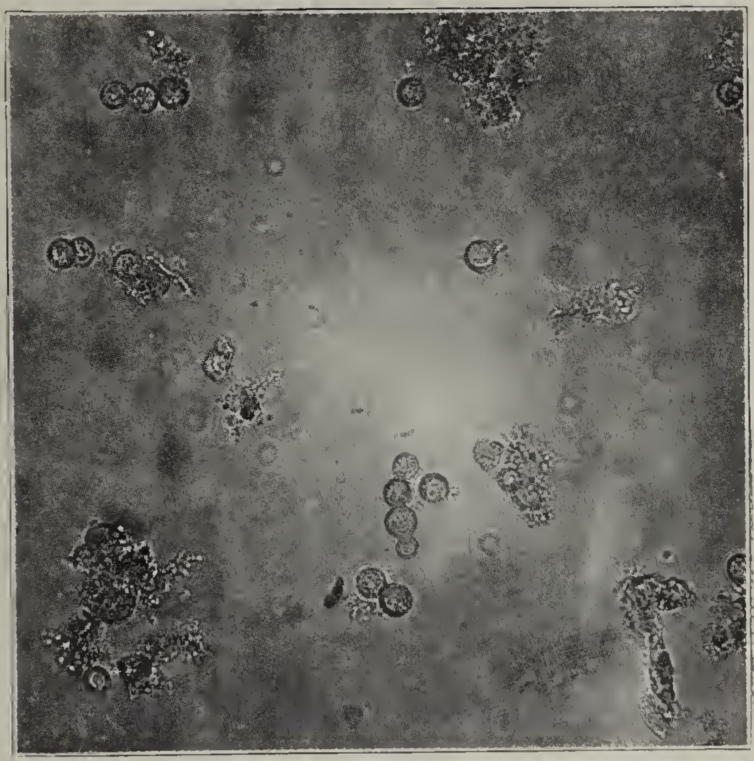

Fig. 5.—Photomicrograph showing organisms in pairs. Objective 1/6.

tion of potassium hydroxid. After the cellular elements had become clarified by the caustic potash, it was found that the field of the microscope was filled with a large number of spherical organisms with a double wall and varying in diameter from 14 to 20 micra. Many presented small budding processes (Figs. 4 and 5): others grew in pairs, the protoplasm of both being continuous. In such cases one of the organisms evidently presented a rather mature bud. The organisms presented a rather refractile appearance because of the clearing of the protoplasm. Pieces of the diseased tissue were placed in tubes of glucose agar and blood serum, which were then placed in an incubator at a temperature of 37 C. After two days a growth was visible which on microscopic examination was found to consist principally of blastomycetes and a few staphylococci. These were then isolated by the use of the Petri dish method and pure cultures of each obtained. The staphylococcus presented its ordinary characteristics, and was no doubt present as a contaminating micro-organism. The cultures of the blastomycetes grew well both in the incubator and at body temperature. Those made on glucose agar grew much more rapidly than those on blood serum. There was considerable difference between the cultures when grown at incubator or ordinary room temperature. In the former they remained as rather small, distinct, grayish colored, moist colonies, which on microscopic examination were found to consist principally of budding cells. On the glucose agar, however, they developed more rapidly, producing a dry, whitish woolly, elevated growth which spread over the entire surface of the medium, and which, on microscopic examination, was found to consist principally of hyphæ. The sections were imbedded in celloidin and cut 12 micra in thickness. The piece of tissue was found to consist almost entirely of epidermis, the cells of which had markedly proliferated. These consisted principally of a downward growth in the form of a wide irregular process. In many places, particularly in the deeper portions, a number of necrotic foci were found in a nest (Figs. 6 and 7) and projections of epithelial cells. These areas were filled principally with pus corpuscles and detritus of epithelial cells, and contained also a number of blastomycetic organisms.

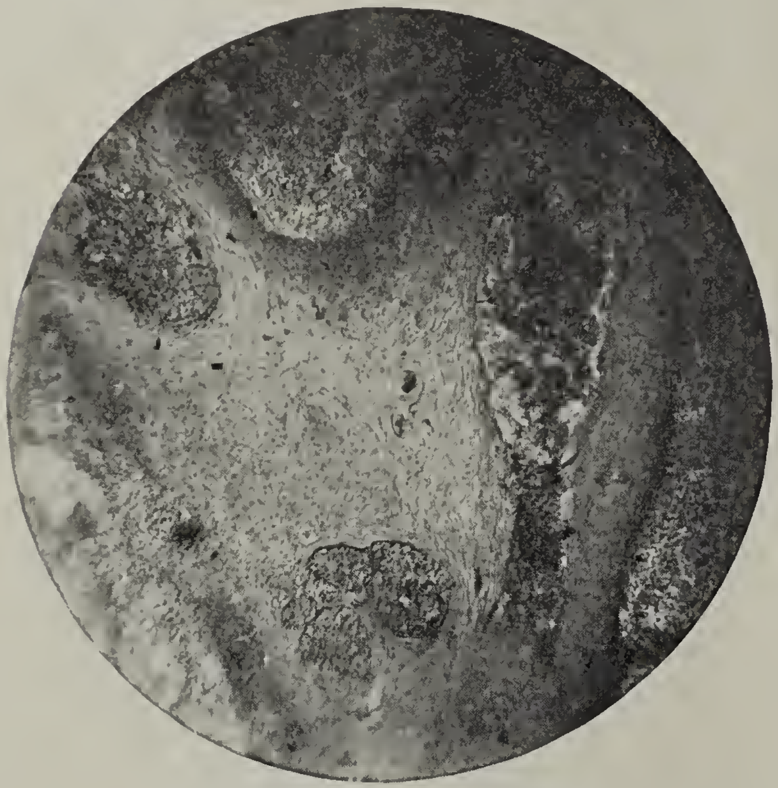

Fig. 6.—Photomicrograph of section through lesion showing areas of necrosis containing blastomycetes. Objective ¾.

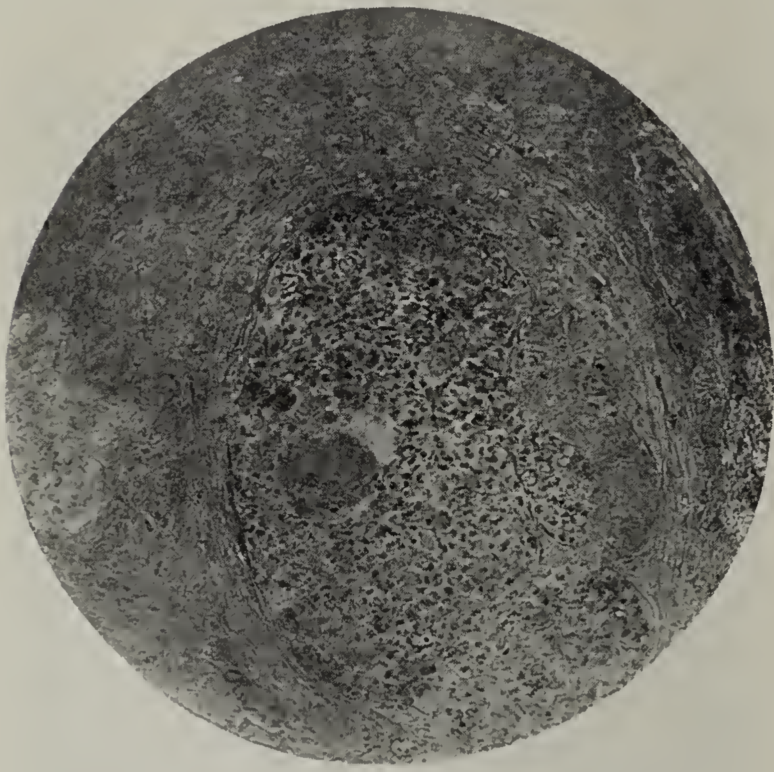

Fig. 7.—Same as Fig. 6 under 1/6 objective.

Treatment.—Potassium iodid was recommended, as I did not think it prudent to use the Roentgen ray on one so young. There was besides, the difficulty of keeping the baby quiet when not asleep, as we found when the photographs were taken; those of the face and scalp were taken while she was asleep, the shoulder and buttocks were taken while she was awake and were destroyed. Preceding our examination it had been proposed by physicians that the child be weaned; why, I do not know, it being well nourished and stout for a babe of eight or nine months. I think it would have been a sad mistake, as we would have lost the indirect method of treatment. I took my cue from the beneficial effects of treating the mother, who has a child with hereditary lues. The mother and child both took potassium iodid. A wash of formalin 2 per cent. solution was first used, then an ointment containing salicylic acid and zinc oxid with a lanolin base. The scabs softened and came away, and at the end of three weeks there was marked improvement; at the expiration of eight weeks all the scabs had disappeared, leaving only slight scars on the cheek (Fig. 8), which promise to entirely disappear in time. During the time the child was taking treatment it seemed well and grew rapidly.

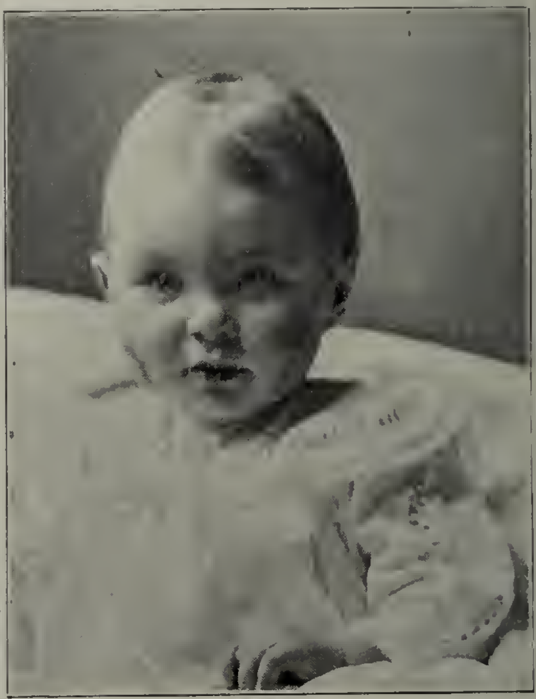

Fig. 8.—Blastomycosis. E. J., at 11¾ months, showing cicatrices on cheeks.

My reasons for reporting this case are the geographic peculiarities, the beneficial effects of potassium iodid in the direct and indirect treatment of blastomycosis, and, last but not least, the fact that this is the youngest patient (eight months old) of which I have any record with the limited literature at my command. I am greatly indebted to Dr. Albert for the microscopic findings.

DISCUSSION.

Dr. William A. Pusey, Chicago, said he thought the next youngest case was in a girl of 14 years, under his own care. He knew of no other infantile case reported. When Dr. Kessler first described the clinical appearances of his case, Dr.

Pusey thought that perhaps the case was one of vegetating dermatitis from pus organisms, but the bacteriologic findings, he said, leave no doubt as to the diagnosis.

The case emphasizes that blastomycosis may affect one at any age; the cases now on record range from eight months to the senile stage of life. To physicians in Chicago and in the Mississippi Valley blastomycosis is an exceedingly important subject. It is no longer a clinical curiosity in Chicago, where there have been many cases, so that even the hospital internes are acquainted with it. To many it is a source of constant speculation to learn why blastomycosis is so prevalent in our part of the country, and he thought that we are entirely ignorant on that score. It is by no means a trivial disease merely affecting the skin. Not infrequently cases of systemic blastomycosis closely simulate systemic tuberculosis. Dr. Pusey called attention to the fact that from ordinary pus infection a histologic picture may result similar to that of blastomycosis. He recently removed a papillomatous mass from the corona glandis which gave a histologic picture practically identical with that of blastomycosis. There was a dense infiltration of the corium with round cells, among which there were many mast cells and plasma cells. There was great overgrowth of the rete with down growth of intercapillary pegs, and all through the rete were to be found intraepithelial abscesses. Except for the absence of giant cells, the picture was that of blastomycosis. A number of Chicago men, familiar with blastomycosis, agreed that the picture was that of blastomycosis. Nevertheless, a rather careful search of the specimen failed to show blastomycetes. It was not difficult to demonstrate the presence of staphylococci in the tissue. Cultures made from the miliary abscesses showed no blastomycetes, but pure cultures of *Staphylococcus albus.*. The case, therefore, seems to be one which clinically and histologically is closely like blastomycosis and yet is a lesion produced by a common pus organism.

Dr. Henry C. Baum, Syracuse, N. Y., gave a summary of a case which he showed at the meeting of the American Dermatological Association two or three years ago. A colleague developed a lesion on the back of the right hand which was recognized clinically as blastomycosis, but in which the micro-organisms could not be found. About three months later a similar lesion developed on the right ala nasi and the adjacent cheek, and a third lesion behind the left ear. As the diagnosis was reasonably positive, he was promptly put on potassium iodid and exposed to the *x*-rays. For a long time—perhaps six months—the treatment had no appreciable effect on the lesions, except that they did not extend. After many unsuccessful attempts, the organisms were finally found in each one of the lesions, and at the time the patient was presented, cultures were also shown, and the diagnosis was concurred in by all the members present. The case went on practically to recovery. First, the lesion on the cheek and nose disappeared, and then that on the scalp, and the hair, which had disappeared from that area, grew again. In all these patches there developed an atrophic and drawn appearance of the skin, and perhaps for a year later these patches remained soft and white and smooth. Dr. Baum thought the point of greatest interest in this case was the absolute inability to find the micro-organisms for a long time, in spite of repeated smears and cultures on various media and blood serum, although finally they were located in all the lesions. Another case that came under his observation was that of a girl 12 years old in whom the process had involved the dorsal aspect of the right calf. Another was in a woman 52 years old, with a lesion on the back of the right hand. In both of these cases there was no difficulty in finding the organism from the start. In this last case no iodin preparation was given nor were the *x*-rays used, the treatment being limited to the application of an indifferent ointment and the use of the high-frequency current from the vacuum tube. The process healed very nicely, and in less time than did that in the first case, and in any future cases that come under his observation he is inclined to try the high-frequency current before resorting to the *x*-ray.

Dr. W. T. Corlett, Cleveland, Ohio, said that the only case thought to be blastomycosis he had seen in Cleveland was not confirmed by the culture and microscopic findings after repeated trials. At one time it was thought that the characteristic budding yeast fungus had been found, but it proved to be due to the starch dressing employed. The patient has since died. The patient was shown at the meeting of the American Dermatological Association in 1906, when some doubt was expressed as to its nature.

Dr. John A. Fordyce, New York City, called attention to Dr. Pusey's remark that pyogenic organisms may produce lesions similar to blastomycosis. Two years ago, at a meeting of the American Dermatological Association, Dr. Fordyce showed some photographs which presented the clinical picture of blastomycosis, but the organisms could not be found in the lesions. There was some epithelial proliferation and cell infiltration, but the characteristic micro-organism was absent. He emphasized that giants cells are found in blastomycosis, but not in pyogenic lesions.

Dr. Jay F. Schamberg, Philadelphia, reported an error of diagnosis in regard to a supposed case of blastomycosis cutis. The patient was a man with an extensive papilllary ulcerating growth on the back of the hand. Sections of this were made and cultures taken from the pus which gave a rich growth of yeast fungus. The microscope failed to reveal the yeast fungus, but gave a general picture not unlike that of blastomycosis. On account of the histologic picture and the cultural findings a diagnosis of blastomycosis was made and the patient was treated on that basis. He subsequently grew worse, and further microscopic examination positively demonstrated that the case was one of carcinoma. An amputation of the hand was done, and carcinoma subsequently developed in the axilla, necessitating amputation of the arm and ultimately terminating in death. He felt sure that the presence of the yeast fungus was due to contamination from the air. Care is therefore necessary in diagnosis without confirmation by both histologic and cultural studies carefully pursued.

Dr. M. B. Hartzell, Philadelphia, remarked that the discussion shows that the diagnosis of blastomycosis cutis may be at times extremely difficult, and can only be definitely settled by microscopic examination. Dr. Hartzell recalled a case, which he saw about 18 months ago, in which there was a papillomatous lesion on the back of the hand which closely resembled blastomycosis. Sections and cultures from this lesion were entirely negative, and it healed spontaneously within six weeks, yet clinically it was a perfect picture of blastomycosis. Without finding the organisms of blastomycosis one is not justified in making that diagnosis.

Dr. J. B. Kessler, Iowa City, Iowa, agreed regarding the difficulties of diagnosis in some cases. When the case he reported first came under his observation, his son, Dr. J. C. Kessler, and he narrowed the diagnosis down to two affections, namely, mycosis fungoides and blastomycosis cutis. They had recently had a case of mycosis fungoides, and with the microscope they were able to establish that this case did not belong to that category, but was one of blastomycosis. Whether or not the local treatment had any beneficial effect in this case he was unable to say. Potassium iodid was administered to the mother with the idea that it might indirectly benefit the child.

Posterior Basal Meningitis Made a Notifiable Disease.—On the beginning of the epidemic of cerebrospinal meningitis in England, the London County Council made the disease notifiable for a period of six months, and up to June 18 fifty-six cases were reported. The question arose whether or not the term cerebrospinal fever included posterior basal meningitis. The Royal College of Physicians appointed a committee, which reported that intermediate cases occur in which differentiation is impracticable. No difference in the bacteriology of the two diseases has been demonstrated. The committee recommended that for notification purposes posterior basal meningitis should be included under the term cerebrospinal fever. That after notification, further details of the cases should be obtained, (a) in hospitals through the medical officers; (b) in private by a special officer available to investigate the cases bacteriologically or otherwise in association with the physician in charge.

INTESTINAL PERFORATION IN TYPHOID FEVER; ITS DIAGNOSIS AND SURGICAL TREATMENT.*

J. E. ALLABEN, M.D.
Surgeon to St. Anthony Hospital.
ROCKFORD, ILL.

If it were necessary that one should make an apology for offering a contribution on this subject, I should say that it has been twenty-three years since Leyden first proposed the surgical treatment of this malady and Mikulicz did the first successful operation, giving to humanity the first ray of hope in a contest where death was well nigh inevitable. A year and a half ago I lost my own son from this accident. Had I made as careful a study of the diagnosis of perforation in typhoid before his illness as I have made since, I think his life might have been saved.

And so I feel somewhat like the rich man, the story of whom is told in sacred history, who, languishing in eternal punishment, looked up to Lazarus in the bosom of Abraham and implored him, if he could not come to him and ease his suffering with a cup of water, to go back to earth and warn his brothers so that his fate might not be theirs.

The scope of this paper includes a brief history of the surgical treatment of intestinal perforation in typhoid fever: the presentation of some of the statistics of Keen collaborated by Wescott, Tinker, Harte and Ashhurst, of all cases operated on up to 1903; a brief analysis of the statistics of all the cases operated on from January, 1903, up to January, 1907; the diagnosis and treatment of intestinal perforation in typhoid, and, lastly, the report of my own case.

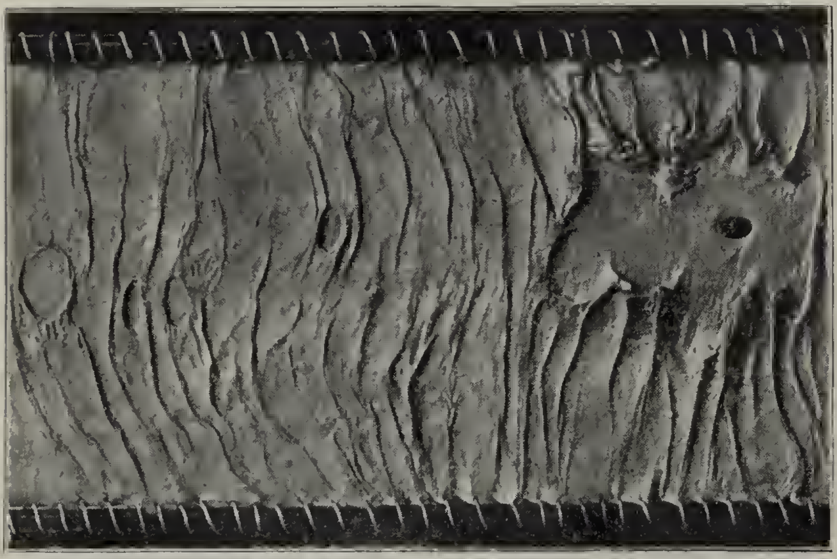

Fig. 1.—Large ulcer with small perforation and numerous small ulcers penetrating mucous coat. Typhoid fever, third week; perforation, fatal peritonitis (from specimen in U. S. Army Medical Museum, Washington, D. C.). Dr. W. C. Miner, acting assistant surgeon, U. S. Army.

The statistics of the early operation for this accident were so discouraging that for many years little progress was made. The early statistics of Keen give a mortality of over 80 per cent. Harte and Ashhurst report the total number of patients operated on, up to January, 1903, as 362, with a mortality of 74.03 per cent. I have collected so far as possible the cases of patients operated on from January, 1903, to January, 1907, a total of 162, with a mortality of 62.34 per cent. It will be observed by these statistics that in the last four years there has been a fall in the mortality rate from 74.03 per cent. to 62.34 per cent.

These statistics are what might be expected, resulting no doubt from the fact that we are becoming more vigilant in our efforts to detect perforation at the time of its occurrence and in procuring for our patients an early operation.

The ileum is the seat of perforation in about 95 per cent. of the cases, and the perforation when in the ileum, in a majority of the cases, is within 18 inches of the cecum. Occasionally it is found as far as three feet from this locality.

The different forms of perforations are well represented in Figures 1 to 5.

DIAGNOSIS.

In the clear-minded cases where the onset is sudden, a diagnosis can be made with tolerable certainty. In the cases where stupor is pronounced and we are obliged to rely almost wholly on our own observation and on physical examination, the diagnosis is very difficult, sometimes impossible. But in every case where the conditions indicate the probability of a perforation, we are justified in making an exploratory incision and by inspection establish a diagnosis. A long step in advance will be made when we fully realize the importance of an attempt in our diagnoses of differentiating between the symptoms of perforation and those of advancing septic peritonitis.

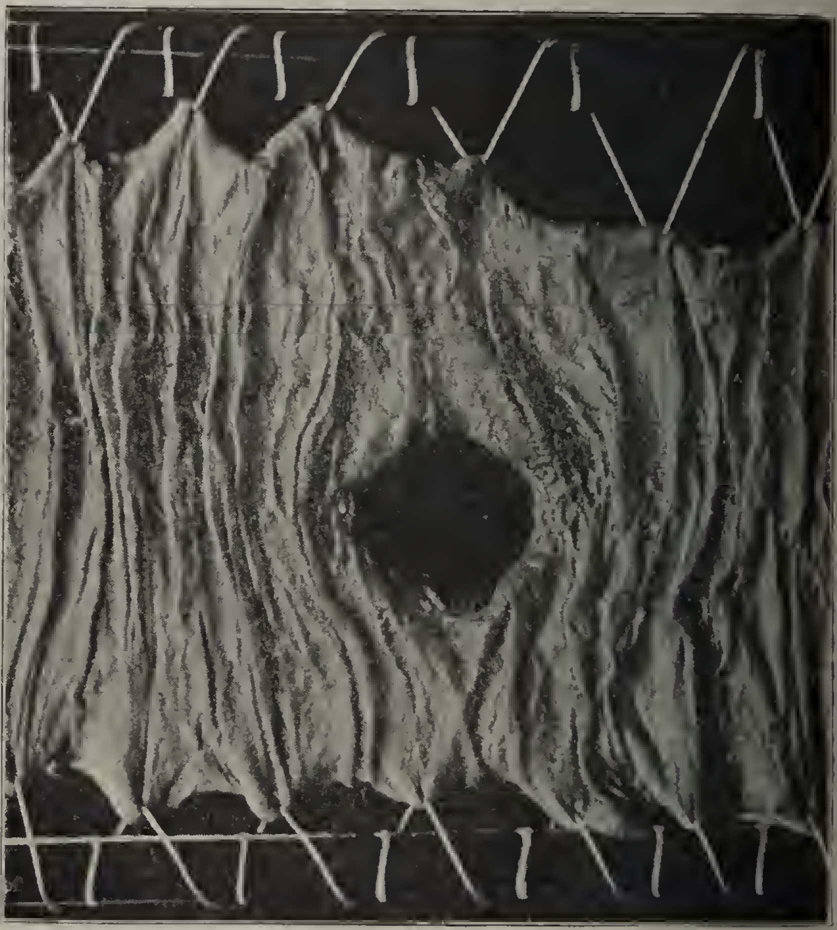

Fig. 2.—Large perforation; typhoid fever, fifth week; perforation; fatal peritonitis; soldier, aged 24, was convalescing (from specimen in U. S. Army Medical Museum, Washington, D. C.). Dr. Ely McClellan, surgeon, U. S. Army.

It is undoubtedly true that an ulcer in a Peyer's patch or solitary gland may extend to the peritoneal intestinal coat without perforating it, giving symptoms of perforation and local peritonitis; yet to make such a diagnosis and to depend on Nature to form about this spot a wall of adhesions to prevent perforation or general peritoneal infection, is as unscientific and unsurgical as to depend on Nature to perform the same office in appendicitis.

The symptoms most frequently observed after perforation are: Pain in the abdomen, rigidity of the abdominal muscles, tenderness, increase of pulse rate and rise of temperature, nausea, chill, tympany, disappearance of liver dulness, movable dulness in the flank and a facies characteristic of shock and sepsis. According to Murphy, the symptoms of perforation are "sudden and severe pain, nausea and often vomiting, local hypersensitiveness and absence of peristalsis in the painful area."

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907. This is an abstract; the full paper, including the bibliography, will appear in the Transactions of the Section and in the author's reprints.

Of all the symptoms, pain is the one most constantly present, and therefore most reliable. Yet pain may be present in other conditions in typhoid, notably in thrombosis of the iliac veins. In a series of 500 cases of typhoid observed by McCrae, pain was a symptom in 161 cases. In these cases the pain was due to perforation in 13, to hemorrhage in 13, and to other known causes in 65, but in 70 cases the cause could not be explained. In the author's case the pain appeared suddenly in the lower abdomen, causing the patient to cry out. Soon after the occurrence of abdominal pain there was an intense pain in the penis.

Hayes says: "The diagnosis of perforation is usually easy. The symptoms are so characteristic that even when the patient is a foreigner or is delirious, the diagnosis can be made just as well. The three cardinal symptoms are, however, the sudden pain, rigidity, the tenderness of the abdomen to pressure. These three symptoms being present in any case of typhoid fever, operation is indicated and demanded."

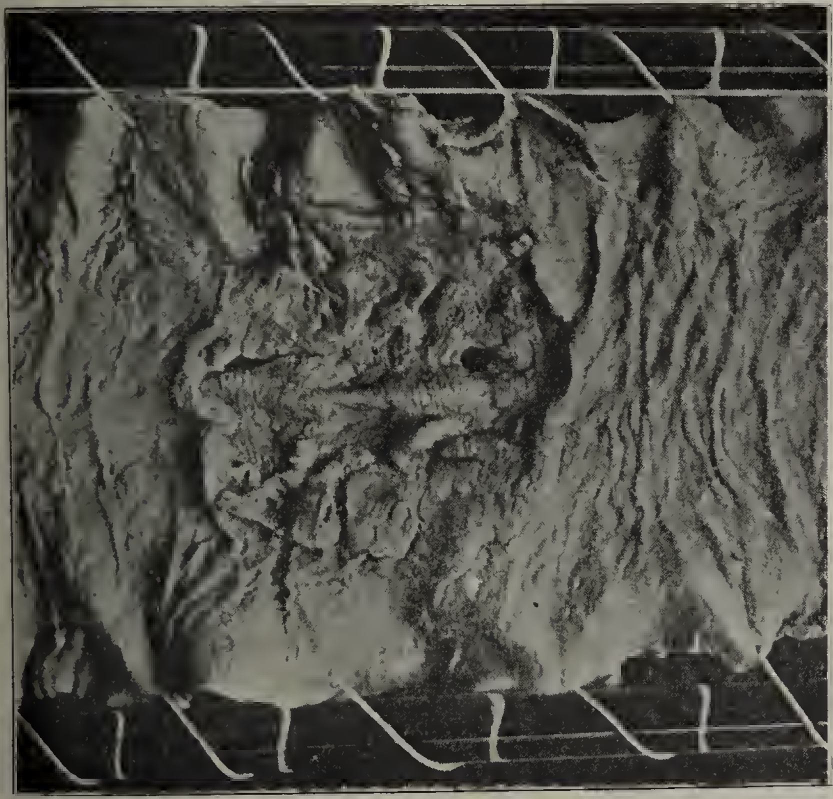

Fig. 3.—Ulcer and small perforation: typhoid fever, probably third week: perforation of ileum and fatal peritonitis (from specimen in U. S. Army Medical Museum, Washington, D. C.). Dr. Rupert Norton, acting assistant surgeon, U. S. Army.

Some writers report a fall of the pulse rate immediately after the perforation. A much more uniform condition is a marked increase in the pulse rate an hour or two after the first symptoms of perforation. In the author's case the pulse at 9:45 a. m., just previous to the time of perforation, was 98, temperature 100.6 F. One hour later, the pulse was 100, temperature 101.3 F. The pulse and temperature continued to rise for seven hours, at which time they were 108 and 105.4 F., respectively. Tenderness usually accompanies rigidity.

Regarding the leucocyte count, we must say that most authorities do not attach much importance to it as an aid to diagnosis in perforation. Cushing makes an important observation regarding this question. He says: "An individual observation at such a critical time may be misleading, in the first place, because a condition of hypoleucocytosis often is a characteristic of the fever and a count apparently within normal limits of 8,000 to 10,000 may actually represent a double increase in the number, and secondly, because by a single count the transient 'wave of leucocytosis' may entirely escape notice." It must be considered confirmatory of other symptoms rather than a positive indication for surgical intervention.

TREATMENT.

In the light of late experience the treatment of intestinal perforation in typhoid is unquestionably limited to surgical procedure.

TECHNIC OF OPERATION.

The right lateral incision is the one almost invariably selected for the operation. The appendix and cecum should be examined, and if the perforation is not located in these organs, the ileum should next be examined and then the colon. According to Keen, in ten cases of perforation of the colon, five were in the sigmoid flexure. This writer adds: "If therefore no perforation is found in the ileum, cecum or appendix, the next most likely place is the sigmoid flexure." The perforation may be closed in several tiers with the interrupted or continuous Lembert, purse-string or the mattress suture. Silk or cotton should always be used.

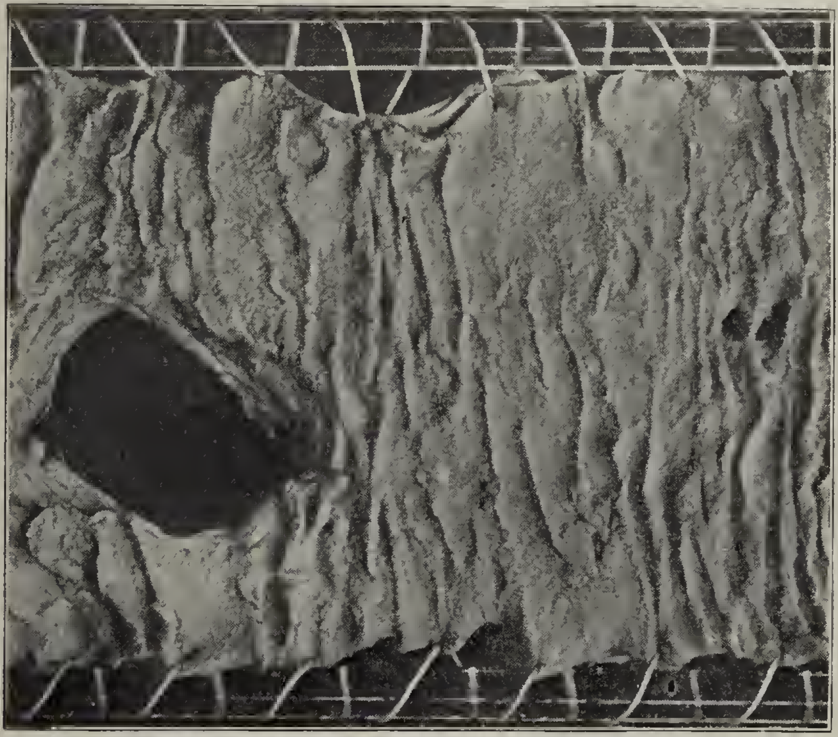

Fig. 4.—Large perforation and two small perforations; typhoid fever, third week; perforation, fatal peritonitis (from specimen in U. S. Army Medical Museum, Washington, D. C.). Dr. W. H. Forwood, surgeon, U. S. Army.

The last three feet of the ileum should be examined for other perforations or for thinned ulcerated surfaces threatening perforation, and such surfaces inverted by suture in the same way as for perforation.

As to the best method of dealing with the extravasated material in the peritoneal cavity, there is considerable diversity of opinion. Some employ extensive flushing of the cavity with physiologic saline solution until the fluid flows away clear; others recommend thorough cleaning away of this material by dry sponging; a few decry any attempt to remove the pus and intestinal extravasations as a useless waste of time, endangering to a greater degree the patient's chances for recovery.

In a vast majority of these cases, we are dealing simply with a general septic peritonitis in typhoid which differs in no essential particular from the treatment of the same condition in perforating gastric or duodenal ulcer, perforation of the intestine from any cause of perforating appendicitis. The most rational procedure it seems to me has been evolved by Dr. J. B. Murphy for the treatment of general septic peritonitis, which embraces the following principles:

1. Rapid execution with the smallest amount of work possible in the abdominal cavity consistent with the exigencies of the case.
2. The avoidance of every procedure calculated to favor the extension of infection or absorption of bacteria, such as mopping away débris and lymph deposits on the intestines and flushing the abdominal cavity.
3. The providing for thorough drainage by rubber tubes and posture (Fowler's position).
4. The elimination of toxins.

Having disposed of the intestinal perforation and drainage tubes, I think we should not stand longer on ceremony, but get out. The lymph deposits from the intestines should not be mopped off, nor the abdominal cavity flushed out in any case. The first procedure is positively harmful, and the latter an unnecessary waste of time and probably more likely to spread infection than to limit or eliminate it.

It is not the perforation that causes the most profound symptoms we observe in septic peritonitis. These symptoms come on some hours after perforation, when the intestine has become denuded of its endothelium, so that there is rapid absorption of bacteria and of septic material.

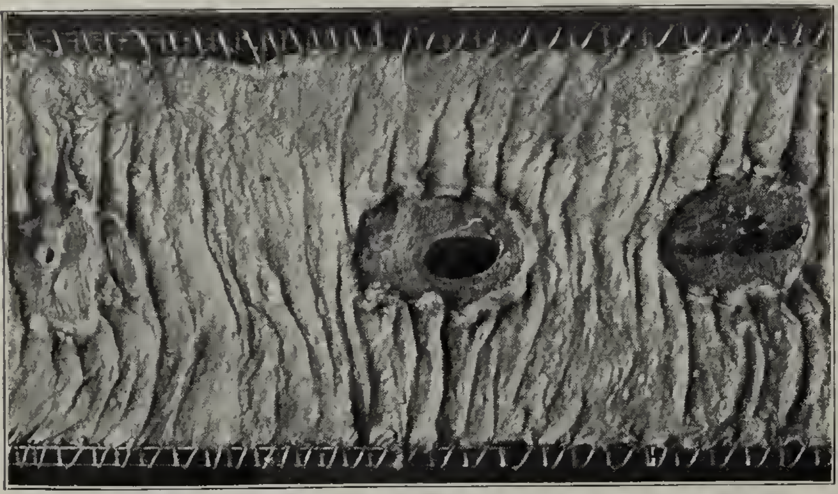

Fig. 5.—Multiple perforation in large ulcerated surfaces; typhoid fever, third week; perforation; fatal peritonitis (specimen from U. S. Army Medical Museum, Washington, D. C.). Dr. H. M. Dean, acting assistant surgeon, U. S. Army.

In this connection the experiments on animals by Dr. B. H. Buxton on the processes of absorption in the peritoneal cavity are of intense interest. These experiments prove that if micro-organisms, like the typhoid or colon bacillus, are introduced into the peritoneal cavity, they soon appear in the blood, being absorbed almost wholly through the lymphatics of the diaphragm. Absorption of bacteria occurs but little, or not at all through the parietal, visceral or mesenteric peritoneum. Flushing of the abdominal cavity, therefore, carries the bacteria toward the diaphragm, where they are readily absorbed.

The profound toxic effects do not appear, however, for about two hours, at the end of which time the bacteria are destroyed and through this process of disintegration liberate their "endotoxins" in the blood. We have, therefore, instead of shock an overwhelming of the system by intercellular toxins.

In treating the peritoneal conditions present in typhoid perforation, therefore, we should place the patient in the Fowler's position and avoid irrigation which tends to promote absorption of bacteria. After closing the perforation, drainage is procured by placing several good-sized drainage tubes deep into the pelvis.

Elimination is encouraged by proctoclysis in the following manner: A fountain syringe containing one and a half pints of warm physiologic saline solution is hung at such a height that the fluid by force of gravity will issue from the tube by constant dropping or in a very small stream when the tube is passed into the rectum. The flow must be controlled wholly by gravity and the elevation will depend on the degree of abdominal tension which will vary in each case (Murphy).

If the flow of the saline solution is controlled entirely by gravity, the intestinal gases will pass out through the tube and be expelled through the solution in the syringe. If straining occurs the fluid in the rectum will be forced back into the syringe and not into the bed and will return again to the rectum. The administration of salt solution should be repeated every two hours for a period of three or four days.

Dr. Murphy says: "I have given as high as 30 pints in twenty-four hours to a child 12 years old. In the last, my forty-first, case of perforative peritonitis, we gave 18 pints of salt solution each twenty-four hours for eleven days, and none of it was expelled into the bed."

Keeping the patient in the correct Fowler position by the ordinary shoulder rest and bolstering up with pillows is a very difficult, and it seems to me, impossible thing to do. There is a constant tendency, especially in weak individuals, to slide down into the bed. Many times when the patient appears to be in good position an examination will prove that it is a deception. The shoulders will be well up on the rest, but the body will be found bent at the costal arch and the abdomen will be on a plane parallel with the surface of the mattress. To obviate this, I have had constructed a simple device[1] which seems to keep the patient in this position without constant vigilance on the part of the attendant (Fig. 6).

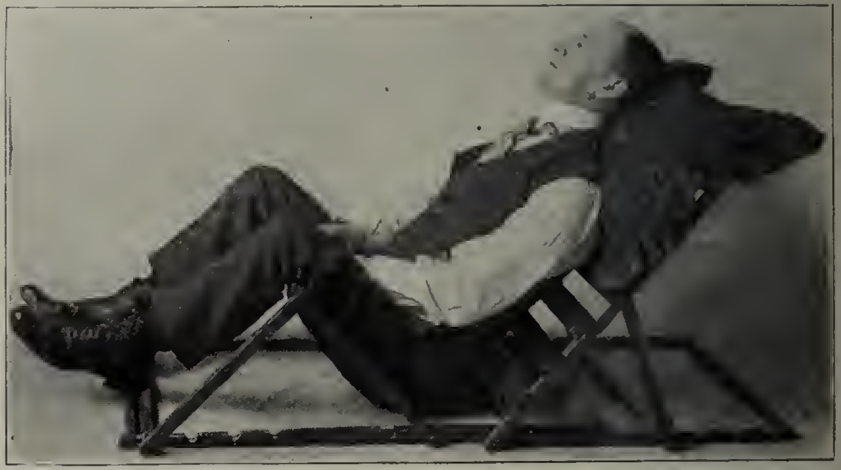

Fig. 6.—Double inclined plane, shoulder and leg rest for Fowler's position; patient in position.

TIME OF OPERATION.

The late experience of surgeons is that in those cases in which the patients are operated on after the first twenty-four hours, a majority die, while of those patients operated on within the first eight hours, a majority live. Of 162 patients operated on since 1903, whose history I have collected, the time of operation is known in 81. Those operated on within the first eight hours had a recovery rate of 54.54 per cent.

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[1] While talking with Dr. James M. Neff, of Chicago, about some device to maintain the patient in the Fowler position he suggested that an apparatus constructed on the principle of the double-inclined plane would be ideal. Acting on this suggestion I had manufactured by the Weyburn Company, Rockford, Ill., this shoulder-rest, with double inclined-plane extension.

The treatment may thus be epitomized:

1. Lateral incision through right rectus or linea semilunaris as for appendectomy.
2. Systematic search for, and suture of, the perforation.
3. Placing of drainage tubes.
4. Partial closure of wound without irrigation or mopping in the peritoneal cavity.
5. Treatment by posture to confine bacteria and septic material to lower abdomen (Fowler's position).
6. Treatment calculated to destroy or impede the growth of bacteria already in the blood and tissues: Antistreptococcic serum, unguentum Credé.
7. Supportive treatment: Nourishment, strychnin and digitalin hypodermatically.
8. Elimination: Physiologic salt subdermally (temporarily) when indicated for failing heart; proctocylsis continually, until sepsis is overcome.

REPORT OF CASE.

The case I report is that of my own son, and is remarkable in that three laparotomies were performed during a run of typhoid fever of fifty-one days. This is the third or fourth case reported in medical literature, I believe, where more than one laparotomy has been performed for intestinal perforation and its sequels in typhoid fever.

History.—Ernest S. A., male, aged 17. The illness began without prodromal symptoms, Sept. 27, 1905. The first symptom was a severe chill; an hour later the temperature was 103 F.; slight epistaxis during first week; on the thirteenth day a slight intestinal hemorrhage occurred. Two days later, after an enema was given, the patient was seized with a pain in the lower abdomen, causing him to cry out; at the same time he complained of an intense pain in the penis. Perforation was suspected and consultation held. Operation deferred. Previous to these symptoms the pulse was 98, temperature 100.6 F. Seven hours later the pulse was 108, temperature 105.4 F.

First Operation.—Operation Oct. 5, 1905, by Dr. Murphy's associate, Dr. James M. Neff, thirty-seven hours after perforation. A perforation the size of a lead pencil was found in the ileum, 12 inches above the cecum. Perforation repaired, drainage without sponging or irrigation in the peritoneal cavity. The patient recovered from this operation. A fecal fistula developed at the site of the drainage tube about a week later.

Second Operation.—Nineteen days later, October 27, a second operation was performed by Dr. Neff for suspected pus pocket. A few adhesions among the intestines were broken up, but pus pocket was not located. Wound closed with rubber drain. Patient rallied from the operation well and gradually improved. Most of the bowel movement passed through the fistula at this time. On November 10 the record shows the patient had had ten days' normal temperature. During the forenoon of this date he suffered from a sudden pain in the upper abdomen. Some distension in this region and discharge from fistula greatly diminished. Intestinal obstruction feared.

Third Operation.—On November 11 an operation for intestinal obstruction was performed by Dr. Neff. Incision through left rectus above umbilicus. Operation revealed a kinking of the small intestine caused by a fibrous band. Obstruction relieved immediately by dividing the band. Patient died eight hours later.

Autopsy.—A partial autopsy was made of the abdominal viscera. The fecal fistula was at the site of the perforation in the ileum, the stitches having given way, allowing a reopening of the perforation. Deep in the left pelvis circumscribed by exudate and adherent coils of intestines, an abscess was found containing from four to six ounces of very offensive pus.

DISCUSSION OF CASE.

It is evident that from the beginning the case was one of virulent typhoid infection. This is indicated by the sudden onset of the fever following a severe chill, which was the first symptom of illness. Had the patient been operated on within a few hours after the perforation was suspected, I believe there might have been a favorable termination. An early operation would have greatly limited septic peritonitis, which caused intestinal obstruction from adhesions.

There is one feature in the case about which I have not spoken. There was a perforation in the cecum which was plainly visible as this organ lay in the lower angle of the partially closed wound made at the first operation. There was no fecal discharge through it, although the semi-solid feces could be seen plugging the opening.

Had the case progressed favorably, it is not at all likely that this perforation would have caused any trouble. It probably would have healed spontaneously. If it had discharged the contained feces, it would have been received outside of the peritoneal cavity. The intestinal obstruction should have received earlier surgical attention. Yet one may be pardoned for hesitating about entering the peritoneal cavity the third time in the course of typhoid fever.

The question of the ultimate termination of the deep pelvic abscess, had life continued, is a more difficult one to decide. I am convinced that this was not a pus-pocket resulting from septic peritonitis, but an independent focus of typhoid infection having its origin in a mesenteric gland. It was not confined by the coils of intestines, but by a thick wall of exudate in the mesentery region. In its location, it was evidently doing no harm, being hemmed in by a protective wall of exudate, and possibly the contained micro-organisms had lost their virulency. It might have been safely discharged through one of the abdominal wounds.

In spite of the late operation for perforation, the septic peritonitis had been entirely overcome, for the patient had subsequently ten days of practically normal temperature. The management of the case after operation was that described in the text of this paper under treatment.

If I have succeeded in any degree in awakening an interest in this subject, that its importance deserves, I shall feel that my boy has not lived and died in vain.

DISCUSSION.

Dr. John B. Murphy, Chicago, emphasized the time of operation. Can one save the patient with typhoid perforation? Yes, if operated on in time. No, if one waits until such time as the patient is in a condition that contraindicates operation. All of the symptoms indicating operation were, he said, clearly and concisely stated by Dr. Allaben; namely, the pain, the local hypersensitiveness, the nausea, the vomiting, the elevation of temperature above that which the patient had before, and, finally, the hyperleucocytosis. In a recent epidemic of typhoid in Chicago, the hyperleucocytosis was absent in a considerable number of the cases, while the other symptoms were present almost invariably, and in the order mentioned. The question of collapse, Dr. Murphy said, is the most important one and the most difficult one to eradicate from the average practitioner's mind. Collapse has so long been recognized as indicative of perforation in the peritoneal cavity that it is difficult to persuade ourselves that collapse is not an evidence of perforation into the peritoneal cavity, but of absorption of an excessive quantity of sepsis produced by the perforation into the peritoneal cavity. By waiting for collapse as a symptom indicative of perforation, one will miss the only time when it is possible to rescue the patient from the complication of his typhoid. As to the diagnosis: Dr. Murphy stated that the diagnosis can be made and should be made timely, by observing the symptoms present. Then, the diagnosis made, action should be forceful and prompt. All surgeons, he said, regret the time when so much was done in the peritoneal cavity in cases of perforation. Since then it has been found that disturbance of the peritoneal surface is a detriment. Surgeons have learned, furthermore, from the most excellent experiments made recently, that the fluid which Nature throws out into the peritoneal cavity, and which is considered to be pus, is often a prophylactic fluid that saves the patient's life. It is known, however, practically, whether the theory is right or wrong, that if that fluid is permitted to remain, as a rule, the resistance in these cases is sufficiently great to save the life of the patient, with the assistance of drainage and with the further assistance of a closure of the perforation. It is not sufficient to drain the peritoneal cavity in the presence of perforation of any kind, and this is shown most strikingly in connection with perforation from the duodenum, the most favorable place of perforation as far as septic peritonitis is concerned. It was found that in nineteen consecutive cases of perforation of the duodenum in which only drainage was instituted, eighteen patients died immediately and the remaining patient died four or six weeks afterward. This is particularly true where the opening in the alimentary canal is low down, where the sepsis of the intestinal contents is greater than in the duodenum, and that is an indication that one should, in this operation, always close the opening.

The details of the after-treatment Dr. Murphy referred to briefly in connection with one statement made by Dr. Allaben. He gave the details of the after-treatment as carried out by Dr. Murphy in four typhoid perforations and in forty-one consecutive cases of general suppurative peritonitis from perforation of the alimentary tract. In these forty-one cases there were forty cures and one death. These details are important, tiding the patient over the acute hour of sepsis, which is immediately after operation, by washing out the blood by means of a large quantity of fluid administered by internal clysis. The method of taking it is the most difficult of all things in surgery, to impress on the average nurse or on the average man the manner of using it. It must be admitted by pressure alone, and through a tube that will let the water flow in and out, and the hydraulic pressure must just exceed the abdominal pressure. It must not be done by placing the container seven or ten feet above the patient, with a forceps attached to the tube letting the water drop down. It must flow freely in and out, and when given in that way, the fluid is rarely rejected. In the operative treatment, Dr. Murphy said, it is very important) to do as little work as possible. Open the abdomen, find the opening and close it. He emphasized the importance Dr. Allaben laid on searching the large intestine for an opening. One should not go out of the abdominal cavity in a perforative case until the opening is closed, or the time will be wasted and the patient will be lost.

Dr. L. J. Hammond, Philadelphia, expressed his belief that it is in the prophylaxis of perforative peritonitis that the hope of lowering the mortality lies. Following out this line of thought, he has during the past three years endeavored to learn the condition of the abdominal viscera of subjects dying from typhoid fever from causes other than perforative peritonitis, and in no instance has he, either from postmortem findings or from histories and hospital records of cases been satisfied that a single case of perforation took place in a subject whose bowels were free from adhesions. He further demonstrated, to his own satisfaction at least, that in every instance of perforation there was pronounced evidence of preexisting disease of the intestines, which was shown by the presence of adhesions more or less extensive, and more often found to be the result of present or past appendicitis, though in some instances other of the abdominal viscera had been the cause of these adhesions, especially those found about the hepatic, gastric and splenic flexures. From these observations, Dr. Hammond was led to the conclusion that it is extremely doubtful whether perforation ever takes place from typhoid fever in subjects whose intestines are free from adhesions. He thought that Dr. Allaben's case confirmed this belief. It seems self-evident, he said, that a bowel anchored by adhesions would suffer perforation where an ulcerative process attacked the glands in its mucous surface, and where it is still further helped along by a general impairment of tissue resistance, as occurs in this grave disease. If this position is correct, there is every reason to believe that a very decided lessening of mortality can result from prophylactic treatment. Clinicians claim that during the early stage of typhoid fever, that is, up to the seventh or ninth day, there should be no abdominal symptoms; that is, the abdominal symptoms do not appear until the bacillus has become deposited in the Peyer's patches. Given a case, therefore, where in the first week of the disease, abdominal symptoms, especially tenderness with distension, are pronounced, it would seem rational to conclude that pre-existing disease of the intestines existed, and if a reasonably certain diagnosis can be made, an exploratory incision should be justified for the purpose of removing the cause and freeing the intestines of their adhesions, which should enable them the better to withstand the ulcerative process.

The importance of such an operative procedure was most impressively brought to Dr. Hammond's attention in the case of a woman, about 30 years of age, whose intestine perforated during the third week of typhoid. The operation, which was performed a few hours after the diagnosis of perforation had been made, showed the existence of not only a perforation of the ulcer, but a complete rent in the bowel that severed the lumen transverse to its long axis down to its mesenteric attachment and the caput-coli, while several knuckles of the lumen were imbedded in the massive old adhesions from pre-existing appendicitis. In a second case, where a tentative diagnosis of typhoid had been made, the physician was much concerned about the accuracy of his diagnosis because of the continuous and increasing abdominal pain and distension. On the sixth day there could be felt to the right of the hypochondrium a mass, which was decidedly tender on palpation. The patient was very tympanitic. Operation was advised. An incision was made under ether anesthesia on the next day. The appendix was found firmly adherent posteriorly and there was much agglutination of the coils of the ileum on the right side. The appendix was removed, the intestines freed of their adhesions and the patient went through her typhoid fever without complications.

One would naturally expect that such an impairment of bowel function as was present in this case, if it did not actually cause perforation, would certainly contribute much toward its occurring. There is every reason to believe that when adhesions of the intestines exist, the normal function of the bowel is disturbed through interference with the fecal current and alteration in the circulation, both of which should be regarded as distinctly favoring, if not absolutely causing, perforation.

Dr. Willard Bartlett, St. Louis, said that in three instances he brought the perforated area to the surface and stitched the intestine to the abdominal wall and left a fecal fistula to form; and two of his patients are well now. One was hopeless at the time of operation. It takes only two minutes to do this, and neither a surgeon nor a hospital is required.

Dr. Robert T. Morris, New York, thought it worth noting that a patient may sometimes recover after perforation of the bowel in typhoid without operation. He has seen one case in which after perforation had occurred, the bowel contents had escaped and had become encapsulated. About six months after the patient had recovered from his typhoid, he operated for angulation and perforation of the bowel at the site of the old adhesions and found this encapsulated fecal mass. Of course, he does not believe in waiting for that sort of thing to occur. He believes that the quickest thing to do is the best—to make a diagnosis early and bring the perforation to the abdominal wall as quickly as possible. Get in and get out. Do it all in two minutes.

Dr. W. A. Batchelor, Milwaukee, Wis., referred to one case of typhoid perforation which illustrates several points brought out—the early diagnosis and early operation. This case occurred in the third week. The first symptom to suggest perforation was abdominal pain, occurring about 7 o'clock in the morning. The man was operated on at 3 o'clock of the same day in his house, after very careful preparation of the room and the securing of assistants, nurses, etc. The perforation was found about eight or nine inches from the ileocecal valve, a small round perforation such as would be made by a 22-caliber rifle bullet. After closing the perforation with Lembert sutures, it seemed that the lumen of the gut had been so much encroached on that there was danger of obstruction. Dr. Batchelor cut out the stitches, took out the threads and made a circular purse-string suture, which seemed to close the opening satisfactorily and with a less degree of narrowing of the lumen of the intestine. The man recovered, and in the subsequent treatment Dr. Batchelor made use of the saline solution, something as suggested by Dr. Murphy, but not so much with the idea of washing out the bowel as to bring in nourishment. The saline solution was put in by means of a fountain syringe, and the discharging pipe was clamped off. The solution was admitted drop by drop and was used constantly. It seemed to take the place of nourishment and of drink and worked satisfactorily. Another little thing in connection with this was that the anal pipe was a small catheter, on the supposition that anything larger would be expelled; but with a small catheter inserted, 16 to 18 size, the sphincter seemed to be very tolerant. Dr. Batchelor emphasized the two points, the early diagnosis and the prompt and quick operation, and he thinks that the sudden onset of pain and the restricted abdominal motion are the two points one would rest most largely on in making a diagnosis. He considers those two symptoms of far more importance than changes in the pulse rate and temperature.

Dr. J. E. Allaben, Rockford, Ill., said, in regard to the symptoms about which Dr. Murphy spoke, that it has generally been considered that those symptoms are caused entirely by the absorption of septic material. The experiments of Buxton demonstrate that it is usually not the absorption of septic material but the absorption of large quantities of bacteria, which undergo disintegration in the blood and liberate their endotoxins, producing the symptoms of shock and collapse. Regarding Dr. Hammond's remarks, Dr. Allaben did not see how he had any foundation for saying, so far as this particular case is concerned, that there was intestinal disease previous to the typhoid fever. He did not agree to that, because there had been no indications of intestinal disease at any time before the attack of typhoid, and he did not believe that intestinal disease ever existed. The perforation undoubtedly occurred from the ulceration of a solitary gland caused by infection from the typhoid bacillus. With reference to Dr. Fox's patient who died from neglect to open an abscess, Dr. Allaben suggested that the case was one of appendicitis complicating typhoid fever. The appendix is often infected in typhoid by the typhoid bacillus, and it must be apparent to all that appendicitis may complicate typhoid, a simple appendicitis occurring in the course of typhoid. That is one of the things one must look for, and operation in such cases is always followed by excellent results. Regarding Dr. Bartlett's suggestion to stitch the perforation of the intestine into the abdominal wound, he thought that this procedure might be satisfactory if one could be sure that there is but one perforation. Other perforations may be present and be overlooked. Again, obstruction might be produced by kinking of the intestine. In all cases of septic peritonitis, the formation of adhesions is avoided by early evacuation of septic material. Adhesions are caused by the advancement of septic peritonitis. By operating early, these adhesions are limited.

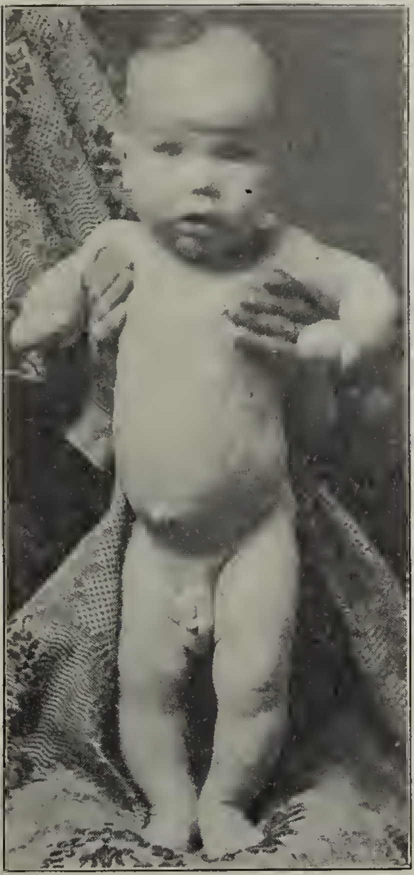
Surgical Treatment of Goiter.—Dr. George A. Bingham, Toronto, in his presidential address before the Ontario Medical Association, May, 1907 (*Canada Lancet*, July 1907), states that in goiters affecting both lobes his experience has shown that it is not enough to remove one lobe and the isthmus, as cystic degeneration will continue in the remaining lobe. It would seem to be safer, after having removed the lobe most affected, with the isthmus, to incise the capsule of the remaining lobe and to enucleate every cyst to be found.

A CASE OF INFANTILE MYXEDEMA.

JAMES FREDERICK CLARKE, M.D.

FAIRFIELD, IOWA.

The case here presented is the fourth of sporadic cretinism brought to my attention in this part of Iowa. Such a number found in a limited territory inclines me to the belief that the condition is much more frequent in the United States than is commonly supposed.



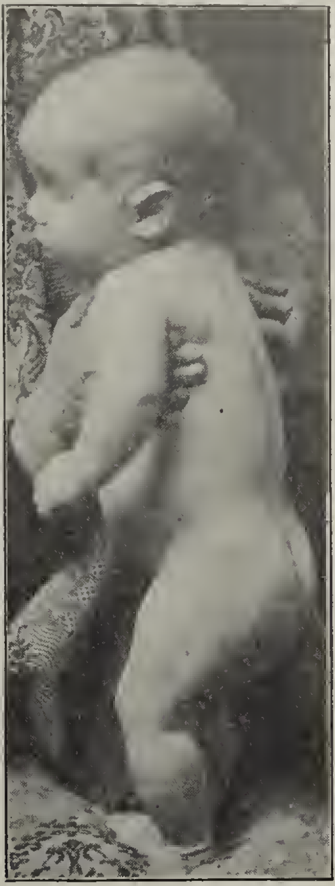
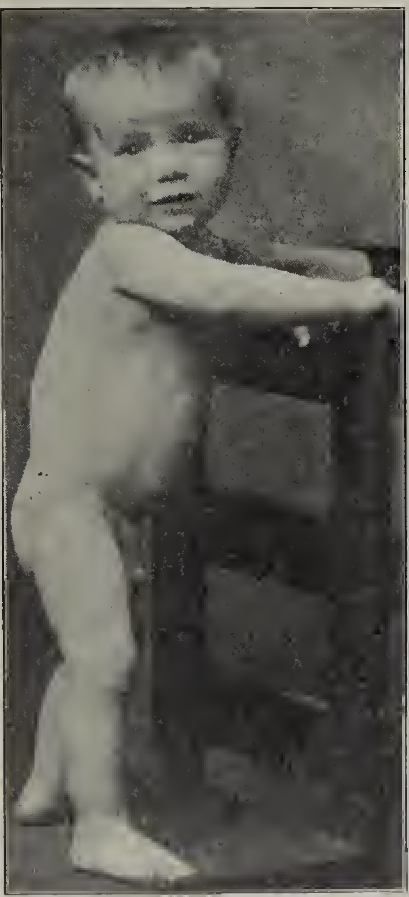


Fig. 1.—The child at beginning of thyroid treatment, March 18, 1906.

Fig. 2.—Profile of child, March 18, 1906, at beginning of treatment.



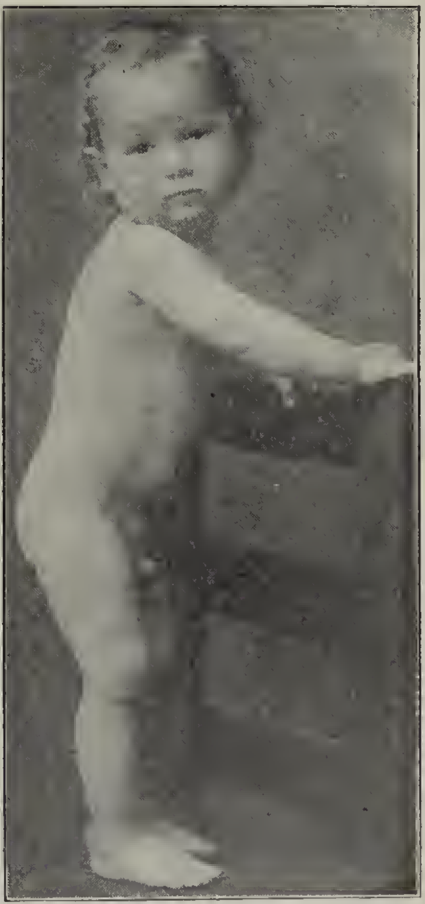


Fig. 3.—Child after less than seven months' thyroid treatment, Oct. 4, 1906.

Fig. 4.—Child after fourteen months' treatment, May 27, 1907.

Patient.—P. Z., male, aged 18 months, was sent to me by Dr. C. S. Bishop of Glasgow, Iowa.

History.—This boy was the fourth child, of German parents who are first cousins. All other children of the family are normal. The baby weighed ten pounds at birth (Oct. 26, 1904), fourteen pounds when two months old, and sixteen pounds when eight months of age. There was obstinate constipation from the second month, and when nine months old the baby became deeply jaundiced and remained so for several months. An umbilical hernia developed at the same age. From the age of 9 months there had been neither growth in heighth nor development in any way except the cutting of two lower incisors at 13 months.

First Examination.—March 18, 1907. The condition at 18 months of age is shown in the accompanying illustrations (Figs. 1 and 2). There was myxedema, inability to stand or sit alone, and an expression of imbecility. The height was 26¼ inches and the weight 17 pounds 6 ounces. The fontanel was open; the hair harsh and worn off except on the top of the head. The skin was dry and sallow. The lower two incisors were the only teeth present. The tongue did not protrude. The legs were bowed and the abdomen prominent. The child never spoke and did not cry aloud. It was difficult to attract his attention but occasionally he smiled. He slept only at night.

Treatment.—Thyroid feeding was begun March 18, 1906, by giving one-quarter of one two-grain tablet three times a day. For more than four months this amount could not be increased without making the baby nervous and sleepless. Improvement began at once and has been continuous.

June 1, 1906: There were four teeth, new soft hair, and the baby was able to sit alone.

Oct. 4, 1906: He had fifteen teeth, weighed 24 pounds, and could stand alone. The photograph (Fig. 3) of this date shows a loss of the myxedema and a marked change in the facial expression.

May 27, 1907: The weight was 28 pounds; there were sixteen teeth. The baby had been walking for a month and could speak several words. He was apparently in a normal condition (Fig. 4), growing and developing as do other children, and while taking one two-grain thyroid tablet a day continuously, there is every reason to believe that he will continue to develop as a normal child.

BIER'S TREATMENT ("STAUUNGS-HYPERÆMIE") IN CHRONIC AND ACUTE SURGICAL INFECTIOUS DISEASES.*

WILLY MEYER, M.D.
Professor of Surgery at the New York Postgraduate Medical School and Hospital; Attending Surgeon to the German Hospital; Consulting Surgeon to the New York Skin and Cancer Hospital and New York Infirmary.
NEW YORK CITY.

Principally for the sake of starting a discussion in our Section on a subject that has been so thoroughly ventilated by surgeons abroad, particularly in Germany, during the last few years, I am going to make some remarks on Bier's *Stauungs-Hyperæmie* in the treatment of chronic and acute surgical infections.

Ever since it was first published,[1] in 1892, I have used Bier's method whenever indicated, and have made many interesting and surprising observations. Little has so far been written about the subject on this side of the Atlantic.

We have with us to-day Dr. V. Schmieden, who, on May 7 of this year, as representative of his chief, Prof. A. Bier, on invitation of the Surgical Section of the National Association for the Study and Prevention of Tuberculosis, read a paper on "The Treatment of Bone and Joint Tuberculosis by *Stauungs-Hyperæmie*" before its third annual meeting, held at Washington, and I am glad to avail myself of this opportunity to report to you my own experience with Bier's treatment, gathered within the last fifteen years.

The idea of making use of an increased volume of blood in and around the diseased focus was conceived by Bier during his studies of the observations of the late Prof. v. Rokitansky, the renowned Viennese pathologist, who found that patients who had suffered from stasis in the pulmonary circulation, due to heart disease or curvatures of the spine, never showed an active tuberculous lung affection on postmortem examination. On the other hand, it had been often seen that patients suffering from diseases of the heart, that produce a certain amount of anemia of the lungs (stenosis of pulmonary artery) are especially subject to tuberculous disease of the lungs.[2]

Bier's first attempts at the surgical clinic in Kiel, Germany, with active (arterial) hyperemia, by means of prolonged hot baths, or, locally, by means of the application of glass cups (suction method, cupping) proved unsatisfactory. He, therefore, tried the elastic rubber bandage, which his chief, Prof. v. Esmarch, had so successfully made use of for producing artificial anemia in cases of amputation and other operations on the extremities. Winding the elastic bandage gently around the limb above the seat of the disease, the thin-walled veins were naturally much more readily compressed than the firmer arteries, and while the latter continued to pump blood into the parts below the constriction, the return of the blood thus became interfered with; a partial stasis of venous blood was produced and could be maintained at will. This is the nucleus of the so-called "Bier's treatment" by means of the elastic bandage.

Fully appreciating the significance of the principle discovered, an original worker of the stamp of Bier was not to be baffled by difficulties. He clung to the further elaboration of his idea, practically applying it on the extensive material offered by the surgical clinics at Kiel and later Greifswald, to which latter place he was soon called as chief of clinic.

After a few communications, scattered in German weeklies, he published his well-known book on "*Hyperämie als Heilmittel*" (hyperemia as a therapeutic agent) in 1893. But in spite of the wealth of new and interesting observations brought out in his book, comparatively few surgeons, seemed to avail themselves of the advantages of the method, at least judging from the scanty contributions to the literature of the subject. Only a few men in the surgical world raised their voices in favor of it, among them the late v. Mikulicz. Undaunted by this seeming indifference on the part of the profession, Bier and his assistants again and again pointed out the benefit to be derived by the treatment. In spite of all his excellent work, it is, however, quite possible that the method would never have attained to its present general recognition had not Bier, especially since his call to Bonn to succeed the renowned Schede as chief of the surgical clinic, with wonderful tenacity and courage, extended the use of artificial hyperemia to inflammatory surgical infections of *acute* character, thus overthrowing, as it were, all time-honored views as to inflammatory processes and their surgical treatment by ice, elevation and rest. Since then the interest in Bier's work has been steadily and rapidly growing. Only a short time ago Bier's book, above referred to, passed through its fourth edition, and hardly had this appeared when a fifth edition became necessary. The literature of the subject has, by this time, become very voluminous and is growing with phenomenal rapidity. Czerny, of Heidelberg, who, in a masterly address,[3] presented Bier with the Kussmaul prize in August last, has heralded Bier's discovery as one ranking with Lister's discovery of antisepsis. At present there is hardly a surgical clinic, city hospital or dispensary abroad that does not employ Bier's methods, all the more since his assistants and collaborators, principally Professors Klapp and Schmieden, aided by the ingenious surgical instrument makers, the two Messrs. Eschbaum, of Bonn, have advanced its utility by constructing a great variety of useful glass apparatus for active hyperemia (suction method), and have successfully extended the hyperemia induced by dry heat, also Bier's original discovery, to the treatment of many, formerly rather intractable, chronic, medical and surgical affections. And now Bier adorns the chair of surgery at the University of Berlin, made vacant by the death of the illustrious Ernst von Bergmann.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Verhandl. der deutschen Gesellsch. für Chirurgie, 1892, vol. 1, p. 91.

[2] Farre and Travers, 1815; Louis, 1826; Frerichs, 1853.

This discourse on the history and development of Bier's treatment seemed to me necessary for an intelligent understanding and discussion of the subject.

Now, I will not tire you by relating at length the observations made by others and myself along these lines; but, just to illustrate the benefit that may be derived from Bier's discovery in a typical case of

I. CHRONIC SURGICAL INFECTIOUS DISEASE,

I will briefly report the history of a patient afflicted with tuberculosis of the elbow joint:

In the fall of 1893, a man, 45 years of age, member of the New York fire brigade, came to my clinic at the Postgraduate School with an advanced tuberculosis of the right elbow joint. He entered the lecture room, supporting the hand of the diseased arm with the other hand, on account of severe pains. The extremity was in the pathognomonic position, flexed at an angle of about 110. Every typical symptom, including hereditary predisposition, was well developed. There was not the slightest doubt as to the nature of the disease. Having seen favorable results in other cases of tuberculosis of the extremities from the new method, I was, naturally, eager to try it again in this case, all the more as the disease had become far advanced and the prognosis as to functional result after resection of the elbow, in a patient near the fifties, was rather unpromising. I intentionally abstained from employing either of the other two aids in the conservative treatment of tuberculous affections of the extremities then known, i. e., splint and parenchymatous injections of a sterilized solution of iodoform-glycerin. I thus made use of the bandage alone. It was carefully applied at the clinic and the patient, as well as his wife, received full and repeated instructions regardnig its use. They were shown how the bandage had to cover a certain portion of the arm, one layer to overlap the other. (Fig. 1, taken from Bier's book). They were told to be sure that the pulse at the wrist could always be felt with the bandage in position; that the pains were to be diminished and not increased by its use; that the forearm be warm, not cold; that the bandage was to remain in position for 11 hours, then to be removed, so that the portion of the arm that had been subjected to the compression could be thoroughly massaged, in order to guard against pressure atrophy; and then to reapply the bandage 1 or 1½ inches further up or down the arm. In other words, the bandage was to wander up and down between elbow and shoulder joint. The patient faithfully carried out this treatment. Two weeks later he again entered the clinic, this time without supporting the hand. He had lately passed comfortable nights and the pain had much diminished. To make a long story short, after nine months of continued treatment by means of *Stauungs-Hyperæmie* with the elastic bandage, no other treatment having been added, the patient had a useful arm and returned to his work as fireman—surely a brilliant result. He was told to continue the treatment a few hours every day, for several months.

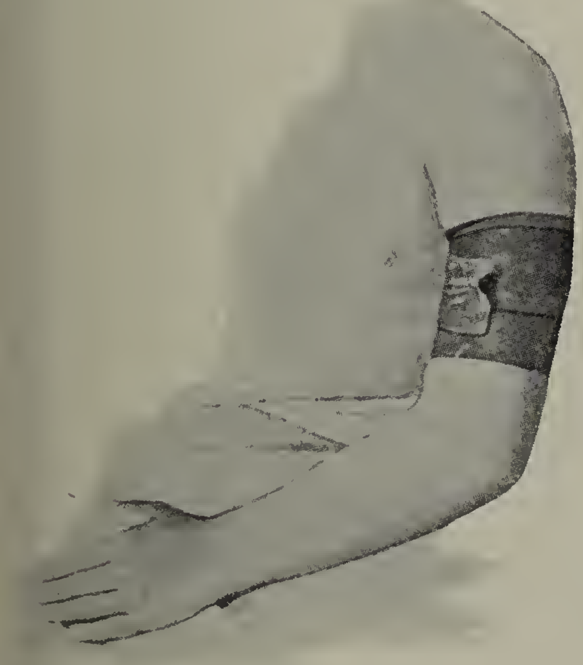

Figure 1.

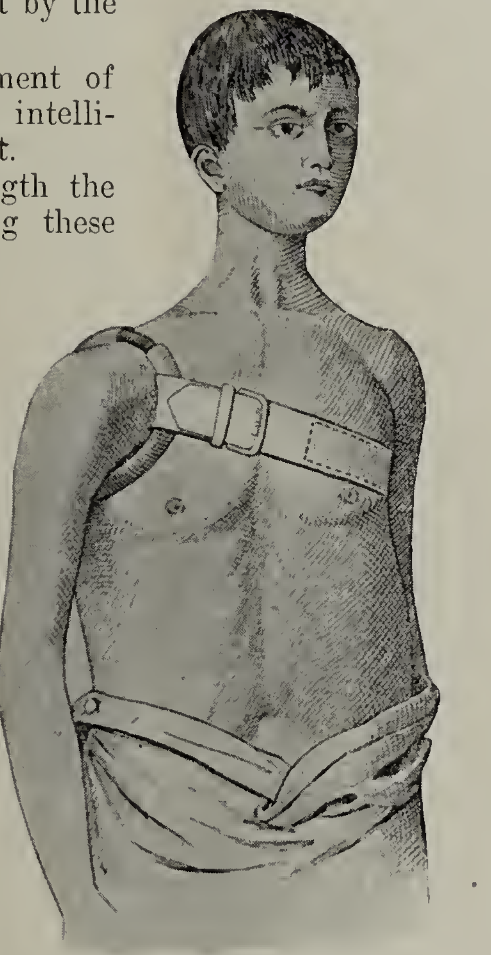

Figure 2.

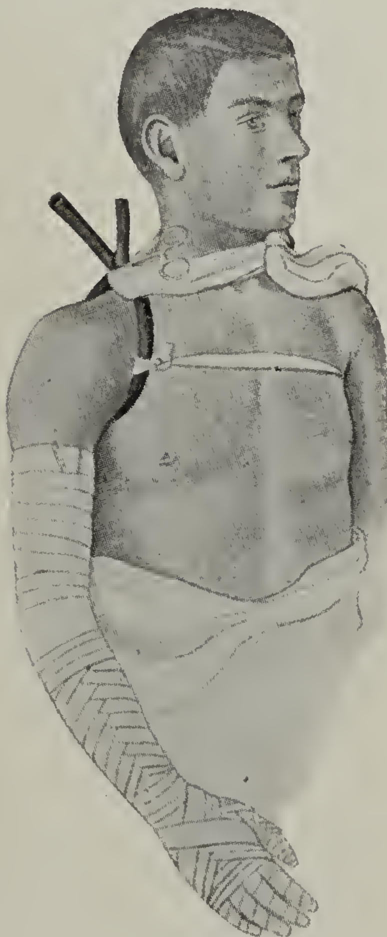

Figure 3.

(From Dr. Bier's book on his hyperemia treatment.)

I presented the man and three other successful cases illustrating "The Results of Bier's Method in the Surgical Treatment of Tuberculous Joint Disease," selected from the cases that I had so far treated on these lines, before the Orthopedic Section of the New York Academy of Medicine,[4] on Dec. 20, 1895. He then had such good use of his arm that one of the members felt called on to express doubt as to the correctness of the original diagnosis. But, of course, it had been a case of true tubercular joint affection.

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[3] Deutsche med. Wochschr., 1906, No. 11, p. 426.

[4] Transactions of Orthoped. Section, Library, Acad. of Medicine.

I could cite many more cases of tuberculous disease of the various joints and bones of the extremities that were successfully treated by me in the course of the last fifteen years, many of which have been presented before various medical meetings. Especially gratifying were a number of cases of advanced wrist infection in the young and old, which, when finally cured, compared most favorably with the functional results obtainable by means of resection. In fact, some of these cases would undoubtedly have ultimately required amputation of the forearm had the old form of treatment been pursued. In two of these cases a cold abscess developed in and between the tendon sheaths of the volar flexors at the wrist; one or more aspirations of the pus plus injections of iodoform-glycerin emulsion (5 per cent.), done (under local anesthesia) at the Postgraduate and German hospitals, effected a cure.

At the present time, as Dr. Schmieden has stated in his address referred to above, such cases are treated at the Bonn Clinic with small incision and the application of the glass cup, in addition to the continued use of the elastic bandage. However, at the time when my cases called for relief this latter treatment had not been so fully developed as it is now, thanks to the excellent work since accomplished by Bier's foremost collaborator, Prof. R. Klapp.[5]

If the x-rays showed great destruction of bone, as in the so-called spina ventosa of the phalangeal or metacarpal and metatarsal bones, or, e. g., in tuberculosis of the tibio-tarsal joint, due to primary disease of the astragalus, I have in quite a number of cases operated by opening and cleaning the bones of their tuberculous deposits in the former, or removing the astragalus and excising the tuberculous synovialis of the foot joint by open operation in the latter. The often resulting obstinate sinuses then usually yielded in a most gratifying manner to the elastic bandage—lately combined with suction by glass cups—much better than by repeated scraping and cauterization, as formerly practiced.[6]

Tuberculous affections below the elbow are treated to advantage with the bandage applied around the arm. For the shoulder a special apparatus is needed, as shown by Figures 2 and 3, also taken from Bier's book. Its application requires special care, as the elastic ring always encircles the same place and hence is liable to produce pressure necrosis of the skin.

Stauungs-Hyperæmie is used by Bier also in all cases of tuberculosis of the lower extremities from the middle of the thigh down, except in cases of tuberculous knee affection with bony adhesion of the patella or subluxation of the tibia. Here resection is performed. For, this conservative treatment is indicated and worth the time and trouble only in cases promising a good functional result, *a movable articulation* being the prime object of the method.

For the lower extremities, especially in stout patients, the elastic bandage has to be wider, and is best wound over a thin gauze compress or layer of cotton, as otherwise, owing to the tapering form of the thigh, it would be pulled into narrow bands and cause pain.

In the beginning, some of the patients with tuberculous affection of the lower extremities may have to be kept in a reclining position, but, as improvement advances, they may soon remain up and go about, supported by suitable orthopedic apparatus.

It is of greatest importance to immobilize affected joints as little as possible in order to avoid stiffening. Gentle, active and passive motions, as long as they do not create pain, should be urged. On the other hand, the joints of the lower extremities must be carefully protected against overweight. As long as they are in the inflammatory stage the patient has to wear supporting apparatus and use crutches or canes. He must be cautioned to avoid injury, as traumatism is very apt to again light up the old trouble. Of course, the treatment has to be continued for many months (nine to twelve) before a cure can be expected. Then, however, the patient will have an extremity that can be flexed, at least, to some extent.

On the other hand, a resection of the knee, for instance, will enable us to discharge the patient often after four to six weeks, cured, *but* with a shortened and forever stiff extremity.

In tuberculous disease of the smaller bones and joints of the lower extremity supports are not always required. In one of my patients, a Swedish woman, now aged 32 years, with a simultaneous tuberculosis of the right shoulder and elbow, I did a resection of the shoulder in October (according to Langenbeck's method) and of the elbow (Kocher) in December, 1897. She got a useful arm and has served as waitress ever since, carrying heavy trays without any discomfort. She was presented by me before the New York Surgical Society in February, 1899, and December, 1906.[7]

Lately she called on me again on account of a tuberculosis involving the fourth and fifth tarso-metatarsal joints. The x-ray showed the condition most beautifully. She begged me to try everything before resorting to operation, as she could not afford to leave her place and go to a hospital. I consented. To-day, four months after starting the treatment, she walks without pain and promises well to become cured without operation. She has not missed a single day during the entire time. She did not wear a splint, but applied the bandage somewhat more forcibly for one hour in the morning and from one to two hours at night, according to Bier's more recent teaching.

The fact, established by Bier by experience and observation, that by applications of such short duration a cure may be effected is, of course, a tremendous advantage, especially for the working classes. They now can apply the treatment early, before they go to work, and again after their return home, before retiring. Bier has shown that such shorter and intermittent, though somewhat firmer, application of the bandage not only is equally efficacious, but even more so, than the prolonged use of the same; the edema which always follows the latter does not set in after the shorter periods of treatment, and the tendency to a breaking-down of the tuberculous focus (abscess formation) and appearance of erysipelas due to such edema is done away with.

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[5] In case of bone and joint—as well as glandular disease—in which the tuberculous process has broken down and a cold abscess or sinus has developed, the suction cups are almost exclusively used. The time of application is forty-five minutes per day, but not continuous. The cup is applied for five minutes, then removed for three minutes, viz., it is set to work six times in three-fourths of an hour each day. As soon as the originally flabby and pale granulations have become red and firm and the immediate neighborhood of the sinus has become hardened in consequence of the formation of new connective tissue, application is made every second or third day and, finally, only once a week. As to the clinical importance of the appearance of a cold abscess in the course of "Stauungs-Hyperæmie," it is to be emphasized that this is not to be regarded as a turn for the worse, but as the beginning of improvement. If recognized in time and properly treated, a cure is often much more speedily effected in these cases than in those in which the tuberculous affection remains closed during the entire course of treatment.

[6] With patient perseverance such tuberculous troubles often heal without operation merely by continued hyperemic treatment. Dr. Schmieden, in his Washington report, referred to some excellent end results obtained without operation, also in cases of advanced bone tuberculosis, with or without involvement of the neighboring joint.

[7] See Annals of Surgery, 1899, xxx, 92; 1901, xlv, 150.

It is to be regretted that the hip joint, so frequently affected with tuberculous disease, can not benefit from this splendid method. But up to the present time no one has succeeded in producing venous stasis in the hip. Perhaps American ingenuity will find a way out of the dilemma.

As far as hospital attendance of these patients is concerned, it is self-evident that not all patients with tuberculosis of the upper extremities need be admitted. They are essentially dispensary cases, and doctors there pre-eminently ought to apply and favor the method, especially if the diagnosis is established early. Those with tuberculosis of the lower extremities ought to enter the hospital, at least for a short time, and be discharged, with proper supports, into ambulatory observation and care or, if possible, sent to the country or seashore as soon as sufficient improvement has set in and the correct application of the bandage has been thoroughly grasped by patient or relatives. Of course, *Stauungs-Hyperæmie* is not, and can not be, a panacea, but experience has shown that this conservative treatment is by far the best means at our disposal for tuberculous joints and bones. It makes for success in the simplest way and with a minimum of risk. At the same time it is connected with the least discomfort to the patient; it reduces his pains, instead of adding to them, and gives him the uninterrupted use of the affected parts, to a greater or less extent.

To corroborate some of the foregoing statements by figures, let me refer to Bier's book, in which it is stated[8] that from April, 1903, to August, 1904, 17 consecutive cases of tuberculosis of the wrist were treated at his clinic. Of these, 15, 88 per cent., were cured. Of 11 cases of tuberculosis of the elbow, 8, 72.7 per cent., were cured, and, of 13 cases of tuberculosis of the foot, 8, 61.5 per cent., resulted in a cure. Each of these cases obtained a useful, movable joint, and all remained well at the time of the closing of the statistics, end of August, 1905. The hyperemia treatment in these cases was continued over a period of at least nine months, but in not a single instance was resection resorted to.

There is no question that the method requires a great deal of study and experience by the individual man. Only general rules for its application in the various tuberculous affections can be given; in regard to details, we have to individualize and adapt the method to the given case. As with every other therapeutic agent, we must be careful in determining the correct dosage.

Thus it may be seen, for instance, that improvement, which first had set in with astonishing rapidity, ceases and no further progress is made. In such an event it is time to discontinue the treatment for a while, say from six to eight days.

Most remarkable are the results obtainable in the early stages of tuberculous joint affection. It is evident, therefore, how important it is that the general practitioner, too, should become thoroughly acquainted with the procedure. Much hardship may thus be prevented among his patients.

In our hospitals, I think, it would be best to establish a separate ward for cases with tuberculous affections of the lower extremities, provided their number is sufficiently large to warrant such special provision to be made for them; and in view of the continuous rotation of physicians and nurses it might be well to have two of the younger men of the staff (best voluntary applicants) to superintend the proper administration of the method during their hospital career. In this way only can the best results be obtained, as much time may be wasted and also harm done by the improper application of the treatment.

Of still greater importance is such careful supervision in the treatment of

II. ACUTE SURGICAL INFECTIONS

if we would have our patients benefit by this astonishingly simple and really wonderful procedure, which Bier, having the courage of his conviction, principally tried in this class of cases within the last three to five years, although he began with its evolution as early as 1893, one year after he had first conceived the idea of applying induced hyperemia for tuberculosis.

Just reflect for a moment: We are told by Bier to break with all our former iron-clad rules regarding the treatment of these acute troubles, to consider as wrong the time-honored usage of prescribing rest, ice, elevation, and often long incisions with drainage or gauze tamponade. The very hyperemia, which hitherto we have been combating with all the weapons at our disposal, he now teaches us to look on as being a teleologic factor, a wise arrangement of Nature, in its fight against the invading foe, which has not to be reduced, but to be increased in order to check or cure the infectious process and its many deleterious sequelæ. He certainly has demonstrated beyond the shadow of a doubt that his method is far superior to those formerly in vogue.

Where pus has already formed, incisions must, of course, be made, for "ubi pus, ibi evacua;" but these incisions need be but small, just large enough to permit of giving exit to the pus; drainage, especially in tendon-sheath infections, can and must be dispensed with if we would save the tendon.

Of my personal experience with hyperemia treatment in acute surgical infections, I would here relate the history of but one case:

A young physician, 26 years of age, while wrestling, sustained a compound dislocation of the interphalangeal joint of his right thumb. Doctors are careless. Reduction is done on the spot, and a wet handkerchief wound around the finger. Shortly afterward, without further disinfection, a sterile dressing is applied. Six days later he comes under my care with an acute periostitis of both phalanges and a suppurating joint; the thumb is very much swollen. With our former methods of treatment, I should have rather despaired of saving the finger and joint. As it was, I made a short incision on the opposite side of the joint, and one short cut, down to each phalanx, dividing the periosteum and avoiding the tendons. Immediately, on the operating table, the elastic bandage is applied, and worn for 22 hours out of the 24, interrupting one hour at the end of every half day. The pain subsided within 24 hours. The temperature, which before had been 102, was normal on the fifth day and the patient discharged on the twelfth, with the finger much improved. The time of wearing the bandage was gradually reduced. It was applied, in all, for three weeks. In the fifth week a small sequestrum formed. To-day the finger is healed and motion of the interphalangeal joint is unimpaired. No other treatment that I am acquainted with would, I think, have produced an equally satisfactory result.

Further, I have seen most gratifying results of hyperemia by stasis in suppuration of the sheaths of the flexor tendons, best if taken hold of early: short incision of sheath over phalanges, to evacuate the pus, no drainage, elastic bandage around arm; in injury of the hand, in a boy run over by a wagon, with compound fracture of phalanges and metacarpals, opening of tendon sheaths, undermined, soiled wound in the palm of the hand, where, immediately after the necessary surgical work, the bandage was applied with the patient still on the operating table, and the treatment then faithfully continued: especially quick healing and cicatrization, with slight resulting stiffness of fingers; in cases of paronychia: abscess incised, prompt artificial stasis, closed in 48 hours; parulic fistula of upper eyetooth with abscess formation over the respective nasal bone, in a young lady: eleven hours' stasis, twice every day, with one hour intermission, for a short time, with elastic band around neck: cut in face avoided; obstinate tooth fistula of lower jaw, chronic periostitis, intermittent suction with cup for a few weeks: spontaneous closure; suppuration due to fascia necrosis, following silver wire suture in Mayo's operation for umbilical hernia (operation by adjunct attending surgeon at German Hospital), formation of a discharging sinus: suction with cups, definite closure of wound after a few weeks; suppurative postpartum mastitis: small incisions, short drainage tubes, suction, quickly cured with splendid cosmetic result; obstinate furunculosis of face: superficial incision of boils, prolonged intermittent cupping, cured; acute gonorrheal inflammation of wrist and many others.

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[8] Fifth edition, 1907, 271-275.

Lately I have treated a boy of 16 years with fracture of the base of the skull, with artificial hyperemia, elastic band around neck, 22 hours of the 24, starting six hours after the accident, with the intention of thus carrying out a prophylactic treatment against the ever-threatening meningitis in such cases. Convalescence was astonishingly rapid. It will be interesting to watch the result of this preventive procedure in a series of like cases.

It certainly is most interesting and extremely fascinating to read in what a multitude of acute inflammatory conditions hyperemia has already proved useful in the hands of Bier, his associates and followers. I will here only mention, besides those just referred to as having occurred in my own practice, the treacherous infections of fingers, toes, hand and foot and their upward advancing inflammations: acute and recurring osteomyelitis; acute lymphadenitis, parotitis, erysipelas; furthermore, acute mastoiditis, frontal sinus and antral affections, the latter troubles to be treated by means of an elastic band, worn around the neck, with gentle but sufficient constriction to cause stasis without annoyance; furuncles, carbuncles (hyperemia by means of glass cups), etc. It would mean making an abstract of Bier's book were I to enumerate all the diseases that have already and are destined yet to be treated by hyperemia. Bier himself says:

> I believe that the practical use of hyperemia represents the most general and comprehensive mode of treatment in medicine, for I do not know of another remedy that could be successfully employed in so many directions. I have described such a variety of different troubles that were subjected to hyperemia, that many may think I have gone too far. But, on the contrary, I am convinced that this remedy, used by Nature in such a profuse measure to combat all sorts of lesions, is destined to be far more extensively used than has hitherto been attempted.

In connection with and in corroboration of this statement, I should like to refer, in passing, to a recent report by Vorschuetz,[9] from the surgical division of the Buerger Hosppital at Cologne, Germany (Tilmann), in which are described five cases of cerebrospinal meningitis, four of which were cured by artificial hyperemia of the head and repeated lumbar puncture. The fifth, almost cured, a child of 2 years, developed symptoms of acute hydrocephalus at the end of the ninth week, to which it quickly succumbed.

The use of artificial hyperemia in fighting tuberculous, as well as suppurative, cerebrospinal meningitis was first recommended and tried by Bier himself.[10]

I would further call attention to the great importance of hyperemic treatment of pulmonary tuberculosis, especially the incipient form, by means of Kuhn's lung suction mask, consisting of a celluloid cap or hood, covering mouth and nose, fitted with an arrangement that can be regulated so as to render inhalation more or less difficult, while exhalation takes place through large valves or free through the mouth.[11] In 1903 Bier proposed impeded inhalation by means of compressing the patient's nose and unobstructed exhalation through the mouth in order to produce artificial hyperemia of the lungs. Jacobi and Leo had recommended keeping these patients in a pronounced Trendelenburg posture for a number of hours every day.

Most encouraging results in this connection have recently been reported from v. Leyden's clinic, in Berlin, by Kuhn, as also from the sanatorium of Stolzenburg.[12]

Furthermore, I would mention that Bier and his assistants, while using the large glass apparatus for limbering up stiffened joints, incidentally found that these same apparatus, in addition to producing the desired hyperemia, represent a most valuable aid to orthopedic and medicomechanical surgery, much superior to anything so far known.

A point that deserves special emphasis is the great value of the hyperemic treatment in a prophylactic sense. The earlier it is applied, the more effective it will be found in chronic as well as acute infectious diseases. I would here once more refer to the case already mentioned, of fracture of the base of the skull, which was treated by me with the elastic bandage wound around the neck, in order to avoid the advent of meningitis, and was apparently benefited by the same.

The treatment will also prove of great value in this connection especially to physicians sustaining an injury to the second or third phalanx of the finger, during operation or postmortem examination. It will be well for them, after having produced some bleeding from the wound and disinfecting it with acetic acid, and putting on a wet dressing and a finger cot, to wind around the base of the finger one of the commonly used rubber bands, in order to produce hyperemia. The occurrence of many a phlegmon, lymphangitis and lymphadenitis, with suspense of practice for months, may thus often be avoided and many a valuable life be saved. Of course, it will depend on the seat of the injury and the depth of the wound (puncture of tendon sheath) whether it will not be necessary to apply the elastic bandage around the arm at once.

The results of Bier's treatment, and the multitude of new facts in the therapeutics of every branch of medicine, are so extremely interesting that I feel sure that all who take it up at all will be induced to extend its usefulness by carrying it into new, as yet untried, fields. Such continued experimental work will, at the same time, tend to demonstrate the limitations of the method, for it must be remembered, as Bier himself has again and again pointed out, the hyperemic treatment is not a panacea for acute surgical infectious diseases, either. It is not, and can not, be beneficial in every case. We are only beginning to grasp its possibilities; undoubtedly much has yet to be learned.

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[9] Münch. med. Wochschr., No. 11, 1907.

[10] See Mittheilungen aus der *Grenzgebieten*, vii, 333 and his book, 1907, Fifth Edition, page 382.

[11] See Deutsche med. Wochschr., 1906, 37, and Münch. med. Wochschr., 1906, p. 1275.

[12] Münch. med. Wochschr., April 16, 1907.

However, what we know as a fact to-day is that Bier has given us a new and most powerful weapon in our warfare against disease. He and those who have worked with him along the path pointed out by him have shown that this weapon, handled either alone or in conjunction with slight surgical intervention, enables us to treat many chronic and acute surgical infectious diseases more conservatively and with less discomfort to the patient, and at the same time with by far superior functional results than any other method so far known in medical and surgical therapeutics.

In conclusion, let me say that I consider it not only the privilege, but the duty of every medical man to study and thoroughly to master the principles of Bier's hyperemic treatment in order to be able to bestow on his patients the great and manifold benefits of this truly wonderful discovery.

DISCUSSION.

Dr. W. W. Grant, Denver, Colo., stated that his experience with the Bier treatment is confined to a year's work and observation in the treatment of acute and chronic infectious diseases, chiefly bone and joint suppurations, and in acute cases, such as puncture wounds of the extremities. He has found it remarkably effective in a number of instances. One, a personal experience, was a puncture infected wound of the finger, obtained in operating on the mouth. There was pain, rapid swelling and redness of the finger. On the next day Dr. Grant began to use this treatment, using absolutely no other measures whatever. He applied a half-inch elastic bandage between the middle joint of the finger and the hand for a half hour at a time, every two or three hours in the twenty-four. There was an almost instantaneous relief from pain, although the swelling continued. The throbbing ceased, and the finger recovered perfectly in a week, without a particle of suppuration. The treatment was continued for only two or three days. Therefore, in Dr. Grant's opinion, the method is a preventive measure of great importance. He has treated other cases of this kind—cases in which suppuration (a local, if not a more general, infection) was expected, in the same way, with equally good results. Two recent cases of chronic infection were considered worthy of record.

One patient, a farmer, aged 54, suffered from an osteomyelitis of the left femur, of twenty-four years' duration. This man had been operated on twice. As a result, he had large scars from the packing of the wounds, with a continuation of the suppuration and necrosis. Dr. Grant used the ordinary methods, removing the dead bone through a long incision and gouging out the pus and débris in the head of the femur, where a large abscess existed. There was in this case complete bony ankylosis of the joint. The patient had not been operated on for several years. The wound was sutured tightly, two rubber drainage tubes were inserted—one in the head of the bone, the other at the upper end of the incision. There was marked relief of pain, the bandage being applied every day for an hour to an hour and a half at a time, tight enough to produce distinct swelling, with capillary congestion and some duskiness of the limb. This bandage was applied daily for two months. The very rapid decrease of the discharge was most marked; the man walked on crutches. At the end of forty days he threw away the crutches and walked with a stick; and in less than ninety days from that date the man threw away his stick; the discharge had practically ceased and he had gained 24 pounds. Dr. Grant said that he had never obtained such a result, in such a case, with the ordinary methods of treatment adopted by good surgeons, either in hospitals or elsewhere.

Another patient, aged 45, had an osteomyelitis of the right femur, of fourteen years' duration. Two operations had been performed on him. Dr. Grant made a long incision on the side of the limb, the joint not being involved. He found considerable necrosis extending completely through the shaft of the bone, therefore chiseled it out, curetted it and put a drainage tube completely through the limb from one side to the other, going through the middle of the shaft, the anterior and posterior surfaces being intact. This man was treated in the same way as the other patient and with the most gratifying result. The wound has healed entirely on the inside. A week ago Dr. Grant removed the long tube and inserted short tubes on each side down to the shaft. Examination showed no denuded bone. The discharge diminished rapidly. There is no more pain, and the man is making most satisfactory progress, though under treatment but five weeks. As the result of his experience, though limited, Dr. Grant commended the measure as a worthy addition to our resources.

Dr. V. Schmieden, Berlin, Germany, stated that on his travels through this country, he was greatly pleased to learn that Bier's hyperemia treatment has been tried in very many places, and everywhere he found not only a thorough and full appreciation of the principles underlying the method, but also a complete understanding of the details of its application. Therefore, there is no reason to doubt that soon there will be reported from elsewhere similarly favorable experiences as those reported by Dr. Meyer.

Dr. Schmieden emphasized that only moderate and conservative application of the treatment can be of value. Too much treatment is as injurious as giving an overdose of a drug. The bandage should be applied by one who thoroughly appreciates the objects of such treatment. Nutrition should not be interfered with in any way; on the contrary, an increased volume of circulating blood is to be directed into the diseased parts in order to manifest its protecting and healing powers. Hyperemia that either causes pain or increases the severity of existing pain is wrong. He advised that after having had an opportunity of observing the proper application of the hyperemia bandages and suction glasses, the physician will do well to begin their use in cases of furuncles, chronic fistulas and fistulous tuberculosis of joints (in the latter cases combining the use of the bandage with that of suction glasses). Then the method may be extended gradually to the treatment of acute suppurations, phlegmons, mastitis, etc. In the beginning it is advisable to supervise the treatment personally. In serious cases and in those attended by fever the patients should be sent to the hospital.

Dr. John C. Hollister, Chicago, said that this treatment is of avail, not so much because of the hyperleucocytosis as because of the hyperopsonization, and the necessity of combining passive hyperemia with surgery depends on the fact that the local opsonic power is increased; therefore, the necessity of combining with surgical methods passive hyperemia and vaccine therapy is greater than the necessity of combining singly the two former. Dr. Hollister has found that without exception the serum exuding before the application of the cup over the diseased center was below 1 (i. e., 0.5). After the intermittent application of the cup for from one-half to three-quarters of an hour, according to the directions given by Bier, the opsonic index of the serum exuding from the diseased area is raised toward that of the general circulation. This has been found to be true in cases of tuberculous glands of the neck, of tuberculous fistulas and of staphylococcic abscesses.

If, then, the local opsonic index is raised by the application of the cup, is it not absolutely indicated that one raises not only the local but also the general opsonic index? If the opsonic index of the general circulation is below normal, raise it by means of vaccines and then draw by means of the cup into the diseased area this serum with its higher opsonic power. For instance: A small boy with tuberculous glands of the neck had one broken-down gland. His opsonic index, general circulation, was .8; local opsonic index, of serum of neck before cupping was .4. After the application of the Bier cup the local index was .7. Both general and local indices were then raised and maintained above 1 by means of vaccine therapy and local hyperemia. The boy is steadily improving without any more glands breaking down and most of many affected glands have disappeared. The only purely surgical measure that was done was to make a small puncture to let out the pus and later a curette was used to loosen a final shred of necrotic capsule. A small bluish punctate star is the only remaining evidence of interference. The general condition of the patient has improved very markedly and steadily.

Dr. **Frank Smithies**, Ann Arbor, Mich., said that whenever any new form of treatment is announced there is apt to be over-enthusiasm, and that this may bring about serious consequences. Several years ago he became interested in the published reports of the marvelous results obtained by Bier and others in the treatment of joint affections by passive localized hyperemia. The reports at that time were rather premature and the details concerning the management of the cases were not complete. Since then, however, working along the lines set down by Bier, he has found results in the main to be as so ably set forth by Dr. Meyer. He has been particularly interested in the treatment of joint affections, both acute and chronic. While in the majority of instances the results had been favorable, yet he felt that there are so many factors to be considered in the treatment of any given case by the passive stasis that to secure the best results the therapy must be directed by an experienced person. Herein lies the great danger of recommending the method for use outside institutions, where supervision can not be had over cases. He emphasized the fact that in many cases the method is merely an adjunct to treatment along other lines. All other forms of treatment, such as drainage of pus, the aspiration of fluid, etc., must be carried out. If this is not done the treatment will prove of little value. In certain of the joint affections, such as chronic progressive arthritis deformans or chronic rheumatism, measures have to be instituted to counteract the anemia which is so common. The iron or the arsenic should be pushed at the same time that the stasis is being used. Many of these patients are much emaciated. In that event the use of the protective bandage underneath the rubber constricting bandage must never be neglected. Moreover, the limb must be in proper position. It should not be allowed to hang down; it should be level or slightly elevated. These patients are consequently best treated in bed. The cotton supporting bandage peripheral to the part being treated must always be applied. If this is not done, patients fail to get the benefit of the stasis at the affected part. Dr. Smithies has seen troublesome and long-persisting edemas follow failure to use this supporting bandage. In several cases of arthritis deformans these edemas appeared to become more easily produced as the treatment of the cases progressed. Rest from stasis, with elevation had proved, in his experience, the best method of treating the edemas. He has also noted several instances where severe peripheral neuritis followed prolonged treatment by the Bier method. In two instances marked effusion into joint capsules supervened after several weeks' treatment. One should also inquire carefully into the other conditions of a patient. The age and the general state of nourishment must be considered. Old people and arteriosclerotics are bad subjects for stasis. Very young children must be watched carefully under treatment. Diabetics or patients with essential anemias should not be treated, especially for chronic affections. Patients with chronic heart disease are best let alone.

Concerning the length of time that the constricting bandages should be left in place, Dr. Smithies stated that his experience is in line with that of the majority of users of Bier's method. In general, chronic cases do well with rather strong constriction maintained for from one-half to two hours twice daily. The patients seem to do better if the length of time of application is increased gradually during the first fortnight. He has always had these patients massaged with warm olive oil after removal of the constricting bandages. In acute cases mild constriction maintained for from five to twenty-four or more hours, has given good results in his hands. He is very careful about recommending this method of treatment in cases with abundance of free pus, on account of the danger of a general septicemia following the removal of the constriction. In all cases the condition of the patient must guide one in the application of the stasis. At the first appearance of bad effects, such as edema, peripheral neuritis or effusions into capsules, the treatment must be stopped until the tissues regain their vascular tone. As to the causes of the wonderful results sometimes following the use of hyperemia, he thinks that too little experimental work has yet been done. The work of Dr. Hollister along the lines of increase in local opsonic power of the blood serum, he declared, appears very promising. This was suggested by several observers some two years ago, but he has seen no definite tabulation of results prior to that of Dr. Hollister's, although he has noted the increased opsonic power in one case in his own experience.

Dr. **John B. Roberts**, Philadelphia, suggested that inasmuch as the irritation of the skin is due to the difficulty of getting ventilation on account of the rubber bandage, why not use elastic webbing? A pair of suspenders could be used.

Dr. **Willy Meyer**, New York, said that any one who has practiced the hyperemic treatment for some time will have made so many interesting observations that he could talk about them for hours and hours. There is much that is new and fascinating. Dr. Hollister, he said, spoke of the opsonic power being increased. It certainly is most difficult to go into the theory of the hyperemic treatment, but Bier himself emphasized that it is better to say that the blood is doing it, and not go too much into the theory of the thing. The pathologists have brought forward so much that it is most difficult to say what is right and what is wrong. At present, we must say that the effect of the treatment is dependent on the greater amount of blood. The physiologic effect is so complicated that it will be a long time before the truth about it will be known. Dr. Meyer said that he was especially interested in the remarks of Dr. Grant, because he referred to the prophylactic use of the hyperemia treatment. It is well known what may happen to the surgeon in consequence of an injury sustained during an operation on a septic patient; the pathologists also often suffer in consequence of some slight abrasion sustained during the conduct of a postmortem examination. Dr. Meyer knows of three prominent surgeons of New York who were seriously sick for months with pronounced lymphangitis and lymphadenitis in the axilla. In these cases, particularly, the preventive treatment by means of Bier's method will be very useful. Dr. Meyer always carries in his pocket a number of finger cots and small rubber bands. As soon as an injury to the region of the second or third phalanx of the finger has occurred during an operation, he squeezes out the finger and applies acetic acid. But that is not all one can do. It is of importance to dress the small wound with some moist gauze and to slip over the injured finger a finger cot and over the cot one or two small rubber bands, placing them at the base of the first phalanx so as to produce a slight hyperemia. The pain soon ceases and small wounds heal rapidly in a few days, without producing any lymphangitis. In the case of fracture of the skull, Dr. Meyer debated before starting the treatment whether it was advisable to use a bandage around the neck and produce a hyperemia within the cranial cavity. He could not prove absolutely that the boy had a fracture of the base of the skull, but he is convinced that every one would have diagnosed his case as such. He fell down about twenty feet, was picked up unconscious, vomited blood three times and had great tenderness on pressing the region of the supposed fracture.

Referring to the remarks made by Dr. Smithies about over-enthusiasm, Dr. Meyer said that for fifteen years we have heard again and again one of the most capable and impartial observers write on his own discovery, and many others have seen what an amount of good this treatment is able to do. If there has been any enthusiasm shown, it must have been stimulated by the excellent results observed. But it must be borne in mind that medical men are only commencing to realize what is in hyperemia, and what it can do when made use of rightly. There are three methods: the use of the bandage, the cupping glass and hot air, and one must learn to ascertain the proper indication for the use of the three.

THE PRINCIPLES OF VACCINE THERAPY.

SIR ALMROTH E. WRIGHT, M.D.
LONDON, ENGLAND.

(*Concluded from page 487.*)

CONDITIONS WHICH OBTAIN IN THE FOCI OF BACTERIAL INFECTION.

We may conveniently begin with the study of the conditions which obtain in foci of bacterial infection. I have already pointed out that the foci in which bacteria cultivate themselves are in every case "foci of lowered bacteriotropic pressure," and that the deficit of antibacterial substances in such foci can be accounted for by the facts that bacteriotropic substances are absorbed whenever blood fluids come in contact with bacteria, and that in the case of foci which are cut off from the blood stream the conveyance of bacteriotropic substances to the focus of infection by the lymph stream can only rarely keep pace with the absorption. This premised with regard to the conditions which are common to all bacterial foci, I may conveniently direct attention to special conditions which obtain in infections of serous membranes where serous effusion has taken place, in abscesses, in sinuses, and in association with brawny swelling of the subcutaneous tissues.

(a) *Conditions Which Obtain When Bacteria Are Growing in or in Contact with Serous Effusions.*—These are well shown in tuberculous peritonitis. Here, as Douglas and I have already shown, the ascitic fluid has in every case a much lower opsonic index than the circulating blood. It follows that the bacteria which are cultivating themselves in, or in contact with, such ascitic fluid are not exposed to the full bacteriotropic pressure of the circulating blood. We have here an explanation of the success which has attended tapping and in particular laparotomy in tuberculous peritonitis. That success is satisfactorily accounted for by the replacement of a stagnant lymph which has forfeited much of its antibacterial virtue by a fluid of higher efficacy freshly derived from the circulating blood. Manifestly we should be neglecting a very important element in the treatment if, while aiming at the destruction of bacteria in serous membrane by processes of immunization, we were to fail to take into account the fact that the bacteria which are the object of our attack are cultivating themselves under a lowered bacteriotropic pressure.

(b) *Conditions Which Obtain in Abscesses.*—In abscesses the conditions are more complicated. Here must be taken into account not only the absorption of bacteriotropic substances by bacteria, but also another factor which does not come into consideration in the case of ordinary serous effusions. This factor is the liberation of a tryptic ferment from the leucocytes. Such liberation occurs, as Opie has shown, whenever these formed elements disintegrate in pus. Let us note that we have here a factor which may well explain the paralysis of all phagocytic effort which sooner or later overtakes the leucocytes in every focus of suppuration, and which continues to affect them even when they have been brought in contact with bacteria in the presence of normal serum. It thus appears that as soon as bacteria have grown, and leucocytes have disintegrated in an abscess in numbers sufficient to abolish the opsonic and antitryptic power of the surrounding fluid, not only the normal bacteriotropic defense, but also the leucocyte defense is thrown out of gear. I have neither the time nor the data to discuss certain important but incidental issues which suggest themselves in this connection, in particular the issue as to whether the liberation of tryptic ferment in the abscess—which Opie has brought into association with the destructive and burrowing action of pus—may not also account for the frequent sterilization of the contents of an abscess. It is, however, incumbent on me to point out that when aiming at the destruction of the bacteria in an old suppurating focus by the agency of opsonins and leucocytes, and at the same time at the safeguarding of the tissues from the digestive power of the pus, it would be futile to attempt this task without making provision for the replacement of the tryptic and non-opsonic pus fluid by an antitryptic and opsonic fluid freshly derived from the circulating blood.

(c) *Conditions Which Obtain in Sinuses.*—The conditions with which we have to deal in a sinus when that sinus is freely discharging pus are, I take it, essentially similar to those which prevail in an abscess which is discharging without emptying itself. In other words, there is pus fluid which possesses a low opsonic power, and which exerts on the tissues a digestive effect—a digestive effect which makes itself manifest to the eye in the case of a discharging sinus in the sodden and unhealthy appearance of the skin in the neighborhood. In the case of a sinus without discharge we have to deal with conditions which might be compared to those which would obtain in a well if the water which originally flowed into it had deposited an insoluble element in such a manner as to choke up all the conduits of supply. We can easily conceive how, on the walls and floor of such a well, forms of life might maintain themselves which would be quite incompetent to penetrate into the surrounding soil, or to hold their own in the face of a copious inflow and overflow of water. A dry sinus is, if I understand the situation aright, analogous to just such a choked well, the obstacles to the inflow of lymph being, on the one hand, the density of the granulation tissue, and, on the other hand, the lining membrane of fibrin which clothes the walls of the sinus. If I am right in thinking that these are the conditions under which bacteria maintain themselves in a sinus for the dislodgment of the bacteria something more is needed than a mere increase of the bacteriotropic power of the blood and circulating lymph.

(d) *Conditions Which Obtain in "Brawny Swelling."*—Next in order we have to consider the condition in which there is a focus of bacterial growth in tissues which are affected with "brawny swelling." I consider that in brawny swelling we have conditions which are, in the respect that the bacterial growth is cut off from the blood and lymph stream, analogous to those which have just been under consideration in connection with sinuses. It is in the nature of a minor difference only that in brawny swelling the bacterial growth is isolated from the blood and lymph stream by the clotting of the lymph in the lymphatics, while in the case of a dry sinus the isolation of the bacteria is brought about by the clotting of the lymph on the surface of granulation tissue.

THERAPEUTIC PRINCIPLES WHICH EMERGE FROM CONSIDERATION OF CONDITIONS IN A BACTERIAL FOCUS.

A strict regard for the logical development of my subject matter would perhaps dictate that at this point I should embark on the study of the phenomena of autoinoculation, reverting afterward to the consideration of the therapeutic measures which may be employed for dealing with the difficulties which are created (a) by the absorption of bacteriotropic substances in the bacterial focus, (b) by the liberation of tryptic ferment that takes place there when leucocytes are broken down, and (c) by the blocking of the lymph channels. It will perhaps be more convenient, however, if I discuss the therapeutic measures by which we may deal with these difficulties while the situation which we have in each case to confront stands out clearly before your minds. The general principles which ought to underlie all our therapeutic measures are the following:

1. We must provide for the conveyance of bacteriotropic substances into the focus of infection.
2. In case an accumulation of stagnant fluid in the focus of infection effectually prevents the entrance of bacteriotropic substances, as a preliminary measure we must draw off the fluid which occupies that focus.
3. In case there are other obstacles to the free streaming of lymph through the focus of infection we must remove those obstacles.

(a) *Conveyance of Bacteriotropic Substances Into the Focus of Infection.*—The douching of the focus of infection by a stream of lymph drawn fresh from the blood vessels, when the tissues are uninjured and the lymphatic channels are open, can be effected by determining by the agency of heat or any other rubefacient a larger blood supply to the region affected. It can also—as in Bier's method—be effected by backing up the blood in the veins in such a manner as to increase the hydraulic pressure in the capillaries.

(b) *Removal of Stagnant Fluid from the Focus of Infection When This Prevents the Lymph Finding Proper Access to the Infecting Bacteria.*—In case the lymph can make its way effectively through the focus of infection, permeating every part of it, access of the bacteriotropic substances to the infecting bacteria will manifestly be provided for by the activation of the lymph stream quite apart from any operative interference. In such a case the stagnant fluid which occupies the bacterial focus will be driven on into the general circulation by the *vis a tergo* of the activated lymph—whether for good or for ill we must afterward consider. When this method of dispersion is inapplicable, or when for any reason it is contraindicated, the evacuation of the stagnant fluid by operative measures will obviously be desirable. In case there is in an abscess a tryptic fluid which is actively eating its way into the surrounding tissues,[7] such evacuation will not only be desirable, but imperative.

When we elect to employ the method of evacuation as distinguished from the method of dispersion, our choice will lie between simple incision, incision followed by dry cupping—as advocated by Klapp—and evacuation by aspiration. This last method has, I submit, an advantage over all others, as it does away with all scarring and minimizes the risk of the entrance of bacteria from without and the risk of autoinfection of the edges of the wound. It also secures more effectively than any method of incision and drainage what is in the case of an abscess the obvious desideratum, to wit, the filling up of the evacuated cavity with an antitryptic and opsonic lymph which will both arrest further digestive destruction and inhibit bacterial infection.

(c) *Removal of Obstacles to the Free Streaming of Lymph Through a Focus of Infection.*—We have seen above that a deficient outflow of lymph and the formation of a lining of fibrin on its walls are favorable to the survival of microbes in a sinus. I am accustomed to combat these conditions by introducing into every dry sinus a solution of 0.5 per cent. citrate of soda and 10 per cent. sugar (or in lieu of this a solution of 0.5 citrate of soda and 5 per cent. sodium chlorid), supplementing this treatment when necessity arises by Klapp's system of dry cupping. It will be understood that the citrate of soda prevents coagulation and scabbing by decalcifying the lymph, and that the sugar or salt, acting by osmosis, causes fluid to transude from the blood vessels. Under the influence of these applications, a clear lymph begins to well out from the previously choked sinuses and the local conditions rapidly improve. The situation in brawny swelling of the subcutaneous tissues being, in the respect that the lymph stream is arrested, essentially similar to those which have just been considered, it must be treated on the same principle. In this connection I may perhaps make brief reference to a case of Ludwig's angina which recently came under my observation.

History.—The patient, a middle-aged man, had in the first instance developed what was taken for an indolent furuncle in the parotid region. When after considerable delay this was incised no trace of pus was met and the tissues were found to be everywhere dry and infiltrated. They remained in this condition and the wound showed absolutely no disposition to heal. Two weeks later, the patient, who till then had been taking out-door exercise, was suddenly taken seriously ill, and the brawny swelling which up to that time had been limited to a patch on the left cheek, spread rapidly round under the jaw from one ear to another.

Surgical Treatment.—A surgeon now carried a series of vertical incisions deep down into the indurated tissues. Twenty-four hours afterward the patient had lapsed into a condition of low delirium and the local conditions showed no signs of improvement. When I saw him I could not, even at the bottom of the gaping incisions, find sufficient moisture to fill the loop of a platinum needle. Film preparations obtained by pressing cover glasses against the sides of the wound showed abundant streptococci and only here and there a leucocyte. Blood drawn from a vein at the elbow with the intention of making a culture clotted *instantaneously* in the syringe.

Other Treatment.—It was immediately clear that what was most urgently required in this case was not that further means of antibacterial defense should be furnished to the patient, but that such means of antibacterial defense as were already at his disposal should be brought into application on the streptococci in the focus of infection. With a blood so viscid and coagulable as was that of this patient it was inconceivable that any lymph should transude into his tissue. It was conceivable also that any transuded lymph should not clot in his lymphatics. Influenced by these considerations large doses of citric acid were prescribed, 60 grain doses being administered every three hours. Six hours after the first dose had been taken, lymph began to ooze into the wounds, and by next morning all the wounds had begun to bleed. The administration of citric acid was then suspended. A culture of infecting microbes having now been obtained the opsonic index of the patient's blood was determined. That opsonic index working out at 1.8, and very distinct amelioration having taken place in the patient's symptoms, inoculation treatment was postponed. There was not afterward any occasion for immunizing intervention, the patient making continuous and rapid progress to complete recovery.

There is, I think, a lesson in this case which we shall do well to take to heart in conditions of brawny swelling.

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[7] It is perhaps worth noting that the fact that an abscess gives fluctuation does not by any means furnish sufficient warrant for concluding that it contains a tryptic fluid and that operative measures must be resorted to. Again even when the contents of an abscess by the disintegration of leucocytes have already acquired tryptic powers, it may still be practicable to abolish that tryptic power and to effect resolution by leading into that abscess cavity a sufficient quantity of antitryptic lymph.

AUTOINOCULATIONS.

Up to the point at which we have now arrived the reaction of immunization has been considered exclusively in relation to the incorporation of bacterial vaccines. A moment's consideration will make clear, however, that where, in association with a bacterial invasion of the organism, bacteria or bacterial products pass into the general lymph and blood stream intoxication effects and immunizing responses similar to those which follow on the inoculation of bacterial vaccines must inevitably supervene. You will by this time have realized that it must be by the agency of such autoinoculations that Nature achieves curative effects in bacterial infections. You will have realized also that the man who proposes to combat infections by methods of immunization must needs be familiar with the conditions under which autoinoculations occur and with their effects on the organism. In the absence of such familiarity the physician will inevitably lose his way when he sets out to supply the place of autoinoculations by artificial immunization, or, as the case may be, to collaborate with Nature—by supplementing her autoinoculations by his inoculations —or to place a check on Nature's autoinoculations when these are overtasking his patient's powers of immunizing response.

(a) *Types of Infection and Conditions in Which Autoinoculations Occur.*—We may conveniently begin by enquiring in what types of bacterial infection and under what conditions autoinoculations take place. You will, of course, immediately discern the position of affairs in the contrasted types of generalized and strictly localized infections which were considered in connection with the expectant method of treatment. In the former class of infections autoinoculations are occurring in continuous series; in the latter they are conspicuous by their absence. In the type of localized infections which are associated with intermittent constitutional disturbance we have a class of infections which is intermediary between the other two, in the respect that there is here intermittent autoinoculations. The autoinoculations which have been in question up to this point are, let it be noted, what we may speak of as spontaneous autoinoculations. in addition to these we have also a class of artificially induced autoinoculations.

Taking our departure from an observation by my collaborator, Dr. J. Freeman, which had reference to an autoinoculation induced by the massage of a gonococcal knee at St. Mary's Hospital during the last twelve months, we have made a systematic study of the conditions under which autoinoculations can be produced in persons affected with localized bacterial infections. We have been able to show that autoinoculations follow on all active and passive movements which affect a focus of infection and on all vascular changes which activate the lymph stream in such a focus. Evidence has been obtained of the production of autoinoculations by massage and operations affecting tuberculous glands; by passive extension, massage, and surgical operations affecting tuberculous and gonococcal joints, and by scrapings in tubercular caries and staphylococcal osteomyelitis.

Evidence has been obtained of the production of artificial autoinoculations in phthisis both by the agency of respiratory efforts and in an ordinary routine examination of a patient by percussion and auscultation. We have also in a laryngeal affection seen an autoinoculation supervene on reading aloud. Again we have obtained evidence that autoinoculation may follow on walking exercise in the case of patients affected with tuberculous disease of the bones or joints of the lower extremity or with severe tuberculous epididymitis. We have also obtained evidence that in the case of patients with spinal caries, autoinoculations are induced by a change from the recumbent to the sitting posture and from the sitting to the erect posture. Lastly, we have evidence that autoinoculations are produced both by active and passive hyperemia (hot fomentations and Bier's bandages) to limbs affected with tubercle.

ASSISTANCE WHICH CAN BE OBTAINED FROM ARTIFICIAL AUTOINOCULATIONS IN THE DIAGNOSIS OF OBSCURE CASES OF LOCALIZED INFECTIONS.

Let me digress here from the consideration of the therapeutic problem to consider the assistance which may be derived from the induction of artificial autoinoculation when a problem of diagnosis confronts us. Rightly understood, all methods of bacteriologic diagnosis in which we arrive at the nature of the infection by a process of induction from a determination of the bacteriotropic constituents of the blood are methods which have as their aim the detection of the changes which are produced in the blood by the agency of autoinoculations. The following three examples will suffice to make this clear. The agglutination test in typhoid fever, whose authorship was claimed by Widal on the plea that the increased agglutinating content of the serum was something other than the result of an immunizing response evoked by an autoinoculation, is now by common consent recognized to be a test which depends—as Gruber and his collaborators, Durham and Grunbaum, maintained from the very first—on the detection of products of immunity produced in response to an autoinoculation. "The thermostabile opsonin test," whose diagnostic value was first demonstrated by Douglas and myself, furnishes, in like manner, evidence of an immunizing response to a foregoing autoinoculation or, as the case may be, to an inoculation of the corresponding bacterial vaccine. Exactly the same thing holds true of the "absorption of complement test" recently so extensively exploited by Wassermann.

It will be clear that in all these cases diagnosis has, perforce, to wait on the immunizing response to spontaneous autoinoculation. And such spontaneous autoinoculation may be indefinitely deferred, as we have seen in localized infections. It, therefore, marks a definite step in advance when we come to realize that, in case the focus of infection is accessible, we can supply the place of the spontaneous autoinoculation which makes default by the induction of an artificial autoinoculation. Up to the present, from the induction of autoinoculation by the agency of massage or active muscular movement and the associated measurement of the opsonic index before and after such active and passive movements, we have obtained diagnostic results which in every case have been borne out by the subsequent history. I would note here—for it is germane to the subject matter under discussion—that we have had recourse to autoinoculations associated with measurements of the opsonic index, not alone for the preliminary diagnosis of a bacterial infection, but also for the purpose of obtaining information with regard to the progress of the patient. When an artificial inoculation can no longer be induced in a focus which previously could be influenced, we are entitled to conclude that the focus is extinct. When an autoinoculation can still be induced, we may be assured that the focus is still aglow.

DISCUSSION OF THE COMPARATIVE MERITS OF TREATMENT BY INDUCED AUTOINOCULATIONS AND TREATMENT BY THE INOCULATION OF BACTERIAL VACCINES.

It has, I take it, come home to us all that we have in spontaneous autoinoculation, in artificially induced autoinoculation and in the inoculation of bacterial vaccines, the three great agencies by which immunizing responses are evoked in the organism.

Comparing first the immunizing effects which are achieved by autoinoculations, taken generally, with those which are achieved by the inoculation of bacterial vaccines, it may, I think, be stated with confidence that the former method of immunization is far more expensive in the respect that the patient obtains a much smaller yield of protective substances for an equivalent of intoxication. A number of other considerations come into account when we have to elect between treatment by artificial autoinoculations and treatment by the inoculations of bacterial vaccines.

First in order comes the question of an eventual risk of disseminating living bacteria in the organism. It will be appreciated that the employment of autoinoculations—since here, of course, living cultures are exploited—can never be entirely dissociated from this risk. Such risk falls entirely out of account when we operate with sterilized bacterial vaccines. Next in order of importance comes the question of dosage. It will be plain that in all autoinoculations we operate not only with the living cultures, but with unmeasured doses. When we have to deal with a very considerable focus of infection, or, failing this, when, in a smaller focus, the irrigation of the focus with lymph is searching and unduly prolonged, an excessive dose of the bacterial products will be washed into the general blood and lymph stream.

When, on the other hand, we have to deal with a small focus of infection, or when, in the case of a larger focus, irrigation with lymph is continued for too short a time, too small a vaccinating dose will come into application. Again, when by reason of a gradual restriction of bacterial growth effected by immunization, or when by reason of a repeated draining off of bacterial products under the influence of Bier's treatment or of massage, diminishing quantities of bacterial products are available in the focus of infection, there will come into application diminishing doses of vaccinating elements, while there might be required for the maintenance of adequate immunization reactions undiminished or, as the case may be, increasing doses of these elements.

Lastly, we have to keep in view, on the one hand, the fact that methods of autoimmunization are applicable only in the case of foci which are superficially situated or foci which are situated in the extremities; and, on the other hand, the fact that the demands which are made on the patient's time and the work which is thrown on the controlling physician, in the case in which autoinoculation methods are employed, are much more serious than in the case in which inoculations with measured doses of bacterial vaccines come into application.

Let it be noted, in conclusion, that the issue as between treatment by autoinoculation and treatment by the inoculation of bacterial vaccines which has just engaged our attention reveals itself, on consideration, to be to some extent an academic issue. Whether we set out to activate the lymph stream on purely empirical principles, as Bier does with his bandaging and the ordinary surgeon with his hot fomentations and his massage, or whether, as "immunizators," we employ these methods with the sole intent of conveying the bacteriotropic substances from the blood into the focus of infection, there will in each case be achieved, in addition to the local effect which was in view, an unsought artificial autoinoculation. Unintended beneficial clinical effects are not infrequently obtained in connection with Bier's treatment in the form of an amelioration in bacterial foci remote from the seat of application of the bandage. In massage of gonorrheal joints I have also seen such unintended effects both in the form of amelioration and in the form of aggravation of the condition of untreated joints.

It equally holds true that, whether we set to work on purely empirical principles to evacuate an abscess, to tap a serous effusion, or to apply massage, or whether, as "immunizators," we apply a Bier's bandage, or massage, or any similar device, thinking only of its autoinoculating effect, there will in each case be achieved, in addition to the particular effect which was aimed at, also an influx of antibacterial substances into the focus of infection.

MAY INOCULATIONS OF BACTERIAL VACCINES BE UNDERTAKEN IN THOSE TYPES OF BACTERIAL INFECTIONS WHICH ARE ASSOCIATED WITH SPONTANEOUS AUTOINOCULATIONS?

When the question as to the possibility of inoculating bacterial vaccines with safety and advantage to the patient in septicemic infections, and in general in those types of infection which are associated with spontaneous autoinoculations, comes up for discussion we are confronted with the *a priori* objection that, inasmuch as the vaccinating bacterial products are already circulating in the blood, producing an intoxication, it would be plainly irrational to expect from the incorporation of further bacterial elements anything more than aggravation of that intoxication.

To this argument two different rejoinders can be made. On the one hand the objector may be met with the favorable results of actual experiments in which bacterial vaccines have been inoculated in septicemic infections. On the other hand, an endeavor may be made to bring it home to the objector that resource to the inoculation of bacterial vaccines in septicemic conditions is not the irrational proceeding which it might at first sight appear.

I may conveniently here address myself to this last task, leaving for future consideration the results which have been actually obtained by inoculation in septicemic disease. Let me hark back to what was said in an earlier part of this lecture on the subject of the probable place of origin of the antibacterial substances. If I am right in supposing that the bacteriotropic substances are manufactured locally in the tissues, it will be obvious that the conditions for successful immunization will be less favorable when the vaccinating elements are thrown into the circulating blood than when they are inoculated directly into the tissues. In the latter case they will come into application on the tissues in a concentrated form, while in case they are introduced into the circulating blood they will come into application on the tissues only after they have been diluted by the whole volume of that blood. It is accordingly not irrational to assume that there would be a possibility of a septicemic patient deriving in this respect advantage from the inoculation of bacterial vaccines. Let us suppose it granted that from the point of view of his immunization such a patient might derive advantage. There would still remain the objection that the inoculation of bacterial vaccines might aggravate his intoxication. The rejoinder to this objection is, I think, suggested by the consideration that local toxic effects on the tissues, such as we know are produced by the subcutaneous inoculation of vaccines, and a local elaboration of bacteriotropic substances, such as we infer to follow on inoculation, would be inexplicable apart from a holding back of the toxic substances in the tissues. Conformably with this, a much smaller intoxication effect would result from the incorporation of an aliquot quantity of vaccine into the tissues than from the inoculation of that same amount of vaccine directly into the blood stream.

I would put it to you, in view of these considerations, that the question as to whether vaccine therapy can or can not be successfully employed in septicemic diseases is a question which ought to be approached without bias and one which can be decided only by experiment.

RESULTS WHICH HAVE BEEN ACHIEVED BY VACCINE THERAPY.

With this discussion I have at last brought to a close my exposition of the main principles of vaccine therapy, so far as these are at present clear to me. I will say, in conclusion, one or two words on the subject of the results which have been achieved by the application of this method in actual practice.

The evidential methods which an author can employ to establish the efficacy of a new treatment are, as consideration will show, the following:

(a) He can publish examples of refractory cases successfully treated.

(b) He can publish, when such become available, examples of desperate cases successfully treated.

(c) When he has treated a sufficiently large number of cases, he can publish the complete series, giving the particulars of each case and the results of the treatment.

(d) If he should be fortunate enough to enlist the interest of other workers, he can commit it to these to furnish definite proof of the efficacy of his method.

Let me try to bring out the strength and weakness of each of these methods.

The value of a number of refractory cases successfully treated lies in the fact that when success has been achieved in connection with a number of such cases the idea that the results can be due to spontaneous cure may be dismissed.

There always attaches to this class of evidence, however, a possibility of doubt, inasmuch as, even when the author is citing a consecutive series of successful cases, the reader will find a difficulty in believing that these were typical cases. He may incline to the view that all the cases cited may have been exceptionally fortunate ones in which Nature was good enough in each case to effect a spontaneous cure.

When the author has cited desperate cases successfully treated, somewhat similar criticisms apply. It will be manifest that if the cases cited are in point of fact, as he deems them to have been, cases in which a cure could not possibly have been effected by the unassisted efforts of Nature, the successful outcome of these cases furnishes complete proof of the efficacy of the treatment. It must always be borne in mind, however, that, in the absence of the evidence of his own eyes to the desperate condition of the patients, the reader may find it easier to believe that the author was mistaken in regarding his case as desperate than to believe that the treatment can have been effectual in desperate cases. Quite other are the criticisms which would apply to a statistical record of the result of treatment in a consecutive series of cases. I thing that it is not open to doubt that, apart from any incidental value which it might derive from the inclusion of refractory or desperate cases, such a register of cases would acquire value only if it were placed over against a register of similar control cases.

Now a series of untreated cases such as would serve the purpose of controls can not be obtained in practical life. For such a series of untreated controls there would have to be substituted, therefore, as the only possible alternative, a series of cases treated by another method and another practitioner. Now if this were done the scientific issue would immediately be confused, not only by doubts as to the comparability of the two series of cases, but also by the question as to whether the alternative method was hurtful or beneficial, and, above all, by the question of personal competition. If you will consider what confusion would be introduced in this way in the issue which we are here concerned to resolve, you will, I think, understand the motives which influence me when I say that I do not purpose, either here or elsewhere, to supplement by any attempted statistical proof that presumptive proof of the efficacy of vaccine therapy which I claim to have furnished by the citation of numerous refractory and desperate cases successfully treated by the inoculation of bacterial vaccines.

If you have completely entered into my thought you will appreciate that if in this lecture I have restricted myself in the main to an exposition of the principles of vaccine therapy, leaving over so short a time to the discussion of the practical results which have been achieved, this has not been without set design. You will understand that it has been done because I felt that, if I could enlist interest in the method of vaccine therapy, if I could show on what principles it proceeds, and if I could induce here and there a scientific worker to embark on the task of mastering and carrying out patiently the somewhat delicate technic which, in my opinion, is essential to the proper exploitation of vaccine therapy, I might perhaps be taking the shortest way to procure a verdict on the practical efficacy of vaccine therapy which should be free from the fallacies which attach to any author's account.

TYPES OF BACTERIAL INFECTION PRESENTING SIMPLEST PROBLEMS.

In conclusion, let me attempt to summarize briefly my personal experience of the practical results of vaccine therapy. You will, of course, appreciate that no one formula could possibly apply to all the various forms of infection which are encountered.

It will be well to commence with the type of bacterial infection which presents the simplest therapeutic problem.

(a) *Penetration of Single Species of Micro-organism into Body.*—In this type of infection, a single species of micro-organism has penetrated into the interior of the body and has established itself below the surface in one or more foci without causing any considerable destruction of tissue or constitutional disturbance.

Typical examples of this type are found in cases in which tubercle bacilli have effected a lodgment in lymphatic glands and in which staphylococci have penetrated into the subcutaneous tissue, causing as yet only suppurative (furuncular) as distinguished from necrotic (carbuncular) changes. In this type of infection, all but uniformly successful results have been achieved in my experience by vaccine therapy. In furunculosis, those results are achieved within a period of a few days. In tuberculous infection of the lymphatic glands the period required has varied, according to the extent of the infection and the patient's power of immunizing response, between five weeks and eighteen months. On the average it has been about six months.

What applies to tuberculous infection of the lymphatic glands applies in a general way also to tuberculous infection of the testicle and to simple tuberculous infection of the kidney and urinary passages. It applies also—but on this question I speak with a reserve imposed on me by very restricted experience—to early cases of tubercle of the lungs.

(b) *Ulcerative Type of Infection.*—In my experience this type of infection—a type which is met in connection with the breaking down of nodules in the deeper tissues or, as the case may be, with the penetration of superficial infections into those tissues—does not differ with respect to its tractability to vaccine therapy from the type of infection last considered, except when secondary infections have supervened. If anything—when secondary infections have either been avoided or successfully combated—an open ulcer is more tractable to vaccine therapy than a localized infection in the deeper tissues. It will be clear that every ulcer which starts from the surface ultimately makes its way down to a lymph-bearing stratum, and that as soon as it has done this the lymph stream which has been tapped will well up through the floor of the ulcer, coming in contact, as it does so, with the infecting micro-organisms.

(c) *Infections of the Skin.*—Infections of the skin fall naturally into two categories. When the infected skin is comparatively dry and scaly and non-vascular we are dealing with a form of infection which, in my experience, is extremely intractable to vaccine therapy. A typical example of such an intractable type of skin infection is furnished by the superficial scaly form of lupus which, from the point of view of its superficial resemblance to psoriasis, has been appositely denoted *lupus psoriasis.* Where the skin is vascular or, as the case may be, where we have a pustular form of infection as, for instance, in the case of pustular acne and pustular staphylococcal sycosis, we have, on the contrary, a form of type of infection which is very tractable to vaccine therapy.

(d) *Infections of Mucous Membranes and of the Glands and Ducts Connected Therewith.*—Infections of mucous membranes, in my experience, are readily influenced by vaccine therapy. I have obtained or had experience of successful results in many different infections of the mucous lining of the ear, antrum, nose, nasal sinuses, dental alveoli and salivary glands, also in bacillus coli infections of the intestinal mucous membrane and gall bladder, and in many different infections of the uterus, urinary bladder and urethra.

I would direct special attention to two points in these infections. The first relates to the question of mixed infection. It is plain that when we are dealing with bacterial infections of mucous membranes, which normally harbor on their surfaces numerous species of bacteria, the expulsion restriction of numbers of the peccant micro-organism—a restriction which can readily be achieved by vaccine therapy—may often be followed, when the mucous membrane has suffered in such a way as to lose its power of resistance, by a multiplication of some other competing form of micro-organism. My second point relates to the ease of bladder infections. Here there is generally a bacteriuria in addition to the infection of the mucous membrane. Now it does not by any means follow that the extinction of the infection of the mucous membrane—which, judging from the abatement of the cystitis, can often be readily obtained by vaccine therapy—will be followed by a cessation of the bacteriuria. This last-mentioned result, however, has, be it noted, already been obtained by the agency of vaccine therapy in five of the cases which I have treated.

(f) *Infections of Sinuses.*—In my experience, successful results are obtained when the inoculation of bacterial vaccines is combined with the course of treatment prescribed on page 568 (c).

(g) *Mixed Infections.*—Before discussing the results which have been obtained by vaccine therapy in mixed infections an introductory word may be appropriate. While the suggestion that mixed infections must be expected, in the common suppurative processes which occur in connection with surfaces which harbor microbes, may well be universally acceptable as not breaking in on any accepted ideas, the suggestion that mixed infection must perforce be considered in every case of phthisis, lupus, tubercular caries, tubercular cystitis and tubercular ulceration, in the very nature of things, will be unacceptable to many clinicians. Such a suggestion will be felt to throw doubt not only on the clearness of vision of those who have sought for antituberculous remedies in these diseases, but also on the critical acumen of those who, without taking into account the fallacies which are incidental to clinical methods have confidently undertaken to pass final judgment on antituberculous remedies by the observation of their clinical effects in cases in which, in addition to the tubercle bacillus, other pathogenetic microbes may have been at work.

Be it acceptable or unacceptable, there is no escape from the fact that practically every case of suppurating lupus is complicated by staphylococcus infection, and every aggravated case of lupus with a streptococcus infection. What holds true of lupus holds true *mutatis mutandis* of every tuberculous affection to which microbes can find access.

RESULTS OBTAINED BY VACCINE THERAPY.

Having appreciated the magnitude and the far-reaching nature of the issues involved in the treatment of mixed infections, we may come to the question of the results achieved in these cases by vaccine therapy. We have two cases to consider.

(a) *Case in which Vaccine Therapy is Directed to the Destruction of Only One of the Infecting Microbes.*—In a few instances, notably in two cases in which there was found in association with a typical furunculosis a mixture of streptococci and staphylococci, the extinction of one of the microbes under the influence of the corresponding vaccine has indirectly led to the extinction of the other. This event, however, is extremely exceptional. In most cases, the employment of vaccine therapy directed to the destruction of a single species of microbe leaves the other species quite unaffected. It may even—and this applies in particular to surface infections of mucous membranes or ulcers—conduce to the multiplication of the competing microbe.

(b) *Case in which Vaccine Therapy is Directed to the Destruction of All the Infecting Microbes.*—When in cases of mixed infection measures are taken to immunize the patient against each of the different infections successful results have been achieved, notably in lupus, cystitis, and endometritis. While naturally the task of the immunizator is more laborious and more intricate in case two or three different vaccines are employed, it would seem that the organism of the patient does not find the task of responding to a series of different vaccines (always supposing that each of these is administered in appropriate and properly interspaced doses) more difficult than the task of responding to one variety of vaccine only.

(c) *Generalized Infections.*—In association with my fellow-workers, up to the present I have treated by vaccine therapy some half-dozen cases of Malta fever and an equal number of cases of streptococcal septicemia. In each of the cases of Malta fever the course of the disease would seem to have been favorably influenced, the clinical improvement standing in each case in relation with an increased development of antibacterial substances in the blood.

In the cases of streptococcal septicemia the results have been as follows: In two cases—one of these being a case of malignant endocarditis—a complete cure was achieved, in each case in association with a very satisfactory immunizing response. In a third case—also a case of malignant endocarditis—the high temperature which had lasted for three months before vaccine therapy was resorted to, came down to normal under the influence of the inoculations, the patient making an excellent immunizing response. In this case, death by cardiac complication occurred on the fourth day after defervescence. In three other cases of streptococcal endocarditis the patient succumbed, having in each case failed to make any immunizing response to the inoculations.

EVOLUTION OF MEDICAL EDUCATION IN THE ARMY.

PHILIP F. HARVEY, M.D.
Colonel and Assistant Surgeon-General, U. S. Army, Chief Surgeon Department of the Lakes.
CHICAGO.

The recognition of the vital relation that a well organized and trained sanitary personnel bears to the efficiency of an army in the field has been of slow growth and there is yet an inadequate appreciation of that relationship in certain quarters, notwithstanding the awful lessons taught by sanitary unreadiness in many wars of recent times.

It would appear that there is still cherished a belief among many otherwise well informed persons that in the event of war an abundant number of skilled physicians and surgeons would be available for duty with troops. That is true, but the essential prerequisites of military training for the military physician is lost sight of. The well equipped military surgeon must understand, in addition to his purely professional duties, the complex subjects of medical administration, including the customs of the service; the hygiene of posts and camps; the service of the front and rear, during and after a battle; the establishment of field hospitals, of dressing and ambulance stations; the school of the soldier; the Hospital Corps drill; methods of removing wounded without litter; inspection and muster; the ration—how obtained and how managed; the preparation of reports—daily, every ten days, monthly, bimonthly, quarterly, semi-annually, yearly and occasionally; requisitions for medical supplies and clothing; and many other matters too numerous to mention at this time. The all-round medical officer is the product of special education and training and does not emerge ready for duty with troops from the lecture or dissecting room, or even from the ranks of experienced practitioners.

Most all governments have established medical schools for the education of the army medical department, and so necessary is this training of the military surgeon that the Secretary of War, on the recommendation of the Surgeon-General, then General Sternberg, directed the establishment of an Army Medical School in the city of Washington in 1893 for the instruction of approved candidates for admission to the medical corps in their duties as medical officers. The term at first occupied four months, from November 1 to February 28, but under the administration of General O'Reilly it has been extended to eight months, from October 1 to May 31, and medical officers of the militia are included among those eligible for admission. Under General O'Reilly also a change was made in the system of examining candidates to determine their fitness for admission to the corps. A preliminary examination of applicants is held at military posts in various parts of the country near the larger cities in order to reduce the expense of the candidate to the minimum. This examination is preceded by an investigation as to the physical condition of the applicant, and if this is found to be satisfactory he is examined in anatomy, physiology, practice of medicine and surgery and general and military hygiene. Those who are successful in passing this examination become student candidates, are given the appointment of contract surgeon and ordered to Washington to attend the next term of the Army Medical School. They receive mileage when traveling under orders which more than covers their traveling expenses and are paid $100 a month while in attendance at the school. At the close of the term all candidates are subjected to a rigid physical and professional examination and those found qualified are appointed in the order of their standing to fill existing vacancies in the Medical Department.

To stimulate emulation and reward industry students who receive at least 80 per cent. are rated as "proficient" and those who reach 90 per cent. or over are rated as "proficient with honor" on certificates of graduation, and those commissioned in the Medical Corps are borne on the Army Register as "graduates" or "honor graduates" as the case may be. During the course the students are subject to military discipline and their character, habits and general deportment closely observed, and if for any valid reason a student candidate for commission is deemed undesirable his contract may at any time be annuled by the Surgeon-General.

The school consists of a president and such instructors, assistant instructors, student officers, student candidates and enlisted men as may be assigned to duty with it by the War Department. The course of instruction is both theoretical and practical and embraces the following subjects:

1. Duties of medical officers.
2. Medical Department administration and customs of the service.
3. Military hygiene.
4. Clinical microscopy.
5. Military surgery.
6. Tropical medicine.
7. Sanitary chemistry.
8. Hospital Corps drill.
9. Operative surgery.
10. Ophthalmology and optometry.
11. Military medicine.
12. *X*-ray work.
13. Equitation.

Candidates for graduation are examined in the above subjects, and student candidates in the following additional subjects, viz.:

14. Surgery.
15. Practice of medicine.
16. Diseases of women and children.
17. Obstetrics.
18. Hygiene.
19. Bacteriology.
20. Pathology.

The regulations for the school are very comprehensive and provide for all contingencies, but it is unnecessary to enumerate them, the educational features being the only ones which will be of interest here. They embrace every subject necessary to thoroughly equip the young medical officer for the duties he will ordinarily be called on to perform, and the practical outcome has been to bring the corps to the highest degree of professional efficiency.

In regard to the attendance and graduation of medical officers of the organized militia at the Army Medical School, I think it is a matter which should be encouraged. Great benefit will eventually result to the cause of military sanitation from the diffusion of the information there gained, and for that reason I believe the militia graduates of the school should return to their regiments and take up the duty of instructing other surgeons connected with state troops. It is obvious that this will result in much benefit to the cause of military sanitation, and although a slow process I think it will be acknowledged to be better than the much slower and more imperfect mode at present in use.

A complete system of military education for the entire army has by degrees been perfected and covers every arm and department of the service. The schools comprised in this system in addition to the Army Medical School are:

1. The Military Academy at West Point for the education of cadets.
2. Post schools for the instruction of enlisted men.
3. At each military post a garrison school for the instruction of officers in the subjects pertaining to their ordinary duties.
4. Special service schools—
   (a) The Artillery School at Fort Monroe, Va.
   (b) The Engineer School, Washington Barracks, D. C.
   (c) The School of Submarine Defense, Fort Totten, N. Y.
   (d) The School of Application for Cavalry and Field Artillery, Fort Riley, Kansas.
   (f) The Signal School, Fort Leavenworth, Kansas.
   (g) The Infantry and Cavalry School, Fort Leavenworth, Kansas.
5. The Staff College, Fort Leavenworth, Kansas.
6. The Army War College, Washington, D. C.
7. The Military department of civil institutions at which officers of the army are detailed under the provisions of law.

The army in time of peace may be regarded as a vast educational institution. At many of these schools a course in military hygiene is included in the curricula. At West Point instruction in this subject is given by a professor of military hygiene, who is a medical officer and a member of the academic board. At the infantry and cavalry school, Ft. Leavenworth, and at the garrison schools for artillery, infantry and cavalry military hygiene is taught.

By General Orders No. 128, War Department, Series of 1906, officers of cavalry and infantry for promotion from second to first lieutenant and from first lieutenant to captain must pass an examination in military hygiene sufficiently extended to show familiarity with the subjects as treated in the authorized text-book.

Officers of the artillery corps for promotion from second lieutenant to first lieutenant are required to pass an oral examination in military hygiene.

Naturally all men of the Hospital Corps are instructed under the supervision of medical officers in the duties of litter bearers and the methods of rendering first aid to the sick and wounded and in the various subjects pertaining to the sanitary soldier.

In addition to this, special instruction in the methods of rendering first aid to the sick and wounded is given to all enlisted men of the line of the army by their company officers.

From the above hasty summary of the educational work being done in our army it is evident that the importance of the sanitary care of troops is becoming more and more recognized and that in time it will come fully into its own and be regarded as of equal importance in conducting campaigns and gaining victories as tactics, strategy, marksmanship or any other single measure on which success may depend.

NUMERICAL STATEMENT OF EXAMINATION OF APPLICANTS FOR APPOINTMENT IN THE MEDICAL CORPS OF THE ARMY FROM JAN. 1, 1888, TO DEC. 31, 1906.

Year.	Number of applicants examined.	RESULTS OF EXAMINATION							
		Approved.		Physically disqualified		Withdrew		Rejected	
		Num.	Per ct.	Num.	Per ct.	Num.	Per ct.	Num.	Per ct.
1888	24	2	8.33	6	25.	13	54.17	3	12.5
1889	45	6	13.33	15	33.33	14	31.11	10	22.22
1890	40	6	15.	6	15.	3	7.5	25	62.5
1891	43	10	23.26	13	30.23	10	23.26	10	23.26
1892	59	12	20.34	13	22.03	21	35.6	13	22.03
1893	59	13	22.03	13	22.03	2	3.39	31	52.55
1894*	....	....	.....	....	.....	....	.....	....	.....
1895	41	5	12.2	17	41.46	2	4.88	17	41.46
1896	39	8	20.51	11	28.2	3	7.7	17	43.59
1897	34	6	17.65	8	23.53	9	26.47	11	32.35
1898	178	33	18.54	44	24.72	18	10.11	83	46.63
1899*	....	....	.....	....	.....	....	.....	....	.....
1900	82	28	34.15	11	13.41	21	25.61	22	26.83
1901	308	65	21.11	97	31.49	56	18.18	90	29.22
1902	191	46	24.08	38	19.9	74	38.74	33	17.28
1903	131	25	19.08	35	26.72	40	30.54	31	23.66
1904	67	11	16.42	19	28.36	4	5.97	33	49.25
Totals	1341	276	20.58	346	25.8	290	21.63	429	31.99

*No examination.

Note.—Prior to July 1, 1904, the examination embraced inquiry into all branches of medical education, with appointment of approved applicants at its termination. The examination prescribed in "Circular of Information" approved by Secretary of War, June 21, 1904, consisting of a preliminary examination, a course of instruction at the Army Medical School, and a final or qualifying examination has obtained since July 1, 1904.

Year.	Number of applicants examined.	PRELIMINARY EXAMINATION.							
		Qualified.		Physically disqualified		Withdrew.		Rejected.	
		Num.	Per ct.	Num.	Per ct.	Num.	Per ct.	Num.	Per ct.
1904	18	3	16.67	3	16.67	2	11.11	10	55.55
1905	64	19	29.69	15	23.44	4	6.25	26	40.62
1906	88	13	14.78	26	29.54	6	6.82	43	48.86
Totals	170	35	20.59	44	25.88	12	7.06	79	46.47

Year	Student candidates examined.	QUALIFYING EXAMINATION.					
		Approved.		Physically disqualified		Rejected.	
		Num.	Per ct.	Num.	Per ct.	Num.	Per ct.
1904							
1905	4	4	100.				
1906	16	11	68.75	2	12.5	3	18.75
Totals	20	15	75.	2	10.	3	15.

Note: The percentage of candidates admitted to the medical department has progressively increased, as shown by the table. This is undoubtedly due to improved educational requirements by many medical colleges throughout the country. The admissions for 1905 and 1906 are very large on account of the requirement of a second examination for admission after an attendance of nine months at the Army Medical School in Washington.

Clinical Notes

BILATERAL TUBAL PREGNANCY.

HARRY GREENBERG, M.D.
MILWAUKEE, WIS.

History.—Mrs. M. B., aged 29, married 6 years, has one child 3 years old, no miscarriages, menses always regular and normal. The last menstruation occurred as usual after 28 days, but was accompanied by considerable pain, which necessitated her taking to bed. A piece of membrane was passed on the third day, after which the pain and flow ceased. The physician consulted diagnosed miscarriage and advised removal to a hospital for curettement. I saw her for the first time on the following day at the hospital.

Examination.—Patient a medium-sized woman, poorly nourished, very anemic, mucous membranes almost white and skin of a dirty sallow color. She said she was always pale. She complained of feeling weak, loss of appetite, restlessness and sleeplessness. No pain. Temperature 101.8 F., pulse 100. Thoracic and abdominal organs negative. Uterus slightly enlarged and somewhat tender at the fundus. Uterine adnexa somewhat thickened. A waiting course was advised. After a few days her temperature and pulse came down to normal and her general condition improved markedly. This condition continued unchanged for six weeks. At the end of that period while resting comfortably in bed she suddenly developed a chill, her temperature rose to 102.8 F. and she appeared in general considerably depressed. On micturition passed dark red blood along with the urine. Under stimulations her general condition improved, while the bladder symptoms continued unabated; blood was passed in large quantities at frequent intervals. Local aplications to the interior of the bladder seemed to aggravate the condition. A pelvic examination three days later revealed the uterus enlarged, tender to the touch and situated high up in the pelvic cavity. On either side of the uterus was a soft, semi-fluctuating mass of about the size of a hen's' egg; these masses having evidently developed during the past six weeks, and from the fact that she has not again menstruated a diagnosis of ectopic gestation with the possibility of the rupture of the ectopic sac into the bladder was made. Surgical intervention was advised and consented to.

Operation.—Fluid and clotted blood was found in lower abdomen. Several coils of intestines firmly adherent to pelvic organs. On separating the adhesions a sausage-shaped mass, bleeding from its distal extremity and continuous with the left horn of the uterus was found and removed. This proved to be the left Fallopian tube filled with clotted blood and membrane and ruptured at its fimbriated end. On the right side a similar but larger mass was found. This mass rested slightly on the interior uterine wall, but mainly on the bladder wall between its peritoneal attachment to the uterus and the symphysis pubis, and was firmly adherent to that viscus. On separating it from the bladder, a rent about $\frac{1}{8}$ inch in diameter was disclosed in the bladder wall, corresponding to a similar rent in the removed mass. This mass, like the first, proved to be an ectopic tube.

This case is reported because of the rarity and significance of the bladder complication. There seems to be no adequate reason for the rupture of the bladder to have taken place. No history of bladder trouble that might have weakened its walls could be elicited. Ocular and manual examination revealed no diseased condition there. The path of least resistance could certainly not be considered in this instance. I can only explain it as one of Nature's freaks which can not generally be accounted for, but for which the surgeon need always be on his guard.

A CASE OF INDURATING EDEMA OF THE PENIS.

O. L. SUGGETT, M.D.
ST. LOUIS.

Attracted by the paper of Dr. Taylor on indurating edema in The Journal, July 13, I am led to report the following case. I agree with him as to the extreme rarity of this condition, having encountered but this single case in seven years of private and dispensary practice, the latter comprising a clinic of from one hundred and fifty to two hundred cases of syphilis monthly. In my available text-books I find indurating edema mentioned specifically in but two, Mracek and Gottheil, the latter classifying it as a variety of the initial lesion, the former supplementing a short description of the condition with an excellent water color reproduction depicting the condition in a labium majus. In the light of my present information I believe I have observed a few such cases in the secondary period in women, but I was unable at the time to place them in their proper category.

History.—My case began in no unusual manner, the initial lesion being quite ordinary, small, exulcerated, situated in the sulcus, imbedded in an induration very moderate in extent and hardness and fairly well defined. The patient had a prepuce which entirely covered the glans and which was easily retracted, but in the second week of the evolution of the chancre it began to assume the indurating edema which finally entirely prevented its retraction. The induration extended gradually over the skin of the entire penis back to a point near its root.

Examination.—On palpation the condition feels in no way like the ordinary edema of lymphangitis, which is a complication of many venereal cases, being firm and elastic and violaceous in color, nor yet was it hardly as firm as the sclerosis surrounding an ordinary chancre, this difference being noticeable at the margin of the site of infection, where it merged into the indurative edema of the contiguous skin. The condition was very obstinate and remained long after the chancre had healed. In proper time he developed an ordinary macular eruption interspersed here and there with a few papules.

Subsequent History.—I lost sight of him, but at the time of his disappearence, although his other symptoms were on the wane, there was but little, if any difference in the size or consistency of the penis. There was a sufficient subsidence in the acute inflammatory condition of the chancre and its immediate vicinity to permit me to separate the prepuce from the glans sufficiently to see that it was healed. I can not say, however, what the ultimate results of prolonged and proper treatment would have been.

The Physician's Remuneration.—A poorly supported doctor is generally one who can not keep up-to-date in mental equipment or in instrumental armamentarium and the patients of that man will suffer.—*California State Journal of Medicine.*

MEDICAL SCHOOLS OF THE UNITED STATES

Below is given a brief description of the medical colleges in the United States that are legally chartered to confer the degree of doctor of medicine, and whose diplomas are recognized by at least one state licensing board. The list includes the sectarian as well as the regular colleges, as their graduates are physicians in the eyes of the law. The information given is obtained from reports and from the catalogues and has been submitted to the dean of each school for his inspection and approval. Colleges which belong to the Association of American Medical Colleges or the Southern Medical College Association or other organization of colleges have requirements for admission of students according to the rules of these associations, unless their requirements are higher, in which case a statement is made to that effect. Extracts from these rules are given at the close of the list of colleges. Population figures for states are taken from the United States Bureau of Education estimates for 1905, and for cities from the United States Census Bureau's estimate for 1903.

ALABAMA.

Alabama, population 1,986,347, has two medical colleges, the Medical College of Alabama and the Birmingham Medical College, located in Mobile and in Birmingham. The population of Mobile is 40,686 and of Birmingham 42,087. Board and room may be obtained from $12 to $20 per month.

Birmingham.

Birmingham Medical College.—This school was incorporated in 1894 and is situated in Birmingham. The Hillman, St. Vincent's, Pratt and County hospitals are accessible to the students. There are 18 professors and 9 assistants, total 28. The school is a member of the Southern Medical College Association. The course of instruction embraces four separate sessions of six months each. The fees are $75 for each of the first three years and $100 for the fourth. The Dean is Dr. B. L. Wyman. Registration, 1906-7, 113; graduates, 12. The fourteenth session opens Oct. 2, 1907, and closes April 2, 1908.

Mobile.

Medical Department of the University of Alabama.—This school was organized in 1859 as the Medical College of Alabama. It became the Medical Department of the University of Alabama in 1897. Name changed to the above in 1907. The faculty consists of 8 professors and 15 lecturers and assistants, a total of 23. The City Hospital furnishes clinical material. The college is a member of the Southern Medical College Association. The course of study covers four years of seven months each. The total fees for each of the first three years is $100; for the fourth year, $125. The Dean is Dr. George A. Ketchum. Total registration, 1906-7, 170; graduates, 28. The forty-second session will begin Oct. 2, 1907, and will close May 1, 1908.

ARKANSAS.

Arkansas, population 1,403,239, has two medical colleges, both located in Little Rock, a city of 42,036 people. Board and lodging cost from $13 to $18 per month.

Little Rock.

University of Arkansas Medical Department.—This college was organized in 1879 as the Arkansas Industrial University Medical Department. The faculty consists of 15 professors and 20 lecturers and assistants, total 35. Hospital facilities are furnished by Logan H. Roots Memorial Hospital, St. Vincent's Infirmary and Pulaski County Hospital, the latter having a capacity of 200 beds. The course of study covers four years of seven months each. The Secretary is Dr. F. L. French. The fees are: Matriculation, $5, paid but once; tuition, per year, $60; graduation fee, $25. Total registration, 1906-7, was 182; graduates, 26. The twenty-ninth session begins Oct. 1, 1907, and ends May 1, 1908.

College of Physicians and Surgeons.—This college was organized in 1906, and has a faculty of 25 professors and 14 lecturers and assistants, a total of 39. It occupies the buildings formerly used by the Maddox Seminary. The course of study covers four years of seven months each. The Dean is Dr. J. P. Runyan. The total enrolment for 1906-7 was 87; graduates, 11. The second session begins Oct. 2, 1907, and ends April 30, 1908.

CALIFORNIA.

California, population 1.620,883, has seven medical colleges. Four are located in San Francisco, a city having, before the earthquake, 355,919 inhabitants. They are Cooper Medical College, Medical Department of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. Board and lodging can be obtained for from $20 to $30 a month. The College of Medicine of the University of Southern California and the College of Physicians and Surgeons are situated in Los Angeles, population 116,420. Board and lodging can be obtained in that city for $4 a week and upward. The Oakland College of Medicine and Surgery is in Oakland, population 70,386.

Los Angeles.

University of Southern California College of Medicine.—This school was organized in 1885, and has a faculty of 29 professors and 19 instructors, 48 in all. The County Hospital having 200 beds, the Emergency Hospital of 160 beds, the Children's Hospital of 20 beds, and a college dispensary furnish clinical material. This college is a member of the Association of American Medical Colleges, and gives no admission examination. The course covers four years of eight months each. The fees for each year are $115. The Dean is Dr. William D. Babcock. Total registration for 1906-7 was 99; graduates, 27. The twenty-third session opens Oct. 3, 1907, and closes June 11, 1908.

College of Physicians and Surgeons.—This school was organized in 1903. The course covers four years of nine months each. The faculty consists of 28 professors and 11 lecturers and instructors, a total of 39. The Dean is Dr. Charles W. Bryson, Delta Building, Los Angeles. The registration for 1906-7 was 34; graduates, 2. The fifth session begins Sept. 26, 1907, and ends June 26, 1908.

Oakland.

Oakland College of Medicine and Surgery.—Organized in 1900; opened in 1902; first class graduated in 1906. The length of the course is nine months. The classes are limited to ten students each. The Registrar is Dr. Edward N. Ewer. The faculty numbers 28. Tuition is $150 yearly. Total registration, 1906-7, 10; graduates, 2. The sixth session begins Aug. 19, 1907, and ends May 22, 1908.

San Francisco.

Cooper Medical College.—This school was organized in 1858, though its present name was not adopted until 1882. The faculty consists of 18 professors and 41 lecturers, instructors, etc., 59 in all. Lane Hospital, adjoining the college, the City and County Hospital, containing 464 beds, and the college dispensary furnish clinical material. This school is a member of the Association of American Medical Colleges. The course covers four years of eight and a half months each. Fees: Matriculation, $5; course fee for each year, $150; laboratory fee for each year, $10; breakage deposit each year, $10; graduation fee, $25; no other charges. The Dean is Dr. Henry Gibbons, Jr. Total registration for 1906-7 was 112; graduates, 29. The thirty-ninth session opens Aug. 15, 1907, and closes May 8, 1908.

University of California Medical Department.—This department of the State University was organized in 1872, and has a faculty composed of 18 professors, 44 associates and assistants, a total of 62. The City and County Hospital and the college dispensary furnish good clinical material. The college also has its own hospital with 43 beds. The course covers four years of nine months each. This school is a member of the Association of American Medical Colleges. Two full college years' work is required of all applicants for admission. The fees are: Matriculation, $5; tuition, $150 each year; laboratory fees extra. The Dean is Dr. Arnold A. D'Ancona. Total registration for 1906-7 was 54; graduates, 24. The thirty-fifth session opens Aug. 15, 1907, and will close May 15, 1908.

College of Physicians and Surgeons of San Francisco.—This school was organized in 1896 and has a faculty of 28 professors and 15 associate professors and teachers, a total of 43. The hospital facilities consist of the City and County Hospital and St. Winifred Hospital, with 50 beds. Attendance on four terms of at least 30 teaching weeks each is required for graduation. Fees, $100 per year. The Dean is Dr. D. A. Hodghead. Registration for 1906-7 was 79; graduates, 16. The twelfth session opens Sept. 16, 1907, and closes May 14, 1908.

Hahnemann Medical College of the Pacific.—Homeopathic. This school was organized in 1884. The Dean is Dr. James W. Ward, 606 Sutter St., San Francisco. Total enrolment for 1906-7 was 28; graduates, 2. The twenty-fifth session begins Sept. 12, 1907, and will close May 23, 1908.

COLORADO.

Colorado, with a population of 539,700, has three medical colleges. Two of these, Denver and Gross College of Medicine and Westminster University College of Medicine, are in Denver, which has a population of 144,588; the other, the Colorado School of Medicine, is at Boulder, population 6,150. Board can be obtained in Denver for $5 a week and upward.

Boulder.

Colorado School of Medicine.—This is the Medical Department of the University of Colorado, and was opened in 1883. The University Hospital, under the control of the state, and equipped to accommodate 40 patients, and the Sanitarium furnish clinical material. Both hospital and dispensary clinics are offered and the sanatorium located at Boulder offers additional advantages in this line. The faculty embraces 18 professors and 9 lecturers and assistants, a total of 37. This school is a member of the Association of American Medical Colleges. The work embraces a graded course of four years of nine months each. The tuition is $50 per year; there are no other fees. The Dean is Dr. Luman M. Giffin. Total registration for 1906-7 was 58; graduates, 12. The twenty-sixth session begins Sept. 11, 1907, and closes June 7, 1908.

Denver.

The Denver and Gross College of Medicine.—This is the Medical Department of the University of Denver, and was organized in 1902 by the union of the Gross Medical College (organized 1887) and the Denver College of Medicine (organized 1880). The college dispensary, the Denver County Hospital, St. Luke's Hospital, St. Anthony's Hospital, St. Joseph's Hospital, National Jewish Hospital for Consumptives, Home for Dependent Children, the City Contagious Hospital and Mercy Sanitarium furnish clinical material. The faculty is made up of 34 professors, 36 assistants and instructors, a total of 70. The course covers four years of eight months. The college is a member of the Association of American Medical Colleges. Fees for the first year are $115. For the second year, $116. Third year, $101. Fourth year, $126. Total registration, 1906-7, was 101; graduates, 29. The twenty-sixth session will begin Sept. 10, 1907, and close May 15, 1908. The Dean is Dr. S. G. Bonney.

Westminster University College of Medicine.—This school was organized in 1894 as the Denver Homeopathic College, but in 1907 became non-sectarian, with the above name. Clinical facilities are furnished by the City and County Hospital, the Park Avenue Hospital and the Tabernacle Free Dispensary. The faculty numbers 87. The course of study covers four years of eight months each. Fees: A five-year scholarship, $350, payable in advance, otherwise tuition is $135 a year; matriculation fee, $5, payable but once. The Dean is Dr. J. B. Kinley. Total registration for 1906-7 was 42; graduates, 6. The thirteenth session begins Sept. 9, 1907, and ends May 14, 1908.

CONNECTICUT.

Connecticut, with a population of 989,500, has only one medical college, located in New Haven, population 114,600. Board and lodging cost $4.50 and upward per week.

New Haven.

Yale Medical School.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and in 1818 it was organized as the Medical Institution of Yale College. In 1879 the name was changed to the one now used. Clinical material is furnished by the New Haven Hospital, having 175 beds, Springside Hospital, the State Hospital for the Insane with its 1,800 patients, and a college dispensary. The faculty consists of 12 professors and 44 lecturers and assistants, a total of 56. The course covers four years of nine months each. This college is a member of the Association of American Medical Colleges. The fees are $150 each year; in the first year there are additional fees amounting to $18, and in the second, $8, and there is a graduation fee of $10. The Dean is Dr. Herbert E. Smith, New Haven. During the session of 1906-7 there were 153 matriculants and 29 graduates. The ninety-fifth sessions opens Sept. 26, 1907, and closes June 24, 1908.

DISTRICT OF COLUMBIA.

Washington, population 293,217, has three medical colleges; George Washington University Department of Medicine, Georgetown University School of Medicine and Howard University Medical Department. Board and lodging can be had at reasonable rates.

Washington.

The George Washington University, Department of Medicine.—This school was organized in 1821 as the Department of Medicine of Columbian College, which in 1873 became Columbian University, and in 1904, by an act of Congress, changed its name to the George Washington University. The University Hospital, the Garfield Hospital, the Children's Hospital, the Central Dispensary and Emergency Hospital, the Providence Hospital, the Columbia Hospital, the Episcopal Eye and Ear Hospital, the U. S. Government Hospital for the Insane, and the Lutheran Eye and Ear Infirmary afford opportunities for clinical instruction. The faculty is composed of 40 professors and 41 instructors, demonstrators and assistants. This school is a member of the Association of American Medical Colleges. Beginning with the session of 1909-10 matriculants must present credentials of two years' work in a college of liberal arts or its equivalent. A combined course of six years' work, leading to the degrees of A.B. and M.D. is offered. The course of instruction extends through four years of eight months each. The total fees for the first year are $157; for the second year, $152; for the third year, $112, and for the fourth year, $162. A breakage deposit of $5 is required. The Dean is Dr. W. F. R. Phillips, 1607 16th St., N. W. The total registration for 1906-7 was 215; graduates, 63. The eighty-sixth session begins Sept. 25, 1907, and closes June 8, 1908.

Georgetown University School of Medicine.—This school organized in 1850, controls the Georgetown University Hospital, which affords clinical facilities. Clinics are also held in Providence Hospital, containing 500 beds, at the Government Hospital for the Insane, containing over 2,000 beds; in the Children's Hospital, the Central Dispensary, Emergency Hospital and the Garfield Hospital. The faculty contains 19 professors, 54 instructors and assistants, total, 73. The school is a member of the Association of American Medical Colleges. The course of study extends over four terms of eight and one-half months each. The fees are $150 each year. The Dean is Dr. George M. Kober, 1600 T St. The registration for 1906-7 was 82; graduates, 12. The fifty-seventh session opens Sept. 27, 1907, and ends June 11, 1908.

Howard University Medical Department.—This institution was organized in 1867, and is open to all, without regard to sex or race. Colored students compose a majority of those in attendance. The Freedman's Hospital is a general hospital of 300 beds. The faculty comprises 17 professors and 27 lecturers and assistants, 44 in all. This college is a member of the Association of American Medical Colleges. The course covers four years of eight months each. The fees of each session are $100, plus $10 for graduation. The Dean is Dr. Robert Reyburn, 2129 F St. Registration for 1906-7 was 186; graduates, 44. The fortieth session begins Oct. 1, 1907, and closes June 1, 1908.

GEORGIA.

Georgia, population 2,405,821, has five medical colleges; Medical College of Georgia, located in Augusta, population 41,283; Atlanta College of Physicians and Surgeons, Atlanta School of Medicine, Georgia School of Eclectic Medicine and Surgery, and the International Medical Missionary College, are in Atlanta, a city of 96,550 population. Board and lodging may be obtained for from $3 to $5 per week.

Atlanta.

Atlanta College of Physicians and Surgeons.—This school was formed in 1898 by the consolidation of the Atlanta Medical College, organized in 1854, with the Southern Medical College, organized in 1879. It has a faculty of 19 professors and 22 assistants, a total of 41. Clinical facilities are furnished by the Grady Hospital. The course of study covers four years of seven months each. Fees: First and second years, $75 each; third and fourth, $100 each. The Dean is Dr. W. S. Elkins, 29 Luckie St. Total registration of students for 1906-7 was 200; graduates, 37. Next session begins Oct. 1, 1907, and closes May 1, 1908.

Georgia College of Eclectic Medicine and Surgery.—This school was organized in 1839 and has a faculty of 16. The Proctor is Dr. Elzie B. Thomas, 121 Park St., West End. Total number of students for 1906-7 was 76; graduates, 12. The next session opens Oct. 3, 1907, and closes April 1, 1908 (about).

Atlanta School of Medicine.—This school was organized in 1905. The course covers four years of seven months each. Enrolment for 1906-7 was 233. Number of graduates, 20. The third session begins Sept. 27, 1907, and ends April 30, 1908. The Dean is Dr. George H. Noble. The Proctor is Dr. Edward G. Jones.

International Medical Missionary Medical College.—This school was organized in 1905. Enrolment for 1906-7 was 12; 1 graduate. The Dean is Dr. J. McFadden Gaston.

Augusta.

Medical College of Georgia.—This school was organized as a medical academy in 1829, and in 1873 was made the Medical Department of the University of Georgia. Its faculty includes 18 professors and 12 assistants, 80 in all. The course is four years of seven months each. This school is a member of the Southern Medical College Association. The City Hospital, with 130 beds; Lamar Hospital, with 80 beds; the Polyclinic and the Hospital for Contagious Diseases supply clinical material. Fees for the first two years are $75 each; third year, $100, and $130 for the last year. The Dean is Dr. Joseph Eve Allen. The total enrolment for 1906-7 was 98; graduates, 20. The seventy-sixth session begins Oct. 1, 1907, and ends May 1, 1908.

ILLINOIS.

Illinois, population 5,319,150, has fourteen medical colleges, four of which are night schools, all located in Chicago, a city of 1,873,880 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, Hahnemann Medical College, Bennett College of Eclectic Medicine and Surgery, College of Physicians and Surgeons, Hering Medical College, Jenner Medical College, Illinois Medical College, American Medical Missionary College, College of Medicine and Surgery, National Medical University, Chicago College of Medicine and Surgery, Dearborn Medical College, and Reliance Medical College. Room and board cost $3 a week and upward.

Chicago.

Rush Medical College.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 to 1898, and in the latter year became affiliated with the University of Chicago. The faculty is composed of 83 professors, 155 associates, instructors, etc., a total of 238. Clinical facilities are furnished by Cook County Hospital, caring for about 20,000 patients yearly; Presbyterian Hospital, with 250 beds; a college dispensary, and an obstetric department. The requirements for admission are those of admission to the better universities or colleges, and, in addition thereto, two years of college work. This college work must have included courses in college chemistry (inorganic, organic and qualitative analysis), college physics and biology, all with laboratory work, and a reading knowledge of German or French. The course covers four years of three quarters each, a quarter being three months. An optional fifth year, consisting of a hospital internship or of a fellowship in one of the departments is offered. A continuous session is held, but credit for more than three quarters can not be obtained in any calendar year. A combined course for six years years confers degrees of both science and medicine. All freshman and sophomore studies are given at the University of Chicago. The total fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting to from $2 to $5 annually. The Deans are Dr. Frank Billings, 100 State St., and Dr. John M. Dodson, 34 Washington St. Total registration 1906-7 was 567; graduates 83. The sixty-fifth fiscal year begins July 1.

College of Physicians and Surgeons.—This school was organized in 1881, and in 1896 became the Medical Department of the University of Illinois. The faculty is composed of 42 professors, 156 assistants and instructors, a total of 198. The West Side Hospital, containing 125 beds; Cook County Hospital, and a college dispensary and maternity clinic supply clinical material. This school is a member of the Association of American Medical Colleges. The collegiate year is divided into two terms; the winter term of thirty-six weeks and the summer term of twelve weeks, of actual teaching. Attendance on the winter term is required in order to secure credit for a year's work, and attendance on four winter terms is required for graduation. The fees are $145 each for the first two years, $150 for the third, and $175 for the fourth year. The Dean is Dr. William E. Quine, 103 State St. Total registration for 1906-7 was 501; graduates, 146. The fall term begins Oct. 1, 1907, and ends June 9, 1908.

Northwestern University Medical School.—This school was organized in 1859 as the Medical Department of Lind University, became independent as the Chicago Medical College in 1864, and in 1869 assumed its present relation as Medical Department of Northwestern University. The faculty comprises 38 professors and 78 assistants and instructors, in all 116. Wesley Hospital, with 225 beds, Mercy Hospital, containing 400 beds; Provident Hospital, 100 beds; St. Luke's, 200 beds; the Chicago Lying-in Hospital, and a college free dispensary furnish clinical facilities. Applicants for admission must, by diploma, certificate or examination, show possession of the educational requirements required to enter the College of Liberal Arts of Northwestern University. The course of study covers four years of thirty-six weeks each. Final examinations are held at the end of each semester. The fees for each year are $175, and a matriculation fee of $5, paid once, is charged. The Dean is Dr. N. S. Davis, Chicago Savings Bank Building. The total registration for 1906-7 was 473; graduates, 134. The forty-eighth session opens Oct. 1, 1907, and closes May 31, 1908.

American Medical Missionary College.—This school was organized in 1895 and has the primal object of educating men and women as missionary physicians. The faculty numbers 28. The work of the first two years is carried on at Battle Creek, Mich., and that of the last two years in Chicago. A hospital with 20 beds, in connection with the college, together with dispensaries in both cities, supply material for practical work. The college is a member of the Association of American Medical Colleges. The course covers four years of nine months each. Total fees are $80 for each of the four years. The Secretary is Dr. E. L. Eggleston, Battle Creek, Mich. Total registration for 1906-7 was 46; graduates, 10. The thirteenth session opens Sept. 17, 1907, and closes June 12, 1908.

Illinois Medical College.—This school, organized in 1894, has a faculty of 34 professors and 16 assistants, a total of 50. A college dispensary and Cook County Hospital are available for clinical study. The college is a member of the Association of American Medical Colleges. Attendance for seven months during each year is necessary for graduation. Total fees are about $125 for each year. The Dean is Dr. B. B. Eads, 103 State St. Total registration for 1906-7 was 212; graduates, 40. The thirteenth session begins Sept. 1, 1907, and ends April 10, 1908.

Jenner Medical College.—This is a day and evening school, organized in 1892. The faculty consists of 46 professors and 7 assistants, 53 in all. The course covers four years of 40 weeks each. The total fees each year are $100, with a $5 matriculation fee, paid but once. The Registrar is Dr. J. G. Tyssowski, 196 Washington St. Total enrolment for 1906-7 was 185; graduates, 19. The next session begins Sept. 3, 1907, and will end June 27, 1908.

Dearborn Medical College.—This school was organized in 1903, with a faculty of 40 professors and 5 assistants, a total of 45. The instruction, which is given in the evening, extends over a period of five years. The total fees are: $5 matriculation fee, $110 tuition, and $10 laboratory deposit. The Secretary is Dr. Paul J. Faber. Total registration for 1906-7 was 126; graduates, 26. The next session begins Sept. 2, 1907, and ends June 23, 1908.

Hahnemann Medical College.—Homeopathic. This school was organized in 1859, and has a faculty of 80. Hahnemann Hospital and a college dispensary supply clinical material. The course is four years of eight months each. Fees: Matriculation, paid once, $5; each semester, $50, and hospital tickets, $5 each for third and fourth years. The Registrar is Dr. W. Henry Wilson. Total registration 1906-7 was 136; graduates, 42. The forty-eighth session begins Sept. 30, 1907, and ends May 23, 1908.

Hering Medical College.—Homeopathic. This school was organized in 1892. Dunham Medical College, organized in 1895, was consolidated with it in August, 1902. In January, 1905, it purchased the Chicago Homeopathic College Building at 350 South Wood St., opposite Cook County Hospital, which it now occupies. The faculty comprises 35 professors and 30 associates, lecturers, etc., in all 65. Chicago Homeopathic, Frances Willard and Cook County hospitals supply clinical facilities. The course covers four years of eight months each. The total fees for a full course are $300 if paid in advance, or $100 per year. The Dean is Dr. H. C. Allen. Total registration for 1906-7 was 80; graduates, 11. The fifteenth session begins Sept. 30, 1907, and ends June 1, 1908.

College of Medicine and Surgery.—Physio-Medical. Organized in 1896. It has a faculty of 34 professors and 3 assistants. The course covers four years of eight months each. Fees for the first, second and third years, $110 each, and $115 for the fourth. The Secretary is Dr. N. La Doit Johnson, 1146 Washington Blvd. Total registration for 1906-7 was 28; graduates, 2. The next session begins Sept. 26, 1907, and ends May 17, 1908.

Bennett College of Eclectic Medicine and Surgery.—This school, organized in 1868, has a faculty of 40 professors and 12 assistants, 52 in all. The Bennett, Cook County and Baptist hospitals and a college dispensary supply clinical facilities. The course covers four years of thirty weeks each. This school is a member of the National Confederation of Eclectic Medical Colleges. Fees for each year are $100, with a matriculation fee, paid once, of $5. The Secretary is Dr. William J. Pollock. Total registration, 1906-7 was 153; graduates, 34. The fortieth session begins Sept. 24, 1907, and ends May 2, 1906.

Chicago College of Medicine and Surgery.—This school was founded in 1901 as the American College of Medicine and Surgery. Name changed to the present title in 1907. The course is four years of eight months each. Frances E. Willard and Cook County hospitals supply clinical material. The Secretary is Dr. J. N. Roe. The annual fee is $100; matriculation fee is $5. The enrolment, 1906-7 was 239; graduates, 35. The seventh session begins Sept. 25, 1907, and closes May 22, 1908.

National Medical University.—This school was organized in 1891. Total enrolment for 1906-7 was about 250; graduates, 24. The Dean is Dr. L. D. Rogers.

Reliance Medical College.—This institution has just been organized as a night school. It has leased the building and equipment of the Illinois Medical College for the hours 6 to 10 p. m. The president is Dr. J. F. Burkholder. The first session begins Sept. 2, 1907.

INDIANA.

Indiana, population, 2,678,492, has five medical colleges. Four are situated in Indianapolis, a city of 191,033 people: The Indiana Medical College, the Eclectic Medical College, the Physio-Medical College of Indiana, and the State College of Physicians and Surgeons. Board and lodging can be obtained from $3 a week upward. The School of Medicine, Indiana University, is situated in Bloomington, a city of 5,000.

Bloomington and Indianapolis.

Indiana University School of Medicine and the Affiliated State College of Physicians and Surgeons.—These affiliated schools give together the four years of the medical course, and are members of the Association of American Medical Colleges. The first two years at Bloomington were organized in 1903. The affiliated State College of Physicians and Surgeons at Indianapolis where the last two years are taught, was organized in 1906. In the college building the school maintains its own hospital of 75 beds for clinical instruction, and also a dispensary. Students are admitted directly from commissioned high schools, but in 1910 one year of collegiate work will be required. The combined faculty consists of 40 professors, 22 instructors and 15 special lecturers, a total of 77. The enrolment in 1906-7 was 109; graduates, 25. The next session at Bloomington begins Sept. 22, 1907, and ends June 25, 1908. The Secretary is Dr. B. D. Myers. The next session at Indianapolis begins September 8 and ends May 20, 1908. The Secretary is Dr. John F. Barnhill. Commencement May 20, 1908, at Indiana University, Bloomington, Ind.

Indianapolis.

Indiana Medical College, The School of Medicine of Purdue University.—Organized in 1869 as The Medical College of Indiana, Medical Department of the University of Indianapolis. In September, 1905, it consolidated with Purdue University, the Central College of Physicians and Surgeons and the Ft. Wayne College of Medicine, and assumed above title. The faculty embraces 50 professors and 60 lecturers, demonstrators and assistants. Clinical facilities are furnished by the Bobbs Free Dispensary and Maternity Hospital, Indianapolis City Hospital, St. Vincent's Hospital and the Indiana Central Hospital for the Insane. The course covers four years of eight and a half months. This college is a member of the Association of American Medical Colleges. The Dean is Dr. Henry Jameson, Newton Claypool Bldg. Total fees per term, $100. The total enrolment for 1906-7 was 227; graduates, 70. The next session begins Sept. 10, 1907, and ends May 20, 1908.

Eclectic Medical College of Indiana.—This school was organized in 1900. It had 12 students and 3 graduates in 1907. The Dean is Dr. T. M. Culver. The next session begins Sept. 17, 1907, and ends April 15, 1908.

Physio-Medical College of Indiana.—This school was organized in 1873 and has a faculty of 47. The course is four years of eight months each. Total fees for each year $90. The Secretary is Dr. C. T. Bedford, Newton Claypool Bldg. Total enrolment 1906-7 was 25; graduates, 7. The next session begins Sept. 11, 1907, and closes May 9, 1908.

IOWA.

Iowa, population 2,391,633, has five medical colleges. The College of Medicine of the State University of Iowa and the College of Homeopathic Medicine of the State University of Iowa are located in Iowa City, population 7,987. In Des Moines, population 62,139, is the College of Medicine of Drake University. In Sioux City, population 31,701, is the Sioux City College of Medicine. In Keokuk, population 14,803, is the Keokuk Medical College, College of Physicians and Surgeons. Board and lodging may be had in Des Moines for $15 a month and upward, and in the other cities named for from $2.50 to $5 per week.

Des Moines.

Drake University College of Medicine.—This school was organized in 1882 under the name of the Iowa College of Physicians and Surgeons. In 1900 it became affiliated with Drake University. The faculty consists of 20 professors and 32 assistants, a total of 52. The Mercy and Methodist hospitals, 200 beds, and a dispensary furnish clinical material. The college is a member of the Association of American Medical Colleges. The requirement for admission is a four-year high school education or its equivalent. The work covers four years of nine months each. The total fees for the first two years are $107 each; for the last two years, $80 each. The Dean is Dr. D. S. Fairchild. The total registration for 1906-7 was 76; graduates, 17. The twenty-fifth session begins Sept. 16, 1907, and ends June 18, 1908.

Iowa City.

College of Medicine of the State University of Iowa.—This department was organized in 1870. The faculty is made up of 10 professors, 17 lecturers, demonstrators and assistants, a total of 17. The University Hospital, built in 1897 at a cost of $50,000, supplies the clinical material. The school is a member of the Association of American Medical Colleges. The course of study covers four years of thirty-six weeks each. Total fees for each year are $50. The Dean is Dr. James R. Guthrie, Dubuque; Vice-Dean, Dr. Walter L. Bierring, Iowa City. Total number of students registered for 1906-7 was 272; graduates, 52. The thirty-eighth session opens Sept. 18, 1907, and ends June 12, 1908.

College of Homeopathic Medicine of the State University of Iowa.—This was organized in 1877. The faculty is composed of 9 professors and 10 lecturers and assistants, a total of 19. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa. The fees are also the same. The Dean is Dr. George Royal, Des Moines. Total registration for 1906-7 was 44; graduates, 4. The thirty-first session begins Sept. 18, 1907, and ends June 12, 1908.

Keokuk.

Keokuk Medical College, College of Physicians and Surgeons.—In 1849 the College of Physicians and Surgeons, Keokuk, was organized and four years later it became the Medical Department of the University of Iowa, continuing as such until 1870, when the original name was resumed. In 1899 it united with the Keokuk Medical College, organized in 1890, taking the above name. St. Joseph's Hospital, having 100 beds, furnishes clinical material. The faculty is composed of 21 professors and 7 assistants and demonstrators, 28 in all. The course covers four years of eight months each. The total fees for the first year are $66; for the second, $61; for the third, $64, and $61 for the last year. The Secretary is Dr. W. B. La Force. Total registration for 1906-7 was 127; graduates, 30. The next session begins Sept. 17, 1907, and ends May 13, 1908.

Sioux City.

Sioux City College of Medicine—This school was organized in 1891. The faculty consists of 24 regular professors, besides a corps of assistants. Clinical material is supplied by St. Joseph, St. Vincent and Samaritan hospitals and a College Dispensary. The college is a member of the Association of American Medical Colleges. The course covers four years of nine months each. The college is afiliated with Morning Side College, a literary and scientific institution, and after 1910 two years of academic work in the arts and sciences will be necessary for matriculation in addition to the four-year high school course now requisite. Matriculation fee, payable but once, $5; tuition each year, $60. Hospital fees, $5; graduating fees, $20. Total enrolment for 1906-7 was 29; graduates, 10. The President is Dr. F. E. Franchere. The eighteenth session opens Sept. 17, 1907, and closes June 4, 1908.

KANSAS.

Population, 1,582,473, has three medical colleges. Kansas Medical College is in Topeka, population 35,388, the Eclectic Medical University at Kansas City, and the School of Medicine of the University of Kansas, giving its first two years in Lawrence, population, 11,123, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 228,412. Board and lodging in all these places may be had for $3 to $5 per week.

Kansas City.

Eclectic Medical University.—This school was organized at Kansas City, Mo., in 1898, moving to Kansas City, Kan., in 1907. Its faculty numbers 25. The curriculum covers four years of seven months each. Fees, about $70 each year, with a graduation fee of $15. The Dean is Dr. Theodore Doyle. Total number of students for 1906-7 was 36; graduates, 9. The tenth session begins Sept. 16, 1907, and ends April 30, 1908.

Lawrence and Kansas City.

University of Kansas School of Medicine.—Was organized in 1880. In 1905 it merged with three Kansas City Schools, viz., the Kansas City Medical College, founded in 1869; the College of Physicians and Surgeons, founded in 1893, and the Medico-Chirurgical College, founded in 1896. This school is a member of the Association of American Medical Colleges. The faculty, including lecturers and clinical assistants, numbers 79. The course covers four years of about nine months each. The school has three dispensaries, a hospital of its own and the use of one public and three private hospitals. A combined course of six years is offered, conferring, after six years, the degrees of A.B. and M.D. The total fees are, for the first two years, $60 per year (and for non-residents of the state $70); for the last two years, $100 per year. The Dean at Lawrence is Dr. Mervin T. Sudler. The Dean at Kansas City is Dr. George Howard Hoxie. The number of students registered for 1906-7 was 115; graduates, 29. The next session begins Sept. 11, 1907, and will end June 4, 1908.

Topeka.

Kansas Medical College, Medical Department of Washburn College.—This college, organized in 1890, has a faculty of 28 professors and 12 lecturers and assistants, 40 in all. Christ's Hospital, with 100 beds, Topeka State Hospital; the dispensary in the college building also supplies material for demonstration. The college is a member of the Association of American Medical Colleges. The college building affords ample laboratory and lecture-room space. The course of study is a graded one, covering four years of thirty weeks each. The total fees are $75 each year. The Dean is Dr. William S. Lindsay; Secretary, Dr. William McVey. The total registration for 1906-7 was 82; graduates, 14. The eighteenth session begins Sept. 3, 1907, and closes April 22, 1908.

KENTUCKY.

Kentucky, population 2,291,444, has six medical colleges. They are all situated in Louisville, a city of 215,945 inhabitants, and are as follows: University of Louisville Medical Department, Kentucky School of Medicine, Louisville Medical College, Hospital College of Medicine, Southwestern Homeopathic Medical College, and Louisville National Medical College. Board and lodging in Louisville cost from $3 to $4 per week.

Louisville.

Kentucky School of Medicine.—This school was organized in 1850 and has a faculty composed of 20 professors, 27 lecturers, instructors and assistants, a total of 47. It is a lineal descendant of the Medical Department of Transylvania University, then situated at Lexington, Ky. The College Hospital, City Hospital and the college dispensary furnish facilities for clinical study. This college is a member of the Association of American Medical Colleges. The curriculum embraces four years of 30 weeks each. The fees for the first three years are $75 each; for the fourth year, $100. The Dean is Dr. W. H. Wathen, 628½ Fourth Avenue. Total number of students registered for 1906-7 was 270; graduates, 66. The next session begins Dec. 15, 1907, and will end June 12, 1908.

Louisville Medical College.—This school was organized in 1869 and has a faculty of 12 professors and 18 instructors and assistants, 30 in all. The City Hospital, College Infirmary and a dispensary offer clinical facilities. This school is a member of the Association of American Medical Colleges. The course of study covers four years of six months each. The fees are $75 each year, with graduating fee of $25. The Secretary is Dr. Irvin Abell. Total registration for 1906-7 was 180; graduates, 53. The next session opens Dec. 11, 1907, and closes July 1, 1908.

Hospital College of Medicine.—This school is the medical department of Central University of Kentucky and was organized in 1873. The faculty is composed of 17 professors and 20 assistants, lecturers, etc., a total of 37. The Gray Street Infirmary, City Hospital and a college dispensary furnish clinical material. This college is a member of the Association of American Medical Colleges. The course covers four years of seven months each. Total fees for each of first three years, $75, and $100 for the fourth year. The Dean is Dr. P. Richard Taylor. Total enrolment for 1906-7 was 256; graduates, 94. The thirty-fourth session opens Jan. 1, 1908, and closes July 31, 1908.

University of Louisville Medical Department.—This school was organized in 1837 as the Louisville Medical Institute and in 1846 assumed its present title. In 1907 it merged with the Kentucky University Medical Department. It has a faculty of 28 professors and 27 lecturers and assistants, a total of 55. The University Hospital, City Hospital, SS. Mary and Elizabeth Hospital and the college dispensary furnish clinical material. The course covers four years of 30 weeks each. The fees will be $75 each year. The total enrolment for 1906-7 was 456; graduates, 158 The President is Dr. J. M. Bodine; the Dean is Dr. T. C. Evans. The next session opens Dec. 1, 1907, and closes June 30, 1908.

Louisville National Medical College.—Colored. This was chartered in 1888 and shows a teaching force of 25. It has a four-year course, seven months to the year; the fees are $58, $58, $55 and $50 for the four years respectively. The Dean is Dr. E. S. Porter, Tenth and Walnut. The attendance, 1906-7, was 50; graduates, 13. The next session opens Oct. 2, 1907, and ends May 17, 1908.

Southwestern Homeopathic Medical College.—This college was organized in 1892 and has a faculty of 17 professors and 10 lecturers and assistants, 27 in all. A college dispensary and Louisville City Hospital supply clinical material. The curriculum covers four years of seven months each. Total fees: First and second years, $80; third, $70, and $65 for the fourth. The Dean is Dr. Geo. S. Coon. Total number of students for 1906-7 was 11; graduates, 1. The fifteenth session opens Sept. 26, 1907, and closes April 24, 1907.

LOUISIANA.

Louisiana, having a population of 1,513,145, contains two medical colleges: Medical Department of the Tulane University of Louisiana and New Orleans University. They are both situated in New Orleans, a city of 300,625 people. The cost of room and board is from $16 to $22 a month.

New Orleans.

Medical Department of the Tulane University of Louisiana.—This school was organized in 1834 as the Medical College of Louisiana, and became by law, in 1847, the Medical Department of the University of Louisiana, and in 1884 the Medical Department of the Tulane University of Louisiana. Professors and instructors number over 60. Charity Hospital, with 900 beds, furnishes clinical material. The Milliken Memorial Hospital, with a capacity for 200 children, is also available. The course covers four years of twenty-eight weeks each. Total fees for the first two years are $135 each and for the third and fourth $140 and $170 respectively. The Dean is Dr. Stanford E. Chaille, P. O. Drawer 261. The total enrolment for 1906-7 was 516; graduates, 91. The seventy-fourth session begins Oct. 21, 1907, and will close May 20, 1908.

Flint Medical College of New Orleans University.—Colored. This school was organized in 1889 as the Medical College of New Orleans University. Name changed to the above in 1901. The faculty consists of 10 professors, 6 lecturers and instructors, 16 in all. Clinical material is supplied by the Sarah Goodridge Hospital and by an outdoor clinic. This college is a member of the Association of American Medical Colleges. The course covers four years of thirty weeks each. Total fees, $50 each year. The Dean is Dr. A. D. Bush, 1566 Canal St. Total enrolment for 1906-7 was 51; graduates, 9. The eighteenth session begins Oct. 1, 1907, and ends May 7, 1908.

MAINE.

Maine, population 711,156, has one medical college, located in Portland, population 52,656. Board and lodging cost from $3 to $5 a week.

Portland.

Medical School of Maine.—This, the Medical Department of Bowdoin College, was organized in 1820. It has 14 professors and 20 instructors, total 34. Students of the first and second years are instructed in Brunswick, while the third and fourth year classes are taught in Portland, where are situated the Maine General Hospital and other clinical advantages. The course covers four years of eight months each. The total fees are $120 for the first year; for the second and third, $110, and $110 for the fourth year. The Dean is Dr. Alfred Mitchell, Brunswick. Total number of students in 1906-7 was 94; graduates, 16. The next session opens Oct. 24, 1906, and closes June 25, 1908.

MARYLAND.

Maryland, with a population of 1,260,869, contains eight medical colleges, all located in Baltimore, a city with 531,313 inhabitants. They are as follows: School of Medicine of the University of Maryland, College of Physicians and Surgeons, Baltimore University School of Medicine, Baltimore Medical College, Women's Medical College, Southern Homeopathic Medical College, Johns Hopkins Medical School and Maryland Medical College. Board and lodging can be obtained for from $3 to $5 per week.

Baltimore.

Johns Hopkins Medical School.—This is the Medical Department of Johns Hopkins University, and was organized in 1893. The faculty comprises 11 professors, 84 lecturers, clinical professors, associate professors, associates, instructors and assistants, a total of 95. The Johns Hopkins Hospital and Dispensary, including a lying-in department, furnishes clinical material. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university; (b) graduated at an approved college or scientific school and can furnish evidence of an acquaintance with Latin and a fair reading knowledge of French and German, and a knowledge of physics, chemistry and biology, such as may be obtained from a year's course, including laboratory instruction. The school is a member of the Association of American Medical Colleges. The course extends over four years of eight and one-half months each. The charge for tuition is $200 per annum, with no fees unless a microscope is rented; that fee is $5 a year. The Dean is Dr. William H. Howell, 232 West Lanvale St. Total registration in 1906-7, was 264; graduates, 70. The fifteenth session begins Oct. 1, 1907, and ends June 9, 1908.

University of Maryland School of Medicine.—This institution was organized in 1807 as the College of Medicine of Maryland, and in 1812, other faculties having been added, the whole was chartered under the name of the University of Maryland. The faculty is composed of 14 professors, 46 associates and lecturers, etc., a total of 60. The University Hospital, Presbyterian Eye, Ear and Throat Charity Hospital, the Hospital for the Relief of Crippled and Deformed Children, containing 40 beds; the Maternity Hospital and a college dispensary furnish material for clinical study. This school is a member of the Association of American Medical Colleges. The course covers four years of eight months each. The total fees for the first two years are $135 each; for the third year, $125, and $155 for the final year. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1906-7 was 311; graduates, 62. The one hundred and first session begins Oct. 1, 1907, and terminates June 1, 1908.

Baltimore Medical College.—This college was organized in 1881 and has a faculty of 59. The clinical material is furnished by the Maryland General Hospital, having 200 beds; the Maryland Lying-in Hospital, the Mount Hope Retreat, St. Vincent Infant Asylum, and the college dispensary. This college belongs to the Association of American Medical Colleges. The course covers four years of eight months each. The Dean is Dr. David Streett. The total number of students registered in 1906-7 was 481; graduates, 97. The twenty-seventh session opens Sept. 20, 1907, and closes May 20, 1908.

College of Physicians and Surgeons.—This school was organized in 1872, and in 1878 Washington University School of Medicine, established in 1827, was consolidated with it. The faculty numbers 53. Clinical facilities are supplied by the Baltimore City Hospital, containing 225 beds; the Hospital for the Colored Race, containing 100 beds; the Nursery and Child's Hospital. with 150 beds; the Maryland Lying-in Asylum and a college dispensary. This school is a member of the Association of American Medical Colleges. The work covers four years of eight months each. Total fees are $115, $115, $115 and $135 for the respective years. The Dean is Dr. Charles F. Bevan. The total number of students registered in 1906-7 was 302; graduates, 75. The next session opens Oct. 1, 1907, and terminates June 1, 1908.

Maryland Medical College.—This school was organized in 1898 and has a faculty of 19 professors, 25 associates, lecturers, etc., 44 in all. The Franklin Square Hospital, West End Maternité and a college dispensary furnish clinical material. The course of study covers four years of nine months each. A matriculation fee of $5 and total laboratory fees for the four years of $55 are charged; tuition is $75 each year. The Dean is Dr. J. B. Schwatka, 1003 North Broadway. Total registration for 1906-7 was 125; graduates, 29. The tenth session begins Oct. 1, 1907, and closes June 1, 1908.

Woman's Medical College.—This school was organized in 1882 and has a faculty of 15 professors, 19 associates, assistants and lecturers, a total of 34. The Hospital of the Woman's Medical College and a college dispensary furnish clinical material. The college is a member of the Association of American Medical Colleges. The course covers four years of eight months each. The total fees for the first three years are $106 each and $81 for the last year, with $30 graduation fee. The Dean is Dr. S. Griffith Davis, 1230 Light St. Total number registered for 1906-7 was 34; graduates, 6. The twenty-sixth session opens Oct. 1, 1907, and closes May 31, 1908.

Atlantic Medical College.—Homeopathic. This school was organized in 1890 as the Southern Homeopathic Medical College, but assumed the above name in 1907. The faculty consists of 9 professors and 28 lecturers and assistants, a total of 37. The Maryland Homeopathic Hospital with 40 beds, St. Luke's Hospital with 35 beds, and the college dispensary furnish clinical material. The course covers four years of eight months each. The fees are $100 for the first two years, $75 for the third, and $105 for the fourth year. The Dean is Dr. Eldridge C. Price, 1012 Madison Ave. The enrolment for 1906-7 was 22; number of graduates, 11. The seventeenth session begins Oct. 2, 1907, and ends June 4, 1908.

Baltimore University School of Medicine.—This school, organized in 1884, has a faculty of 8 professors and 16 lecturers, demonstrators, etc., in all 24. The Baltimore University Hospital and the Lying-in Hospital supply clinical material. The course is four years of nine months each. The fees are $100 each year. The Dean is Dr. Theodore Cooke, Jr., 1808 No. Charles St. Total registration for 1906-7 was 23; graduates, 5. The next session opens Oct. 1, 1907, and closes June 15, 1908.

MASSACHUSETTS.

Massachusetts, population 3,088,546, has four medical colleges: Medical School for Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 594,618 inhabitants. Board and lodging can be obtained for from $5 to $7 per week.

Boston.

Medical School of Harvard University.—This was organized in 1782 and has a faculty of 32 professors. 116 associates and assistants, etc., a total of 148. Clinical facilities are furnished by the Boston City Hospital, the Massachusetts General Hospital, the Boston Lying-in Hospital, the Boston Dispensary, the Infants' Hospital, the Children's Hospital, Long Island Hospital, containing 250 beds, and the Marine Hospital. Candidates for admission "must present a degree in arts, literature, philosophy or science from a recognized college or scientific school, with the exception of such persons as may be admitted by special vote of the faculty. Each candidate is required to hand in the original note book in which he recorded the work performed by him in quantitative analysis, also to pass a written examination in theoretical and descriptive chemistry, and must have a knowledge of elementary organic chemistry. If conditioned in chemistry six months are allowed in which to remove the condition. Fees: Matriculation, $5; $200 each year. The Dean is Dr. William L. Richardson, 688 Boylston St. The total registration for 1906-7 was 366; graduates, 64. The 126th session begins Sept. 26, 1907. and ends June 25, 1908.

Tufts College Medical School.—This school was organized in 1893 as the Medical Department of Tufts College. It has a faculty of 34 professors, 61 assistants and lecturers, etc., a total of 95. Clinical material is furnished by the Boston City Hospital, Massachusetts Charitable Eye and Ear Infirmary, Free Home for Consumptives, Free Hospital for Women, Boston Dispensary, Cambridge Hospital, St. Elizabeth's Hospital and Carney Hospital. Graduates of an approved high school, college or university and also graduates of approved preparatory schools are admitted without examination; all others must pass an examination in English, Latin, physics and mathematics, including elementary algebra and plane geometry, besides one elective subject to be chosen from American history, French, German, chemistry or biology. The course covers four years of eight months each. The total fees are $150 each year. The Secretary is Dr. Frederic M. Briggs, 31 Massachusetts Ave. Total number of students for 1906-7 was 376; graduates, 57. The fourteenth session begins Sept. 25, 1907, and ends May 25, 1908.

College of Physicians and Surgeons.—This school was organized in 1880 and has a faculty of 27 professors and 18 lecturers and assistants, a total of 45. Clinical facilities are furnished by the North End Dispensary Hospital, Union General Hospital and the city and state institutions. The course of study covers four years of nine months each. The total fees for the first year are $100 and for each of the other years about $110, with a graduation fee of $30. The Dean is Dr. C. H. Cobb, Hotel Oxford. Boston. Total students registered 1906-7 was 123; graduates, 26. The twenty-eighth session begins Sept. 18, 1907, and ends June 20, 1908.

Boston University School of Medicine.—Homeopathic. This school was organized in 1873. In 1874 the New England Female Medical College, founded in 1848. was merged into it. The faculty includes 20 professors, 32 associates, etc., a total of 52. Clinical material is furnished by the Massachusetts Homeopathic Hospital, containing 235 beds, an out-patient department, a maternity hospital and the Westborough Insane Hospital, 800 patients. Candidates who have taken their degrees in arts, philosophy or science are not examined; certificates of graduation from approved high and preparatory schools accepted in lieu of entrance examinations; all others are examined in English, Latin, French or German, history, mathematics, physics and chemistry. The course covers four years of eight months each. Total fees for the first year are $105; for the second and third, $125 each, and for the last year $155. The Dean is Dr. John P. Sutherland, 302 Beacon St. Total registration for 1906-7 was 96; graduates, 13. The thirty-fifth session opens Oct. 3, 1907, and closes June 3, 1908.

MICHIGAN.

Michigan, population 2,557,275, has five medical colleges. Two of these, University of Michigan Department of Medicine and Surgery and the Homeopathic College of the University of Michigan, are located at Ann Arbor, a city of 16,033 people. Board and lodging cost from $2.50 to $5 a week. Detroit, a city of 309,653 inhabitants, contains three medical colleges, as follows: Detroit College of Medicine, Detroit Homeopathic College and the Michigan College of Medicine and Surgery. Board and room can be obtained for $3 a week and upward.

Ann Arbor.

University of Michigan Department of Medicine and Surgery.—This was organized in 1850. A class was graduated in 1851 and each subsequent year. It has a faculty composed of 16 professors, 48 associates, instructors, etc., a total of 64. The University Hospital, with 200 beds, furnishes clinical facilities. The minimum requirements for admission provide that the applicant be a graduate of an approved high school and present certificates showing that he has completed three units of English and rhetoric, two units of history, three units of mathematics, including half a unit of plane trigonometry, one unit of physics, one unit of biology, or one-half unit of zoology and botany, and one unit of chemistry, two units of either German or French, and two units of Latin. (A unit equals one subject pursued for not less than four periods a week throughout the school year.) Beginning with the session of 1909-10 the entrance requirements will be two years of college work, equaling sixty hours of credit, as determined by the Department of Literature, Science and the Arts, of the University of Michigan, these two years of collegiate work to include a year of chemistry, physics and biology, including laboratory work, and a reading knowledge of one modern language. This school is a member of the Association of American Medical Colleges. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is $350 and for others about $400. The Dean is Dr. Victor C. Vaughan. The total registration for 1906-7 was 371; graduates, 52. The fifty-eighth session begins Sept. 24, 1907, and will end June 18, 1908.

Homeopathic College, University of Michigan.—This department of the university was organized in 1875. A class was graduated in 1877 and each subsequent year. The school has a faculty of 29 professors and 21 assistants, total 50; a part of the teaching force is from the Department of Medicine and Surgery. The Homeopathic Hospital, containing 140 beds, furnishes material for clinical teaching. The course covers four years of nine months each. The total fees for Michigan students are about $240 for the four years, and for other students about $295. The Dean is Dr. W. B. Hinsdale. The enrolment for 1906-7 was 82; graduates, 15. The thirty-second session begins Sept. 24, 1907, and closes June 18, 1908.

Detroit.

Detroit College of Medicine.—This school was formed in 1885 by the union of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, established in 1880. The faculty embraces 26 professors, 72 lecturers, instructors, etc., a total of 98. Clinical facilities are offered by the following hospitals: St. Mary's and Harper, each of which contains a free dispensary; Woman's, St. Luke's, the Children's Free Hospital and the House of Providence. This school is a member of the Association of American Medical Colleges. The course covers four years of eight months each. Fees: Matriculation, paid once, $5; tuition, each term, $65; hospital and laboratory tickets, each $10, and diploma fee, $30. The Secretary is Dr. H. O. Walker. Total enrolment for 1906-7 was 158; graduates, 68. The twenty-third session begins Sept. 18, 1907, and closes May 28, 1908.

Michigan College of Medicine and Surgery.—Organized in 1888. In 1905 consolidated with the Saginaw Valley Medical College. The faculty numbers 36. The Dean is Dr. Hal. C. Wyman. Registration for 1906-7 was 6; no graduates. The next session begins Sept. 15, 1907, and ends June 1, 1908.

Detroit Homeopathic College.—This was organized in 1899 and has a faculty of 36. Grace Hospital and a college dispensary are available for study of clinical cases. The course embraces work for four years of eight months each. Fees: From $70 to $90 per year. The Dean is Dr. D. A. MacLachlan; Registrar, J. M. Griffin. Total enrolment for 1906-7 was 29; graduates, 9. The next session begins Sept. 15, 1907, and will close May 15, 1908.

MINNESOTA.

Minnesota, population 1,971,949, contains three medical colleges: The College of Medicine and Surgery of the University of Minnesota, the College of Homeopathic Medicine and Surgery of the University of Minnesota, and the Minneapolis College of Physicians and Surgeons, the Medical Department of Hamline University. They are all situated in Minneapolis. Minneapolis and St. Paul are practically one city, with a total population of 386,150. The average cost of board and lodging is $20 a month.

Minneapolis.

College of Medicine and Surgery, University of Minnesota.—This department of the University of Minnesota was created in 1883, and performed at that time the function of State Board of Medical Examiners, conferring after examination the degrees of B.M. and M.D., but doing no teaching. In 1888, by the consolidation and absorption of the Minnesota Hospital Medical College and the St. Paul Medical College, its present status was assumed. The faculty includes 43 professors and clinical professors, and 9 associate and assistant professors, 36 demonstrators and instructors, and 16 assistants, a total of 104. Eight hospitals in the twin cities, besides the University Dispensary, located near the campus, and the St. Paul Dispensary, under the control of the college, afford material for clinical study. The curriculum covers four years of nine months each. The entrance requirements are two years of university work in addition to four years of high school work, Total fees for each year, $100; microscope rental, $4 to $7 per annum. The total number of students registered in 1907 was 188; graduates, 37. The Dean is Dr. F. F. Wesbrook. The next session opens Sept. 17, 1907, and closes June 6, 1908.

College of Homeopathic Medicine and Surgery.—This is a department of the University of Minnesota and was organized in 1888. The faculty comprises 22 professors and 40 assistants, 62 in all. Instruction in the primary branches is received in common with the students of the College of Medicine and Surgery. The course is graded, extending over four years of nine months each. The total fees for the first two years are $100 each and $80 each for the last two years. The Dean is Dr. Eugene L. Mann. Total number of students registered in 1906-7 was 14; graduates, 6. The next session opens Sept. 13, 1907, and closes June 9, 1908.

Minneapolis College of Physicians and Surgeons.—Medical Department of Hamline University. This was organized in 1883. Its faculty is composed of 30 professors and 17 instructors, a total of 47. Clinical work is offered in City Hospital, Asbury Methodist Hospital, St. Barnabas and St. Mary's hospitals in Minneapolis, Luther Hospital, City and County and St. Joseph's in St. Paul and the college dispensary. This school belongs to the Association of American Medical Colleges. The course of study covers four years of eight and a half months each. Total fees, first year, $90; second year, $92.50, and for each of the last two $80. The Dean is Dr. George C. Barton. Total number of students 1906-7 was 109; graduates, 18. The next session begins Sept. 17, 1907, and ends June 10, 1908.

MISSISSIPPI.

Mississippi, population 1,682,105, has two medical colleges: The Medical Department of the University of Mississippi, located at Oxford, a city of 2,000 inhabitants, and the Mississippi Medical College, at Meridian, with a population of 15,079.

Meridian.

Mississippi Medical College.—This school was organized in 1906 and has a faculty of 14. The total enrolment for 1906-7 was 106; graduates, 22. The Dean is Dr. N. L. Clark. The second session begins Oct. 1, 1907, and ends April 1, 1908.

Oxford.

University of Mississippi Medical Department.—This school was organized in 1903. The faculty consists of 6 professors and 2 assistants, a total of 8. Each college term extends over nine months. Only two years of the medical course are given. The school is a member of the Association of American Medical Colleges. Dr. W. S. Leathers is the Acting Dean. The total registration in 1905-6 was 18; graduates, none. The next session begins Sept. 21, 1907, and ends June 7, 1908.

MISSOURI.

Missouri, population 3,320,405, has eleven medical colleges. St. Louis, population 612,279, contains seven of these, viz., St. Louis College of Physicians and Surgeons, American Medical College, Homeopathic Medical College of Missouri, Medical Department St. Louis University, Washington University Medical Department, Barnes Medical College and the Hippocratean College of Medicine. Board and lodging can be procured for from $3.50 to $5 a week. Kansas City, which, with Kansas City, Kansas, has a total population of 228,412, has two colleges, namely: University Medical College and the Hahnemann Medical College of Kansas City. Room and board can be obtained in this city for from $3 to $5 a week. Ensworth-Central Medical College is located in St. Joseph, population 110,479. Board and room can be had for from $3.50 to $5 a week. The Department of Medicine of the University of Missouri is at Columbia, a town of 5,651. Board and lodging can be obtained at Columbia for from $2 to $5 a week.

Columbia.

Department of Medicine of the University of Missouri.—This department was organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. The faculty includes 11 professors, 19 assistant professors, lecturers, etc., a total of 30. Clinical facilities are supplied by the Parker Memorial State Hospital. The course covers four years of nine months each. The University offers also a combined course of six years, conferring degrees in both arts and medicine. The candidate for entrance must present, beside the diploma from a recognized four-year high school, credentials of college work as follows: English, physics, 6 hours; inorganic chemistry, 6 hours. This school is a member of the Association of American Medical Colleges. There is no charge for tuition, the only expenses being a library fee of $10 each year and small laboratory fees. The Dean is Dr. A. W. McAlester. Total registration of students for 1906-7 was 66; graduates, 2. The next session opens Sept. 9, 1907, and closes June 3, 1908.

Kansas City.

University Medical College.—This was organized in 1881 as the University of Kansas City Medical Department, and in 1888 was reorganized under its present name. Its faculty comprises 30 professors and 35 lecturers and assistants, a total of 65. Clinical material is furnished by the University Hospital, with 100 beds; the City Hospital, German Hospital, Home for the Aged, containing 147 beds; the Sisters' Hospital, Scarritt and St. Margaret's hospitals, the Children's Home, St. Joseph's Orphan Asylum and the college dispensary. This school is a member of the Association of American Medical Colleges. The course of study covers four years of thirty weeks each and the work is graded. The total fees for each year are $100. The Dean is Dr. J. E. Logan, 1208 Wyandotte St. The total number of students registered in 1906-7 was 238; graduates, 57. The twenty-sixth session begins Sept. 6, 1907, and ends May 15, 1908.

Kansas City Hahnemann Medical College.—This school was formed by the union of the Kansas City Homeopathic Medical College, organized in 1888, and the Kansas City University College of Homeopathic Medicine and Surgery. It has a faculty of 41. The City Hospital, Homeopathic Hospital, the Sanitarium, Scarritt, University, Women and Children's, German, Bethany and Children's hospitals and a college dispensary supply clinical material. The course covers four years of seven months each. The Dean is Dr. Frank Elliott, 1023 Grand Ave. Total registration for 1906-7 was 74; graduates, 11. The next session begins Sept. 12, 1907, and closes April 27, 1908.

St. Joseph.

The Ensworth-Central Medical College.—This college was organized in 1876 as the St. Joseph Hospital Medical College. In 1882 it merged with the College of Physicians and Surgeons to form the St. Joseph Medical College. In 1888 changed name to Ensworth Medical College. In 1905 merged with the Central Medical College, organized in 1894, to form the Ensworth-Central Medical College. The faculty is composed of 28 professors, 12 lecturers and assistants, 40 in all. The Ensworth Deaconess Hospital, with 100 beds; St. Joseph, with 250 beds; City Hospital, containing 40 beds; the State Hospital, No. 2, which is open to the students once a week, and a college dispensary furnish clinical material. The curriculum covers four years of eight months each. The fees are $75 for each of the first three years; the fourth year, $95. The Secretary is Dr. T. E. Potter. Total enrolment for 1906-7, 117; graduates, 26. The next session opens Sept. 16, 1907, and will close about May 11, 1908.

St. Louis.

Washington University Medical Department.—This school was organized in 1891 from the St. Louis Medical College, which was founded in 1842. In 1899 the Missouri Medical College, organized in 1840, was added. The faculty comprises 45 professors, 45 lecturers and instructors, a total of 90. Clinical material is furnished by the St. Louis Mullanphy Hospital, Washington University Hospital and Dispensary, Washington University Lying-in Hospital, Bethesda Hospital, Maternity Hospital, Martha Parson's Children's Hospital and O'Fallon Dispensary. This school is a member of the Association of American Medical Colleges. The course is four years of eight months each. The total fees are: For the first year, $130.75; second, $128.75; third, $115.25, and for the fourth, $101.25. The Dean is Dr. Robert Luedeking. Total enrolment for 1906-7 was 215; graduates, 50. The next session opens Sept. 26, 1907, and closes May 22, 1908.

St. Louis University Medical Department.—This school was organized as the Marion-Sims-Beaumont Medical College in 1901 by the union of the Marion-Sims College of Medicine with the Beaumont Hospital Medical College. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 38 professors, 67 lecturers and assistants, a total of 105. Clinical facilities are offered by Alexian Brothers' Hospital, with 250 beds; Rebekah Hospital, 50 beds; Mt. St. Rose Throat and Chest Hospital, 150 beds; St. John's Hospital, 125 beds; St. Ann's Lying-in Hospital, 200 beds; St. Mary's Infirmary, containing 150 beds; the City Hospital and Insane Asylum and Grand Avenue Dispensary. This school is a member of the Association of American Medical Colleges. The curriculum covers four years of seven months each. The total fees for the first year are $100; for the second, third and fourth, $95 each. The Secretary is Dr. H. W. Loeb, 537 North Grand Ave. Total registration for 1906-7 was 268; graduates, 56. The next session opens Oct. 1, 1907, and closes May 19, 1908.

St. Louis College of Physicians and Surgeons.—This school was organized in 1878, and has a faculty of 24 professors, 15 lecturers, instructors, etc., a total of 39. The resources for clinical instruction are Jefferson Hospital; City Hospital, with 600 beds; Female Hospital, having 250 beds; City Insane Asylum; City Poorhouse, and the college dispensary. The course of study covers four years of seven months each. Total fees for the first year are $80; second and third, $75 each, and $85 for the fourth year. The Dean is Dr. Waldo Briggs, 2600 Gamble St. Total registration for 1906-7 was 270; graduates, 44. The next session begins Sept. 12, 1907, and ends May 1, 1908.

Barnes Medical College.—This school was organized in 1892, and has a faculty of 39 professors and 30 lecturers and assistants, a total of 69. Clinical advantages are offered by Centenary Hospital, with 150 beds; City Hospital and the college dispensary. The course of study covers four years of eight months each. The total fees for the first three years are $80 each year, and $90 for the fourth year. The Secretary is Dr. C. M. Ament, 1025 Missouri Trust Bldg. Total registration for 1906-7 was 352; graduates, 79. The next session opens Sept. 9, 1907, and closes May 9, 1908.

American Medical College.—Eclectic. This was organized in 1873, and has a faculty of 17 professors. St. Louis City Hospital and a college dispensary supply clinical material. This college is a member of the National Confederation of Eclectic Medical Colleges. The course of study covers four years of seven months each. The total fees are: Tuition, $75 per year; dissecting material, $5 per year for four years; final examination and graduation fee, $25. Total registration for 1906-7 was 38; graduates, 9. The Dean is Dr. P. C. Clayberg, 2830 Lafayette Ave. The next session opens Sept. 16, 1907, and closes April 21, 1908.

Homeopathic Medical College of Missouri.—This was organized in 1857, and has a faculty of 18 professors and 6 assistants, total 24. The curriculum covers four years of seven months each. Fees: First year, $80; second, $75; third, $60, and $75 for the fourth year. The Dean is Dr. L. C. McElwee, 1221 North Grand Ave. Total registration for 1906-7 was 44; graduates, 11. The next session begins Sept. 10, 1907, and ends April 23, 1908.

Hippocratean College of Medicine.—A night school organized in 1907, situated at 3412 Morgan St. The Dean is Dr. Emory Lanphear.

NEBRASKA.

Nebraska, population 1,068,120, has four medical colleges: The University of Nebraska College of Medicine and John A. Creighton Medical College at Omaha, population 113,361, and Lincoln Medical College, and the Nebraska College of Medicine at Lincoln, population 44,243. Board and lodging can be obtained for from $3 to $5 a week.

Lincoln and Omaha.

University of Nebraska College of Medicine.—This was organized in 1880 as the Omaha Medical College. In 1902 an affiliation was entered into with the University of Nebraska, the name being changed to the College of Medicine of the University of Nebraska. The first two years are given at Lincoln. The last two years are given only at Omaha. The faculty is composed of 33 professors and 42 lecturers and instructors, total 75. The Douglas County, Immanuel, Jennie Edmunson, Wise Memorial and Omaha Methodist hospitals, the Child-Saving Institute, the Bancroft Street Rescue Home and the college dispensary furnish material for clinical study. The college can give an interneship to every capable student, and offers a *cum laude* degree at the close of a fifth year in hospital, or in research laboratory. For admission 32 points or 16 units of high school work are demanded; after Jan. 1, 1908, one full year of college work above the high school course will be required. The University offers an optional six-year combined course for the B.S. and M.D. degrees. The fees are approximately $100 per annum. The college is a member of the Association of American Medical Colleges. Total number of students enroled in 1906-7, 82; graduates, 16. The Dean is Dr. Henry B. Ward, University of Nebraska, Lincoln; the Dean of the Clinical Department is Dr. Harold Gifford, Omaha. The next session begins Sept. 17, 1907, and ends May 21, 1908.

Lincoln.

Lincoln Medical College.—Eclectic. This was organized in 1889, and has a faculty of 22. This college is a member of the National Confederation of Eclectic Medical Colleges. The course of study covers four years of thirty weeks each. The total fees for the first year are $80; second and third, $75 each, and $85 for the fourth year, or $250 for all four years together. The Dean is Dr. F. L. Wilmeth. Total number of students for 1906-7 was 50; graduates, 12. The next session begins Sept. 5, 1907, and ends May 8, 1908.

Nebraska College of Medicine.—This college was organized in 1905. Its faculty consists of 23 professors and 5 assistants, a total of 28. Its course covers four years of eight months each. The Dean is Dr. J. F. Stevens. Registration of students during 1906-7 was 27; graduates, 7. The third session begins Sept. 17, 1907, and ends May 25, 1908.

Omaha.

John A. Creighton Medical College.—This school, organized in 1892, is the Medical Department of Creighton University, and has a faculty of 34 professors and 23 associates, lecturers and assistants, a total of 57. The clinical facilities are those of St. Joseph's Hospital, containing 300 beds; St. Bernard's Hospital, with 256 beds; Omaha General Hospital, with 100 beds; Douglas County Hospital, Mercy Hospital and the college dispensary. The school is a member of the Association of American Medical Colleges. The course of study embraces four years of eight months each. The total fees for the first two years are $90 each, and $85 for each of the last two years. The Dean is Dr. D. C. Bryant, McCague Bldg. Total number of students registered in 1906-7 was 167; graduates, 35. The sixteenth session begins Sept. 3, 1907, and ends May 3, 1908.

NEW HAMPSHIRE.

New Hampshire, population 429,118, contains one medical college, located in Hanover, population 1,884.

Hanover.

Dartmouth Medical School.—This is the Medical Department of Dartmouth College, and was organized in 1797. Its faculty is made up of 18 professors and 3 instructors, 21 in all. The Mary Hitchcock Memorial Hospital, a cottage hospital of 36 beds, supplies the clinical material. Applicants for admission must possess an education at least equivalent to graduation from a registered high school. The course covers four years of seven and a half months each. Fees: $100 each year. The Dean is Dr. William T. Smith. The total number of students registered for 1906-7 was 62; graduates, 11. The work for the first and second years begins with that of the academic department, commencing Sept. 19, 1907, and closing June 20, 1908; for the advanced classes it begins Aug. 6, 1907, and ends March 27, 1908.

NEW YORK.

New York State, population 7,901,754, has eleven medical colleges. Eight of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Eclectic Medical College of the City of New York, Cornell University Medical College, the University and Bellevue Hospital Medical College, and Forham University School of Medicine, are located in New York City, population 3,716,139. Board and lodging can be obtained for from $5 to $7 a week. Albany Medical College is in Albany, a city of 93,920 people, where board and room can be had for from $4 to $5 a week. The University of Buffalo Medical Department is situated in Buffalo, population of 381,403. Here board and lodging can be obtained for from $3.50 to $5 a week. The College of Medicine, Syracuse University, is in Syracuse, a city of 114,443 inhabitants. Board and lodging can be obtained for from $3.50 a week upward.

Albany.

Albany Medical College.—This school was organized in 1838, and in 1873 it assumed its present relations as Medical Department of Union University. The faculty is composed of 14 professors and 71 lecturers, instructors and assistants, a total of 85. Albany, St. Peter's, Child's and County hospitals, South End Dispensary, Eye and Ear Infirmary and the Albany Hospital for Incurables, also the free dispensaries connected with each, are open to students for clinical study. The curriculum covers four years of seven and one-half months each. Fees: First year, $130; second year, $145;

third year, $120, and fourth year, $130. The Dean is Dr. Samuel B. Ward. Total registration for 1906-7 was 195; graduates, 40. The next annual session opens Sept. 24, 1908, and closes May 5, 1908.

Buffalo.

University of Buffalo Medical Department.—This was organized in 1846 and has a faculty made up of 39 professors and 45 assistants, lecturers, etc., a total of 84. Buffalo General Hospital, Hospital of the Sisters of Charity, Erie County and German hospitals, the German Deaconess' Hospital and a college dispensary supply clinical material. This school is a member of the Association of American Medical Colleges. The course covers four years of eight months each. The tuition is $125 each year; this does not include laboratory fees. The Dean is Dr. Matthew D. Mann, 37 Allen St. Total registration for 1906-7 was 214; graduates, 59. The sixty-second session opens Sept. 23, 1907, and closes May 29, 1908.

New York City.

College of Physicians and Surgeons.—This school was organized in 1807 and its present relation, that of Medical Department of Columbia University, was assumed in 1860. The faculty embraces 38 professors and 112 demonstrators, instructors, etc., a total of 150. The Vanderbilt Clinic, Roosevelt, Bellevue, New York, Presbyterian, St. Luke's and General Memorial hospitals, Hospital for the Ruptured and Crippled, St. Mary's Free Hospital for Children, Willard Parker, Scarlet Fever and Reception, Riverside, New York Eye and Ear Infirmary, Foundling, and the Babies' Hospital and others offer clinical advantages. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are $225; for the second and third, $250, and $275 for the fourth year. Total registration for 1906-7 was 387; graduates, 93. The next session begins Sept. 25, 1907, and ends June 10, 1908.

Long Island College Hospital.—This was organized in 1858 and has a faculty of 20 professors and 120 assistants, instructors, etc., a total of 140. Long Island College Hospital, containing 300 beds, Polhemus Memorial Clinic, Dudley Memorial and Hoagland Laboratory are a part of the college. Members of the faculty attend Kings County, St. John's, Brooklyn, Norwegian, Williamsburg, Methodist Episcopal and the Brooklyn Eye and Ear hospitals, where the students are offered opportunities for clinical study. The course covers four years of thirty weeks each. Fees: First year, $195; second, $200; third, $160, and $195 for the fourth year. The Secretary is Dr. Joseph H. Raymond. Total registration, 1906-7, was 342; graduates, 87. The fiftieth session opens Oct. 1, 1906, and closes June 6, 1908.

Cornell University Medical College.—This department of Cornell University was established in 1898. The faculty is composed of 49 professors and 124 instructors and assistants, a total of 173. The City Hospital, having 1,000 beds; Bellevue Hospital, New York Hospital, Presbyterian, Willard Parker and Reception with 200 beds; New York Skin and Cancer; St. Francis, having a capacity of 230 beds; St. Vincent's, with 200 beds; the Manhattan Eye and Ear Infirmary and a large college dispensary furnish clinical resources. The first two years of the course are taken at Ithaca or at New York. Fees: First year, $190; second and third, $185 each, and $200 for the fourth year. The Dean is Dr. William M. Polk. Total registration for 1906-7 was 342; graduates, 72. The next session opens Sept. 25, 1907, and closes June 10, 1908.

University and Bellevue Hospital Medical College.—This is a department of the New York University, and was founded in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. The faculty is composed of 39 professors and 64 instructors, assistants, etc., in all 103. Bellevue and City hospitals, hospitals of the workhouse and almshouse, Manhattan State Hospital for the Insane, Willard Parker and Reception hospitals, Riverside Hospital for Contagious Diseases, Randall's Island, Presbyterian, St. Luke's, St. Vincent's, General Memorial, Gouverneur, Columbus, Harlem, New York Foundling and the Society for the Lying-in hospitals, the New York Eye and Ear Infirmary and a college dispensary furnish clinical material. The course covers four years of eight months each. Fees: First year, $185; second and third, $180 each, and $195 for the fourth year. The Dean is Dr. Egbert Le Fevre. Total registration for 1906-7 was 502; graduates, 68. The next session opens Oct. 2, 1907, and closes June 3, 1908.

New York Homeopathic Medical College and Hospital.—This school, organized in 1858, has a faculty of 35 professors and 44 lecturers, instructors, etc., 79 in all. Flower Hospital, adjoining the college and having an out-patient department; Metropolitan Hospital, New York Ophthalmic Hospital and the Laura Franklin Free Hospital for Children furnish clinical facilities. The course covers four years of seven months each. Total fees for the first year, $130; second, $130; third, $125, and $155 for the fourth year. The Dean is Dr. W. H. King, 64 West Fifty-first St. Total registration for 1906-7 was 109; graduates, 22. The next session begins Oct. 1, 1907, and ends May 14, 1908.

New York Medical College and Hospital for Women.—Homeopathic. This school was organized in 1863 and has a faculty of 23 professors, 20 lecturers and assistants, total 43. The college hospital and dispensary, the Memorial Hospital for Women, Metropolitan, Ophthalmic and the Laura Franklin Free Hospital for Children afford clinical material. The course covers four years of twenty-six weeks each. Fees: First year, $150; second, $150; third, $135, and $155 for the fourth year. The Dean is Dr. Helen Cooley Palmer, 5 West Eighty-second St. Total registration for 1906-7 was 24; graduates, 4. The next session opens Oct. 1, 1907, and closes May 14, 1908.

Eclectic Medical College of the City of New York.—This was organized in 1865 and has a faculty of 15 professors and 26 lecturers, demonstrators, etc., 41 in all. A college dispensary, Beachonian Dispensary, Manhattan and Red Cross hospitals and Muncie Sanatorium supply clinical facilities. The work covers four years of seven months each. The total fees: For each of the first three years, $125, and $155 for the fourth year. The Dean is Dr. George W. Boskowitz. Total registration for 1906-7 was 83; graduates, 11. The next session opens Sept. 25, 1907, and closes May 15, 1908.

Fordham University School of Medicine.—This school was organized in 1905 and has a faculty of 25 professors and 23 assistants, a total of 28. The Fordham Hospital; the St. Francis Hospital, with 300 beds, and Lincoln Hospital, with 200 beds, furnish clinical material. The course of instruction covers four years of nine months each. Fees: First year, $190; second and third years, $185 each. The total registration for 1906-7 was 24. No class has yet been graduated. No students beyond the third year will be admitted during 1907-8. The Dean is Dr. James J. Walsh. The third session begins Sept. 26, 1907, and ends June 10, 1908.

Syracuse.

College of Medicine, Syracuse University.—This school was organized in 1872 as the Medical Department of Syracuse University. The faculty is composed of 14 professors and 42 lecturers, instructors, etc., in all 56. Clinical facilities are furnished by St. Joseph's Hospital, Hospital of the Good Shepherd, Syracuse Hospital for Women and Children, Onondaga County Orphan Asylum and the Syracuse Free Dispensary. The course covers four years of eight months each. The average total fees for each year are $167.25. The Dean is Dr. Gaylord P. Clark, 619 West Genessee St. Total number of students registered for 1906-7 was 153; graduates, 24. The next session opens Oct. 1, 1907, and closes June 10, 1908.

NORTH CAROLINA.

North Carolina, population 2,031,740, has four medical schools, one of which gives only the first two years of the medical course. The Medical Department of the University of North Carolina is located at Chapel Hill, population 1,100, and at Raleigh, population 13,934. The Leonard School of Medicine is at Raleigh. The North Carolina Medical College is at Charlotte, population 20,050. Wake Forest School of Medicine is at Wake Forest, population 823.

Chapel Hill and Raleigh.

University of North Carolina Medical Department.—This school was organized in 1891 and formerly gave only the work of the first two college years at Chapel Hill. In 1902 a department was established at Raleigh, in which the last two years are given. The faculty numbers 39. It is a member of the Association of American Medical Colleges. Total fees are $85 per year. Board, room, light and heat may be had for from $84 to $102 per college year. The President is Dr. F. P. Venable, Chapel Hill. The Dean of the Department at Raleigh is Dr. H. A. Royster. The number of students enroled in 1906-7 was 114; graduates, 10. The next session will begin Sept. 9, 1907, and end June 5, 1908.

Charlotte.

North Carolina Medical College.—This school was organized in 1893 and has a faculty of 12 professors and 12 assistants, a total of 24. The Presbyterian Hospital in Charlotte supplies the clinical facilities. The course covers four years of eight months each. Fees: First three years, $85 each, and $100 for the fourth year. The Dean is Dr. Walter O. Nisbet. The total registration for 1906-7 was 69; graduates, 14. The next session begins Oct. 1, 1907, and closes May 1, 1908.

Raleigh.

Leonard School of Medicine.—Colored. This department of Shaw University was established in 1882 by the American Baptist Home Mission Society. It has a faculty of 10. A hospital and dispensary supply clinical material. The course covers four years of seven months each. The total fees for each year are $75. The dormitory plan is adopted generally, and board and room cost $2 a week. The Dean is Dr. James McKee. Total enrolment for 1906-7 was 149; graduates, 24. Next session opens Oct. 1, 1907, and closes May 9, 1908.

Wake Forest.

Wake Forest School of Medicine.—This school was organized in 1902. The faculty numbers 10. It only gives the first two years of the medical course, which is an election for the B.S. degree after 1908. Each annual course extends over nine months. The school is a member of the Association of American Medical Colleges. The fees are $100 a year. During 1906-7 the enrolment was 39. The Dean is Dr. Watson S. Rankin. The next session opens Sept. 5, 1907, and closes May 25, 1908.

NORTH DAKOTA.

North Dakota, population 383,226, has one medical college, the College of Medicine of the State University of North Dakota, which is situated at University. Only the first two years of the medical course are given, which may be elected as the last two years of the A.B. degree.

University.

University of North Dakota College of Medicine.—This department was organized in 1905. The faculty is composed of 5 professors and 13 instructors, a total of 18. The course consists of two years' academic work and two years of medical college subjects, occupying nine months each year. The completion of this work in a satisfactory manner entitles the student to the A.B. degree from this institution, and a certificate of completion of the medical subjects embraced in the course. This school is a member of the Association of American Medical Colleges. The total fees for each of the medical subject years are $50. The Dean is M. A. Brannon. The enrolment during 1906-7 was 15. The third session begins Sept. 24, 1907, and closes June 18, 1908.

OHIO.

Ohio, population 4,400.155, has nine medical colleges. Four of these, the Medical College of Ohio, Eclectic Medical Institute, Miami Medical College and Pulte Medical College, are located in Cincinnati, a city of 332,934 inhabitants. Board can be procured in Cincinnati for from $3 to $5 per week. Cleveland, population 414,950, contains three medical schools: Western Reserve University Medical College, Cleveland College of Physicians and Surgeons and the Cleveland Homeopathic Medical College. Board and lodging can be had for from $2.50 to $5 a week. Columbus, population 135,487, contains one medical college, the Starling-Ohio Medical College. Board and lodging cost from $2.50 to $5 per week. Toledo, with 145,901 people, has one medical school, the Toledo Medical College. Board and room can be had for from $3 to $5 a week.

Cincinnati.

Medical College of Ohio.—This is the Medical Department of the University of Cincinnati, and was organized in 1819. It has a faculty of 28 professors and 33 lecturers and assistants, a total of 61. Good Samaritan Hospital, with 100 beds; Cincinnati Hospital, with 500 beds, and a college dispensary furnish clinical facilities. The course covers four years of eight months each. The lecture fees are $125 each year; matriculation fee of $5, payable but once, and a graduation fee of $25. Total registration of students for 1906-7 was 133; graduates. 35. The Secretary is Dr. Albert V. Phelps. The next session begins Oct. 1, 1907, and ends June 1, 1908.

Miami Medical College.—This school was organized in 1852 and has a faculty of 24 professors and 26 lecturers and demonstrators, a total of 50. The clinical facilities are furnished by the Cincinnati Hospital and a college dispensary. This college is a member of the Association of American Medical Colleges. The curriculum embraces four years of eight months each. The total fees are, for the first year, $130; for the second and third, $125, and $150 for the fourth year. The Dean is Dr. J. C. Oliver. 628 Elm St. The total registration for 1906-7 was 75; graduates, 16. The next session opens Oct. 1, 1907, and closes June 1, 1908.

Eclectic Medical Institute.—This school, organized in 1845, has a faculty of 17 professors and 12 lecturers and assistants, a total of 29. The Seton Hospital, Cincinnati Hospital and the Seton Hospital dispensary furnish clinical material. It is a member of the National Confederation of Eclectic Medical Colleges. The course covers four years of thirty-two weeks each. The fees are $90 for each year. The Dean is Dr. Rolla L. Thomas. 792 East McMillan St. Total enrolment 1906-7 was 97; graduates, 31. The next session begins Sept. 16, 1907, and closes April 29, 1908.

Pulte Medical College.—Homeopathic. This was organized in 1872 and has a teaching force of 20 professors and 14 assistants, 34 in all. Pulte Hospital, Cincinnati Hospital, Bethesda Hospital, Home of the Friendless and Foundlings and a college dispensary supply clinical material. The curriculum covers four years of seven months each. Fees: First year, $80; for the second and third, $75 each, and $100 for the fourth. The Dean is Dr. Charles E. Walton. Total enrolment for 1906-7 was 15; graduates, 5. The next session opens Oct. 2, 1907, and closes May 26, 1908.

Cleveland.

The Cleveland College of Physicians and Surgeons.—This school was organized in 1863 as Charity Hospital Medical College, became the Medical Department of Wooster University in 1869 and the Medical Department of the Ohio Wesleyan University in 1896, when it assumed its present title. The faculty is composed of 31 professors, 30 lecturers, assistants, instructors, etc., 61 in all. Cleveland General Hospital, Cleveland City Hospital and a college dispensary supply clinical material. This school is a member of the Association of American Medical Colleges. The total annual fees are $130. The curriculum covers four years of eight months each. The Dean is Dr. R. E. Skeel, 314 The Osborn. Total enrolment for 1906-7 was 92; graduates, 13. The next term opens Oct. 1, 1907, and closes May 20, 1908.

Western Reserve University Medical College.—The Medical Department was organized in 1843. Its faculty includes 21 professors, 49 lecturers, demonstrators and assistants, a total of 70. Clinical facilities are furnished by Lakeside Hospital, having 250 beds; St. Vincent's Hospital, having about 150 beds; City Hospital, with 250 beds; St. Alexis Hospital, with 250 beds, and the Home of Maternity, with the dispensary service at Lakeside and Charity hospitals, and a tuberculous dispensary at the college. This college is a member of the Association of Americal Medical Colleges. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission to first year of medical course. The total fees are $125 for each year. The Dean is Dr. B. L. Millikin, 1110 Euclid Ave. Total enrolment for 1906-7 was 87; graduates, 10. The next session begins Oct. 1, 1907, and closes June 18, 1908.

Cleveland Homeopathic Medical College.—This school was founded in 1897 by a consolidation of Cleveland University of Medicine and Cleveland Medical College, the former of which was incorporated in 1850. The faculty includes 28 professors and 28 adjuncts, lecturers, etc., 56 in all. The clinical facilities are obtained from the Cleveland Homeopathic Hospital, the Cleveland City Hospital, the Cleveland Maternity Hospital, and a college dispensary. The course embraces four years of thirty weeks each. Fees. $125 per year. The Dean is Dr. George H. Quay. Total number of students registered 1906-7 was 43; graduates, 10. The next session opens Sept. 25, 1907, and closes May 15, 1908.

Columbus.

Starling-Ohio Medical College.—This school began with the organization of Starling Medical College in 1847. The present name was adopted when the school merged with the Ohio Medical University, which was organized in 1890. The faculty consists of 33 professors and 26 lecturers, demonstrators, etc., a total of 59. Clinical material is furnished by the Protestant Hospital, Hawke's Hospital, State Hospital, St. Francis Hospital, Lawrence Hospital, St. Anthony's Hospital and college dispensaries. This college is a member of the Association of American Medical Colleges. The course covers four years of eight months each. Fees, $100 per year; matriculation fee, $5; graduation fee $10. The Dean is Dr. George M. Waters. Enrolment of the two schools for 1906-7 was 202; graduates 39. The next session begins Sept. 25, 1907, and ends May 20, 1908.

Toledo.

Toledo Medical College.—The school was organized in 1882, and in 1904 became the Medical Department of Toledo University. It has a faculty of 17 professors, 15 lecturers and assistants, in all 32. Toledo Hospital, St. Vincent's and Robinwood Hospitals, Lucas County Infirmary Hospital, Toledo Hospital for the Insane, and a free dispensary supply clinical facilities. The curriculum embraces four years of eight months each. The fees are $75 for each year, with a matriculation fee of $5, payable once. The Dean is Dr. Park L. Myers, 2730 Monroe St. Total enrolment for 1906-7 was 20; graduates, 8. The next session opens Oct. 1, 1907, and closes May 20, 1908.

OKLAHOMA.

Oklahoma, population 558,261, has two medical schools, the School of Medicine of the University of Oklahoma, which is located at Norman, a city of 2,225 inhabitants, and the College of Medicine of Epworth University, located at Oklahoma City, which has a population of 12,800.

Norman.

School of Medicine, University of Oklahoma.—This school was organized in 1903 and gives only the first two years of the medical course, each session extending over a period of nine months. Two courses are offered, one covering two years, at the completion of which a certificate is given; the other a combined course of four years, leading to the degree of B.S. Students are encouraged to take the latter course. The college has a faculty of 10, and is a member of the Association of American Medical Colleges. Total registration for 1906-7 was 13. The Acting Dean is Dr. R. P. Stoops. The next session begins Sept. 10, 1907, and ends June 11, 1908.

Oklahoma City.

College of Medicine Epworth University.—This school was organized in 1904. The faculty consists of 22 professors and 3 assistants, instructors, etc., a total of 25. The Oklahoma City and St. Anthony's hospitals, Amie Rescue Home and a college dispensary furnish material for clinical instruction. The course of study covers four years of seven months each. The total fees are about $70 each year. The Dean is Dr. A. K. West. The registration for 1906-7 was 16; graduates, 1. The fourth session begins Oct. 2, 1907, and ends May 10, 1908.

OREGON.

Oregon, population 461,451, has two medical colleges: Medical Department Willamette University, located in Salem, a city of 4,258 people, and University of Oregon Medical Department, in Portland, a city of 98,655 population. Board and lodging may be obtained in Salem for from $3 to $5 per week and in Portland for from $4 to $6.

Portland.

University of Oregon Medical Department.—This department of the State University was organized in 1887, and has a faculty of 14 professors and 22 assistants, lecturers, etc., a total of 36. Good Samaritan and St. Vincent's hospitals, containing 200 and 350 beds, respectively, and Multomah County Hospital furnish good material for clinical study. Out-patient clinics are held at Pilgrim Chapel. This school is a member of the Association of American Medical Colleges. The course is four years of seven and one-half months each. Fees: First year, $142.50; second, $137.50; third, $107.50, and for the fourth, $57.50. The Dean is Dr. Simeon E. Joseph. The total number of students for 1906-7 was 86; graduates, 20. The next session opens Sept. 16, 1907, and closes May 1, 1908.

Salem.

Medical Department Willamette University.—The school was organized in 1864. The faculty consists of 16 professors and 8 assistants, a total of 19. Clinical facilities for study are supplied by Salem Hospital and a college dispensary. This school is a member of the Association of American Medical Colleges. The course embraces four years' work of seven months each. Fees: First and second years, $110 each; third, $75, and $50 for the fourth year. The Dean is Dr. W. H. Byrd. Total enrolment for 1906-7 was 45; graduates, 16. The next session begins Sept 15, 1907, and ends May 1, 1908.

PENNSYLVANIA.

Pennsylvania, population 6,824,115, has seven medical colleges. Of these Philadelphia, having a population of 1,367,716, contains six, as follows: University of Pennsylvania Department of Medicine, Jefferson Medical College, Hahnemann Medical College, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple College Department of Medicine. Board and lodging cost from $4 a week upward. The other school, Western Pennsylvania Medical College, is situated in Pittsburg, a city of 345,043 people. The cost of board and lodging is from $4 to $6 a week.

Philadelphia.

University of Pennsylvania Department of Medicine.—This is the first medical college established in this country, having been organized in 1765 as the Medical Department of the College of Philadelphia; the first degree was granted in 1768. When from the College of Philadelphia the University of Pennsylvania was organized in 1791, it became the Medical Department of the University, its present relation. The faculty is made up of 27 professors, 2 associate professors, 4 adjunct professors, 7 assistant professors, 112 demonstrators, lecturers, associates, instructors, etc., a total of 152. Clinical material is furnished by the University Hospital, capacity 300 beds, which treats over 14,000 cases annually; University Maternity Pavilion, with 50 beds; Philadelphia Hospital, containing 1,000 beds; Pennsylvania Hospital, Children's Hospital and the Southeastern Hospital and Dispensary. The requirements for admission will be increased, beginning with the session of 1908-9, to the equivalent of one year's work in a college of arts. The course embraces study for four years of nine months each. The total fees for each year are $200, with a matriculation fee of $5 for the first year. The Dean is Dr. Charles H. Frazier. Total enrolment for 1906-7 was 588; graduates, 114. The next session opens Sept. 27, 1907, and closes June 17, 1908.

Jefferson Medical College of Philadelphia.—This school was organized in 1825, and has a faculty of 30 professors and 94 lecturers, demonstrators, etc., a total of 124. Jefferson Hospital, together with its maternity department, are used exclusively by students of the school for clinical study. A new fireproof hospital, having 300 beds, with provision for a large dispensary, is now in use. The following hospitals are also open for study of clinical cases: Pennsylvania, Philadelphia, St. Joseph's, German, Municipal and Wills Eye hospitals. The course of study covers graded work of four years of eight months each. The tuition is $180 a year, with a matriculation fee of $5, paid but once. The Dean is Dr. James W. Holland. The total number of students for 1906-7 was 629; graduates, 126. The next session opens Sept. 24, 1906, and closes June 8, 1908.

Medico-Chirurgical College of Philadelphia.—This school was organized in 1881, and has a faculty made up of 29 professors and 59 assistants, lecturers, etc., 88 in all. Opportunities for clinical study are offered by the Medico-Chirurgical Hospital, with 125 beds, and its children's and maternity hospital, having 30 beds. In common with other schools, the following are used: Philadelphia, Pennsylvania, German, Samaritan, St. Joseph's, St. Agnes', St. Mary's, Methodist, Jewish and the Philadelphia Lying-in hospitals. The work embraces four years of eight months each. Fees: $150 per annum; matriculation, $5, payable once. The Dean is Dr. Seneca Egbert. Total enrolment 1906-7 was 434; graduates, 75. The next session opens Sept. 23, 1907, and will close June 6, 1908.

Woman's Medical College of Philadelphia.—This school was organized in 1850, and has a faculty of 10 professors and 37 assistants, lecturers, etc., in all 47. Clinical facilities are offered by the Hospital of the Woman's Medical College of Pennsylvania, Woman's Hospital, West Philadelphia Hospital for Women, German, Jewish, Children's and Philadelphia hospitals, Presbyterian Hospital, Wills Hospital for Diseases of the Eye, the Howard Hospital and the Philadelphia Lying-in Charity. The curriculum covers four years of eight months each. Fees: $140 each year. The Dean is Dr. Clara Marshall. Total enrolment for 1906-7 was 152; graduates, 29. The next session begins Sept. 25, 1907, and will end May 20, 1908.

Hahnemann Medical College and Hospital.—Homeopathic. This was organized in 1848 and has a faculty of 27 professors and 51 lecturers, instructors, etc., in all 78. Hahnemann College Hospital furnishes material for clinical work. The work covers four years of eight months each. Fees: For each year, $150; matriculation, $5. Total number of students for 1906-7 was 188; graduates, 48. The Dean is Dr. Herbert L. Northrop. The sixtieth session begins Sept. 25, 1907, and will end May 24, 1908.

Medical Department of the Temple College.—This school was organized in 1901. It has a faculty of 19 professors and 40 instructors and assistants, a total of 59. Beginning in September, 1907, there will be a four-year day course and a five-year evening and day course. Three years of evening work will be required to cover the work of the two first years of the day course. All junior and senior work must be done in day classes. The fees are $150 per year. The total enrolment for 1906-7 was 90; graduates, 16. The Dean is Dr. I. Newton Snively. The next session begins Sept. 16, 1907, and ends June 16, 1908.

Pittsburg.

Western Pennsylvania Medical College.—This is the Medical Department of the Western University of Pennsylvania, and was organized in 1886. The faculty is composed of 47 professors and 57 associates, assistants, etc., 104 in all. Clinical material for study is furnished by a college dispensary, and the Emma Kaufman Clinic, Reineman Maternity Hospital, Mercy, South Side, Passavant and St. John's hospitals. The course of study embraces four years of nine months each. The total fees are $150 for each year. The Dean is Dr. J. C. Lange. Total enrolment for 1906-7 was 346; graduates, 48. The next session begins Oct. 1, 1907, and will close June 12, 1908.

PHILIPPINE ISLANDS.

Manila.

University of Saint Thomas Medical Department.—The University was founded by a papal decree in 1587, and the medical school was added in 1871. The faculty consists of 19 professors. The course extends over a period of six years of nine months each. The first year is a preparatory one, devoted to the teaching of physics, chemistry and biology. The degree of licenciado is conferred at the conclusion of the fifth year, and the degree of doctorado at the end of the sixth year, during which only special work is done. This last year is optional, the degree of licenciado entitling the holder to all the rights and privileges of the medical practitioner. The degree is equivalent to the English M.B. The Rector of the university is Dr. Fr. Raymundo Vetasquez; the Secretary of the Medical Department is Lic. Blas C. Alcuaz.

Philippine Medical College.—This school has just been organized under the support of the Philippine Commission, which appropriated $62,500 for the first session, which begins this fall. The requirement for admission will conform to the standards in the United States and Great Britain. The Secretary is Dr. Harry T. Marshall.

SOUTH CAROLINA.

South Carolina, population 1,434,901, has one medical college, situated in Charleston, a city of 56,062 people. Board and room can be obtained for from $12 to $16 a month.

Charleston.

The Medical College of the State of South Carolina.—This school was founded in 1823. The faculty is made up of 10 professors and 12 assistants, etc., 22 in all. Clinical facilities are offered by the New Roper Hospital, capacity 150 beds. The course covers four years of seven months each. The total fees for each of the first two years are $100, and $75 each for the last two. The Dean is Dr. Edward F. Parker. Total enrolment for 1906-7 was 130; graduates, 21. The next session opens Oct. 1, 1907, and closes May 1, 1908.

TENNESSEE.

Tennessee, population 2,147,166, has eleven medical colleges. Of these Vanderbilt University Medical Department, the Medical Department of the University of Nashville, University of Tennessee Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 80,865. Board and lodging cost from $3 to $4 a week. Knoxville, population 34,344, contains two colleges, Tennessee Medical College and Knoxville Medical College. The cost of room and board in that city is from $2.50 to $4 a week. Chattanooga Medical College is situated in Chattanooga, a city of 30,469 people. Board and lodging cost there from $2 a week upward. Memphis Hospital Medical College, the College of Physicians and Surgeons and the University of West Tennessee are located in Memphis, population 113,669, where good board can be obtained for from $3 to $4 a week. The other school, the Sewanee Medical College, is located at Sewanee, a town of 500.

Chattanooga.

Chattanooga Medical College.—This is the Medical Department of Grant University and was organized in 1889. The faculty consists of 10 professors and 16 instructors, demonstrators, etc., total 26. Clinical facilities are afforded by Baroness Erlanger Hospital, a county asylum, and a dispensary. This school is a member of the Southern Medical College Association. The course covers four years of seven months each. The total fees approximate $55 each session. The Dean is Dr. J. R. Rathmell. The enrolment for 1906-7 was 249; graduates, 36. The next session opens about Oct. 1, 1906, and ends April 30, 1907.

Knoxville.

Tennessee Medical College.—This school was organized in 1889 and is now the Medical Department of the Lincoln Memorial University. It has a faculty of 14 professors and 12 assistants, a total of 26. The Lincoln Memorial Hospital, owned and controlled by the faculty, furnishes material for clinical study. This school is a member of the Southern Medical College Association. The curriculum covers four years of seven months each. Fees: First and second years, $50; third and fourth years, $60; matriculation fee, $5; graduation fee, $25. The Registrar is Dr. E. R. Zemp. Total number of students for 1906-7 was 80; graduates, 16. Next session begins Nov. 1, 1907, and closes about June 1, 1908.

Knoxville Medical College.—Colored. This school was established in 1900. The teaching force comprises 13. The course covers four years of seven months each. Fees, $40 per year. The Secretary is Dr. H. M. Green. Total number of students for 1906 7 was 32; graduate, 1. The next session opens Nov. 4, 1907, and closes June 6, 1908.

Memphis.

Memphis Hospital Medical College.—This school, organized in 1878, has a faculty of 11 professors and 26 assistants, besides quiz masters. Clinical facilities are furnished by the City Hospital, Presbyterian Hospital, St. Joseph's Hospital and the East End Dispensary. This school is a member of the Southern Medical College Association. The course covers four years of seven months each. The total fees for the first three years are $75; for the fourth, $100. The Dean is Dr. W. R. Rogers. Total registration for 1906-7 was 388; graduates, 66. The twenty-eighth annual session will begin Oct. 1, 1907, and close April 30, 1908.

College of Physicians and Surgeons.—This college was organized in 1906 and has a faculty of 20. The Memphis City Hospital furnishes clinical material. Access will also be had to St. Joseph's Presbyterian and Lucy Brinkley hospitals. The course covers four years of seven months each. The enrolment for 1906-7 was 64; graduates, 22. The Dean is Dr. Heber Jones, Tennessee Trust Building. The next session begins Oct. 1, 1907, and ends April 1, 1908.

Medical Department of the University of West Tennessee.—Colored. This school, organized in 1900, has a faculty of 10. The course is four years of seven months each. Clinical facilities are furnished by the Houston Hospital and a dispensary. The fees are $40 per year; graduation, $10 extra. Registration for 1906-7 was 23; graduates, 3. The President is Dr. M. V. Lynk. The next session opens Sept. 16, 1907, and closes April 18, 1908.

Nashville.

Vanderbilt University Medical Department.—This school was founded in 1874, and in 1895, when the present medical building was completed, the course was extended, the standard raised.

The present faculty of 35 consists of 20 professors and 15 lecturers. The school is a member of the Association of American Medical Colleges. The course covers four years of seven and a half months each. The minimum entrance requirement is a high school diploma or its equivalent. The total fees are $125 each year. The Dean is Dr. William L. Dudley. Total enrolment for 1906-7 was 215; graduates, 42. The next session begins on or about Sept. 18, 1907, and ends May 1, 1908.

UNIVERSITY OF NASHVILLE MEDICAL DEPARTMENT.—This school established in 1850, has a faculty of 10 professors and 15 lecturers, assistants, etc., in all 25. This school is a member of the Southern Medical College Association. The course of study covers four years of seven and a half months each. The tuition for each of the four years is $75. The Dean is Dr. William G. Ewing. Total enrolment for 1906-7 was 414; graduates, 86. The next session begins Oct. 1, 1907, and ends April 30, 1908.

UNIVERSITY OF TENNESSEE MEDICAL DEPARTMENT.—This school was organized in 1876 as the Nashville Medical College; its present relations were assumed in 1879. The faculty is composed of 13 professors and 18 lecturers, assistants, etc., 31 in all. The school is a member of the Southern Medical College Association. The course covers four years of seven months each. The total fees for each of the first three years are $100 and $125 for the fourth year. The Dean is Dr. Paul F. Eve, 614 Broad St. Total enrolment for 1906-7 was 167 students; graduates, 41. The next session begins Sept. 16, 1907, and ends May 1, 1908.

MEHARRY MEDICAL COLLEGE.—Colored. This school was organized in 1876 as the Medical Department of Central Tennessee College, now Walden University. This school is a member of the Association of American Medical Colleges. The faculty is made up of 12 professors and 13 instructors, demonstrators, etc., 25 in all. The work embraces four years of seven months each. The total fees are for the first year, $52; second and third years, $55 each, and $60 for the fourth year. The Dean is Dr. G. W. Hubbard. Total registration for 1906-7 was 300; graduates, 73. The next session begins Sept. 4, 1907, and ends April 3, 1908.

Sewanee.

MEDICAL DEPARTMENT OF THE UNIVERSITY OF THE SOUTH.—This school was organized in 1892 and has a faculty of 21 members. It is a member of the Southern Medical College Association. The curriculum covers four years of seven months each. The Dean is Dr. J. S. Cain. Total enrolment for 1906-7 was 150; graduates, 39. The fifteenth course opened April 1, 1906-7, and closes Nov. 1, 1907.

TEXAS.

Texas, population 3.455.300, has seven medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 37,789 inhabitants. Good board and room can be procured for from $15 to $20 a month. The Medical Department of Fort Worth University is at Fort Worth, population of 27,192. The cost of board and room in that city is from $12 to $15 a month. The Baylor University College of Medicine, the Medical Department of Southwestern University, the College of Physicians and Surgeons and the Physio-Medical College of Texas are situated in Dallas, population 44.159. The Gate City Medical College is situated in Texarkana, having a population of 5,256.

Dallas.

BAYLOR UNIVERSITY COLLEGE OF MEDICINE.—This is a new name for the University of Dallas Medical Department, which was organized in 1907. In June, 1903, it became the Medical Department of Baylor University at Waco. In 1905 it merged with the Dallas Medical College. The faculty numbers 20 professors and 16 assistants, total 36. Parland Hospital, with 90 beds; St. Paul's Sanitarium, Baptist Memorial Hospital and a college dispensary and hospital furnish clinical material. The course covers four years of seven months each. The school is a member of the Southern Medical College Association. The fees are $75 for each of the four years, with a matriculation fee of $5, paid once, and a graduation fee of $25. The Dean is Dr. E. H. Cary. Total registration for 1906-7 was 57; graduates, 6. The seventh session opens Oct. 1, 1907, and ends May 1, 1908.

SOUTHWESTERN UNIVERSITY MEDICAL COLLEGE.—This is the Medical Department of Southwestern University and was organized in June, 1903. It has a faculty of 15 professors and 15 instructors, total 30. The course of instruction covers four years. This school is a member of the Southern Medical College Association. The fees are: Matriculation, $5, paid once; annual tuition, $75; graduation, $25. The hospitals open for clinical teaching are St. Paul's Sanitarium, City Hospital, Texas Baptist Memorial Hospital, Children's Home, Mission Home, Woman's Home, St. Joseph Orphanage, St. Matthew's Home for Children, Dr. H. K. Leake's Private Infirmary and Outdoor Clinic of the Settlement Home. The Dean is Dr. John O. McReynolds. Total registration, 1906-7, was 68; graduates, 9. The fifth session opens Oct. 2, 1907, and closes May 1, 1908.

COLLEGE OF PHYSICIANS AND SURGEONS.—This school was founded in 1904 as the Bell Medical College, and in 1905 the name was changed to the above. It has a total teaching staff of 15. The course extends over four years of six months each. The fees for the first three years are $80, and $105 for the fourth year. The Dean is Dr. Arthur C. Bell. Total registration for 1906-7 was 103; graduates, 23. The next session begins Oct. 2, 1907, and closes April 25, 1908.

PHYSIO-MEDICAL COLLEGE OF TEXAS.—This college was organized in 1902. It has a faculty of 21 professors and 4 assistants, total 25. The course is four years of thirty weeks each. The fees are, first year, $70; fourth year, $85; other years, $65. Enrolment, 1906-7, was 44; graduates, 2. The Secretary is Dr. R. L. Spann. The next session opens Oct. 8, 1907, and closes May 16, 1908.

Fort Worth.

MEDICAL DEPARTMENT OF FORT WORTH UNIVERSITY.—This school was organized in 1894 and has a faculty of 15 professors and 22 lecturers, assistants, etc., in all 37. Clinical facilities are supplied by St. Joseph's Hospital, with 200 beds; the Benevolent Home, containing 75 beds; the Delia Collins' Rescue Home, having 50 beds, and a college dispensary. The school is a member of the Southern Medical College Association. The course covers four years of seven months each. The total fees for each of the first three years are $75 and $100 for the fourth year. The Dean is Dr. Frank Gray. The total enrolment for 1906-7 was 176; graduates, 19. The next session opens Oct. 3, 1907, and closes May 3, 1908.

Galveston.

UNIVERSITY OF TEXAS MEDICAL DEPARTMENT.—This department of the State University was organized in 1891 and has a faculty of 22. The John Sealy Hospital and St. Mary's Infirmary supply material for clinical study. Requirements for admission: Graduates of approved schools and colleges, graduates of affiliated high schools, holders of first-grade state teachers' certificates and students of approved colleges and universities are admitted without entrance examination. Others must pass examinations on the following prescribed subjects: English, 3½ units; history, 1½ units; algebra, 1½ units; 1½ units in either geometry, Latin or physics, and 5 additional units from elective subjects, or 6 units if Latin be included. (A unit is a high school course pursued for one session.) The curriculum embraces four years of eight months each. Fees: First year, $50; second and third, each $20, and $5 for the fourth. The Dean is Dr. William S. Carter. Total registration for 1906-7 was 188; graduates, 27. The seventeenth session begins Oct. 1, 1907, and ends May 30, 1908.

Texarkana.

GATE CITY MEDICAL COLLEGE.—Organized in 1904. The length of each course is seven months. The Faculty numbers 20 professors and assistants. Registration, 1906-7, was 209; graduates, 54. The Dean is Dr. J. W. Decker. The next session begins Oct. 1, 1907, and ends May 4, 1908.

UTAH.

Utah, population 309.734, has one medical college, situated at Salt Lake City, which has 57.138 people. This college is the Medical Department of the University of Utah, which gives only the first two years of the medical course.

Salt Lake City.

UNIVERSITY OF UTAH DEPARTMENT OF MEDICINE.—The department was organized in 1906 and offers the first two years of the medical course, each year extending over thirty-six weeks. The medical faculty consists of 7 professors and 16 lecturers and assistants, a total of 23. Fees: First year, total $62.50; second year, $68.75. The Dean is Ralph V. Chamberlain, Ph. D. The enrolment for 1906-7 was 46. The third session begins Sept. 12, 1907, and ends June 8, 1908.

VERMONT.

Vermont, population 349,251, has one medical school, located at Burlington, a town of 19.885 people. Board and room cost from $3.50 to $5 a week.

Burlington.

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE.—This school was organized in 1822, but suspended from 1836 until 1854, when it was reorganized. The faculty consists of 31 professors and 15 assistants, instructors, etc., in all 46. The Mary Fletcher Hospital and a free dispensary furnish material for clinical instruction. The course of study covers four years of seven months each. The total fees for each of the first three years are $115 and $140 for the fourth year. The Dean is Dr. H. C. Tinkham; Secretary, H. L. White, A.M. Total registration of students for 1906-7 was 165; graduates, 34. The fifty-fifth session begins Nov. 14, 1906, and ends June 24, 1908.

VIRGINIA.

Virginia, population 1.953.284, has three medical colleges, one, the Medical Department of the University of Virginia, situated in Charlottesville, population 6.449, and two, the Medical College of Virginia and the University College of Medicine, in Richmond, population 86,148. Board and room can be obtained for $18 a month and upward in Charlottesville, and from $12 to $20 a month in Richmond.

Charlottesville.

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—This school was organized in 1827, and has a faculty of 25. The course is four years of nine months each. The requirements for admission are the completion of a three years' high school course or its equivalent, and a year of chemistry, physics, and biology. A free dispensary and a new hospital with a capacity of 110 beds furnish the clinical facilities. Fees: First year, $150; second year, $140; third year, $120; fourth year, $100. The Dean is Dr. R. H. Whitehead. Total enrolment for 1906-7 was 134; graduates, 31. The next session opens Sept. 12, 1907, and closes June 12, 1908.

Richmond.

MEDICAL COLLEGE OF VIRGINIA.—This school was organized in 1838 as the Medical Department of Hampden Sidney College, Virginia. In 1858 it took its present name. In 1860 the college became a state institution. Clinical material is furnished by the Memorial Hospital and the City Free Dispensary. The State Penitentiary Hospital and other public charities and asylums of the city afford additional clinical material. This school is a member of the Southern Medical College Association. The course embraces four years of eight months each. Fees: $100 each year; graduation fee, $30. The Dean is Dr. Christopher Tompkins. Total registration for 1906-7 was 212; graduates, 29. The next session begins Sept. 24, 1907, and ends May 20, 1908.

UNIVERSITY COLLEGE OF MEDICINE.—This school was organized in 1893 and has a faculty of 19 professors, 43 lecturers, assistants, etc., a total of 62. Clinical facilities are furnished by Virginia Hospital, Richmond Eye, Ear and Throat Infirmary, containing 34 beds; the City Hospital, City Jail, State Penitentiary and a college dispensary. This school is a member of the Association of American Medical Colleges. The curriculum covers four years of eight months each. The total fees are $100 for each year. The President is Dr. Stuart McGuire; the Dean is Dr. Paulus A. Irving. Total enrolment for 1906-7 was 182; graduates, 43. The next session begins Sept. 18, 1907, and ends May 19, 1908.

WEST VIRGINIA.

West Virginia, population 1,056,805, has one medical college, College of Medicine of the West Virginia University, located at Morgantown, a city of 1,900 inhabitants.

Morgantown.

WEST VIRGINIA UNIVERSITY COLLEGE OF MEDICINE.—This school was organized in 1902 and gives only the first two years of the medical course. Each college term extends over nine months. The faculty consists of 6 professors and 5 assistants, 11 in all. The school is a member of the Association of American Medical Colleges. Tuition to students residing in the state, $25; for others, $50 per year. The Dean is Dr. J. N. Simpson. Total registration in 1906-7 was 45. The next session begins Sept. 16, 1907, and closes June 18, 1908.

WISCONSIN.

Wisconsin, population 2,069,042, has three medical colleges, the Medical Department of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city having a population of 20,886, and the Milwaukee Medical College and Wisconsin College of Physicians and Surgeons, situated in Milwaukee, a city of 312,736 people. Clinical facilities are furnished them in common by the County Hospital, with 300 beds, and the Milwaukee Hospital for the Insane. Board and lodging can be had for from $3 to $5 a week.

Madison.

UNIVERSITY OF WISCONSIN, COLLEGE OF MEDICINE.—This department of the University of Wisconsin was authorized at the recent session of the State Legislature. The work will be limited to the first two years of the medical course. For matriculation a candidate must have had in addition to a four year high school course at least two years in a college of arts and science or an equivalent training. Two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology are specifically required. The college will be open for the matriculation of students Sept. 25-26, 1907. The college year runs to June 8, 1908. For further information address the Registrar, University of Wisconsin.

Milwaukee.

MILWAUKEE MEDICAL COLLEGE, MEDICAL DEPARTMENT OF MARQUETTE UNIVERSITY.—This school was organized in 1893 and has a faculty of 36 professors and 29 lecturers, instructors, etc., a total of 65. Clinical material is furnished by Trinity and the County Hospitals, Milwaukee Hospital for the Insane and a college dispensary. The school is a member of the Association of American Medical Colleges. The course covers four years of eight months each. The total fees are $125 each for the first three years and $135 for the fourth year. The Dean is Dr. William H. Earles. Total number of students for 1906-7 was 130; graduates, 27. The fourteenth session begins Sept. 17, 1907, and closes May 20, 1908.

WISCONSIN COLLEGE OF PHYSICIANS AND SURGEONS.—This college was organized in 1893 and has a faculty composed of 20 professors and 26 associates, assistants, etc., a total of 46. St. Joseph's Hospital, containing 150 beds; the college dispensary, the Milwaukee County Hospital and the Hospital for the Insane supply clinical material. The school is a member of the Association of American Medical Colleges. The curriculum includes four years of eight months each. Fees: Matriculation, paid once, $5; general ticket, $100; for the use of the microscope a fee of $2 is charged for each course. The Secretary is Dr. W. H. Washburn. Total enrolment for 1906-7 was 62; graduates, 21. The next session begins Sept. 24, 1907, and ends May 27, 1908.

THE AMERICAN MEDICAL ASSOCIATION STANDARD OF MEDICAL EDUCATION.

THE IDEAL STANDARD.

The ideal standard to be aimed at from the present viewpoint should consist of: (A) Preliminary education sufficient to enable the candidate to enter our recognized universities, such qualifications to be passed on by the state authorities. (B) A five-year medical course, the first year of which should be devoted to physics, chemistry and biology, and such arrangements should be made that this year could be taken either in a school of liberal arts or in the medical school. Of the four years in pure medical work, the first two should be spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics, and the specialties. (C) A sixth year as an interne in a hospital or dispensary should then complete the medical course.

Under such a scheme the majority of men would begin the study of medicine between 18 and 19 years of age, and would graduate from the hospital interneship at from 24 to 25. A college education is recognized as a desirable preparation for a limited number of men, but it is thought that it is not and never will be desirable to make such college education a requirement to the study of medicine, as it would make the age of graduation from 27 to 28 years, which is regarded as too old a period at which the young medical man should begin his life's work. It is obvious that this very desirable scheme of requirements can not be at once demanded or recommended.

STANDARD NOW RECOMMENDED.

The minimum standard now recommended prerequisite to the practice of medicine is as follows:

1. (a) The preliminary requirement to be a four-year high school education or its equivalent, such as would admit the student to one of our recognized universities; (b) and in addition (as soon as conditions warrant), a year of not less than nine months, devoted to the study of physics, chemistry, biology and one modern language, preferably German, to be taken either in a college of liberal arts or in a recognized medical college having a preliminary year devoted exclusively to the subjects mentioned.
2. There should be a requirement that previous to matriculation in a medical college every student must secure from the State Examining Board a "medical student's entrance certificate," which would be issued either on presentation of credentials of preliminary education not less than that laid down by requirement one, or on passing an examination given by the Board and which will satisfy the Board that the student has an equivalent education.
3. A medical training in a medical college, having four years of not less than thirty weeks each year, exclusive of holidays, of thirty hours per week of actual work.
4. Graduation from an approved medical college required to entitle the candidate to an examination before a state examining board.
5. The passing of a satisfactory examination before a state examining board.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

The requirements for admission to and graduation from colleges holding membership in force until April 10, 1905, were as follows:

SECTION 1.—Each college holding membership in this Association shall require of each student, before admission to its course of study, an examination, the minimum of which shall be as follows:

1. In English, a composition on some subject of general interest. This composition must be written by the student at the time of the examination, and should contain at least 200 words. It should be criticised in relation to thought, construction, punctuation, spelling and handwriting.
2. In Arithmetic, such questions as will show a thorough knowledge of common and decimal fractions, compound numbers, and ratio and proportion.
3. In Algebra, such questions as will bring out the student's knowledge of the fundamental operations, factoring, and simple quadratic equations.
4. In Physics, such questions as will discover the student's understanding of the elements of mechanics, hydrostatics, hydraulics, optics and acoustics.
5. In Latin, an examination on such elementary work as the student may offer, showing a familiarity usually attained by one year of study; for example, the reading of the first 15 chapters of Cæsar's Commentaries, and the translation into Latin of easy English sentences involving the same vocabulary.

SEC. 2.—In place of this examination, or any part of it, colleges, members of this Association, are at liberty to recognize the official certificates of reputable literary and scientific colleges, academies, high schools, and normal schools, and also the medical student's certificate issued by any state examining board covering the work of the foregoing entrance examination.

SEC. 3.—Colleges, members of this Association, may allow students who fail in one or more branches in this entrance examination the privilege of entering the first-year course, but such students shall not be allowed to begin the second course until the entrance requirements are satisfied.

SEC. 4.—Colleges, members of this Association, are free to honor official credentials issued by medical colleges of equal requirements, except in the branches of study embraced in the last year of their own curriculum.

(*Continued on page 592.*)

NAME AND LOCATION OF COLLEGE.	Population of city in which college is located. (Census Bureau est. 1903.)	Number of students registered, session of 1906-7.		Graduates 1907.		Total number of teachers.	Weeks in college year.	Total students in all colleges in state, 1906-7.	Total graduates all colleges in state, 1907.
		Men.	Women	Men.	Women				
ALABAMA								283	40
Birmingham Medical College., Birmingham—R.	42,087	113	...	12	...	34	24	...	...
Medical College of Alabama, Mobile.—R.	40,686	170	...	28	...	23	28	...	...
ARKANSAS								269	37
Arkansas University, Little Rock.—R.	42,036	180	2	25	1	43	28	...	...
College of Physicians and Surgeons.—R.	42,036	87	...	11	...	39	28	...	...
CALIFORNIA								416	102
Cooper Med. Coll., San Francisco.—R.	855,919	103	9	24	5	61	86	...	...
University of California, San Francisco.—R.	855,919	46	8	20	4	58	86	...	...
Hahnemann Medical College, San Francisco.—H.	855,919	23	5	2	0	82	82	...	...
College of P. and S., San Francisco.—R.	855,919	70	9	15	1	40	82	...	...
Oakland Coll. of Med. and Surg., Oakland.—R.	70,386	8	2	1	1	30	86	...	...
University of Southern California, Los Angeles.—R.	116,420	84	15	21	6	55	83	...	...
College of P. and S., Los Angeles.—R.	116,420	29	5	2	0	39	86	...	...
COLORADO								201	47
Denver and Gross Coll. of Med., Denver.—R.	144,588	93	8	26	3	70	33	...	...
Westminster University College of Medicine.—P.	144,588	29	13	5	1	37	29	...	...
Colorado School of Medicine, Boulder.—R.	6,150	58	...	12	...	37	35	...	...
CONNECTICUT.								153	29
Yale University Medical Department, New Haven.—R.	114,600	153	...	29	...	56	36	...	...
DISTRICT OF COLUMBIA								483	119
George Washington University, Washington.—R.	293,217	215	...	63	...	81	33	...	...
Georgetown University, Washington.—R.	293,217	82	...	12	...	54	33	...	...
Howard University Medical Department, Washington.—R.	293,217	178	8	40	4	35	32	...	...
GEORGIA								619	90
Atlanta College of P. and S., Atlanta.—R.	96,550	200	...	37	...	41	28	...	...
Atlanta School of Medicine, Atlanta.—R.	96,550	233	...	20	...	35	29	...	...
Georgia Coll. of Eclectic Med. and Surg., Atlanta.—E.	96,550	76	...	12	...	...	...	...	...
International Medical Missionary College.—R.	96,550	12	...	1	...	10	...	...	...
University of Georgia, Augusta.—R.	41,283	98	...	20	...	80	28	...	...
ILLINOIS								2,996	608
American Medical Missionary College, Chicago.—R.	1,873,880	28	18	4	6	28	35	...	...
Bennett Coll. of Eclectic Med. and Surg., Chicago.—E.	1,873,880	133	20	30	4	51	31	...	...
College of Medicine and Surgery, Chicago.—Ph.M.	1,873,880	16	12	1	1	37	30	...	...
College of Physicians and Surgeons, Chicago.—R.	1,873,880	463	38	136	10	155	33	...	...
Hahnemann Medical College, Chicago.—H.	1,873,880	118	18	31	11	86	31	...	...
Hering Medical College, Chicago.—H.	1,873,880	72	8	9	2	52	32	...	...
Illinois Medical College, Chicago.—R.	1,873,880	208	4	38	2	50	30	...	...
Jenner Medical College, Chicago.—R*	1,873,880	177	8	17	2	53	38	...	...
Northwestern University, Chicago.—R.	1,873,880	473	...	134	...	121	34	...	...
Rush Medical College, Chicago.—R.	1,873,880	533	34	82	1	238	34	...	...
National Medical University, Chicago.—P.	1,873,880	230	20	24	2	35	36	...	...
Chicago College of Medicine and Surgery, Chicago.—R.	1,873,880	225	14	33	2	74	32	...	...
Dearborn Medical College, Chicago.—R*	1,873,880	119	7	23	3	45	39	...	...
INDIANA								373	105
Indiana Medical College, Indianapolis.—R.	191,033	221	6	66	4	111	34	...	...
Physio-Med. Coll. of Indiana, Indianapolis.—Ph. M.	191,033	23	2	7	...	47	32	...	...
Eclectic Med. Coll. of Indiana, Indianapolis.—E.	191,033	12	...	2	...	...	28	...	...
Indiana Univ. Sch. of Med. and the State Coll. of P. & S.—R.	191,033	105	4	25	0	45	33	...	...
IOWA								548	113
Drake University College of Medicine, Des Moines.—R.	65,754	67	9	16	1	51	35	...	...
Keokuk Medical College of Phys. and Surg., Keokuk—R.	14,803	120	7	27	3	25	31	...	...
Sioux City College of Medicine, Sioux City.—R.	81,701	25	4	9	1	26	34	...	...
State University of Iowa, Homeo. Dept., Iowa City.—H.	7,987	44	0	4	0	19	34	...	...
State University of Iowa, Medical Dept., Iowa City.—R.	7,987	257	15	47	5	27	34	...	...
KANSAS								233	52
Kansas Medical College, Topeka.—R.	35,388	79	3	13	1	42	31	...	...
School of Medicine, Univ. of Kansas, Kansas City.—R.	55,348	112	3	29	...	70	35	...	...
Eclectic Medical University, Kansas City—E.	55,348	32	4	7	2	49	28	...	...
KENTUCKY								1,223	385
Hospital College of Medicine, Louisville.—R.	215,945	256	...	94	...	51	28	...	...
Kentucky School of Medicine, Louisville.—R.	215,945	270	...	66	...	47	28	...	...
Louisville Medical College, Louisville.—R.	215,945	180	...	53	...	30	30	...	...
Louisville National Medical College, Louisville.—R.	215,945	48	2	12	1	24	30	...	...
Southwestern Homeopathic Med. Coll., Louisville.—H.	215,945	11	...	1	...	27	28	...	...
University of Louisville, Louisville.—R.	215,945	456	...	158	...	34	30	...	...
LOUISIANA								567	100
Flint Medical College, New Orleans.—R.	300,625	50	1	8	1	16	32	...	...
Tulane University, New Orleans.—R.	300,625	516	...	91	...	61	28	...	...
MAINE								94	16
Medical School of Maine, Portland.—R.	52,656	94	...	16	...	34	32	...	...
MARYLAND								1,562	355
Baltimore Medical College, Baltimore.—R.	513,313	481	...	97	...	67	32	...	...
Baltimore University School of Medicine, Baltimore.—R.	513,313	23	...	5	...	24	34	...	...
College of Phys. and Surg., Baltimore.—R.	513,313	302	...	75	...	51	32	...	...
Johns Hopkins University, Baltimore.—R.	513,313	252	12	66	4	95	33	...	...
Atlantic Medical College, Baltimore.—H.	513,313	17	5	9	2	37	32	...	...
University of Maryland, Baltimore.—R.	513,313	311	...	62	...	63	32	...	...
Woman's Medical College, Baltimore.—R.	513,313	...	34	...	6	84	32	...	...
Maryland Medical College, Baltimore.—R.	513,313	125	...	29	...	41	32	...	...
MASSACHUSETTS								961	160
Boston University School of Medicine, Boston.—H.	594,618	68	28	8	5	52	32	...	...
College of Physicians and Surgeons, Boston.—R.	594,618	112	11	24	2	45	35	...	...
Harvard University Medical School, Boston.—R.	594,618	866	...	64	...	147	36	...	...
Tufts Medical College, Boston.—R.	594,618	342	34	46	11	95	32	...	...
MICHIGAN								656	154
Detroit College of Medicine, Detroit.—R.	309,653	158	...	68	...	98	33	...	...
Detroit Homeopathic Medical College, Detroit.—H.	309,653	20	9	6	8	36	28	...	...
Michigan College of Medicine and Surgery, Detroit.—R.	309,653	6	...	0	...	36	34	...	...
Grand Rapids Medical College, Grand Rapids.—R.	91,630	10	...	10	...	...	...	...	...
University of Michigan, Dept. of Medicine, Ann Arbor.—R.	16,033	349	22	47	5	66	35	...	...
University of Michigan, Homeopathic Dept., Ann Arbor.—H.	16,033	73	9	12	3	35	35	...	...
MINNESOTA								311	61
University of Minnesota, Homeo. Dept., Minneapolis.—H.	214,112	14	...	6	...	62	35	...	...
University of Minnesota, Dept. of Med., Minneapolis.—R.	214,112	180	8	86	1	99	35	...	...
Hamline University, Minneapolis.—R.	214,112	105	4	18	...	45	35	...	...
MISSISSIPPI.								124	22
University of Mississippi, Oxford.—R.	2,000	18	...	...	...	8	35	...	...
Mississippi Medical College, Meridian.—R.	15,079	104	2	22	...	20	25	...	...

* Evening Colleges. R, Regular; H, Homeopathic; E, Eclectic; Ph.-M., Physio-Medical; P, Paapathic.

NAME AND LOCATION OF COLLEGE.	Population of city in which college is located. (Census Bureau est. 1903.)	Number of students registered, session of 1906-7.		Graduates 1907.		Total number of teachers.	Weeks in college year.	Total students in all colleges in state, 1906-7.	Total graduates all colleges in state, 1907.
		Men.	Women	Men.	Women				
MISSOURI.								1,682	345
University Medical College, Kansas City.—R.	173,064	238	...	57	...	65	34	...	...
Kansas City Hahnemann Med. Coll., Kansas City.—H.	173,064	71	3	11	...	41	30	...	...
Ensworth Central Med. Coll., St. Joseph.—R.	110,479	117	...	26	...	38	32	...	...
Barnes Medical College, St. Louis.—R.	612,279	326	26	75	4	69	32	...	...
St. Louis University, St. Louis.—R.	612,279	268	...	56	...	105	31	...	...
St. Louis College of Phys. and Surg., St. Louis.—R.	612,279	270	...	44	...	37	29	...	...
American Medical College, St. Louis.—E.	612,279	34	4	7	2	17	29	...	...
Homeopathic Med. Coll. of Missouri, St. Louis.—H.	612,279	39	5	9	2	24	30	...	...
Washington University, St. Louis.—R.	612,279	214	1	50	0	111	32	...	...
University of Missouri, Columbia.—R.	5,651	61	5	2	0	25	35	...	...
NEBRASKA.								326	70
University of Nebraska, Omaha.—R.	113,361	77	5	15	1	75	35	...	...
Creighton Medical College, Omaha.—R.	113,361	163	4	35	0	57	32	...	...
Lincoln Medical College, Lincoln.—E.	44,243	48	2	11	1	26	32	...	...
Nebraska College of Medicine, Lincoln.—R.	44,243	25	2	6	1	38	33	...	...
NEW HAMPSHIRE.								62	11
Dartmouth Medical College, Hanover.—R.	1,884	62	...	11	...	21	36	...	...
NEW YORK								2,375	430
Albany Medical College, Albany.—R.	93,920	195	...	40	...	85	30	...	...
College of Physicians and Surgeons, New York.—R.	3,716,139	337	...	93	...	150	34	...	...
Cornell University, New York.—R.	3,716,139	318	24	62	10	173	34	...	...
Eclectic Medical College, New York.—E.	3,716,139	66	17	11	0	41	30	...	...
Long Island College Hospital, New York.—R.	3,716,139	342	...	87	...	144	33	...	...
New York Homeo. Med. College, New York.—H.	3,716,139	109	...	22	...	78	30	...	...
New York Woman's Medical College, New York.—H.	3,716,139	...	24	...	4	43	30	...	...
University and Bellevue Medical College, New York.—R.	3,716,139	502	...	68	...	103	32	...	...
Fordham University, School of Medicine, New York.—R.	3,716,139	124	...	...	...	28	34	...	...
Syracuse University, Syracuse.—R.	114,443	147	6	24	0	56	33	...	...
University of Buffalo, Buffalo.—R.	381,403	203	11	55	4	73	33	...	...
NORTH CAROLINA								371	48
Leonard Medical School, Raleigh.—R.	13,934	149	...	24	...	10	29	...	...
University of North Carolina, Raleigh.—R.	13,934	114	...	10	...	36	32	...	...
North Carolina Medical College, Charlotte.—R.	20,050	69	...	14	...	32	28	...	...
Wake Forest School of Medicine, Wake Forest.—R.	823	39	...	...	...	10	35	...	...
NORTH DAKOTA.								15	...
University of North Dakota, University.—R.		15	...	...	...	22	35	...	...
OHIO.								764	167
Western Reserve University, Cleveland.—R.	414,950	87	...	10	...	91	34	...	...
Cleveland Coll. of Phys. and Surg., Cleveland.—R.	414,950	86	6	13	0	66	32	...	...
Cleveland Homeopathic Med. Coll., Cleveland.—H.	414,950	37	6	9	1	56	30	...	...
Eclectic Medical Institute, Cincinnati.—E.	332,934	92	5	28	3	29	30	...	...
Medical College of Ohio, Cincinnati.—R.	332,934	129	4	34	1	89	32	...	...
Pulte Medical College, Cincinnati.—H.	332,934	11	4	4	1	33	31	...	...
Miami Medical College, Cincinnati.—R.	332,934	73	2	16	0	50	32	...	...
Ohio Medical University, Columbus.—R.	135,487	128	4	21	0	42	32	...	...
Starling Medical College, Columbus.—R.	135,487	69	1	17	1	53	32	...	...
Toledo Medical College, Toledo.—R.	145,901	18	2	8	0	32	31	...	...
OKLAHOMA.								29	1
University of Oklahoma, Norman.—R.	3,632	13	...	...	...	10	36	...	...
Epworth University Med. Dept., Oklahoma City.—R.	12,800	14	2	1	...	25	29	...	...
OREGON.								131	36
University of Oregon, Portland.—R.	98,655	76	10	17	3	39	30	...	...
Willamette University, Salem.—R.	4,258	43	2	15	1	19	30	...	...
PENNSYLVANIA.								2,427	456
Temple College of Medicine, Philadelphia.—R.*	1,367,716	90	...	16	...	59	36	...	...
University of Pennsylvania, Philadelphia.—R.	1,367,716	583	...	114	...	152	34	...	...
Hahnemann Medical College, Philadelphia.—H.	1,367,716	188	...	48	...	78	32	...	...
Jefferson Medical College, Philadelphia.—R.	1,367,716	629	...	126	...	124	34	...	...
Woman's Medical College, Philadelphia.—R.	1,367,716	...	152	...	29	47	31	...	...
Medico-Chirurgical College, Philadelphia.—R.	1,367,716	434	...	75	...	88	34	...	...
Western Pennsylvania Medical College, Pittsburg.—R.	345,043	337	9	47	1	110	34	...	...
SOUTH CAROLINA.								130	21
Medical College of South Carolina, Charleston.—R.	56,062	129	1	20	1	22	28	...	...
TENNESSEE.								2,032	425
Tennessee Medical College, Knoxville.—R.	34,344	78	2	16	0	20	23	...	...
Knoxville Medical College, Knoxville.—R.	34,344	22	10	1	0	13	28	...	...
University of Nashville, Nashville.—R.	82,711	414	...	86	...	26	30	...	...
Vanderbilt University, Nashville.—R.	82,711	215	...	42	...	35	30	...	...
University of Tennessee, Nashville.—R.	82,711	167	...	41	...	31	30	...	...
Meharry Medical College, Nashville.—R.	82,711	285	15	69	4	24	28	...	...
Memphis Hospital Medical College, Memphis.—R.	113,669	388	...	66	...	37	28	...	...
College of Physicians and Surgeons, Memphis.—R.	113,669	64	...	22	...	45	28	...	...
University of West Tennessee, Memphis.—R.	113,669	23	...	3	...	22	28	...	...
University of the South, Sewanee.—R.	440	150	...	39	...	22	28	...	...
Chattanooga Medical College, Chattanooga.—R.	30,469	249	...	36	...	29	28	...	...
TEXAS.								834	140
Fort Worth University, Fort Worth.—R.	27,192	173	3	19	0	37	28	...	...
University of Texas, Galveston.—R.	31,742	181	7	27	...	22	32	...	...
Baylor University, Dallas.—R.	44,159	56	1	5	1	36	28	...	...
Physio-Med. Coll. of Texas, Dallas.—Ph.M.	44,159	38	6	2	...	25	29	...	...
Southwestern University Medical College, Dallas.—R.	44,159	67	1	9	0	30	28	...	...
College of Physicians and Surgeons, Dallas.—R.	44,159	103	...	23	...	15	28	...	...
Gate City Medical College, Texarkana.—R.	5,256	195	3	53	1	21	28	...	...
UTAH.								46	...
University of Utah, Dept. of Med., Salt Lake City.—R.	57,138	46	...	...	...	11	35	...	...
VERMONT.								165	34
University of Vermont, Burlington.—R.	19,855	165	...	34	...	46	30	...	...
VIRGINIA.								528	103
Medical College of Virginia, Richmond.—R.	86,148	212	...	29	...	48	32	...	...
University College of Medicine, Richmond.—R.	86,148	182	...	43	...	62	32	...	...
University of Virginia, Charlottesville.—R.	6,449	134	...	31	...	26	36	...	...
WEST VIRGINIA.								45	...
University of West Virginia, Morgantown.—R.	1,895	45	...	...	...	11	36	...	...
WISCONSIN.								192	48
Milwaukee Medical College, Milwaukee.—R.	312,736	123	7	27	...	67	32	...	...
Wisconsin College of Phys. and Surg., Milwaukee.—R.	312,736	61	1	20	1	46	32	...	...

Marginal Number.	NAME OF COLLEGE.	1 Alabama ... 678	2 Arizona ... 10	3 Arkansas ... 510	4 California ... 375	5 Colorado ... 225	6 Connecticut ... 176	7 Delaware ... 51	8 Dist. Colum. ... 120	9 Florida ... 120	10 Georgia ... 595	11 Idaho ... 84	12 Illinois ... 2126	13 Indian Ter. ... 129	14 Indiana ... 752	15 Iowa ... 785	16 Kansas ... 457	17 Kentucky ... 812	18 Louisiana ... 532	19 Maine ... 186	20 Maryland ... 382	21 Massachusetts ... 950	Marginal Number.
1	Birmingham Medical College.—R	100								1	1								2				1
2	Medical College of Alabama.—R	154																					2
3	Medical Dept. Arkansas University.—R			162									1	8	1				3				3
4	College of Physicians and Surgeons.—R	2	1	63							2		1	3									4
5	Cooper Medical College.—R	1			77											2	1			2		2	5
6	Medical Dept. Univ. of California.—R				50																		6
7	Hahnemann Med. C. of the Pacific.—H				28																		7
8	Coll. of P. and S., San Francisco.—R				29								3		2	2	1						8
9	Oakland Coll. of Med. and Surgery.—R*				9						1												9
10	Coll. of Med., Univ. of So. California.—R		1		77								2		1	1	1						10
11	College of P. and S., Los Angeles.—R		1		6	2							2		2	2	1						11
12	Denver and Gross Coll. of Med.—R					45					1		9		4	3	4				2	2	12
13	Westminster Univ., Coll. of Med.—P			2		1							3		2		3					2	13
14	Colorado School of Medicine				3	27						1	2		2	1	1			2		2	14
15	Yale University, Dept. of Medicine.—R					105							2			1						12	15
16	George Wash. Univ., Dept. of Med.—R	1			3	1			45	2	1	1	13		5	3	1	4	5		12	5	16
17	Georgetown Univ., School of Med.—R					1	4		16						1				1		1	8	17
18	Howard University, Medical Dept.—R	2						3	32	3	8		6		2		1	1	4		5	3	18
19	Atlanta College of Phys. and Surg.—R	21								12	125							1	2				19
20	Atlanta School of Medicine.—R	27		1						10	167								3				20
21	Georgia Coll. of Eclectic M. and S.—E**	6								4	42			1									21
22	Medical College of Georgia.—R									1	76												22
23	Internat. Med. Miss. Coll., Atlanta.—R										12												23
24	American Medical Missionary Coll.—R				1		1						4		1	3							24
25	Bennett Coll. of Eclectic M. and S.—E			2	1	1	1	1				2	72		10	6	1	2		1			25
26	Illinois Medical College.—R	3		4	1	2							50	3	35	10		5	6		3		26
27	College of Medicine and Surgery.—Ph.M.												24		1	1							27
28	College of Physicians and Surgeons.—R	1			2	2			1				305	2	13	24	6	5	1			1	28
29	Hahnemann Med. Coll. and Hospital.—H			3						1			48		12	16	6	1					29
30	Hering Medical College.—H				1				1	1			46		3	3	4				1	1	30
31	Jenner Medical College.—R												185										31
32	Northwestern University Med. School.—R	1			8	3					1	6	197		24	41	6	2	3				32
33	Rush Medical College.—R	2	2	4	12	2	1			1		3	204	2	32	64	17	2	2	1		1	33
34	National Medical University.—P																						34
35	Chicago Coll. of Med. and Surgery.—R	1			3								94		20	8	2					3	35
36	Dearborn Medical College.—R												106		1	1	1						36
37	Indiana Medical College.—R												5		200								37
38	Physio-Medical Coll. of Indiana.—Ph.M.												2		16								38
39	Eclectic Medical College of Indiana.—E*														12								39
40	Indiana University School of Med.—R												4		99								40
41	Drake University Coll. of Medicine.—R					3							1			59	4						41
42	Keokuk Med. Coll. of P. and S.—R			1								1	41		1	59	4						42
43	Sioux City College of Medicine.—R															29							43
44	State Univ. of Iowa, Hom. M. Dept.—H											1	1			38	1						44
45	State Univ. of Iowa. Med. Dept.—R												9			240					1	1	45
46	Kansas Medical College.—R					2	1										70						46
47	School of Medicine, Univ. of Kansas.—R					1										1	93						47
48	Hospital College of Medicine.—R.*			3	1								8		24	1		166	6			1	48
49	Kentucky School of Medicine.—R	2	1	5						3	4	2	5		24			123	6			2	49
50	Louisville Medical College.—R	5		5						1	1		3	1	20	2	2	69	7			1	50
51	Louisville National Medical College.—R	1								1	1			1	11		1	31					51
52	Southwestern Homeopathic Med. Coll.—H														5			6					52
53	Medical Dept. Univ. of Louisville.—R	7		4	1		2			2	4		12	8	48	7	5	215	5	1	2		53
54	Flint Med. Coll. of New Orleans Univ.—R	1		1							2								27				54
55	Tulane University, Medical Dept.—R	53		12						9	10			1					235				55
56	Med. School of Maine, Bowdoin Coll.—R																			83		8	56
57	Baltimore Medical College.—R	2			2		34	1	3	2	4					1		1	1	9	59	55	57
58	Baltimore Univ. School of Medicine.—R							1													16		58
59	College of P. and S. of Baltimore.—R	3				1	17	1		1	1				1		1	1	1	4	41	20	59
60	Johns Hopkins Medical School.—R	6		4	9	1	15	1	4	2	9		3		7	6	4	2		6	33	3	60
61	Atlantic Medical College.—H						1	2												1	7		61
62	Woman's Med. Coll. of Baltimore.—R						2								1				1	1	9	1	62
63	Univ. of Maryland, School of Med.—R						7	5	1	5	11				1		1	1	1	1	126	2	63
64	Maryland Medical College.—R	1					4	5			2		1		1					8	88	8	64
65	Boston University School of Med.—H						1		1											2		63	65
66	College of Physicians and Surgeons.—R						8	2		1	1									1		92	66
67	Harvard University Medical School.—R	2		1	10	4	1						1		1	2	1	2		17		226	67
68	Tufts College Medical School.—R	1					4											1		15		301	68
69	Detroit College of Medicine.—R											1			3			1					69
70	Detroit Homeopathic Med. College.—H*														1								70
71	Michigan College of Med. and Surg.—R																						71
72	Grand Rapids Medical College.—R																						72
73	Univ. of Michigan Dept. of M. and S.—R	2			3	1	2			1		2	26		24	2		4				2	73
74	Univ. of Mich., Homeo. Med. College.—H						1						2		4								74
75	Coll. of Hom. M. and S., U. of Minn.—H																						75
76	College of M. and S., Univ. of Minn.—R												2		2	3		1					76
77	Medical Dept. of Hamline Univ.—R																						77
78	Med. Dept., Univ. of Miss., Oxford.—R																						78
79	Mississippi Med. Coll., Meridian.—R	6																	1				79
80	Medical Dept., Washington Univ.—R	1		6		1						1	54	8	1	1	1	2			1		80
81	Univ. Med. Coll. of Kansas City.—R			2	2	1			2					5		2	84		1				81
82	Kansas City Hahnemann Med. Coll.—H				1								5		3	5	33	1					82
83	Nebraska College of Medicine.—R															1	1						83
84	Eclectic Medical University.—E													2			6						84
85	Ensworth Central Medical College.—R												2			8	25						85
86	Barnes Medical College.—R*	1		10	1	2						4	76	6	8	5	8	5	1	1		1	86
87	St. Louis University Med. Dept.—R	1		6	2	3						1	64	1	2	11	9	8	4		1		87
88	St. Louis Coll. of Phys. and Surgs.—R			5		2					1		99	8	8	17	2	6	1				88
89	American Medical College.—E			3		1								1									89
90	Homeo. Med. College of Missouri.—H		1	2									12		8	2	1						90
91	Dept. of Med. of the Univ. of Missouri			1		1							1		1	2	1		1				91
92	Univ. of Nebraska Coll. of Med.—R															8							92
93	John A. Creighton Med. College.—R												2			50	1						93
94	Lincoln Med. Coll. of Cotner Univ.—E			1		1										1	4						94
95	Nebraska College of Medicine.—R															1	1						95
96	Dartmouth Medical College.—R						6						2							4		19	96
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	
Marginal Number.	Michigan 504	Minnesota 382	Mississippi 678	Missouri 1,057	Montana 41	Nebraska 318	New Hampshire 120	New Jersey 456	New Mexico 21	New York 2,324	Nevada 10	North Carolina 494	North Dakota 79	Ohio 922	Oklahoma 110	Oregon 151	Pennsylvania 2085	Rhode Island 122	South Carolina 325	South Dakota 63	Tennessee 6[illegible]3	Texas 1,006	Utah 111	Vermont 125	Virginia 579	Washington 101	West Virginia 363	Wisconsin 414	Wyoming 6	Foreign 574	P. Is., Ha., P.R. 37	Total 24,256	Marginal Number.
1			3							1									1		2	1								1		113	1
2			14																1		1											170	2
3	1			1						2					1							1	1									182	3
4			2	3								1									4	3								2		87	4
5		3									3			1		3	2	1		1										13		112	5
6					1						1																			2		54	6
7																																28	7
8				2	1	1				1	2					2		1			1	2	5		1	1		1		19	2	79	8
9																																10	9
10	1					2		1	1	2			1	2										1		2				3		99	10
11			1	4					2	1			1		1	1				1								1		5		34	11
12	1		1	4		1	1	3	1	6			1	1			4						1		1			2	1	2		101	12
13	4	2	1	4			1			3							3					2		2				1		6		42	13
14	1	1	1	1			1			3		1		2			1				1					1	1			2		58	14
15	3			1		1		2		9				1		2	3	3						1						7		153	15
16	6	3	1	3		2	2	4		10		6	1	5	3		20	1	4	1	2	3	4	1	21	1	3	2		3	1	215	16
17	1							1		12				1			12	8							7		3	2		3		82	17
18			2	2				2		5		7		3			11	1	7	1	4	4			26		6			35		186	18
19			6						1	1		4			1				13		1	9								3		200	19
20			2							1		8			1				9		1	1					2					233	20
21									1	1											1	1										57	21
22			1							1							1		15						1					1		97	22
23																																12	23
24	10		1	1			1	1						4			2				1							1		14		46	24
25	4	7		2		7				4				5	1		7			2	1	1	1					7		4		153	25
26	3	7	4	12		3			3			2	8	15	2		3		3		10	5	3		4					3		212	26
27														1														1				28	27
28	12	10		9	3	8		1		4			1	9		1		1	1	8		3	3			5	1	46		12		501	28
29	6	3	1	1	1	2				6				5			3			1		1	1	1		2		8		7		136	29
30	3	1		1		1				2				1	1							2	1		1	1				4		80	30
31																																185	31
32	21	14		6	4	9		1	1	3		2	12	12	1	5	1			11	2	3	7			9	2	48	1	6		473	32
33	20	17	4	16	3	15	1		1	2		2	6	18	5	4	7	1	1	2	3	9	7	1	1	5	1	48	1	14		567	33
34																																250	34
35	20	10	1	4	3	2				5	1		4	20			12	1		1	2	2					4	11		5		239	35
36				1						1	1			3					1		1							2		7		126	36
37	2				2								1	12			1			1	1							1		1		227	37
38										1				3																3		25	38
39																																12	39
40														4								1								1		109	40
41		1		3	1								1							1						1				1		76	41
42	1	2		9	1	1						1				1				1								3				127	42
43																																29	43
44	1	1																								1						44	44
45		5		1	1	1							1			1				5			1			1		2		2		272	45
46				2									2	1	1		1					1	1									82	46
47				17											3																	115	47
48	1	1	7	2	1									3			2				4	7			7	1	9			1		256	48
49	3	4	2	9	1	2	1	4		3	1	2		8			3				5	20		4		3	15	2		1		270	49
50			12	3		1			2	2				1			5				4	18			3		9				3	180	50
51				1								1									1											50	51
52																																11	52
53	1		11	14		1		1		4		2		9		1	13		6	1	7	7			6		53				1	456	53
54			14																			3								3		51	54
55			99	1								2		1	1				5		6	73			1					7		516	55
56							1											1												1		94	56
57	1		1				9	35		71		12		7		1	60	16	6					10	24	1	25			28		481	57
58								1									1	1							1		1			1		23	58
59			1		1	1		19		18		10		13			43	13	3	1	3		3		9		48			15	8	302	59
60	2	2	1	6	1	2	3	9		25		7	2	15		3	29	2	4	1	1	6	1	1	10	2	4	10				264	60
61										3							6								1		1					22	61
62								2		2		3		1			3		1								1	1		1	4	84	62
63								5		14		38					16	1	17			1			23		15			11	8	311	63
64							3	2		8		1					16	2	3		1	3			4		14			10		125	64
65			1				1	2		5							4	5						4	1					6		96	65
66							3			6		1					1	2	1											9		123	66
67	2	2		2		1	12	1		12		3		7		1	6	22	1			2		2	2		1	1		16	2	366	67
68							26			1				1			1	13				1		3						8		376	68
69	104					1		1		3			1	5			1				1			1				2		32	1	158	69
70	19									4				2																2		29	70
71	6																															6	71
72	10																															10	72
73	168	4	1	3	5	3		1		28		2	1	28	1		22	2	1	4		4	2	1	2	3	1	5		9	1	371	73
74	29			1		1				17				13			10			2	1									1		82	74
75		14																														14	75
76		157			1								10							4						1		7				188	76
77	1	85			1					1			8	1			2			2				1		2		3		2		109	77
78			18																													18	78
79			97	1															1													106	79
80	1		1	121						1				1			1				2	2				3				10		215	80
81		1		123	1	3			2						5	1										2			1			238	81
82				17		1				2				1	1		1				1					1	1					74	82
83	1			23																										1		27	83
84				23										1	3		1															36	84
85				74		2							1		2		1					1						1				117	85
86	1	3	5	180	1	1			1			1		4	3					1	4	13	1		1		3	1		4		352	86
87	2	1	1	104		1			1	3				5	1	2	3					4				7	1	17		6	1	268	87
88	2	2	1	86	1	1			1						6	3	3					9				3				3		270	88
89				32											1																	38	89
90	2			20																										1		44	90
91				51		1				1						1					1	1				1				1		63	91
92		1				72														1												82	92
93	2	2		1		98							1	1						2						2		1	2	2		167	93
94				2		39														1		1										50	94
95	1					23																								1		27	95
96							21	1										1						7						1		62	96
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	

Marginal Number.	NAME OF COLLEGE.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Marginal Number.
		Alabama 678	Arizona 10	Arkansas 510	California 375	Colorado 225	Connecticut 176	Delaware 51	Dist. Colum. 120	Florida 120	Georgia 595	Idaho 34	Illinois 2126	Indian Ter. 129	Indiana 752	Iowa 785	Kansas 457	Kentucky 812	Louisiana 532	Maine 186	Maryland 382	Massachusetts ... 950	
97	Albany Medical College.—R.							1														3	97
98	College of Physicians and Surgeons.—R.	4			4		9				2		4		8	2	2	1		4	2	9	98
99	Cornell University Medical College.—R.	1		1	2		2											1	1	4		8	99
100	Eclectic Medical College.—E.				1																		100
101	Long Island College Hospital.—H.						6	1	1									2		2	1		101
102	New York Homeo. M. C. and Hosp.—H.				1		5		1							2				1		1	102
103	N. Y. Med. Coll. and Hosp. for Wom.—H																					2	103
104	Univ. and Bellevue Hosp. Med. Coll.—R.				1	2	14						1		2			3		1	1	8	104
105	Syracuse Univ. Coll. of Med.—R.						1										1					2	105
106	University of Buffalo, Medical Dept.—R.														1							1	106
107	Leonard Medical School.—R.	12		1			1		2	5	11			1					1		2		107
108	Wake Forest School of Medicine.—R.																						108
109	North Carolina Medical College.—R.								1														109
110	Med. Dept. Univ. of North Carolina.—R.									2	1												110
111	Med. Dept., Univ. of North Dakota.—R.																						111
112	Western Reserve Univ. Med. Coll.—R.														6		2					2	112
113	Cleveland Coll. of Phys. and Surgs.—R.					1																	113
114	Cleveland Homeopathic Med. Coll.—H.				1																		114
115	Eclectic Medical Institute.—E.			1		1				1			7		7	2	1	10					115
116	Medical College of Ohio.—R.								1						6			20					116
117	Pulte Medical College.—H.																	1					117
118	Miami Medical College.—R.	1											1		1			7					118
119	Ohio Medical University.—R.											1	2		2							3	119
*120	Starling Medical College.—R.												1		1			2					120
121	Toledo Medical College.—R.																						121
122	College of Medicine, Epworth Univ.—R.													1									122
123	School of Med., Univ. of Oklahoma.—R.													1									123
124	University of Oregon, Medical Dept.—R.				1											1							124
125	Medical Dept., Willamette Univ.—R.												1										125
126	Temple Coll. of Phila., Dept. of Med.—R*						2														1		126
127	Univ. of Pennsylvania, Dept. of Med.—R.	6		2	2	2	2	5	1	2	2	1	2		7	6	7	1		2	4	15	127
128	Hahnemann Med. Coll. and Hosp.—H.				1		3	3	2				2			1	1	2		2	3	6	128
129	Jefferson Medical College.—R.	2		3	6		9	11	1	1	4	2	3		3	3	5	3		4		15	129
130	Woman's M. C. of Pennsylvania.—R.				2	1		1	3		1						2	3		2	1	4	130
131	Medico-Chirur. Coll. of Philadelphia.—R.						2	4				1				2		2			2	2	131
132	Western Pennsylvania Med. Coll.—R*.				1								5		4								132
133	Med. Coll. of State of South Carolina.—R.									5													133
134	Tennessee Medical College.—R.									1								10					134
135	Knoxville Medical College.—R.	1		1						3	2				1								135
136	Med. Dept., University of Nashville.—R.	50		32						8	6		6		2		1	14	52				136
137	Vanderbilt University, Med. Dept.—R.	30		6	2						7		3	2				21	10				137
138	University of Tennessee, Med. Dept.—R.	18		4	3					1	1		3	1		1		17	4				138
139	Meharry Medical College.—R.	20		15						13	29		8	2	2	1	4	14	8		1		139
140	Memphis Hospital Medical College.—R.	17		54						1				9					69				140
141	Memphis Coll. of Phys. and Surgs.—R.	1		3							3				1				3				141
142	University of the South.—R.	23		2	1					2	17			2				3	18				142
143	Chattanooga Medical College.—R.	58	1	3	1		3			8	11	2	3	3		2		6	1		1		143
144	Univ. of West Tennessee, Med. Dept.—R.	1		4										1					4				144
145	Med. Dept. Ft. Worth University.—R.	1	1	2	1									16					2				145
146	University of Texas, Dept. of Med.—R.																			1			146
147	Baylor Univ. Coll. of Med.—R.													2		2			2				147
148	Physio-Medical Coll. of Texas.—Ph.M.			4		1								4	1								148
149	Gate City Medical College.—R.	4		43							4		1	18					19			1	149
150	Southwestern Univ. Med. Coll.—R.		1																				150
151	College of Physicians and Surgeons.—R.	1		12									1	15		1	9	1	6			1	151
152	University of Utah, Medical Dept.—R.											1											152
153	University of Vermont, Medical Dept.—R.						7													8		23	153
154	Medical College of Virginia.—R.	2								2													154
155	University College of Medicine.—R.	2			1			2		1	4							1			1	1	155
156	University of Virginia, Dept. of Med.—R.	6		4			1	1	1		2						1	3	1		4		156
157	University of West Virginia.—R.																						157
158	Milwaukee Medical College.—R.						1									3							158
159	Wisconsin Coll. of Phys. and Surgs.—R.														1								159
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

*Total exact; distribution based on that of 1905-6. **Figures for 1905-6.

SEC. 5.—Candidates for the degree of Doctor of Medicine in the year 1899 and thereafter shall have attended at least four courses of medical instruction, each course of at least six months' duration, no two courses of which shall have been in the same calendar year.

SEC. 6.—Colleges, members of this Association, are free to give to students who have met the entrance requirements of the Association additional credit for time on the four years' course as follows: (a) To students having the A.B., B.S., or equivalent degree from reputable literary colleges, one year of time; (b) To graduates and students of colleges, of homeopathic or eclectic medicine, as many years as they attended those colleges, provided they have met the previous requirements of the Association and that they pass an examination in materia medica and therapeutics; (c) To graduates of reputable colleges of dentistry, pharmacy, and veterinary medicine, one year of time.

On April 10, 1905, a new constitution was adopted and the following requirements became effective:

ARTICLE III.

SECTION 1.—Every college holding membership in this Association shall demand of each student, under the condition hereinafter stated, as a minimum requirement for admission to the medical course:

(*a*) A bachelor's degree from an approved college or university,

(*b*) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing not less than two years (4 points) of foreign language, of which one must be Latin, two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, two years (4 points) of laboratory science, and six years (12 points) of further credit in language, literature, history or science. (See amendment, May 6, 1907.)

(*c*) An examination in the following branches: A. Required, 18 points: Mathematics, 4 points; English, 4 points; History, 2 points; Language (2 must be Latin), 4 points; Science (taken from physics, chemistry, botany, zoology), 4 points. See amendment, May 6, 1907.)

B. Optional (to 12 points): English, 2 points, History, 6 points; Language, 6 points; Manual Training, 2 points; Mechanical Drawing, 1 point; Natural Science (botany, biology, zoology), 2 points; Physical Science (chemistry, physics), 2 points; Trigonometry, 1 point; Astronomy 1, Civics 1, Geology 1, Physical Geography 1, Physiology and Hygiene 1, Political Economy 1.

(One point in any subject in a high school or academic course demands not less than five periods per week of forty-five minutes each for eighteen weeks).

(*d*) Certificates from reputable instructors recognized by the superintendent hereinafter to be mentioned or by any state board

	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	
Marginal Number.	Michigan 504	Minnesota 332	Mississippi 678	Missouri 1,057	Montana 41	Nebraska 318	New Hampshire.. 120	New Jersey...... 456	New Mexico 21	New York 2,324	Nevada 10	North Carolina... 494	North Dakota ... 79	Ohio 922	Oklahoma 110	Oregon 151	Pennsylvania 2085	Rhode Island 122	South Carolina .. 325	South Dakota 63	Tennessee 673	Texas 1,006	Utah 111	Vermont 125	Virginia 579	Washington 101	West Virginia.... 363	Wisconsin 414	Wyoming 6	Foreign 574	P. Is., Ha., P.R. 37	Total 24,256	Marginal Number.
97							1	2		185					1		1							1								195	97
98		3	1	3	1		2	49		230	1	1		6		2	10	2	1		1	5	1	1		1	1	4		14	1	387	98
99						1	1	22		280		1		2		1	5	2				1								6		342	99
100								10		72																						83	100
101								22		295				3				1												8		342	101
102								20		73							2													3		109	102
103	1							2		11							1													7		24	103
104		1						64		385				3			6	1						1		1				7		502	104
105								2		135							6													6		153	105
106										205				2			3													1		213	106
107			5	1			1	3		3		51					7		9			1			25					7		149	107
108												33							5						1							39	108
109												60							5						2		1					69	109
110								1		1		102					1		2						4							114	110
111													15																			15	111
112		1								3				62			9			1							1					87	112
113	1						1							79			2				1									7		92	113
114										5				28			8													1		43	114
115		1						2						32			8				2	3					19					97	115
116							1			1				94									1				2			7		133	116
117														13			1															15	117
118														64													1					75	118
119								1						113			8										2					132	119
120	1				1					1				63																		70	120
121	1													19																		20	121
122															14							1										16	122
123															11												1					13	123
124							1			1						59	1									18		1		3		86	124
125																43										1						45	125
126										1						1	77													6		88	126
127	1	5	3	2			4	38		21		10		20		1	351	5	4		2	9	2		3	7	4	2		22	3	588	127
128			1	1				24		11				5			115									1		1		3		188	128
129	3	2	2	3	1	2	3	43		19		22		17	1	6	361	6	1	1	3	2	17	2	4	4	9	3		17		629	129
130	2		2	1		2	1	12		12				4		1	72	1	2							1				19		152	130
131	1					2		29	1	12				3			356	2					1			1				11		434	131
132				2						2				18			296										18					346	132
133																			125													130	133
134												2				1			1		61				3	1						80	134
135			1									4			1		1		1		12	1								3		32	135
136			58	3						2		10			2				19		121	22			4		2					414	136
137			16	2								2			2				8		76	22			2	1		1		2		215	137
138			12	2															1		93	5								1		167	138
139			43	15				1		1		5		3	4		2		18		53	28			1		1			8		300	139
140			134	3											2		2				54	43										388	140
141			25																		20	8										64	141
142	1		30							1		2					8		4		17	14			3		1			1		150	142
143	3		8		1		1	1	1	2		15		7	2	2	5		4	1	61	6	2		9	1	9	2		3		249	143
144			3																1		7	1								1		23	144
145				1										1	21							129								1		176	145
146			1																			186										188	146
147																						51										57	147
148				5																		29										44	148
149			7	3																		96								2		198	149
150																						67										68	150
151									1	1					4						2	44			3	1						103	151
152					1																		44									46	152
153							16			22				1			3	2						79						4		165	153
154	1							1		1		15		1			1		5		1	1			162		18			1		212	154
155								5		1		34							1		1				120		5			1	1	182	155
156			7		1					3		6		1		1	3	1	3		4				74		3	1		2		134	156
157																	4										40			1		45	157
158	8	2						1		4				1						3					1			101		2		130	158
159		1						1		1																		57		1		62	159
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	

of medical examiners duly authorized by law, may be accepted in lieu of any part of this examination. (See amendment, March 19, 1906.)

Sec. 2.—This examination must be conducted by or under the authority of the superintendent of public instruction of the city or state in which the college is located. In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission. (See amendment, March 19, 1906.)

Sec. 3.—A student may be allowed to enter on his medical work conditioned in not more than six points, and these conditions must be removed by satisfactory examination before he is allowed to enter on the second year of his medical course.

Sec. 4.—Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course, but no member of this Association shall admit a student to advanced standing without first communicating with the college from which such student desires to withdraw, and receiving from the dean of such college a direct written communication certifying to the applicant's professional and moral qualifications, and to the exact work he has done in said college.

Sec. 5.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course.

Sec. 6.—Credit may be given to the holder of a Bachelor's degree from an approved college or university for any work in the medical branches which he has successfully completed in his college course, only so far as it is the full equivalent of corresponding work in the medical curriculum. The holder of such Bachelor's degree may also be given time credits of not exceeding one year, provided that such student has had at least 40 hours in physics, 144 hours in chemistry, 24 hours in osteology, 292 hours in human or comparative anatomy, 124 hours in histology, 85 hours in embryology, 145 hours in physiology and 46 hours in materia medica; provided that the applicant for such time credits satisfies the professors of the chairs mentioned in the medical school as to his proficiency in these first-year medical studies, and satisfies the examiner, as provided for in Section 2, Article III, that his studies for which the degree was conferred include the above requirements. Such student may be allowed to complete a course for the medical degree in not less than 31 months, provided he completes the remainder of the medical curriculum in that time. (See amendment, May 6, 1907.)

Sec. 7.—A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

Sec. 8.—Each student shall be obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

TABLE 8.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1906.

State Board of	Total reg. through reciprocity by each state.	Connecticut.	Colorado.	Delaware.	Dist. of Columbia.	Georgia.	Illinois.	Indiana.	Iowa.	Kansas.	Kentucky.	Maine.	Maryland.	Massachusetts.	Michigan.	Minnesota.	Missouri.	Montana.	Nebraska.	New Hampshire.	New Jersey.	New York.	North Carolina.	North Dakota.	Ohio.	Pennsylvania.	South Carolina.	Texas.	Vermont.	Virginia.	Wisconsin.	Wyoming.
Connecticut	8	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...
Delaware	5	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...
District of Columbia	11	...	...	...	...	1	...	...	...	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	1	1	...
Georgia	6	...	...	...	1	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...
Illinois	43	...	...	...	...	...	...	2	27	2	...	...	2	...	4	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	4	...
Indiana	21	...	...	...	...	...	4	...	3	2	3	1	...	...	2	...	...	...	1	...	...	...	...	...	3	...	...	...	...	...	2	...
Iowa	63	...	...	1	...	...	37	2	...	2	...	...	...	...	3	...	5	...	9	...	1	...	1	...	...	...	...	...	...	...	2	...
Kansas	56	1	1	...	...	...	13	3	9	...	1	...	1	...	...	...	18	...	6	...	...	...	...	1	...	...	...	2	...	...	...	...
Kentucky	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryland	8	...	...	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...
Michigan	61	...	...	...	...	...	27	5	7	1	...	1	3	...	...	1	4	1	1	...	...	2	...	...	3	...	...	...	...	...	5	...
Minnesota	42	...	...	...	...	...	20	1	11	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	6	...
Missouri	46	...	1	...	1	...	...	2	6	29	2	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Nebraska	56	...	...	...	...	...	19	2	19	7	2	...	1	...	1	...	...	...	...	...	...	1	...	...	3	...	...	...	...	...	1	...
New Jersey	63	...	...	...	...	...	3	...	...	...	...	1	...	...	...	2	...	...	...	2	...	51	...	...	1	...	...	...	3	...	...	...
New York	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	...	...	...	...	...	...	...	...	...	...	...
North Dakota	21	...	...	...	...	...	10	...	7	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Ohio	23	...	1	...	...	...	12	2	...	...	...	1	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
South Carolina	8	...	...	...	...	...	2	...	...	1	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
South Dakota	29	...	...	...	...	...	...	...	14	...	...	...	...	...	...	13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Texas	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	...	...
Vermont	4	...	...	...	...	...	1	...	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Virginia	19	...	...	...	2	1	1	...	1	...	...	...	11	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...
Wisconsin	61	1	...	...	...	...	36	...	12	1	...	...	...	...	3	4	...	...	3	...	...	...	...	...	1	...	...	...	...	...	...	...
Total received from each state through reciprocity	685	2	3	2	8	2	185	20	116	45	8	6	36	2	28	20	28	1	21	2	23	58	2	1	16	1	1	2	4	14	27	1

Table 8 shows the distribution of physicians registered through reciprocity during 1906. Reports have been received from all states and the statistics are now complete. Reading from left to right gives the number of physicians coming into the state named, as well as showing from what states they came. Reading from above downward gives the number of physicians going out of the state named, as well as showing in what states they were licensed. For example, the first line reading from left to right shows that Connecticut licensed 8 physicians through reciprocity, 2 of which came from Maine, 2 from Massachusetts, and 4 from New York, while the first line reading from above downward shows that 2 physicians from Connecticut were registered elsewhere through reciprocity, 1 locating in Kansas and the other in Wisconsin.

The states which registered the largest numbers through reciprocity were Iowa and New Jersey, each having registered 63; Michigan and Wisconsin registered 61 each, while Kansas and Nebraska registered 56 each.

Illinois had the largest number leave to secure license elsewhere under the reciprocity provision, the total being 185, Iowa coming second with 116, New York third with 58, and Kansas fourth with 45.

Altogether 685 physicians were licensed through reciprocity during 1906 who otherwise would have been compelled to undergo the second exacting written examination before securing licenses in their new locations.

ARTICLE V.

SECTION 1.—The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in the following table, and no college shall be recognized that falls below this standard over 20 per cent. in any one branch or over 10 per cent. in the total. Laboratory or clinic hours may be substituted for didactic hours.

CURRICULUM.

	No. of Hours of Lectures.	Hours of Laboratory.	Hours of Clinics.	Total.
Histology	30	60	..	90
Embryology	30	60	..	90
Osteology	30	..	..	30
Anatomy	190	230	..	420
Physiology	180	120	..	300
Chemistry and Toxicology	100	200	..	300
Materia Medica	40	20	..	60
Pharmacology	40	20	..	60
Therapeutics	90	..	..	90
Bacteriology	40	100	..	140
Pathology	100	140	..	240
Medical Zoology, Postmortem Work and Clinical Microscopy	30	60	..	90
Physical Diagnosis	20	..	80	100
Practice of Medicine	180	..	360	540
Surgery	180	..	360	540
Obstetrics	100	..	60	160
Gynecology	50	..	110	160
Pediatrics	40	..	60	100
Eye and Ear	30	..	30	60
Nose and Throat	30	..	30	60
Mental and Nervous Diseases	60	..	60	120
Electro-Therapeutics	20	..	40	60
Genito-Urinary Diseases	30	..	30	60
Dermatology and Syphilis	20	..	20	40
Hygiene and Public Health	30	..	..	30
Dietetics	30	..	..	30
Medical Jurisprudence	30	..	..	30
	1,750	1,010	1,240	4,000

On March 19, 1906, Article III, Section 1 (*d*), and Section 2 were amended as follows:

SECTION 1.—(*d*) Certificates from reputable instructors recognized by any state board of medical examiners duly authorized by law or by the superintendents of public instruction in states not having a board of examiners, may be accepted in lieu of any part of this examination.

SEC. 2.—This examination must be conducted by or under the authority of the board of examiners or of the superintendent of public instruction of the city or state in which the college is located. In no case shall it be conducted by any person connected with the faculty, medical or otherwise, of the institution to which the student is seeking admission.

On May 6, 1907, Article III, Section 1 (*b*); Section 1 (*c*) A, and Section 6 were amended so as to require two years of Latin instead of one year, as well as to abolish all time credits for baccalaureate degrees, and Section 2 was added to Article V. The new and amended portions are as follows:

SECTION 1.— (*b*) A diploma from an accredited high school, normal school or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study embracing not less than two years (4 points) of Latin, two years (4 points) of mathematics, two years (4 points) of English, one year (2 points) of history, two years (4 points) of laboratory science, and six years (12 points) of further credit in language, literature, history or science.

(*c*) An examination in the following branches: A. Required (18 points): Mathematics (4 points), English (4 points), History (2 points), Latin (4 points), Science (taken from physics, chemistry, botany, zoology), 4 points.

SEC. 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of doctor of medicine.

ART. V, SEC. 2.—Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

The following colleges are members:

College of Medicine University of Southern California, Los Angeles, Cal.; Cooper Medical College, San Francisco, Cal.; University of California Medical Department, Berkeley and San Francisco, Cal.; Colorado School of Medicine, University of Colorado, Boulder, Colo.; Denver and Gross College of Medicine, Medical Department of the University of Denver, Denver, Colo.; Yale University Department of Medicine (Yale Medical School), New Haven, Conn.; George Washington University Department of Medicine, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C.; Howard University Medical Department, Washington, D. C.; American Medical Missionary College, Battle Creek, Mich., and Chicago, Ill.; College of Medicine of the University of Illinois (College of Physicians and Surgeons), Chicago, Ill.; Illinois Medical College, Chicago, Ill.; Indiana Medical College, School of Medicine, Purdue University, Indianapolis, Ind.; University of Indiana School of Medicine, Bloomington, Ind.; State College of Physicians and Surgeons, Indianapolis, Ind.; Drake University College of Medicine, Des Moines, Iowa; College of Medicine

TABLE 10.—SECONDARY SCHOOLS IN THE UNITED STATES IN 1904-5.

Based on the Report of the United States Bureau of Education, 1907, and Reports from State Superintendents of Public Instruction.

Marginal Number.	State.	Number of grades preliminary to High School course.	Public. High Schools and Academies.					Private. High Schools and Academies.					Public and Private. High Schools and Academies.					Proportion to the population —estimate, 1905—one school to every	Average number of teachers to each school.	Average number of students to each teacher.	Average number of secondary students in each school.	Average number of elementary students in each school.	Marginal Number.
			Having a course of four years.	Having a course of three years.	Having a course of two years or less.	Length of course not stated.	Total.	Having a course of four years.	Having a course of three years.	Having a course of two years or less.	Length of course not stated.	Total.	Having a course of four years.	Having a course of three years.	Having a course of two years or less.	Length of course not stated.	Total.						
	Column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1	Alabama	7	36	23	7	14	80	22	2	1	4	29	58	25	8	18	109	18,223	3.1	34.1	59.4	45.5	1
2	Arizona	8	3	0	1	0	4	2	0	0	0	2	5	0	1	0	6	23,379	2.8	35.1	56.8	42.5	2
3	Arkansas	7	19	23	12	5	59	17	2	1	2	22	36	25	13	7	81	17,324	2.7	37.2	64.6	36.9	3
4	California	8	144	3	2	0	149	47	5	0	4	56	191	8	2	4	205	7,907	6.2	26.7	126.1	39.8	4
5	Colorado	8	47	4	1	0	52	5	1	0	0	6	52	5	1	0	58	10,395	6.8	24.2	145.8	19.2	5
6	Connecticut	8-9	54	11	10	1	76	44	2	1	4	51	98	13	11	5	127	7,791	5.9	19.1	98.4	14.9	6
7	Delaware	8	7	6	2	0	15	4	0	0	0	4	11	6	2	0	19	10,150	5.0	24.4	85.8	33.8	7
8	Dist. of Colum.	8	6	0	1	0	7	12	1	0	8	21	18	1	1	8	28	10,817	14.2	15.0	177.7	35.8	8
9	Florida	8	31	6	9	3	49	5	1	0	1	7	36	7	9	4	56	10,663	2.4	42.3	42.5	59.4	9
10	Georgia	6-7	40	74	17	9	140	33	14	4	4	55	73	88	21	13	195	12,338	2.7	40.3	52.5	56.5	10
11	Idaho	8	5	4	3	0	12	3	1	0	0	4	8	5	3	0	16	12,399	4.4	26.6	81.1	35.3	11
12	Illinois	8	304	101	8	4	417	51	7	1	1	60	355	108	9	5	477	11,151	4.7	28.4	109.3	25.3	12
13	Indiana	8	316	190	51	14	571	20	1	0	3	24	336	191	51	17	595	4,502	3.0	29.7	62.8	26.1	13
14	Ind. Territory.	8	6	0	0	2	8	4	2	0	1	7	10	2	0	3	15	33,200	2.6	47.8	52.6	71.6	14
15	Iowa	8	263	71	14	8	351	28	6	1	1	36	291	77	15	4	387	6,180	3.9	27.0	90.2	15.5	15
16	Kansas	8	153	83	54	0	290	9	2	0	1	12	162	85	54	1	302	5,240	2.7	32.6	69.1	19.8	16
17	Kentucky	8	45	20	11	5	81	51	12	0	6	69	96	32	11	11	150	15,276	3.9	23.3	67.5	43.0	17
18	Louisiana	8	23	16	4	1	44	14	7	0	2	23	37	23	4	3	67	22,584	3.8	27.2	65.1	39.1	18
19	Maine	9	157	6	1	11	175	30	1	0	0	31	187	7	1	11	206	3,452	3.0	23.7	64.7	5.4	19
20	Maryland	6-7	46	15	1	3	65	25	4	0	12	41	71	19	1	15	106	11,895	4.7	23.6	83.1	30.1	20
21	Massachusetts.	8	221	14	9	8	252	73	5	0	12	90	294	19	9	20	342	9,131	7.9	27.1	153.9	59.5	21
22	Michigan	8	285	41	44	3	373	18	0	1	0	19	303	41	45	3	392	6,524	4.0	28.1	88.5	23.3	22
23	Minnesota	8	159	2	3	0	164	24	2	0	3	29	183	4	3	3	193	10,217	5.0	24.2	106.3	15.6	23
24	Mississippi	8	19	55	13	13	100	15	7	5	5	32	34	62	18	18	132	12,743	2.4	38.1	44.1	46.6	24
25	Missouri	7-8	146	88	94	9	337	45	3	0	11	59	191	91	94	20	396	8,385	3.7	28.3	77.8	25.9	25
26	Montana	8	16	8	0	1	25	6	0	0	0	6	22	8	0	1	31	9,469	5.1	22.6	91.8	24.4	26
27	Nebraska	8	86	103	161	10	360	15	4	0	2	21	101	107	161	12	381	2,803	2.3	37.9	49.7	37.3	27
28	Nevada	8	1	4	1	0	6	...	...	..	...	...	1	4	1	0	6	7,056	1.7	50.9	23.5	57.5	28
29	N. Hampshire.	8	50	3	4	1	58	26	2	0	1	29	76	5	1	2	84	5,109	4.9	23.3	84.1	30.2	29
30	New Jersey	8	68	14	15	4	101	51	2	0	5	58	119	16	15	9	159	13,227	7.2	19.3	116.9	21.5	30
31	New Mexico	7	8	1	1	0	10	1	0	1	0	2	9	1	2	0	12	17,735	3.1	26.9	56.2	26.9	31
32	New York	8	467	37	24	4	532	157	5	2	21	185	624	42	26	25	717	11,021	6.5	28.1	132.3	54.2	32
33	N. Carolina	7	13	17	5	8	43	35	10	2	22	69	48	27	7	30	112	18,141	3.5	37.2	67.3	53.5	33
34	N. Dakota	8	24	9	5	0	38	1	0	0	0	1	25	9	5	0	39	9,826	3.1	24.4	58.1	18.2	34
35	Ohio	8	441	282	72	6	801	41	1	2	2	46	482	283	74	8	847	5,195	3.1	30.5	68.5	24.9	35
36	Oklahoma	8	18	2	0	1	21	1	2	0	1	4	19	4	0	2	25	19,920	4.0	25.5	91.2	11.7	36
37	Oregon	8	23	7	39	1	70	10	1	0	1	12	33	8	39	2	82	5,627	2.9	32.3	60.4	33.7	37
38	Pennsylvania	8	198	226	64	0	488	83	11	3	26	123	281	237	67	26	611	11,169	4.4	26.7	90.4	26.1	38
39	Rhode Island	8-9	19	2	0	0	21	10	0	0	4	14	29	2	0	4	35	13.431	8.8	19.4	147.5	23.4	39
40	S. Carolina	8-9	25	42	14	19	100	12	1	1	7	15	37	43	15	20	115	12,477	2.6	33.5	50.0	36.6	40
41	S. Dakota	8	43	27	33	0	103	5	1	0	0	6	48	28	33	0	109	3,927	2.4	32.6	44.9	33.8	41
42	Tennessee	7	23	54	11	11	99	39	7	2	10	58	62	61	13	21	157	13,676	2.7	37.8	61.0	48.4	42
43	Texas	6-7	172	105	11	10	298	38	5	2	2	47	210	110	13	12	345	10,015	3.2	30.1	71.0	25.6	43
44	Utah	8	4	2	7	0	13	11	0	1	0	12	15	2	8	0	25	12,389	9.1	25.5	180.7	52.0	44
45	Vermont	9	64	3	4	2	73	18	1	0	0	19	82	4	4	2	92	3,796	3.2	27.6	64.2	24.2	45
46	Virginia	7-8	25	29	8	8	70	40	7	2	12	61	65	36	10	20	131	14,911	3.6	28.6	63.1	38.6	46
47	Washington	8	51	8	31	0	90	11	2	0	2	15	62	10	31	2	105	5,700	3.9	27.8	83.2	24.8	47
48	W. Virginia	8-9	22	13	2	0	37	7	2	0	3	12	29	15	2	3	49	21,567	4.2	22.7	71.2	23.3	48
49	Wisconsin	8-9	222	14	1	0	237	21	0	0	1	22	243	14	1	1	259	8,714	4.7	23.1	98.3	10.3	49
50	Wyoming	7-8	6	4	1	0	11	1	0	0	0	1	7	4	1	0	12	8,960	2.8	27.4	49.8	27.9	50
	Totals	....	4,624	1,872	883	194	7,573	1,241	152	33	201	1,627	5,865	2,024	916	395	9,200	8,977	4.2	28.0	85.4	31.3	
	Column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

The above table gives statistics showing the number of public and private high schools and academies in each state, together with the numbers having respectively courses of four years, three years and two years or less. The number of years in elementary grades required in each state preliminary to the high school course is given in the first column. In the last five columns respectively are given: the proportion of high schools to the population in each state, the average number of teachers to each school, the average number of students to each teacher and the average number of secondary students (high school grade) and elementary students (common school grade) in each school.

In proportion to the population when we add together public and private high schools (note Columns 16 and 17) Nebraska seems to be best provided with high schools, having 1 to every 2,803 people, although most of the high schools have courses of less than four years. The states having the smallest number in proportion to the population are Indian Territory, 1 to every 33,200; Arizona, 1 to 23,379; Louisiana, 1 to 22,584; West Virginia, 1 to 21,567; Oklahoma, 1 to 19,920; Alabama, 1 to 18,223; and North Carolina, 1 to 18,141. In twenty-nine states the proportion of high schools to the population is 1 to 10,000 or more people. The proportion for the entire country is 1 high school to every 8,977 persons.

Column 18 shows the average number of teachers in each school, while Column 19, which gives the average number of students to each teacher, shows whether the schools of the state on an average are overcrowded or not. In Nevada it will be seen that for every teacher in the high schools are 50.9 students, in Indian Territory there are 47.8 students to every teacher, in Florida 42.3, and in Georgia 40.3 to every teacher, or as many students that there are 35 or more students to each teacher.

Column 20 shows the average number of students in each school belonging strictly in the high school grade. The figures in Column 21 give the average number of students of elementary grades in each high school. It appears, therefore, that many of the high schools are not limited to the strictly high school grades.

University of Iowa, Iowa City, Iowa; Sioux City College of Medicine, Sioux City, Iowa; Kansas Medical College, Medical Department of Washburne College, Topeka, Kan.; School of Medicine University of Kansas, Lawrence, Kan.; Hospital College of Medicine, Louisville, Ky.; Kentucky School of Medicine, Louisville, Ky.; Louisville Medical College, Louisville, Ky.; Flint Medical College, Medical Department New Orleans University, New Orleans, La.; Baltimore Medical College, Baltimore, Md.; College of Physicians and Surgeons, Baltimore, Md.; Johns Hopkins University, Medical Department, Baltimore, Md.; University of Maryland School of Medicine, Baltimore, Md.; Woman's Medical College, Baltimore, Md.; Detroit College of Medicine, Detroit, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, Mich.; Hamline University College of Medicine, Minneapolis, Minn.; Medical Department University of Mississippi, Oxford, Miss.; University of Missouri Department of Medicine, Columbia, Mo.; University Medical College, Kansas City, Mo.; Medical Department St. Louis University (Marion-Sims-Beaumont College of Medicine), St. Louis, Mo.; Washington University Medical Department, St. Louis, Mo.; John A. Creighton Medical College, Medical Department of Creighton University, Omaha, Neb.; University of Nebraska College of Medicine, Lincoln and Omaha, Neb; University of Buffalo Medical Department, Buffalo, N. Y.; University of North Carolina Medical Department, Raleigh and Chapel Hill, N. C.; Wake Forest College of Medicine, Wake Forest, N. C.; University of North Dakota Medical Department, University, N. D.; Miami Medical College, Cincinnati, Ohio; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, Cleveland, Ohio; Western Reserve University Medical College, Cleveland, Ohio; Starling-Ohio Medical College, Columbus, Ohio; University of Oklahoma Medical Department, Norman, Okla.; University of Oregon Medical Department, Portland, Ore.: Willamette University Medical Department, Salem, Ore.; Meharry Medical College, Medical Department Walden University, Nashville, Tenn.; Vanderbilt University, Medical Department, Nashville, Tenn.; University College of Medicine, Richmond, Va.: University of West Virginia Medical Department Morgantown, W. Va.; Marquette College Medical Department, (Milwaukee Medical College), Milwaukee, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, Wis.

The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 1764 Lexington Street, Chicago.

SOUTHERN MEDICAL COLLEGE ASSOCIATION.

The following requirements for admission to the freshman year are exacted by the colleges belonging to this Association:

Section 3.—He must possess a diploma of graduation from some literary or scientific institution of learning, or a certificate that he has passed the entrance examination to a university, or a certificate from some legally constituted high school. The minimum preliminary education required by the Southern Medical College Association shall be, after Jan. 1, 1906, a grammar school education and two years' successful attendance at a recognized preparatory school or a high school, or its equivalent, said equivalent to be determined by a superintendent of public instruction. A student may be given one month from date of his admission to submit his certificate of qualification. And if he fails to possess the requisite educational qualifications in one or more branches, he may matriculate and attend his first course of lectures, but must present the requisite certificate before matriculating in the second course, and all tickets or certificates issued in such cases must have the conditions printed plainly on the face of each.

The following colleges are members:

Medical College of Alabama, Mobile, Ala.; Birmingham Medical College, Birmingham, Ala.; Medical College of Georgia, Augusta, Ga.; Medical Department, University of Mississippi, Oxford, Miss.; Medical Department, Epworth University, Oklahoma, Okla.; Medical Department, University of Tennessee, Nashville, Tenn.; Medical Department, University of Nashville, Nashville, Tenn.; Medical Department, Vanderbilt University, Nashville, Tenn.; Memphis Hospital Medical College, Memphis, Tenn.; Chattanooga Medical College, Chattanooga, Tenn.; Tennessee Medical College, Knoxville, Tenn.; Medical Department, University of the South, Sewanee, Tenn.; Medical Department, Fort Worth University, Fort Worth, Texas; Medical Department, Baylor University, Dallas, Texas; Medical Department, Southwestern University, Dallas, Texas; Medical College of Virginia, Richmond, Va.

The president is Dr. Christopher Tompkins, Richmond, Va.; the secretary-treasurer is Dr. G. C. Savage, Nashville, Tenn.

AMERICAN INSTITUTE OF HOMEOPATHY.

The minimum requirements for entrance into the freshman class of all homeopathic medical colleges, as adopted in 1901, are, with abbreviation, as follows:

1. English Composition—Exercise on assigned theme, not less than 200 words. Exercise in reading. Exercise in correction of ungrammatical sentences.
2. Mathematics.—Arithmetical exercises in (a) vulgar fractions, (b) decimals, (c) percentage, (d) proportion, (e) square and cube root, (f) weights and measures, (g) decimal system. Mensuration.—(a) Definition of terms, (b) exercises under the more fundamental rules.
3. Geography.—General facts about North America.
4. History.—General, with particular reference to human progress in art, science and letters. (The examination to avoid exact dates and minor details.)
5. Latin Language.—(a) Grammar, (b) four books of Cæsar or its equivalent.

The colleges recognized as in good standing by this organization are:

Hahnemann Medical College of the Pacific; Denver Homeopathic Medical College; Hahnemann Medical College, Chicago; Hering Medical College; Homeopathic Medical Department of the State University of Iowa; Southwestern Homeopathic College, Louisville, Ky.; Kansas City Hahnemann Medical College; Southern Homeopathic Medical College, Baltimore, Md.; Boston University School of Medicine; Homeopathic Medical College of University of Michigan; Detroit Homeopathic College; College of Homeopathic Medicine and Surgery of University of Minnesota; Homeopathic Medical College of Missouri; New York Homeopathic Medical College: New York Medical College for Women; Cleveland Homeopathic Medical College; Pulte Medical College, Cincinnati; Hahnemann Medical College of Philadelphia.

The secretary is Dr. Frank Kraft, 2055 East Ninetieth Street, Cleveland, Ohio.

NATIONAL CONFEDERATION OF ECLECTIC MEDICAL COLLEGES.

The following are the present minimum requirements for admission to colleges members of this Association:

1. Good English education, to be attested by (a) a diploma from a graded high school or literary or scientific college or university, or (b) regents' medical student's certificate, or (c) entrance examination covering a four years' high school course including an elementary knowledge of natural history, physics and Latin.
2. Graduates from pharmaceutical, dental and veterinary colleges *may be* allowed one year's time on a four-year medical course only on condition that they comply with the entrance requirements and pass all examinations and perform all laboratory work embraced in the course of study of the freshman year. One year's advanced standing *may be* given students with degrees from a recognized literary college.
3. The course of instruction shall consist of a four-year graded course or its equivalent, as herein prescribed, including four sessions of seven months each in four different calendar years.

The following colleges are members of this Association:

American Medical College, St. Louis, Mo.; Bennett College of Eclectic Medicine and Surgery, Chicago, Ill.; California Medical College, San Francisco, Cal.; Eclectic Medical College of the City of New York, New York, N. Y.; Eclectic Medical Institute, Cincinnati, Ohio; Georgia College of Eclectic Medicine and Surgery, Atlanta, Ga.; Lincoln Medical College, Lincoln, Neb.; Kansas City Eclectic Medical University, Kansas City, Mo.

The secretary-treasurer is John K. Scudder, M.D., 1009 Plum Street, Cincinnati, Ohio.

FOREIGN MEDICAL SCHOOLS.

ARGENTINE REPUBLIC.

Buenos Ayres.—Universidad Nacional de Buenos Aires.

Cordova.—Universidad Nacional.

AUSTRALIA.

Adelaide.—University of Adelaide.

Melbourne.—University of Melbourne.

Sydney.—University of Sydney.

AUSTRIA.

Gratz, Styria.—Kaiserliche Königliche Karl Franzens Universität.

Innsbruck, Tyrol.—Kais. König. Leopold Franzens Universität.

Krakow, Galicia.—Uniwersytet Jagiellonski w Krakowie.

Lemberg, Galicia.—C. K. Uniwersytet Imienia Cesarza Franciska I.

Prague, Bohemia.—K. K. Deutsche Karl-Ferdinand-Universität.

Prague, Bohemia.—C. K. Ceská Universita Karlo-Ferdinandova.

Vienna, Nether Austria.—Kaiserliche Königliche Universität.

BELGIUM.

Brussels.—Université Libre de Bruxelles.

Ghent.—Université d l'Etat de Gand.

Liege.—Université de Liège.

Louvain.—Université Catholique.

BRAZIL.

Rio de Janeiro.—Faculdade de Medicine, Cirurgia e Pharmacia.

CANADA.

Halifax, Nova Scotia.—Dalhousie University (including Halifax College).

Kingston, Ontario.—Queen's University.

London, Ontario.—Western University.

Montreal, Quebec.—McGill University.

Montreal, Quebec.—Université Laval.

Quebec, Quebec.—Université Laval.

Toronto, Ontario.—University of Toronto (including the Ontario Medical College for Women, Trinity Medical College and Victoria College).

Winnipeg, Manitoba.—University of Manitoba (Manitoba Medical College).

CHILE.

Santiago.—Universidad de Chile.

CHINA.

Pekin.—North China Union Medical College.

CUBA.

Havana.—Universidad de la Habana.

DENMARK.

Copenhagen.—Kjobenhavns Universitet.

EGYPT.

Cairo.—Kasr il Aini (School of Medicine).

ENGLAND.

Birmingham.—University of Birmingham.

Bristol.—University College.

Cambridge.—University of Cambridge.

Durham.—Durham University (Durham College of Medicine).

Leeds.—University of Leeds.

Liverpool.—University of Liverpool.

London.—University of London (including the following Medical Schools): *a* St. Bartholomew's Hospital, *b* Charing Cross Hospital, *c* St. George's Hospital, *d* Guy's Hospital, *e* King's College, *f* London Hospital, *g* St. Mary's Hospital, *h* Middlesex Hospital, *i* St. Thomas's Hospital, *j* University College, *k* Westminster Hospital, and *l* London (Royal Free Hospital) School of Medicine for Women.

Manchester.—Victoria University (Owen's College, founded in 1851, was merged in Victoria University in 1905).

Oxford.—University of Oxford.

Sheffield.—University of Sheffield.

FRANCE.

Faculties of Medicine (to the degree of doctor in medicine, including the five required examinations).

Bordeaux.—Université de Bordeaux.

Lille.—Université de Lille.

Lyons.—Université de Lyon.

Montpelier.—Université de Montpelier.

Nancy.—Université de Nancy.

Paris.—Université de Paris.

Toulouse.—Université de Toulouse.

Preparatory Schools of Medicine.—Graduates of the 16 following schools are allowed to take the first two examinations if they are presided over by some member of a medical faculty:

(*a*) "*Full Exercise,*" or complete course (covering the work of 16 inscriptions).

Algiers (*Africa*).—Académie d'Alger.

Marseilles.—Université d'Aix-Marseille.

Nantes.—Ecole de Plein Exercice de Médicine et de Pharmacie (part of the University of Rennes).

Rennes.—Université de Rennes.

(*b*) *Reorganized Schools.*—(Completing 12 inscriptions.)

Amiens.—Ecole Préparatoire de Médicine et de Pharmacie (part of the University of Lille).

Angers.—Ecole Préparatoire de Médicine et de Pharmacie (part of the University of Rennes).

Besancon.—Université de Besançon.

Caen.—Université de Caen.

Clermont.—Université de Clermont.

Dijon.—Université de Dijon.

Grenoble.—Université de Grenoble.

Limoges.—Ecole de Médicine et de Pharmacie (part of the University of Poitiers).

Poitiers.—Université de Poitiers.

Reims.—Ecole Préparatoire de Médicine et de Pharmacie (part of the University of Paris).

Rouen.—Ecole de Médicine et de Pharmacie (part of the University of Caen).

Tours.—Ecole Préparatoire de Médicine et de Pharmacie (part of the University of Poitiers).

GERMANY.

Berlin, Prussia.—Königliche Friedrich-Wilhelm Universität.

Bonn, Prussia.—Rheinische Friedrich-Wilheims-Universität.

Breslau, Prussia.—Königliche Universität.

Erlangen, Bavaria.—Königl. Friedrich-Alexanders Universität.

Freiberg, Baden.—Grossherzogliche Badische Albert-Ludwigs-Universität.

Giessen, Hesse.—Grossherzogliche Hessische Ludwigs-Universität.

Gottingen, Prussia.—Königliche Georg-August-Universität.

Griefswald, Prussia.—Königliche Universität.

alle, Prussia.—Vereinigte Friedrichs-Universität Halle-Wittenberg.

Heidelberg, Baden.—Grossherzogliche Ruprecht-Karls-Universität.

Jena, Thuringia.—Grossherzogliche und Herzogliche Sächsische Gesamt Universität.

Kiel, Prussia.—Königliche Christian-Albrechts-Universität.

Konigsberg, Prussia.—Königliche Albertus-Universität.

Leipzig, Saxony.—Universität.

Marburg, Prussia.—Universität.

Munich, Bavaria.—Königliche Bayr. Ludwig-Maximilians-Universität.

Rostock, Mecklenberg.—Universität.

Strassburg, Alsace-Lorraine.—Kaiser-Wilhelms-Universität.

Tübingen, Wurtemberg.—Königliche Eberhard-Karls-Universität.

Würzburg, Bavaria.—Königliche Julius-Maximilians-Universität.

GREECE.

Athens.—Τὸ ἐνμή Ἀθήναις ἐθνικὸν Πανεπιστιον. (National University.)

HUNGARY.

Budapest.—Budapesti Királyi Magyar Tudomány-Egyetem (Royal Hungarian University).

Klausenburg.—Kolozsvári Magyar Királyi Ferencz-Jozsef Tudomány Egyetem (Royal Hungarian Franz-Joseph University).

ICELAND.

Reykjavik.—Loeknaskoli (School of Physicians).

INDIA.

Bombay.—University of Bombay (Grant Medical College).

Calcutta.—University of Calcutta (Medical College of Bengal).

Lahore.—Panjab University (Lahore Medical College).

Madras.—University of Madras (Madras Medical College).

IRELAND.

Dublin.—Royal University of Ireland (including Queen's College, Belfast; Queen's College, Cork; Queen's College, Galway).

Dublin.—University of Dublin (The School of Physic in Ireland, Trinity College).

Dublin.—Catholic University Medical School.

Dublin.—Royal College of Surgeons, Schools of Surgery (including the Carmichael College of Medicine and the Ledwich School of Medicine).

ITALY.

Bologna.—Regia Università degli Studi.

Cagliari, Sardiniæ.—Università degli Studi.

Camerino.—Libera Università degli Studi.

Catania.—Regia Università degli Studi di Catania.

Ferrara.—Libera Università degli studi di Ferrara.

Genoa.—Regia Università degli Studi.

Messina.—Regia Università degli Studi.

Modena.—Regia Università degli Studi.

Naples.—Regia Università degli Studi.

Padua.—Regia Università degli Studi.

Palermo.—Regia Università degli Studi.

Parma.—Regia Università degli Studi.

Paria.—Regia Università degli Studi.

Perugia.—Università Libra degli Studi.

Pisa.—Regia Università degli Studi.

Rome.—Regia Università degli Studi.

Sassari.—Regia Università degli Studi.

Siena.—Regia Università degli Studi.

Turin.—Regia Università degli Studi.

JAPAN.

Kyoto.—Imperial University (part of medical school is located at Fukuoka).

Tokyo.—Imperial University (Tokio Medical College became Medical Department in 1877).

Medical schools are located also at Chiba, Sendai, Okayama, Kanazawa and Nagasaki.

MEXICO.

Mexico.—Instituto Medico Nacional.

NETHERLANDS.

Amsterdam.—Universiteit van Amsterdam.

Groningen.—Rijks-Universiteit te Groningen.

Leyden.—Rijks-Universiteit.

Utrecht.—Rijks-Universiteit.

NEW ZEALAND.

Wellington.—University of New Zealand (affiliated with the University of Cambridge, England).

NORWAY.

Christiania.—Kongelige Frederiks Universitet.

PERU.

Lima.—Universidad Mayor de San Marcos.

PORTUGAL.

Coimbra.—Universidade de Coimbra.

Lisbon.—Escola Medico-Cirurgica.

ROUMANIA.

Bukharest.—Universitatea din Bucuresti.

Jassy.—Universitatea din Jasi.

RUSSIA.

Helsingfors, Finland.—Kejserliga Alexanders Universitet.

Jurjev (*formerly Dorpat*).—Imperatorskij Jurjevskij Universitet.

Kazan.—Imperatorskij Kasanskij Universitet.

Kharkof.—Imperatorskij Charkovskij Universitet.

Kief.—Imperatorskij Universitet Sv. Vladimira.

Moscow.—Imperatorskij Moskovskij Universitet.

Odessa.—Imperatorskij Novorossijskij Universitet.

St. Petersburg.—Imperatorskij St. Petersbergskij Universitet: Including Vojenno-Medicinskaja Akademija (Military Medical Academy) and Zenskij Medicinskij Institut (Medical High School for Women).

Warsaw.—Imperatorskij Varsavskij Universitet.

SCOTLAND.

Aberdeen.—University of Aberdeen.

Dundee.—University of St. Andrews (University College).

Edinburgh.—University of Edinburgh.

Edinburgh.—School of Medicine of the Royal Colleges.

Edinburgh.—Surgeons' Hall School.

Edinburgh.—Medical College for Women.

Glasgow.—University of Glasgow (including Queen Margaret College).

Glasgow.—Anderson's College Medical School.

Glasgow.—St. Mungo's College and Glasgow Royal Infirmary.

Glasgow.—Western Medical School.

SIBERIA.

Tomsk.—Tomskij Universitet.

SPAIN.

Barcelona.—Universidad de Barcelona.

Granada.—Universidad de Granada.

Madrid.—Universidad de Central de Espana.

Santiago.—Universidad.

Saragossa.—Universidad.
Seville.—Universidad de Sevilla. (To this university also belongs the Medical Faculty at Cadiz.)
Valencia.—Universidad Literaria.
Valladolid.—Universidad.

SWEDEN.

Lund.—Kungl. Karolinska Universitetet.
Stockholm.—Karolinska Institutet (Medico-Chirurgical Institute). (This institute has the same chancellor as the universities at Lund and Upsala, and is guided by a similar constitution.)
Upsala.—Kungl. Universitetet i Upsala.

SWITZERLAND.

Basel.—Universität.
Berne.—Kantonale Universität.
Geneva.—Université de Genève.
Lausanna.—Université.
Zurich.—Universität.

SYRIA.

Beirut.—Syrian Protestant College.
Beirut.—Université Saint Joseph de Beyrouth.

URUGUAY.

Montevideo.—Universidad.

WALES.

Cardiff.—University of Wales (Cardiff School of Medicine).

SUPERVISION OF EDUCATION IN NEW YORK.

The Educational Department of New York is the result of an evolution which has been in progress in that state for 123 years, the corporation known as the "Regents of the University of the State of New York" having been established in May 1784. The first board had about 30 members, this number being increased to 64 by the amendment of November, 1784. This body was soon discovered to be too large to be effective so in November, 1787, following the recommendations of a special committee of which Alexander Hamilton and Ezra L'Hommedieu were members, a new act was passed reducing the number of regents to 21, including the governor and lieutenant governor. Each member of the board was to serve without compensation, and the term of office was practically a life tenure. This act remained unchanged, except in so far as the jurisdiction of the university was enlarged, until in 1904, when the present law was enacted, reducing the number of regents to 11, with tenures of 11 years each.

The power of the university was at first to charter colleges and to incorporate academies and to supervise them, being required to visit and inspect them regularly and to make annual reports to the legislature. They were also authorized to confer degrees above that of master of arts. The field of work later included not only academies, colleges, professional and technical schools, but also libraries, museums, study clubs, extension teaching and similar agencies for home education. Supervision of common and normal schools was in the hands of a superintendent of common schools till 1821, when it was transferred to the secretary of state, and in 1854 again transferred to a state superintendent of public instruction, this office continuing until the unification law of 1904 transferred the duties to the commissioner of education under the Board of Regents. This act abolished the offices of the superintendent of public instruction and the secretary of the Board of Regents and placed the supervision of all educational matters in the hands of the Board of Regents.

At the present time, therefore, the supervision of all departments of education in New York is given to the Regents of the University of the State of New York, a body practically free from politics, and consisting of 11 members, one of which is elected by the legislature each year for a term of 11 years. The intention is to have each judicial district represented on the board so far as possible.

The powers of the Board of Regents have been gradually extended until at the present time they are as follows: "1. To grant charters to any institution, or society, for the promotion of science, literature, art, history or other departments of knowledge. These charters may be absolute, or limited by such restrictions as the board may see fit to impose; conversely the board may annul a charter for sufficient reason. 2. To confer degrees and govern their issuance within the state. The regents not only confer degrees directly, but fix by ordinance the conditions under which they may or may not be granted by colleges and universities. The abuse, purchase, or illegal use of degrees and diplomas is rigidly prosecuted under severe provisions of the penal code. 3. To inspect, visit and examine every higher educational institution of the state and to require of each a verified annual report. 4. To register domestic and foreign institutions in terms of New York standards, and to fix the value of degrees, diplomas and certificates from all parts of the world presented for entrance to schools, colleges and the professions. 5. To establish pedagogic and extension courses leading to a degree or certain license to teach. 6. To supervise the entrance requirements to the profession of medicine, law, dentistry, pharmacy, veterinary medicine, and the certification of nurses and of public accountants."

Medicine.—The regents have full control of the practice of medicine. They pass on credentials for admission to medical colleges, conduct entrance examinations and issue medical student certificates. A four-year high-school education is required for admission to the medical study. For the examination for license to practice medicine the question papers are prepared and the answers rated by the State Board of Medical Examiners, but the question papers are revised, edited and printed by the regents, who also conduct the examinations and issue the licenses. The regents have the power to revoke a license for cause. A classified list of medical schools is kept, showing which are accredited and which not. The members of the board of medical examiners are appointed by the regents from the licensed physicians of the state and any member of the board may be removed for misconduct, incapacity or neglect of duty. The secretary of the board of examiners is not a member of the board, but must be a licensed physician. He is appointed by and serves during the pleasure of the regents.

Law.—The regents are responsible only for the preliminary education of law students, the examination for entrance to the bar being conducted by the State Board of Law Examiners. The requirement for admission to the study of law is three years of high-school work.

Dentistry.—The regents issue certificates for admission to dental schools and licenses to practice dentistry. A four-year high-school course is required for admission, and the course of study in dentistry covers three years.

Pharmacy.—The regents are responsible only for the preliminary education of pharmacy students, which is one year of high-school work. The course in pharmacy is two years, the license examination being given by the State Board of Pharmacy.

Veterinary Medicine.—The preliminary requirement for entrance to a New York veterinary college is a four-year high-school education. The course of study in a veterinary college is of three years' duration. The regents issue entrance certificates and conduct the licensing examination, the answers being rated by the State Board of Veterinary Examiners.

Nurse Registration.—For registration the nurse must hold a diploma from a nurses' training school, maintaining a course of at least two years and registered by the regents as maintaining proper standards, and subsequent to graduation must pass a licensing examination as determined jointly by the regents and the State Board of Nurse Examiners.

Certified Public Accountants.—Four years of high-school work and three years of satisfactory experience in accounting, one of which must have been spent in the office of an expert public acountant, is required by the regents for a certificate as a certified public accountant.

The board also exercises legislative functions concerning all educational policies; those bearing on the elementary and secondary schools as well as those affecting the higher institutions. There already exists an elaborate system of educational laws, decisions and settled usages resulting from a century of experience and the gradual evolution of public sentiment. The board also gives direction concerning the management of state libraries and museums.

The commissioner of education, the executive officer of the Board of Regents, was elected by the legislature for a term of six years. At the expiration of this term of office the regents are empowered to appoint his successor to serve during their pleasure. Among other officials which are appointed on the nomination of the commissioner of education and the approval of the Board of Regents, are three assistant commissioners, a secretary to the commissioner and a secretary to the board of medical examiners.

The work of the education department is assigned to several divisions, as follows:

Accounts Division.—This division has charge of department finances, looks after necessary appropriations, receives and accounts for all fees, keeps account of all expenses of the department and of normal school, training class, institute and Indian school expenses. The employés of this division, four in number, are all under bond for the proper discharge of their duties.

Attendance Division.—This division looks after the enforcement of the compulsory education laws which have been brought into conformity with the child-labor laws, and there is cordial cooperation between the officials charged with the execution of both. This division also cooperates with boards of education, superintendents, school commissioners and trustees in all parts of the state in the enforcement of proper attendance at the public schools. There are three employés in this division.

Examinations Division.—This division, as its name indicates, has supervision of the examinations of pupils in the schools, of teachers' examinations, examinations for entrance to normal and professional schools, and examinations for those who wish to become certified public accountants or registered nurses. For these examinations the division prepares the question papers, marks and records the answers and certifies the results. This division has also the administration of examinations for license to practice medicine, dentistry or veterinary medicine, and for the titles of registered nurses and certified public accountants. In these subjects, however, the questions are prepared and the answers rated by the boards of examiners appointed by the regents, but the question papers are revised, edited and printed in the education department. The examinations are conducted and the licenses and certificates are issued by the examination division. The registering and accrediting of schools and the passing on credentials from educational institutions at home or abroad is also assigned to this division. There are 64 employés in this division.

Inspections Division.—This division inspects schools of all grades: colleges, technical and professional schools, normal schools, training classes, high schools, academies and common schools wherever practicable. The work of this division specially demands competency and good judgment on the part of those engaged in it. The division has 17 employés.

Law Division.—This division is responsible for advice regarding the meaning and proper construction of the educational laws. It answers inquiries, has charge of contested appeals and prepares cases for argument before the commissioner of education, when oral argument is desired. The form and legality of charters issued by the Board of Regents as well as the form and effect of educational bills appearing in the legislature are looked after by this division. Litigation and legal proceedings in the courts are also attended to with the aid of the attorney general's office. The division has two employés.

Records Division.—This division gathers and keeps all records bearing on the educational history of the state. Files are kept containing letters written or received by the department on educational matters as well as of publications, from whatever source, which will aid the future student of the state or national educational history. These files are kept for ready reference, being later transferred to the state library. There are five employés in this division.

Statistics Division.—This division, which has six employés, gathers, tabulates and aids in the interpretation of educational data.

Division of Libraries and Home Education.—This division has charge of the New York State Library, which was placed in charge of the regents in 1889 and made an integral part of the university. The term "home education" comprehends the entire group of agencies immediately administered by the library division, which promotes the higher education of adults at home as distinguished from the work done by the regular teaching institutions. It includes traveling libraries, public libraries, a library school, extension lectures and teaching, study clubs and exchanges. There are 126 employés in this division.

Division of Science.—This division includes all the scientific interests of the department, such as scientific investigations maintained by state aid, economic and industrial applications of science and the state museum. The staff includes the work of the state geologist and paleontologist, the state botanist and the state entomologist as well as mineralogist, a zoologist and an archaeologist. This division has 24 employés.

The enormity of the work being done by the education department of New York as well as the great value to education generally can best be appreciated when we consider the personnel of those serving in the department from the beginning. The Board of Regents has had among its members the most eminent educators of the state, many being of national and even of international repute. Mere mention of the names of George Clinton, Alexander Hamilton, John Jay, Philip Schuyler, George William Curtis and Whitelaw Reid at once bespeaks the high dignity of the University of the State of New York. The present commissioner of education, Andrew S. Draper, was himself formerly state superintendent of public instruction, then a member of the Board of Regents and then president of the University of Illinois. The assistant commissioners as well as the chiefs of divisions have come to be recognized as experts in their particular fields and are prominent figures in the educational activity of the United States. The character of those constituting the Board of Regents explains why their work has been so well appreciated by the New York legislature and why so many responsibilities have been placed on them. Among the factors working for high standards of education in the United States, the University of the State of New York will continue to hold a prominent place.

COLLEGE NOTES.

Colleges Merged.—Four colleges merged into two during the present year. At Louisville, Ky., the University of Louisville merged with the Kentucky University Medical Department, retaining the former name, while at Columbus, Ohio, the Ohio Medical University and the Starling Medical College merged, taking the name of the Starling-Ohio Medical College. Barnes Medical College, St. Louis, has transferred its entire property unencumbered and free from any restrictions, to the University of Missouri, complete possession of the property to be given in September, 1908.

Mergers with Colleges of Arts.—During the past year several important mergers between medical colleges and colleges of liberal arts have taken place. The Medical College of Alabama became the Medical Department of the University of Alabama.——Denver Homeopathic College has become the College of Medicine of Westminster University.——Sioux City College of Medicine has formed a close affiliation with Morning Side College.——Milwaukee Medical College is now the Medical Department of Marquette University.

Colleges Closed.—Two colleges were closed during the past year, the California Medical College (Eclectic), San Francisco, and the Grand Rapids Medical College, Grand Rapids, Mich.

Names Changed.—The American College of Medicine and Surgery, Chicago, has changed its name to the Chicago College of Medicine and Surgery; the Denver Homeopathic College, to the Westminster University School of Medicine, and the Southern Homeopathic Medical College, to the Atlantic Medical College.

New Colleges.—Only two new medical colleges have been organized during the past year, or three if we include the one in the Philippine Islands. The two in the United States are both night schools, one of which, the Reliance Medical College, is located in Chicago, and the other, the Hippocratean College of Medicine, in St. Louis. There are two other schools which have not been included in our lists. These are the Fordham University College of Medicine, of New York City, and the International Medical Missionary College of Atlanta, Georgia. Both of these schools have completed two sessions.

Mention should be made also of the University of Wisconsin College of Medicine, which will be organized in time to begin active work this fall, having already received authority from the Wisconsin legislature. Two years of the medical course will be taught.

Medical Schools with Divided Courses.—There are seven medical colleges giving the freshman and sophomore years in one city or place and the junior and senior years elsewhere. They are as follows:

NAME OF COLLEGE.	*1st and 2d yrs. at*	*3d and 4th yrs. at*
Univ. of California, Med. Dept.	Berkeley	San Francisco.
Rush Medical College	Chicago, South Side.	Chicago, W. Side
Indiana Univ. School of Med. and the State Coll. of P.& S.	Bloomington	Indianapolis.
Univ. of Kansas, Sch. of Med.	Lawrence	Kansas City.
Univ. of Nebraska. Coll. of Med.	Lincoln	Omaha.
Cornell Univ. Med. College	Ithaca or New York.	New York.
Univ. of North Carolina	Chapel Hill	Raleigh.

In 1908 the University of Missouri will give the first two years at Columbia and the last two at St. Louis.

Medical Schools Teaching Two Years Only.—There are seven medical schools which give only the first two years ot the medical course. These schools are (1) the University of Mississippi, Oxford, Miss., (2) Wake Forest School of Medicine, Wake Forest, N. C., (3) University of North Dakota, Medical Department, University, N. D., (4) University of Oklahoma, School of Medicine, Norman, Okla., (5) University of Utah, Department of Medicine, Salt Lake City, Utah, (6) University of West Virginia, College of Medicine, Morgantown, W. Va., and (7) University of Wisconsin School of Medicine, Madison, Wis.

Entrance Requirements of Medical Colleges.—There are nine medical schools which already require for admission one or more years of work in a college of liberal arts. These colleges and the dates when such requirement began are as follows:

COLLEGE.	*No. of Years.*	*Began.*
Johns Hopkins Medical School	Degree	1893
Harvard Medical School	Degree	1900
Western Reserve Univ., Medical Dept.	3	1901
Rush Medical College	2	1904
University of California, Med. Dept.	2	1905
University of North Dakota, Med. Dept.	2	1905
University of Minnesota, Coll. of Med.	2	1907
University of Minnesota, Homeo. Dept.	2	1907
University of Missouri, Med. Dept	1	1906

The twelve following schools have declared their intention to increase their preliminary educational requirement to two years of work in a college of liberal arts, the requirement to begin with the year mentioned in each instance:

COLLEGE.	*No. of Years.*	*Begins.*
Wake Forest School of Medicine	2	1908
Yale Medical School	2	1909
George Washington University, Med. Dept.	2	1909
Northwestern University, Med. School	2	1909
University of Kansas, School of Med.	2	1909
University of Michigan, Med. Dept	2	1909
American Medical Missionary College	2	1910
State University of Iowa (R)	2	1910
Drake University, Med. Dept.	2	1910
Sioux City College of Medicine	2	1910
University of Pennsylvania, Med. Dept.	2	1910
University of Utah, Med. Dept.	2	1910

Several other schools have expressed their intention to require two years of university work, but are at present unable to give a definite date when the requirement will begin.

Besides the 21 colleges named above 30 others have voted to require, beginning with the session of 1910 or earlier, a year of nine months to be devoted to physics, chemistry, biology and one modern language, in addition to a four-year high-school education.

There are three state examining boards which have adopted a preliminary educational requirement above the usual four-year high school education, the board of North Dakota, which will require two years of work in a college of liberal arts from graduates of 1910 and thereafter; the board of Minnesota, which will require two years from graduates of 1912 and thereafter, and the board of Connecticut, which will require one year of work in a university from graduates of 1912 and thereafter. These requirements have been secured in Minnesota and North Dakota in support of the state university medical schools, which have adopted requirements of similar import.

Status of Toronto Colleges—American Medical Directory.—Dr. A. Primrose, secretary of the Faculty of Medicine of the University of Toronto, has called attention to some misstatements regarding Toronto medical colleges in the first edition of the "American Medical Directory." The statement is made in the directory that the present Faculty of Medicine of the University of Toronto was organized in 1844 as the Toronto School of Medicine. Dr. Primrose says that this is incorrect. The Faculty of Medicine of the University of Toronto was organized in 1843 as the Medical Faculty of King's College, became extinct in 1853 and was re-established in 1887. The Toronto School of Medicine, which was organized in 1847 and which became extinct in 1887, was an entirely different institution.

Reciprocity During 1906.—We have just secured complete data, as presented in Table 8 on page 594, showing the total number of physicians licensed through reciprocity during 1906. This table is of much interest, showing that 685 licenses were issued in 1906 to physicians who, without the provision for reciprocity, would have been required to undergo a second exacting test before securing the right to practice in their new locations. It is to be hoped that the standards of medical education may be made more uniform and that provision for reciprocity on a fair basis may be provided for by a larger number of states. Now about half of the states and territories have made such provision.

Physicians in Proportion to the Population.—The following table has been prepared from the best available information and shows for each state the number of physicians in proportion to the population. As will be seen, there is now one physician in this country to every 636 persons. Yet these statistics do not include the multitude of osteopaths, neuropaths and other irregulars who are actually practicing medicine in many states. This table shows the necessity of requiring that hereafter those who enter the medical profession should represent quality rather than quantity.

TABLE 9.—PHYSICIANS IN EACH STATE IN PROPORTION TO THE POPULATION.

State.	Population, 1905 estimate.	Physicians.	Proportion 1 to every:	State.	Population, 1905 estimate.	Physicians.	Proportion 1 to every:
Alabama	1,986,347	2,255	881	Nebraska	1,068,120	1,782	599
Arizona	140,276	238	589	N. Hamp.	429,118	680	631
Arkansas	1,403,239	2,478	566	N. Jersey	2,103,039	2,412	872
California	1,620,883	4,180	388	N. Mexico	212,825	317	671
Colorado	602,925	1,718	351	New York	7,901,754	12,714	622
Connecticut	989,500	1,424	695	N. Carolina	2,031,740	1,540	1319
Delaware	192,855	238	810	N. Dakota	383,220	532	720
D. Colum.	302,883	1,174	258	Ohio	4,400,155	7,938	554
Florida	597,102	687	869	Oklahoma	558,261	1,968	284
Georgia	2,405,821	2,952	815	Oregon	461,451	761	606
Idaho	198,382	302	657	Penna.	6,824,115	10,476	651
Illinois	5,319,150	10,210	521	Rhode Isl.	470,081	781	602
Indiana	2,678,492	5,157	519	S. Carolina	1,434,901	1,066	1346
Iowa	2,391,633	3,746	638	S. Dakota	428,055	600	713
Kansas	1,582,473	2,557	619	Tennessee	2,147,166	3,130	686
Kentucky	2,291,444	4,016	571	Texas	3,455,300	5,018	689
Louisiana	1,513,145	1,684	899	Utah	309,734	341	908
Maine	711,156	1,196	595	Vermont	349,251	685	510
Maryland	1,260,869	1,932	653	Virginia	1,953,284	2,087	936
M'chusetts.	3,088,546	5,642	547	Washington	598,538	1,160	516
Michigan	2,577,275	4,354	592	W. Virginia	1,056,805	1,493	708
Minnesota	1,971,949	2,092	943	Wisconsin	2,256,897	2,543	897
Mississippi	1,682,105	1,916	878	Wyoming	107,521	186	578
Missouri	3,320,405	6,251	531				
Montana	293,534	359	818	Totals	82,086,061	128,968	636

The figures for the population in Table 9 are taken from the 1905 estimate made by the United States Bureau of Education. The figures for the number of physicians include those registered by examining boards during 1906.

The ten states having the largest number of physicians in proportion to their population are in their order: District of Columbia, 1 to 258; Oklahoma, 1 to 284; Colorado, 1 to 351; California, 1 to 388; Vermont, 1 to 510; Washington, 1 to 516; Indiana, 1 to 519; Illinois, 1 to 521; Missouri, 1 to 531, and Ohio, 1 to 544.

Medical Graduates Holding Baccalaureate Degrees.—Reports from the various colleges show that of the 4,980 medical graduates in 1907, 903, or 18 per cent., were also graduates from colleges of liberal arts. This is of interest when we consider that only two medical colleges, Harvard Medical School and Johns Hopkins Medical School, require baccalaureate degrees for admission.

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PSYCHIC CONTAGION OF CRIMINAL IMPULSE.

It took the world a long time to come to the idea of the communication of disease by actual contact with those suffering from the disease, or with something that had been so close to them as to carry contagious elements with it. It is very hard to understand at the present time how this precious knowledge, seemingly so obvious, was so long delayed. Practically only one disease—smallpox—was definitely known to be due to actual contagion or to personal contact with a patient or his secretions before the beginning of the nineteenth century. People thought that epidemic disease was due to something in the air, or atmospheric conditions were considered to influence certain natures in such a way as to produce particular diseases in them. When we speak of psychic contagion in our own time, most people are apt to look on the expression as eminently figurative and as containing very little, if any, literal truth. Many things in recent life, however, seem to make it clear that some not far distant generation will be quite as surprised that the men of our time did not recognize the influence of psychic contagion as we are now amazed at the generations which did not recognize physical contagion as a great force for evil.

There are many sources of evidence for the influence of psychic contagion in our day. It has been noted over and over again, and often called to attention to, that one peculiar suicide is nearly always followed by another of the same kind, and the second not infrequently by one or more resembling it more or less in various parts of the country. Such a series of incidents has happened too often to be regarded as a mere coincidence. It is evident that the first one has a causative influence in the production of the others, because of the mental suggestion which it carries with it, and because the detailed report of it has led to a mitigation of the abhorrence for such an act, which previously kept the unfortunate victim from taking such a means of ending existence. Besides, for certain morbid natures there is the added attraction of the sensation aroused by the unusualness of the method. This is the typical example of psychic contagion, but others are not hard to find, and a series of events that has attracted widespread attention in this country in the last few weeks seems to indicate that such criminal suggestions may be efficacious not only for crimes that concern the individual himself, but also for hideous brutalities which one finds it hard to reconcile with human nature as representative of rationality.

In and around New York there have been a series of assaults on little girls and of strangulations which has sent a thrill of horror through the country. The newspapers generally have spoken of it as a wave of crime. There seems to be no doubt, however, that it deserves the name of an epidemic of crime. There are a number of morbid individuals in all large cities in whom there exist, in a more or less dormant way, impulses to the worst forms of crime. As a rule, these impulses are not put into action because of the personal abhorrence of the individual, in spite of his morbid condition, and also for fear of the punishment that will surely be meted out for such a crime. When such people read accounts of crimes of this awful nature, their former temptations become almost obsessions to the commission of them. When they realize, further, that the criminals have escaped justice and are not likely to be captured, such an obsession may degenerate into what is practically an uncontrollable impulse if the opportunity presents itself. Psychic epilepsy is not a delusion of the medicolegal expert, but a sad, sure conclusion of the psychiatrist.

It is evident at a glance that the widespread publication of the details of such crimes is eminently injudicious, to use no harsher term. In Chicago a little while ago a girl committed suicide by jumping from the fifteenth story of a tall building; the newspapers gave a sensational account of the affair, with glaring headlines. As was to be expected, the next day another suicide was committed in the same manner. The reading of sensational accounts of such things is likely to be the determining factor which upsets the tottering equilibrium of mentality already entertaining the idea of such crimes. but hesitating between natural abhorrence and fear of punishment. If we would take up seriously the question of moral prophylaxis against the occurrence of these gruesome outrages, we must have some regulations to limit the publication of details of unnatural crime, at least in our daily papers. Another question, of course. concerns the punishment that is likely to be effective in putting a stop to such crimes as the assaults first mentioned when the criminals are caught. The slow ordinary course of justice is likely to have little deterrent effect in such cases, if indeed, because of the long-continued sensational attention which it attracts, it does not add to the temptation. There must be some such striking psychic influence as that which starts the offender on the path of crime.

There is a story told concerning a medieval town in which by psychic contagion a number of young girls in succession committed suicide and the municipal authorities were in despair as to how to put an end to the epidemic. At length an ordinance was passed that the body of the next suicide should be exposed, naked, in the market place for some days after the discovery of the crime. According to the story, one more suicide took place, the punishment decreed was inflicted, and the epidemic of suicide came to an end then and there.

It seems probable, however, that our constitutional regulations against cruel or unusual punishments may prevent us from putting into practice any such striking and efficacious remedy for our psychic epidemics of crime as was used in the middle ages, but it seems not unlikely that some striking form of punishment, or the immediate infliction of punishment with as little delay as possible, would counteract the criminal tendencies in such cases. These problems are, after all, much more distinctly in the province of the physician who appreciates the morbid side of criminality than in those of the jurist or the legislator.

THE PHENOMENON OF HYPERSUSCEPTIBILITY.

Reference has previously been made to the phenomenon of hypersusceptibility as pointed out by Rosenau and Anderson of the United States Public Health and Marine-Hospital Service.[1]

They showed by a series of brilliant experiments[2] that, while horse serum is apparently a bland and harmless substance when injected into guinea-pigs, it renders the animal susceptible to a subsequent injection, and that if the latter is given after an interval of ten days the hypersusceptibility invariably manifests itself by severe symptoms which often result in the death of the animal. They believe that this phenomenon has a deep significance in relation to the problem of immunity, and expressed the opinion that resistance to disease may be gained largely through a process of hypersusceptibility.

These observations have attracted much attention, and, in the main, have been confirmed by a number of other observers during the past year.

Just issued from the Hygienic Laboratory is a further important report[3] of experimental studies in which it is shown that this phenomenon may be induced by any of the higher forms of albuminous substances, no matter from what source.

In addition to horse serum, Rosenau and Anderson used proteid substances from varying sources, such as blood serums from other animals, hemoglobin, egg albumin, milk, extract of peas and extracts of various bacteria.

On the other hand, the lower forms of nitrogenous compounds, such as leucin and tyrosin, appear to have no sensitizing properties, and this fact may be of use in physiologic chemistry to determine definitely between simple nitrogenous compounds and the proteid molecule.

The sensitizing agent and its mode of action are as yet unknown, but it is shown that it is not influenced by cold or formaldehyd. It is also shown that the toxic principle is not altered by various ferments such as taka-diastase, pancreatin, rennin, myrosin, invertin, emulsin, pepsin, ingluvin, malt and papain, nor by certain alkaloids, such as atropin, strychnin, morphin or caffein, nor is it altered by calcium chlorid, sodium nitrate, sodium chlorid, magnesium sulphate or ammonium sulphate.

Certain it is that profound physiologic changes are induced by the first injection of a strange proteid, and by using certain bacterial proteids, Rosenau and Anderson also observed an immunity following the second spaced injection. Hypersusceptibility was easily induced in guinea-pigs by proteid extracts obtained from the hay, tubercle, anthrax, colon and typhoid bacilli, and, in the case of the two latter organisms, the hypersusceptibility produced was followed by a definite immunity to the corresponding infections. This was especially noticeable in the reaction induced by using the colon extracts. Ten days following the second injection of the extract the guinea-pigs were given 5 c.c. of a heavy emulsion of colon bacillus from 24-hour old cultures, but showed no symptoms. Three controls received the same injection and died in twelve hours.

These results seem to indicate that the phenomenon of hypersusceptibility has a definite bearing on the prevention and cure of certain infectious processes, and should lead to further earnest study in the hope that results of practical importance may be attained.

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[1] The Journal A. M. A., June 2, 1906.

[2] Public Health and Marine Hospital-Service, Hygienic Laboratory Bulletin, No. 29.

[3] Public Health and Marine-Hospital Service, Hygienic Laboratory Bulletin No. 36.

THE VALUE OF ANTITOXIN IN TETANUS PROPHYLAXIS.

In this country tetanus antitoxin has given such successful results in preventing the development of tetanus after Fourth of July injuries that it has acquired the reputation of being almost a positive preventive of tetanus. There are too many possible sources of failure in the application of any therapeutic measure to expect invariable success, and hence it is to be expected that occasional instances will be reported in which antitoxin prophylaxis of tetanus has failed, even as it sometimes fails in diphtheria. A fairly careful scrutiny of the American literature for the past five years has not brought to light a single report of the development of tetanus in a person who had received a timely prophylactic dose of tetanus antitoxin. In European literature, however, a considerable number of such cases are now recorded, and on account of their bearing on the real value of prophylactic injections of tetanus antitoxin they are entitled to careful analysis.

At the end of 1906 Suter[1] was able to collect from the literature reports of twenty-two cases of unsuccessful prophylactic use of tetanus antitoxin, and we have since observed reports of still two other cases.[2] Analysis of these reports shows, in the greater number of instances, evident reasons why the antitoxin was ineffective. In in a few there was too long an interval between the time of infection and the time of injection of antitoxin; in a few there was evidence that the antitoxin was inactive; a few others followed dusting of the wound with dry antitoxin powder, a method which is highly unreliable because of the uncertainty of its absorption from wounds in all possible conditions of infection; and in one case tetanus did not appear until forty-seven days after the accident and thirty-nine days after the antitoxin injection, when the immunity had presumably disappeared or greatly diminished. Consequently in but a very few of the reported cases has there been an obvious failure of the antitoxin to accomplish the expected immunization. If on the other side we set the many thousands of cases in which tetanus antitoxin has been used prophylactically with apparent success, we find the actual number of failures to be surprisingly small. For example, in Geneva in one clinic 700 prophylactic injections have been given with but one mild case of tetanus, and many other hospitals and clinics report each several scores or hundreds of patients prophylactically treated, without a single case of tetanus. Of course it is impossible to estimate the exact value of prophylactic measures in tetanus, since we can never tell just how large a proportion of our patients with suspicious wounds would develop tetanus, but it is noticeable that many of the most noted European surgeons are earnest advocates of antitoxin prophylaxis in all lacerated and dirt-contaminated wounds. Kocher in the German Surgical Society congress stated that he would consider any physician entitled to a reproof who failed to use this measure in a case of injury with contamination of the wound by street dirt.

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[1] Beitr. z. klin. Chir., 1907, lii, 694.

[2] Terrier and Mercade: Revue de Chir., 1907, xxvii, No. 1.

Whether the apparent lack of failures in tetanus prophylaxis in this country depends on the neglect of physicians to report them, or is a real condition depending perhaps on a uniformly active antitoxin, we can not say. It is noticeable that a large proportion of the reported failures were in France, and in the twenty-four collected, Pasteur serum had been used in thirteen, Behring serum in six, and Tizzoni serum in two. It is quite probable, however, that much of this preponderance of French cases depends on the more widespread use of antitoxin prophylaxis in France than in other countries. Even the German serum, which is known to be uniformly standardized, has a few failures charged against it, but there is always the possibility that any preparation of antitoxin may become deteriorated after standardization, through improper storage or other causes. It should be added, however, that the serum used in the twenty-four cases mentioned was apparently not always inactive, for many of the patients—about two-thirds—recovered. Of the six patients treated with the German serum but one died, while seven of the thirteen French cases were fatal. Hence, even unsuccessful antitoxin prophylaxis with antitoxin increases the chances of recovery in those cases in which tetanus appears.

PUBLIC OPINION AND MEDICAL EDUCATION.

The public holds the medical profession responsible for any abuses which occur in connection with medical institutions and in medical affairs. This is as it should be, since medical men alone are in position to recognize such abuses and to suggest the steps necessary for their correction. If the facts about any worthy reform are plainly stated and it is made clear that the reform asked for is for the benefit of the public and not merely for the selfish interests of the medical profession, the public, through the public press, can usually be counted on for strong support and it will join the profession in demanding that reform. That this is true the medical profession has been slow to recognize.

The above statements are well supported in the extensive publicity given by the press to a statement issued by the Council on Medical Education some weeks ago regarding medical education in the United States. The statement referred to was sent out to correct a number of erroneous articles or misinterpretations which appeared following the educational conference last April and which were based on assertions not authorized by the council nor found in the stenographic report of the conference. For instance, the press reported that "3,000 of every 4,000 medical graduates are incompetent," etc., which was probably a misinterpretation of the statement that, as a result of an inspection of medical colleges by the council, only about 50 per cent. were found to be properly equipped, 30 per cent. needed to make considerable improvement, while 20 per cent. of the colleges were unworthy of recognition. The statement which was issued to the press by the council contained many of the facts given in the report to the House of Delegates at Atlantic City last June, as well as a strong appeal for two things: endowments for medical colleges and better state control of medical licensure. Many newspapers not only published the statement entire, but added strong editorial comments.

The *Gazette,* Trenton, N. J., emphasizes the importance of a proper medical training as well as the dependence of the laity on the profession for the exposure of frauds in medical institutions. It says:

> While the choice of a physician is often a mere matter of accident, it is the right of the patient to know that the man in whose hands he places his life has had the advantages of the best training the country affords. For that reason the American Medical Association should go a step farther. In a matter of so much importance merciless exposure is probably the best that can be applied to a fraud.

The same points are emphasized in an editorial by the Wilkes-Barre, Pa., *Record,* which also expresses appreciation of the work being done. Says the *Record:*

> The science of medicine is so intimately associated with questions that relate to life and death, and the happiness and prosperity of the human family, that the highest qualifications and preparation should be demanded of the practitioner. Considering all that is to be learned, it has seemed a very loose appreciation of the responsibilities of practice to permit a boy of meager preliminary educa-

> tion, perhaps not even that of a high school, to spend a few years in one of the many for-revenue-only medical schools and then take charge of a patient whose life depends on the skill and ability of the physician. It is very evident that the American Medical Association has begun a timely and much needed agitation.'

The certainty of a strong public demand as an aid in securing better medical standards is shown in the following extract from the Omaha *Bee:*

> Reform that comes from the inside is usually effective and lasting and for that reason the medicine-taking public will find cause for encouragement and congratulations in the effort being made by the American Medical Association, an organization representing the best in modern medical service, to improve the condition of medical education in the United States. . . . The day of the cheap doctor, who learns by experiment on helpless victims what he should have learned by study, is rapidly passing. Graduates of medical colleges are very generally required to be worthy of their titles. Nevertheless, it is a significant sign that the demand for better service and better equipment in modern medical practice should be emphasized by the American Medical Association.

The Chicago *Record-Herald* puts its finger on the worst flaw in medical education to-day when it refers to low standards of preliminary education:

> Many have felt that the real trouble lies in the extremely inadequate "preparation" of many, if not most, of the medical students. The medical training may be good, but if the entrance examinations are perfunctory the students may be utterly incapable of profiting by it. The final examinations and the state tests are notoriously inconclusive, as they involve a certain amount of "cramming" and little else.

The Milwaukee *Sentinel* refers to what the physician should be and what the public rightfully expects him to be:

> The physician, above all others, is the man whose education should be broad and complete. To him are intrusted the lives of his fellow men, and half-baked youngsters without preliminary mental training should not be permitted to travesty so serious a profession. The movement started by the association for an improvement of the standard of American medical schools should be encouraged.

The necessity of educating the public not only for the obtaining of good laws, but in order to guarantee their enforcement and also the fact that this education must come from the medical profession are brought out by the *Evening Standard,* New Bedford, Mass.:

> At the basis of good laws, well enforced, there must necessarily be an alert and intelligent public opinion, and such an opinion would be as efficacious in weeding out the incompetents as ever the laws could be. We think the doctors ought to remember that, and so be aggressive leaders in the creation of such public opinion. . . . Somewhere there is a point where people have got to take care of themselves, and an intelligent public opinion is one of the surest means to that end. We think the doctors have a great field in this direction.

That public sentiment for medical reforms must be created by the medical profession itself is emphasized by the Hoboken, N. J., *Observer:*

> A state never advances beyond the point demanded by the majority of its citizens. It does not come within its functions to initiate reforms affecting the people as a whole, or any profession as a class. Reforms must spring from the people, and advances in a profession must be made by the predominant sentiment in that profession.

The above newspaper comments are only a few of numerous similar statements made, from which several pages could easily be filled. Enough has been quoted, however, to show how the public view these matters. As suggested by the above comments, the laity looks to the medical profession to bring about better standards of medical education. It is as much the duty of the medical profession to demand laws protecting the public from the ignorant and poorly prepared physicians being turned out each year by the number of low-grade institutions which are parading as medical colleges as it is for them to decry the adulteration of foods and the designs of advertising quacks. To fulfill that duty requires that a public demand be created for laws which will ensure the adoption and enforcement of higher standards. The legislators who enact our laws are usually willing to listen to public demands. In working for any needed reforms, therefore, it is wise to secure the cooperation of the public.

CONTROL OF MEDICAL EDUCATION IN NEW YORK.

Elsewhere in this issue (page 598) will be found an article describing the supervision of education in New York. This is of general interest since it gives a clear, concise statement regarding the University of the State of New York and the Board of Regents. It is of more particular interest, however, because it shows that the control of medical education and of medical licensure can be provided for on a non-political basis. The Board of Regents has eleven members, one of whom is elected each year by the state legislature to serve for a term of eleven years. The board has charge of all educational matters, including medical and other professional schools, with the result that medical education and licensure in New York are carefully looked after. The regents have the right to charter medical colleges, to inspect them and to revoke the charters for cause. They inspect the credentials of prospective medical students, conduct preliminary examinations and issue medical students' entrance certificates, without which students can not enter the medical colleges of New York. Incidentally, it is to be regretted that the standard of entrance requirement to medical colleges is simply a high school course; probably, however, the regents will soon raise these requirements to agree with those of other states which have secured a requirement of one or two years' work in a college of arts.

The regents not only fix the standards for preliminary and medical education, but also conduct the examinations for license to practice medicine in the state. The Board of Medical Examiners furnishes the questions and grades the answers, but the question papers are edited and revised by the regents and the record of grades is kept by them. The nine members of the Board of Medical Examiners are appointed by the regents, and any member can be removed by them for misconduct, incapacity or neglect of duty. The secretary to the Board of Medical Examiners, although a licensed physician, is not a member of the board and holds his position during the pleasure of the regents. Thus complete control is placed in the hands of the regents.

The regents have heretofore lacked the proper authority to prosecute violations of the medical practice act, but the new law apparently supplies this authority. The practice act, however, does not seem to provide the machinery to enforce its provisions; this, if we understand the new law, being left to the state and county medical societies. The prosecution of individuals practicing medicine without a license and of those guilty of malpractice should be kept in the hands of the regents, who are otherwise responsible for the enforcement of the medical practice act. Since the authority to prosecute violations has been furnished, however, it is probable that the means for the enforcement of the practice act may also be developed.

New York is certainly to be congratulated on its non-political system of control over all departments of education, a system that is well worth careful study on the part of all who are interested in state control of medical education and medical licensure.

STATE BOARD EXAMINATIONS AND MEDICAL EDUCATION.

Besides ascertaining the fitness of the candidates to practice medicine, state board examinations can also furnish a most effective stimulus to the improvement of medical education. A poor medical school would soon be forced to alter its instructions if any considerable proportion of its recent graduates should take low standing in state board examinations. To be effective, however, these examinations must be such as to differentiate sharply between the real, effective, assimilated knowledge, which can be acquired only by first-hand acquaintance with the subjects in clinic and laboratory, and the superficial, ill-understood, pseudo-knowledge procurable by memorizing quiz compends.

It is a notorious fact that a few medical schools are conducted altogether too much on this latter plan. If the examinations are also framed on the quiz-compend model, it follows that graduates of such schools will take equal or perhaps even higher standing than the graduates of schools which insist on thoroughness. This is a statement of fact supported by the small percentage of failures at state board examinations by graduates of some schools known to be little better than quiz classes. Indeed, one might never have seen the inside of a medical college or hospital, never made a dissection or looked through a microscope, in a word, know nothing worth knowing about medicine, and pass a very creditable compend-examination. Such examinations will demonstrate nothing but the candidate's capacity for cramming; certainly not his fitness to practice medicine. There can be no question that the licensing examination should be framed so as to distinguish between assimilated knowledge and that secured by cramming.

In addition to the usual oral and written examination, there should be a practical portion. Hospitals have long since been combining the practical with the theoretical examination in the selection of internes. In the regular licensing examinations in Europe, practical examinations are required, in addition to oral and written tests. In France practical tests are required in dissection, pathology, operative surgery, regional anatomy and midwifery, while in Germany practical tests are required in medicine, surgery, ophthalmology, pediatrics and nervous diseases, these tests sometimes covering as much as two or three weeks in time. Practical tests are, therefore, not a matter of experiment.

Possibly the division of the licensing examination into two or more parts, thereby allowing of more time to the subjects, would be beneficial. In Great Britain, as is well known, there are four separate examinations and in France five. At least three states, Maryland, Michigan and Indiana, allow their examinations to be taken in two parts, students at the end of their sophomore year being permitted to take examinations in the subjects contained in the first two years of the medical course, leaving the other required branches to be taken after graduation when the applicant comes up for his licensing examination.

MEDICAL EDUCATION IN THE UNITED STATES.

This number contains statistics bearing on medical education in the United States for the year ending June 30, 1907. The information was obtained direct from the medical colleges, from the annual announcements, from personal information and from other sources. It is through the kind courtesy and cooperation of the officers of the various medical colleges that we are able to present these complete statistics. Our thanks are due to the colleges for reports, the preparation of which has required much time and thought.

Decided advances in medical education have been made during the past year. A large amount of money has been secured for medical education and many new buildings, laboratories and hospitals have been built which have added materially to the facilities for the better training of students in medicine. The desire for higher standards has been manifested in all sections of the country. During the year some forty colleges have voluntarily raised the standard of entrance requirements above that of a four-year high school education, and three state examining boards have taken similar action.

On the other hand, there are a few things to regret. By this time it is certainly recognized that modern medicine can not be taught in the few brief hours from 7 to 10 o'clock at night to students already tired from their day's work, without mentioning the impossibility of providing clinical courses during those hours or the unsurmountable difficulties associated with the conduct of a laboratory at night.' Nevertheless, two new night schools have been organized, which would not have occurred if the chartering and control of medical colleges in all states were in the hands of the medical examining boards. With proper restrictions the organization and operation of low grade colleges can and should be checked.

Statistics of Colleges.—On pages 588 and 589 will be found Table 1, giving the states containing medical colleges, the name of each college, the population of the city in which the college is located, the number registered as students during the session of 1906-7, and also the graduates (men and women) of 1907, the total number of teachers in each college and the number of weeks in the college year. Beginning on page 576 we present, in abstract form, essential facts of all medical colleges arranged by states, and on pages 587 and 592 to 596 will be found the requirements of the regular, homeopathic and eclectic medical college associations, also lists of the colleges holding membership in these organizations.

Distribution of Medical Students.—The table on pages 590 to 593 shows the distribution of the students of each college by states. The influence of the proximity of the medical school is seen in the fact that states having medical colleges have more students in proportion to the population than those which have no colleges. Three states contributed over two thousand students, these being New York 2,324, Illinois 2,126, and Pennsylvania 2,085. Two other states, Missouri and Texas, contributed between one thousand and two thousand students each.

Number of Medical Students.—The total number of medical students (matriculants) in the United States for the year ending June 30, 1907, was 24,276, a decrease of 928 below 1906 and a decrease of 1,871 below 1905. Of the total number of students, 22,303 were in attendance at the regular schools, 1,039 at the homeopathic, 545 at the eclectic, 97 in the physio-medical and 292 in nondescript (unclassifiable) schools. The attendance at the regular schools shows a decrease of 813 below that of last year, a decrease of 1,816 below 1905 and a decrease of 2,363 below 1904. The number this year is the smallest since 1900. In the homeopathic school there was a decrease of 46 below the attendance of 1906, a decrease of 65 below 1905, there being a constant decrease since 1900. The eclectic schools show a decrease of 99 below last year, a decrease of 33 below 1905 and a decrease of 469 below 1904. The physio-medical colleges had 97 this year against 110 last year and 114 in 1905.

Table 3.—Medical College Attendance.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med. and Nondescript.	Total.
1880..........	9,776	1,220	830	...	11,826
1890..........	13,521	1,164	719	...	15,404
1900..........	22,710	1,909	552	...	25,171
1901..........	23,846	1,683	664	224	26,417
1902..........	24,878	1,617	765	241	27,501
1903..........	24,930	1,498	848	339	27,615
1904..........	23,662	1,309	1,014	357	28,142
1905..........	24,119	1,104	578	346	26,147
1906..........	23,116	1,085	644	359	25,204
1907..........	22,303	1,039	545	389	24,276

Graduates.—The total number of graduates for the year ending June 30, 1907, was 4,980, a decrease of 384 below 1906, 626 below 1905 and 767 below 1904. The number of graduates this year is the lowest since 1890, when it was 4,454. For the year just closed the percentage of graduates to matriculants was 20.5 as compared with 21.3 in 1906. The percentage was 21.3 in 1905 and 30.3 in 1904. The number graduated from the regular schools was 4,591, or 250 less than in 1906, and the smallest number since 1902. From the homeopathic colleges there were 225 graduates, showing a decrease of 61 below last year and of 51 below 1905. The eclectic colleges graduated 121, a decrease of 65 below last year and of 32 below 1905. The physio-medical schools had only 5 graduates this year against 22 last year and 22 in 1905.

Table 4.—Medical College Graduates.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med. and Nondescript.	Total.
1880..........	2,763	380	188	...	3,241
1890..........	3,853	380	221	...	4,454
1900..........	4,715	413	86	...	5,214
1901..........	4,879	387	148	...	5,444
1902..........	4,498	336	138	27	4,999
1903..........	5,088	420	149	41	5,698
1904..........	5,190	371	146	40	5,747
1905..........	5,126	276	153	51	5,606
1906..........	4,841	286	186	51	5,364
1907..........	4,591	225	121	43	4,980

Women in Medicine.—During the last year there were 928 women studying medicine, or 3.8 per cent. of all medical students, as against 3.5 per cent. in 1906. There were 211 women graduates this year, or 4.2 per cent. of all graduates. In 1906 there were 895 women students and 233 graduates, while in 1905 there were 1,073 women students and 219 graduates. Of all women matriculants, 210 (22.6 per cent.) were in attendance at the three medical colleges for women, as compared with 189 (21.0 per cent.) in 1906. From these schools there were 39 (18.5 per cent.) graduated, as compared with 33 (14.1 per cent.) graduated in 1906. The others matriculated in and were graduated from co-educational colleges.

Table 5.—Women in Medicine.

Year.	Total women students.	Percent. of all students, both sexes.	Total women graduates.	Percent. of grads., both sexes.	Women's colleges.	Students.	Percent. of all women students.	Graduates.	Percent. of all women graduates.	Co-ed. schools.	Students.	Percent. of women students.	Graduates.	Percent. of all women graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5

Number of Colleges.—During the past year five medical colleges (mentioned on page 599) have ceased to exist. Two of these were closed, while three merged into other colleges. Five new schools are added to the list, which keeps the total of colleges at the same figure as last year, 161. The number of regular schools has increased by one, there being now 131. The homeopathic schools number 17, or one less than last year, and the eclectic schools have one less than last year, the number now being 8. There are 3 physio-medical schools and 2 schools which are unclassifiable.

TABLE 6.—MEDICAL COLLEGES.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med. and Nondescript.	Total.
1880	72	12	6	...	90
1890	93	14	9	...	116
1900	121	22	8	...	151
1901	124	21	10	4	159
1902	121	20	10	4	155
1903	121	19	10	4	154
1904	133	19	10	4	160
1905	129	18	9	4	160
1906	130	18	9	4	161
1907	131	17	8	5	161

Length of Terms.—The length of the terms of the same colleges fluctuate somewhat from year to year, but on the whole there has been a decided advance. According to reports from the colleges themselves, of those having less than 27 weeks of actual work exclusive of holidays, there are only 6 as compared with 14 last year. Of those having 27 or 28 weeks the number is 27 as compared with 35 last year. There are now 42 colleges claiming courses of 31 to 32 weeks of actual work, an increase of 10 over last year, and 29 schools having courses of 33 to 34 weeks, an increase of 5 over last year. Altogether 102 colleges have courses of over 30 weeks of actual work as compared with 86 reported last year.

TABLE 7.—COLLEGE TERMS.

	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Ov. 36 weeks	
Year.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	38	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3

Location of Colleges.—Of the 152 colleges that have graduates, 97 are located in cities of 100,000 or greater population and these schools had 3,730 graduates, while the 55 schools located in cities of less than 100,000 population had 1,250 graduates. In cities of less than 50,000 population there are 36 colleges which had a total of 602 graduates, while 9 colleges having 220 graduates are located in cities which have less than 10,000 population.

Foreign Medical Colleges.—On page 596 is a list of foreign medical colleges. The information has been taken from the most authentic sources and we have endeavored to make the list complete. The original name has been given in order that those connected with medical colleges and examining boards may be enabled to recognize credentials from these schools.

High School Data.—Owing to the increasing interest in the preliminary education of medical students a few statistics are presented in Table 10 on page 595. This table will be worth study by those having to do with preliminary education.

LACK OF PUBLIC TOILET FACILITIES IN CITIES.

The lack of public toilet facilities in American cities has frequently been commented on. Some cities have followed European precedent and established public comfort stations. A recent example is Detroit, which has established a $15,000 comfort station, which is deservedly popular, averaging over 2,000 users a day. In Chicago the provision is very inadequate, but the fact that investigation is beginning is promise of better things. A recent investigation[1] by V. C. Hart, Jr., brought out the fact that the facilities which ought to be furnished by the city are provided by the saloons and the large office buildings. In the office buildings it is estimated that about one-third of the elevator service is occasioned by the use of the toilet rooms by outsiders. "Public buildings afford facilities of the most inadequate sort, miserably ventilated, meager in equipment and inconveniently located. Department stores, railroad stations, Y. M. C. A. buildings and restaurants were found to have poor or indifferent provision, while the churches have conditions very nearly the worst of all." Saloon-keepers estimate that toilet facilities increase their patronage more than their free lunch counters. There is no question of the need of better facilities in this respect. It is fitting that they should be provided at public expense, as in all other civilized countries, and their presence made known in an unobtrusive manner but so that the stranger will have no difficulty in finding them.

MECHANICAL PRESCRIBING IN HOSPITALS AND DISPENSARIES.

Labor-saving devices are as desirable in intellectual and professional life as in other forms of industry. The prescription itself is an evidence of this, and its abbreviations show the tendency of physicians to escape the labor of repeating words in constant use by employing symbols in their stead. The tendency to use one formula for a series of cases results from the same desire to avoid troublesome details, and the stock prescription for rheumatism or dyspepsia is as natural as the classification of symptoms into disease groups which makes it possible. The best managed hospitals have their standard tonics made up by the gallon, if not by the barrel, and prescribing in dispensaries is commonly slavishly confined to a formula book. The student soon learns that "Formula 38" is good for dyspepsia, and that "A. B. and S" pills are the remedy for constipation. It is unfortunately true that the prevailing tendency to rely on nostrums and specifics has its origin to a large extent in the use of formularies and ready-made mixtures in clinics, dispensaries and hospitals connected with medical schools. That some of the best men in the profession exhibit this tendency is not surprising when we know that a certain college, second to none in its advocacy of high ideals in medical education, still uses in its dispensary work a formulary book that has undergone little change in twenty years and which contains some beautiful examples of polypharmacy. While such a reliance on ready-made formulas may be a necessity of the busy doctor, it is certainly out of place in the teaching of students, where the underlying principles should always be kept in view and their intelligent application in detail carefully taught. The student, taught by the powerful example of great clinicians whom he sees daily using ready-made formulas, is in great danger of letting his lessons in pharmacology lapse into innocuous desuetude and of going into practice ready to exchange the ready-made formula of the dispensary or the clinic for the ever ready specific of the proprietary medicine man.

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[1] According to Charities and the Commons, Aug. 10, 1907.

SNOBBERY IN FLAT OWNERS.

Some years ago there appeared some correspondence in the English medical journals in regard to the propriety of physicians yielding to the requirement of some patrons that they should use the area doors instead of the front entrance in making professional calls. We have not heard that any one ever succeeded in forcing this rule on the British medical profession. It seemed then hardly possible that a similar attempt to put physicians on the same grade as grocers' delivery boys and servants' visitors would ever be made in this country, but such appears to be the case. A Newark, (N. J.) physician, it is reported, has brought suit for $5,000 damages against the owner of a flat or apartment building who had made this rule and who attempted to prevent him using the front entrance, and the case is said to be arousing much interest in the medical fraternity of New York City, in certain parts of which like attempts to humiliate physicians are said to have been made. There can be but one opinion among sensible people in regard to such performances, but a consciousness of this fact will not justify a physician in submitting to them. Fortunately in most parts of this country we do not have to deal with this kind of snobbishness, but we can sympathize with those who have to contend with it. It is to be hoped that the Newark physician will obtain full damages—they should be exemplary.

SOME EXAMPLES OF THE NEED OF VACCINATION.

There is some material in a recent bulletin of the Department of Health of the City of Chicago which we commend to the antivaccinationists. With regard to smallpox conditions in Chicago during the preceding week the bulletin for July 20, 1907, says: "Four cases of smallpox were sent to the Isolation Hospital during the week of July 13. One patient was an unvaccinated sister of a woman sent to the hospital a week previous. Another was an unvaccinated man from Indianapolis, who saw a case 'just like his' on the car on which he was traveling just two weeks before the eruption appeared on his face. Another is an unvaccinated man from La Grange, Ill., where he wandered about for ten days after he was attacked with the disease." Many and various reflections with regard to the vaccination delusion and the effects of compulsory vaccination may be made on this paragraph. Of the four patients reported from a population of over 2,000,000 three were unvaccinated. Considering how much the number of vaccinated people who had been exposed, nearly if not quite as much as these unfortunate victims of the disease, exceed the unvaccinated, it would be interesting to know why such a large proportion of the unvaccinated were picked out to be the next victims. One of the unvaccinated patients had seen a person evidently suffering from smallpox, as the sequel showed, in a car in a neighboring city. So far as is known, he is the only one who caught the infection, though so many others were exposed. There are few who without the protection of vaccination care to think of that unvaccinated man from La Grange, who wandered about for ten days after being attacked with smallpox, exposing ever so many people to the danger of infection. If we are sure of the recency of our vaccination we can contemplate the possibility of exposure to smallpox with comparative equanimity.

Medical News

ALABAMA.

In Memory of Killebrew.—The Mobile County Medical Society held a special memorial meeting July 27 in honor of its late president, Dr. James B. Killebrew, and passed resolutions setting forth the sterling qualities of the deceased and the loss sustained by his death.

New College Building.—The contract for the erection of an addition to the east wing of the building of the Medical Department of the University of Alabama, Mobile, has been let. The last legislature appropriated $15,000 for the remodeling of the old building and the erection of the addition. The work will begin at an early date.

Typhoid.—An epidemic of typhoid is said to exist at Tuskegee Normal School, where 27 cases, with 2 deaths, have been reported.——Dr. Robert B. Harkness, health officer of Birmingham, reported to the Jefferson County Medical Society July 29, that, while there were a number of cases of typhoid in one locality of the city, there was nothing like an epidemic. The society passed a resolution thanking the city health officer for his defense of the health of the community.

ARKANSAS.

To Get Evidence.—Because of the alleged neglect of trainmen to enforce the provisions of the state anti-drumming law, the Garland County Medical Society will, it is reported, employ detectives to travel on trains and gather evidence against trainmen who do not eject drummers from their trains, and also evidence against drummers themselves.

Reorganization of Medical Board.—The Arkansas Medical Board at its annual meeting reorganized and re-elected Dr. M. L. Norwood, Lockesburg, president; Dr. Fred T. Murphy, Brinkley, secretary, and elected Dr. Montague Fink, Helena, vice-president, and Dr. George V. Poyner, Green Forest, treasurer. Dr. John W. Meek, Camden, has resigned as a member of the board, and Dr. Robert A. Hilton, El Dorado, has been named to succeed him.

CALIFORNIA.

Unlicensed Practitioners Convicted.—G. W. Chan, a Chinese herb doctor, of Los Angeles, was found guilty July 30 of practicing medicine without a license.——Dr. M. V. McGilvra, an osteopath of Los Angeles, is said to have been found guilty of practicing medicine without a license.

City Surgeons Under Civil Service.—The board of health of San Francisco has decided that hereafter surgeons of emergency hospitals must procure their position through civil service and positions may be held two years. In case of vacancy in the office of chief surgeon the vacancy will be filled by the board of health from the surgeons on duty.

In the Hands of the Law.—Dr. Charles V. P. Watson, Los Angeles, accused of having caused the death of Florence Grover by the performance of a criminal operation, was discharged on the ground that the evidence adduced was insufficient for conviction.——In the suit of W. C. Reed against Dr. J. E. Wilson, Huntington Beach, for alleged malpractice, the judge found for the defendant.

Board Sustained.—The Supreme Court on July 8 handed down a decision sustaining the action of the State Board of Medical Examiners in refusing a license to practice medicine to James T. Arwine, Los Angeles. The plaintiff had presented a diploma from a medical college in Tennessee and licenses to practice in Indiana and in the District of Columbia, but did not take the examination as required by law.

Personal.—Dr. James T. Watkins has been appointed health officer of San Francisco.——Dr. Henry J. B. Wright has been elected secretary, and Dr. Charles H. Walter, president and health officer of San José.——Dr. Edward R. Taylor has been selected as mayor of San Francisco.——Dr. George Berks, Fresno, sailed for Europe, July 27.——Dr. Oliver D. Hamlin, Oakland, returned from Europe July 27.——Dr. Ed W. Hanlon, Marysville, has been appointed assistant to the Van Orden clinic, Vienna.

CONNECTICUT.

Commencement.—At the ninety-fourth annual commencement exercises of Yale Medical School the address was delivered by Dr. Frederick C. Shattuck of Harvard, and a class of 28 was graduated.

Personal.—Prof. William H. Brewer has been elected president of the State Board of Health. Dr. Arthur J. Wolff, Hartford, has succeeded Dr. Seldom B. Overlock, Pomfret, as a member of the board.——Dr. Louis I. Mason, South Coventry, sustained severe cuts and bruises in an automobile wreck, July 29.

Appropriation for Tuberculosis.—The legislature has voted to allow $40,000 for the tuberculosis work of Hartford Hospital.——Dr. John P. C. Foster, New Haven, has been named as chairman, and Drs. Omer La Rue, Putnam, and Stephen J. Maher, New Haven, members of the commission appointed to investigate the spread and prevention of tuberculosis in the state.

DISTRICT OF COLUMBIA.

Medical Literary Bureau.—On account of the death of Mr. Aubrey M. Skiles, manager of the Medical Literary Bureau, Washington, the bureau has been temporarily suspended, pending reorganization.

GEORGIA.

Roof Ward on Hospital.—An open-air ward is being prepared on the roof of the Macon City Hospital. The new ward will have accommodation for eight patients.

Personal.—Dr. R. V. Martin, Savannah, has been commissioned first lieutenant and assistant surgeon in the National Guard of Georgia and assigned to duty with the First Infantry.——Dr. A. S. Bacon, Albany, has returned from Europe.——Dr. Clyde D. Elder, Marietta, was severely injured in a runaway accident July 30.——Dr. J. D. S. Fairey, president of the board of health of Augusta, has resigned.

ILLINOIS.

Tuberculosis Society Wants Site.—The officers of the Peoria Society for the Prevention of Tuberculosis are endeavoring to purchase or lease a site for a tent sanatorium on the Upper River or on the Galena road. It is estimated that there are at least 100 persons in the city suffering from tuberculosis, many of whom would be glad to pay for care and treatment in such an institution.

Births Must be Reported.—The State Board of Health, in a recent bulletin, calls attention to the fact that the law provides a fine of not less than $1 nor more than $100 for failure to report births, and suggests that concerted action on the part of state's attorneys, whereby all violators would be prosecuted, would render indifference to this particular law an exceedingly expensive matter to many physicians.

Personal.—Dr. William E. Chalstran, Lane, who recently lost his sight, has been taken to his home in Galesburg, after treatment in Chicago for several weeks.——Dr. Howard A. Wharff, Edwardsville, has been made a member of the staff of physicians of a nose, ear and throat hospital in St. Louis, and assistant to Dr. Max A. Goldstein.——Dr. Joseph DeSilva, Rock Island, has been appointed a trustee of the State Institution for the Feeble-Minded, Lincoln, vice Dr. John Wagner, McLean, resigned.——Dr. Ernest C. Gwinn, Sadorus, suffered severe contusions and a sprain of the back, in a runaway accident July 25.——Dr. John R. Webster, Monmouth, is reported to be seriously ill at the home of his son in Chicago.

Chicago.

Personal.—Dr. William J. Butler has returned after three months abroad.——Dr. Joseph P. Smyth has been elected high medical examiner of the Catholic Order of Foresters.——Dr. Eugene S. Talbot was elected first honorary president of the International Stomatological Congress, which met in Paris, France, August 8.

Dowdall Convicted.—Edward Dowdall, who was convicted a few days ago of misrepresentation regarding the examinations of the State Board of Health, was sentenced on August 9 to a year's imprisonment, the limit provided by the law. He was also tried on the charge of practicing medicine without a state license, found guilty and a fine of $100 and costs assessed against him.

Deaths of the Week.—The mortality for the week ended August 10 was 646, an increase of 143 over the previous week and of 43 over the corresponding week of last year. Acute intestinal diseases caused 176 deaths; consumption, 63; nephritis, 47; heart diseases and violence (including suicide), each 39; pneumonia, 38, and cancer, 30. Scarlet fever headed the list of communicable diseases with 13 deaths, followed by typhoid fever with 10, diphtheria with 6, whooping-cough with 3, and measles and influenza, each with one death.

INDIANA.

Free Antitoxin.—The State Department of Health is now prepared to furnish diphtheria antitoxin to the poor, when the blanks are properly filled out and presented at any drug store. The bills will be paid by the township trustee.

Communicable Diseases.—Seven cases of diphtheria have appeared in Buck Creek Township, with one death.——At Lansing, near Hammond, whooping-cough is reported to be epidemic, and 21 cases have been reported, with one death.——At Arthur 8 or 10 cases of smallpox of serious type are reported.——The epidemic of measles in Muncie has subsided. During its progress 1,347 cases were reported.

Personal.—Drs. Adolph F. Schultz and James M. Dinnen have been appointed surgeons to the Fort Wayne Electric Company, vice Dr. Maurice Rosenthal, resigned.——Dr. George G. Graessle, Seymour, was taken to Indianapolis for operation, August 1.——Harold O. Ruh, Bloomington, has received $250 from the Rockefeller Institute for Medical Research for continued investigation on phagocytosis in the pathologic laboratory of Indiana University.——Dr. Louis W. Tennant, Larwill, has been seriously ill with renal colic.——Dr. John J. Baker, Indianapolis, has been appointed chief surgeon of the Indianapolis, Crawfordsville & Western Traction Company.——Dr. Harvey J. Clements, Converse, has accepted a chair in Willamette University, Salem, Ore.

IOWA.

Mason City Hospital.—The Sisters of Mercy of Duluth have agreed to take charge of the new hospital to be erected in Mason City and have also agreed to contribute $30,000 toward the cost of the building. Mason City is to furnish the remainder of the $50,000 required and a site for the institution.

College Merger.—The Sioux City College of Medicine will, it is reported, partially affiliate with Morningside College, beginning with the work of this year. W. W. Scott, professor of chemistry at Morningside College, has been appointed to a similar position in the medical college. T. C. Stevens, professor of embryology, will have charge of the classes in this subject at the institution.

Work of the State Laboratory.—Dr. Henry Albert, director of the State Board of Health bacteriologic laboratory, Iowa City, in his annual report, states that during the year 8,456 examinations were made, of which 3,853 were for diphtheria, 2,599 for tuberculosis, 711 for typhoid fever and 693 miscellaneous. There are now 720 culture stations of the State Board of Health. During the year these stations have been supplied with 15,753 diagnosis outfits, of which 7,084 were for diphtheria, 2,567 for typhoid fever and 6,102 for tuberculosis.——The *Iowa Health Bulletin*, the official organ of the State Board of Health appeared in a new, distinctive and attractive form, beginning with the July issue.

Personal.—Dr. Louis A. Thomas was appointed secretary of the State Board of Health, at its meeting, July 19.——Drs. Fred W. Powers, Waterloo, and Louis A. Thomas, secretary of the State Board of Health, have been appointed members of a committee to examine and pass on applicants for certificates as graduate nurses.——Dr. Wilbert E. Harriman, Ames, has gone to Colfax for treatment at the springs.——Dr. Samuel H. Watson, Blairstown, is taking preventive treatment for hydrophobia at the Pasteur Institute, Chicago.——Dr. J. H. Farrell, Winthrop, has been appointed assistant physician at Maui, Hawaii.——Dr. E. W. Meis, Sioux City, has been appointed city bacteriologist.——Dr. Burton Howell, has been appointed assistant in obstetrics to the State University Medical Department.——Dr. Wilhelm J. Jepson, Sioux City, has been commissioned as major and surgeon of the Fifty-sixth Infantry, Iowa National Guard, vice Dr. Donald Macrae, Council Bluffs.

KANSAS.

Itinerant Medicine Venders Licensed.—The last legislature passed a law providing for a license of $50 a year for itinerant medicine venders. The licenses are for "itinerant venders of drugs and medicines," and give permission to sell "drugs, medicines, nostrums, ointments or appliances of any kind for the treatment of any disease, injury or bodily defect."

Tuberculosis Treatment in Penitentiary.—A tent has been erected in the prison farm of the State Penitentiary, Lansing, to which 14 of the more severe cases of tuberculosis among the convicts have been transferred, and already the patients are said to be gaining in weight and strength. It is said that Kansas is the first state to give convicts open-air treatment for tuberculosis.

Personal.—Dr. Cyrus E. Hunt, Eldorado, has been elected secretary of the Butler County board of health.——Dr. Samuel C. Emley, Lawrence, has been appointed physician of the University of Kansas.——Dr. Aloin Schellaek has been appointed deputy health officer for Eudora and vicinity in Douglas County.——Dr. Wilson R. Priest, Concordia, has been elected grand medical director of the Fraternal Aid Association.

KENTUCKY.

Epidemic Diseases.—Typhoid is said to be epidemic at Owensboro, Auburn, Glasgow and Booneville.——An epidemic of smallpox is said to exist at Yocum Creek, Morgan County, where more than 30 cases are reported.

Anti-Tuberculosis Association.—The Kentucky Anti-Tuberculosis Association has moved into its new quarters at 119 West Chestnut Street, Louisville. The association has already treated 49 patients in their homes, has supplied milk to 15 patients, and has furnished a tent to one man who wishes to live out of doors.

Illegal Sale of Cocain.—The Kentucky State Board of Pharmacy has called the attention of the secretary of the State Board of Health to the need of cooperation in the campaign against illegal sale of cocain. The Kentucky Board of Pharmacy has, it is said, been greatly handicapped in its work by some physicians who have not only been prescribing cocain, but have prepared powders composed largely of cocain, which they have sold to their patients who are addicted to the use of it. Dr. J. N. McCormack, secretary of the State Board of Health, has promised the board of pharmacy its hearty support. Five Louisville druggists have already been indicted for selling cocain without a prescription.

Registration of Births.—A warrant was recently taken out against Dr. John Goodman by Health Officer Allen of Louisville because Dr. Goodman had failed to report a birth to the health office. Dr. Goodman, through his attorney, held that the ordinance under which he had been arrested, which provides for the report to the health office of every birth at which a physician is in attendance, was invalid because the general council, in making the ordinance a law, exceeded its power under the charter given the city by the state. The defense was granted the privilege of submitting briefs on the question involved. Dr. Goodman admitted not having given the information required, and stated that he had not done so because, previously he had often reported births, which were later printed in the papers. He said that the ordinance he was charged with violating provided that no publicity should be given births, and that the records should be used merely for statistical purposes. Hence, he decided not to give the information to the health officer. The assistant city attorney said, in defense of the statement that the papers sometimes printed the births, that it was no fault of the health office, as they did not send them to the papers, but that they were put into records to which the newspapers had access and which the health office had no authority to keep from the public.

Graduations.—A class of 94 was graduated at the annual commencement exercises of the University of Louisville, Medical Department, August 1. T. L. Burnett, LL.D., president of the board of trustees, conferred the degrees, and Dr. Joseph B. Marvin awarded the honors.——At the fifty-eighth annual commencement exercises of the Kentucky School of Medicine, held in Louisville, July 12, a class of 64 was graduated. The degrees were conferred by John H. Leathers. Dr. William A. Wathen, dean of the college made the annual address. Dr. Fouche W. Samuels delivered the baccalaureate address, and Dr. William H. Warren announced the honors.——On July 30 the Hospital College of Medicine, Louisville, graduated a class of 94. Dr. Philip R. Taylor, dean of the college, presented the diplomas, and Dr. J. A. Rush delivered the valedictory address.

Personal.—Dr. Jefferson D. Robertson, Paducah, was overcome by heat in front of his office, July 20.——Dr. Robert E. Gatz, Louisville, suffered the loss of his laboratory by fire, July 16.——Dr. Ellis Duncan, Louisville, has been made coroner of Jefferson County, vice Dr. Harris Kelly.——Dr. Heman Humphrey, Louisville, has been named by the board of public safety as city physician of the East district, vice Dr. Llewellyn P. Spears, resigned.——Dr. Samuel P. Myer and W. J. Young have been appointed to positions in the Louisville health department.——Dr. George E. Davis, Lawreneeburg, will leave for Europe this month.——Dr. Benjamin T. Hall, Paducah, fell August 2 and injured his left knee.——Dr. John K. Wood has been appointed assistant physician at the Central Kentucky Asylum for the Insane, Lakeland.——Dr. S. Johnson Hall. Louisville, was operated on for the removal of gallstones, August 2, at the Norton Infirmary.——Dr. William A. Keller has been reappointed assistant physician for the west district of Louisville, and Dr. Meverell K. Allen has been appointed health officer for the city.

LOUISIANA.

Will Admit Women.—The Tulane University, Medical Department, announces that provided 10 women present themselves for matriculation at the next session, which begins in October, the privileges of the college will be extended to them.

Personal.—Dr. Thomas S. Jones has been elected president of the board of health of Clinton.——Dr. John G. Martin. Lake Charles, has been appointed a member of the State Board of Health, vice Dr. A. Feltus Barrow, St. Francisville, term expired.——Dr. Robert W. O'Donnell has been elected president, and Dr. Charles C. Cage, sanitary inspector of the board of health of Monroe.——Dr. and Mrs. Latzi L. Szabary. New Orleans, have sailed for Europe.

Tuberculosis.—The Louisiana Anti-Tuberculosis League announces that it will immediately begin the construction of a sanatorium in St. Tammany parish. The plans for the sanatorium comprehend a group of small cottages in a semicircle on a 50-acre tract, near the town of St. Tammany. They will be built according to the most scientific plans and will soon be ready for occupancy.——The city board of health of New Orleans on July 9 adopted a rule making it compulsory to report cases of tuberculosis. A circular letter has been sent to all physicians in the city, urging them to comply with the requirement of the board.

MAINE.

Fogg Memorial Library.—The William Fogg Memorial Library, in memory of the late Dr. John H. Fogg, was recently dedicated at Eliot. The library building is situated on the old Fogg farm, one of the most prominent sites in the town.

Personal.—Drs. Ernest F. MacVane, Long Island, and Magnus G. Ridlon, Kezar Falls, have been appointed house physicians of the Maine Eye and Ear Infirmary, Portland.—The office of Dr. John C. Rogers, Pembroke, was destroyed by fire July 4.

Society Meeting.—At the annual meeting of the Kennebee County Medical Society, held July 25 in Augusta, the following officers were elected: President, Dr. George R. Campbell. Augusta; vice-president, Dr. Theodore E. Hardy, North Vasselboro; secretary-treasurer, Dr. Wellington Johnson, Augusta, and executive committee, Drs. Howard A. Milliken, Hallowell: Percy S. Merrill, Waterville, and Alton Sawyer, Gardiner.

MARYLAND.

Baltimore.

Personal.—Dr. J. N. Reik sailed for Europe August 7.——Dr. Harry Gross has gone to Europe.——Dr. H. Barton Jacobs is visiting Dr. William Osler in Oxford, Eng.——Dr. Albertus Cotton was recently operated on for appendicitis at the Baltimore City Hospital.

The Howard Estate.—By the will of the late William T. Howard his estate is equally divided between his wife and his brother's family, who live at Richmond, Va. At the death of his wife her portion is to go to his brother's family. The estate is valued at about $175,000. The library and the gynecologic instruments of Dr. Howard are bequeathed to the University of Maryland.

MASSACHUSETTS.

Personal.—Dr. Emma W. Mooers, formerly assistant in pathology at the McLain Hospital, Waverley, has accepted a position as assistant instructor in the psychiatric clinic, Munich, under Prof. Dr. Kraeperlin.——Dr. George H. Finch, Springfield, was operated on for appendicitis at the House of Mercy Hospital, August 1.

Consumption and Whooping-Cough Added to List.—By direction of the State Board of Health, consumption and whooping-cough have been added to the list of diseases dangerous to public health.

Diphtheria.—The prevalence of diphtheria is causing alarm at Hamilton and Wenham, where nine cases have been reported.——Several cases of scarlet fever have also occurred.

MINNESOTA.

Personal.—Dr. John A. Vieregge, St. Paul, sustained severe bruises in a collision between his buggy and an automobile, July 23.——Drs. Seller J. Aspelund and Henry Goehrs, Minneapolis, have been appointed assistant city physicians.——Dr. Walter J. Marcley, superintendent of the Minnesota State Sanatorium for Consumptives, Walker, has assumed charge of the institution.

Fight Against Tuberculosis.—Dr. Harry A. Tomlinson, superintendent of the St. Peters State Hospital, is at the head of a movement against tuberculosis. Facilities for the scientific treatment of patients suffering with tuberculosis are to be given to the medical staff at St. Peter's Hospital. The appropriation voted by the last legislature will be used in constructing and equipping a ward in which consumptives may be cared for and the open-air treatment employed. The new pavilion will have accommodation for 60 patients.

Society Meetings.—At the sixteenth annual meeting of the Southern Minnesota Medical Association, held in Rochester, August 11, the following officers were elected: President, Dr. Charles O. Cooley, Madelia; vice-presidents, Drs. Frederick H. Rollins, St. Charles, and George L. S. Schultze, Owatonna, and secretary-treasurer, Dr. William T. Adams, Elgin. Owatonna was selected as the next meeting place.——At the annual meeting of the Wabasha County Medical Society, held in Plainview, the following officers were elected: President, Dr. John P. Dougherty, Wabasha; vice-president, Dr. Henry T. McGuigan, Mazeppa, and secretary-treasurer, Dr. William F. Wilson, Lake City. Lake City was selected as the place for the next meeting.

Requirements for Cars.—The Minnesota State Board of Health is insisting on the strict enforcement of the sanitary regulations. The regulations of the board include that no person shall spit on the floor, furnishings or equipment of any railway coach, depot or depot platform in the state. Railways are required to furnish an ample number of spittoons for the cars. When a water-borne disease has developed in epidemic form, water for car tanks from that locality shall not be used without the approval of the board. The drinking water and ice supply of coaches must contain no deleterious ingredients. All day coaches must be cleaned once each day or at the end of a trip, and coaches in which persons afflicted with contagious diseases have been carried must be closed, and remain closed and unoccupied until they have been thoroughly disinfected.

MISSOURI.

Unlicensed Practitioners.—Assistant Health Commissioner William B. Winn, St. Louis, has filed charges against six physicians on charges ranging from misdemeanor to felony. He states that there are about 75 physicians in the city practicing without a license. Some of these he says are not registered, but hold certificates under the names of physicians who have been dead for several years.

Society Meeting.—At the annual meeting of the North Missouri Medical Association, held at Gallatin, the following officers were elected: President, Dr. James Hanks, Brashear; vice-presidents, Drs. Isaiah Knott, Jr., Keytesville, and David F. Hanna, Gallatin; corresponding secretary, Dr. Ezra C. Grim, Kirksville; recording secretary, Dr. Oliver McEwen, Shannondale, and treasurer, Dr. Robert Haley, Brookfield.

Tuberculosis Notes.—The board of managers of the State Sanitarium for Incipient Tuberculosis, Mount Vernon, the new addition to which was opened August 1, elected Dr. William Porter, St. Louis, medical director, and Dr. Orville H. Brown, St. Louis, physician in charge.——Drs. Andrew J. Detweiler and John J. Bourn, Hannibal, have been appointed consulting physicians to receive applications for the new state hospital for tuberculosis, Mount Vernon.——A branch of the Society for the Relief and Control of Tuberculosis is being formed at Kansas City under the temporary direction of Drs. Walter M. Cross, Edward L. Stewart and Edward W. Schaffler.——Mrs. Grace Leattle has announced her intention to give $200,000 to the St. Louis Society for the Prevention and Relief of Tuberculosis.

NEW JERSEY.

Personal.—Dr. Samuel English, Camden, has been appointed medical superintendent of the new State Tuberculosis Sanitarium at Glen Gardner and will begin his new duties at once.——Dr. J. Bart Webster, Atlantic City, sailed for Europe, August 11.

Bogus Doctors in Atlantic City.—It is reported that the physicians of Atlantic City have united to drive out bogus doctors and illegal practitioners. During the height of the season there is a large influx of these individuals from Philadelphia and New York City. An appeal has been made to Dr. John W. Bennett, Long Branch, secretary of the State Board of Medical Examiners, to take some measure to drive these men from the city.

NEW YORK.

Personal.—Dr. William W. Jones has been elected physician for the Second ward of Rome, vice Dr. Albert E. Dietrich, resigned.——Dr. Moses A. Stivers, Middletown, has been commissioned captain and assistant surgeon, N. G. N. Y., and assigned to the First Infantry, and Dr. Arthur S. Moore has succeeded him as surgeon of Company I.——Dr. F. G. Schaible, Albany, has been appointed assistant physician at the Manhattan State Hospital.

State Food Tests.—State Commissioner of Health, Dr. Eugene H. Porter, announces that the analysis of food products has shown improvement in the second months' tests. During June 14 samples of various kinds of canned meats were found to contain boron preservatives. In July samples of as many of these same 14 brands as the department could find on sale were again submitted to tests, and of nine that were purchased but one showed the presence of boron preservative. The Department of Health is also testing oils used for illuminating or heating purposes to determine whether they come up to the required standard, which specifies that they must not flash at a temperature below 100 F.

New York City.

New Jewish Hospital.—Plans have been filed for remodeling two three-story houses into a hospital, at an estimated cost of $10,000.

Personal.—Dr. Stephen G. Cook, the oldest police surgeon of Brooklyn, has resigned, the resignation to take effect August 20.——Dr. and Mrs. Eugene Fuller sailed for Europe, August 7.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending August 3, 354 cases of tuberculosis, with 163 deaths; 313 cases of measles, with 30 deaths; 220 cases of diphtheria, with 26 deaths; 157 cases of scarlet fever, with 18 deaths; 84 cases of typhoid fever, with 9 deaths; 24 cases of whooping-cough, with 12 deaths; 13 cases of cerebrospinal meningitis, with 15 deaths, and 8 cases of varicella, a total of 1,173 cases and 273 deaths.

Increase in the Death Rate.—During the two weeks ended Aug. 3, 1907, there were 3,615 deaths, and for the same period in 1906 there were 2,907, an increase of 708. During the week ended August 3 there were 1,804 deaths in the five boroughs; 1,653 of these were in children under 5 years of age. In the same week of 1906 only 1,156 children under 5 years died. Of the deaths during the week 546 were of children from diarrheal diseases, against 342 during the corresponding week of 1906.

Deputy Police Commissioner and the Coroners.—Deputy Police Commissioner O'Keefe recently issued an order to the police not to allow any one to touch or move a body in a suspicious case before a detective arrives. The board of coroners held a formal meeting and refused to allow such an order to include them, and announced that if a policeman interferes with them in the pursuit of their duties he will be subject to arrest, in accordance with Section 1776 of the New York City Consolidation Act.

NORTH CAROLINA.

Personal.—Dr. Frederick K. Cooke, Wake Forest, has removed to Asheville to practice.——Dr. Thomas R. Little, Greensboro, was successfully operated on for appendicitis a few days ago.——Dr. Arthur T. Pritchard, Asheville, has been appointed assistant surgeon of the Southern Railway.——Dr. Zeb M. Caveness, Wakefield, was stabbed by a drunken man July 10, but was only slightly wounded.——Dr. C. A. Shore, Winston-Salem, has been made director of the State Laboratory of Hygiene, vice Dr. McCarthy.——Drs. Edward C. Register, Charlotte, and David T. Tayloe, Washington, have been appointed members of the State Board of Health, to succeed Drs. William P. Ivey, Lenoir, and James A. Burroughs, Asheville.——Dr. Jacob F. Highsmith, Fayetteville, announces that he will withdraw from general practice September 1, and will devote his attention to surgery and gynecology.

NORTH DAKOTA.

Personal.—Dr. A. J. McCannel has been appointed health officer of Minot, vice Dr. Samuel G. White, removed to Anamoose.——Dr. Frederick H. Bailey, Fargo, has recovered from his recent operation for appendicitis.——Dr. Eduard Lohrbauer, Lakota, has been appointed coroner of Nelson County, vice Dr. William L. Cowper, Michigan.

Flaw in Vital Statistics Law.—Owing to an oversight on the part of the state legislators the work of compiling the vital statistics of the state may have to be discontinued. At the last session of the legislature a vital statistics law was passed the changes in which, from the old law, involved at least a double amount of stationery, but no provision was made for funds to cover the extra supplies needed.

PENNSYLVANIA.

Bequests.—By the will of the late Mrs. Lydia Hickman of West Chester, the Chester County Hospital and the Wentworth Home receive $500 each.

Filtered Water for Reading.—It is stated that at the next meeting of the city's council an ordinance will be introduced to be submitted to vote in November, including a proposal to borrow $500,000 for the enlargement of the filtration plant.

Philadelphia.

Fire in Kirkbride's.—Fire broke out in the laundry and lighting plant of the Pennsylvania Hospital for the Insane, August 10, and the laundry building was entirely destroyed, with a loss exceeding $20,000.

Health Report.—The total number of deaths reported for the week ended August 3 was 537, a decrease of 69 from the preceding week and an increase of 18 over the number reported in the corresponding week of 1906. The principal causes of death were: Typhoid fever, 9; diphtheria, 10; meningitis, 5; consumption, 58; cancer, 22; apoplexy, 6; heart disease, 34; acute respiratory disease, 33; enteritis, 18; hepatic cirrhosis, 10; appendicitis, 4; Bright's disease, 38; congenital debility, 18; suicides, 8; old age, 9; accidents, 13, and marasmus, 13. There were 126 cases of contagious disease reported, with 18 deaths, as compared with 118 cases and 15 deaths reported in the previous week.

SOUTH CAROLINA.

Personal.—Dr. Julius H. Taylor, Columbia, has been appointed local surgeon for the Southern Railway.——Dr. Charles A. Simpson has been designated health officer of Greenville until the regular election.

Medical Scholarships.—Governor Ansel has named the following beneficiaries for scholarships in the South Carolina Medical College for the ensuing year: First district, Marion C. Palmer, Charleston; second district, Richard W. Hughes, Hampton; third district, J. H. Pratt, Ninety-Six; fourth district, D. D. Alexander, Spartanburg; fifth district, Ralph K. Foster, Lancaster; sixth district, E. Theron Kelley, Darlington, and seventh district, D. Socrates Keisler, Summit.

TEXAS.

Prohibit Distribution of Medical Samples.—The city attorney of Waco has been instructed to submit an ordinance prohibiting the distribution of medical samples in that city.

Infirmary Dedicated.—The new addition to the St. Joseph's Infirmary, Fort Worth, recently erected at a cost of $85,000, was formally dedicated July 7. The new building contains 110 rooms and will accommodate nearly 200 patients.

Medical College.—A four-story building for the Medical Department of Baylor University is to be erected at Dallas on the site of the Baptist Memorial Sanatorium. The structure will cost about $30,000 and is to be completed by October 1.

Dengue at Brownsville.—The U. S. P. H. and M.-H. officer at Brownsville reported 300 cases of dengue fever in that place, July 25. On July 28 he reported that no further increase had occurred and that the cisterns had been ordered to be oiled and screened.

Ban on Consumptives.—The state health officer announces that the governor will shortly issue a proclamation declaring tuberculosis to be a contagious disease, and making it a statutory offense punishable by a fine of $500 to bring a person afflicted with the disease into the state.

Personal.—Dr. Amos C. Walker, Fort Worth, has recovered from the operation recently performed on him in Chicago.——Dr. Edward M. Thomas, Georgetown, has resigned as physician of Williamson County.——Dr. J. B. Baugnss, Heidenheimer, fractured his right leg above the ankle in a runaway accident, July 15.

No Medical Law.—It has been discovered that in the acts of the thirtieth legislature the medical law was repealed on July 12 and the board existing thereunder went out of existence and was deprived of its function. As the governor has not appointed a board under the new law and has until September 1 to do so, a hiatus has been existing since July 12 and will continue until the new board is appointed. In the meantime there can be no examinations nor can licenses be issued to practice medicine in the state.

State Anatomic Board Organizes.—The State Anatomic Board, provided for by the last legislature, consisting of a professor of surgery or anatomy from each medical college in the state, met in Austin, July 17, for organization, and Dr. John B. Smoot, Dallas, was elected temporary chairman. In the permanent organization Dr. Ira C. Chase, Fort Worth, was elected chairman; Dr. William Keiller, Galveston, secretary, and the president, secretary and Dr. Harold M. Doolittle, Dallas, were elected as executive committee. The law provides for the use of unclaimed dead bodies by medical colleges. The distribution of anatomic matter began about August 1.

VIRGINIA.

Tuberculosis Exhibit.—At the tuberculosis exhibit in the new Social Economy building at Jamestown, which was formally opened July 6, the initial address was made by Dr. Livingston Farand, New York City, on "The Campaign Against Tuberculosis."

Surgical Personals.—Dr. George C. Hoge, Unison, received an accidental gunshot wound of the leg at Washington, July 26. He was taken to the Emergency Hospital, where his wound was found to be not serious although painful.——Dr. Edward H. Claud, Portsmouth, was operated on for appendicitis, July 25, at St. Christopher's Hospital, Norfolk.——Dr. Samuel E. Hughes, Danville, was operated on for appendicitis at the General Hospital, July 29.

Society Meetings.—At a meeting of the Rappahannock Medical Society, held in Fredericksburg, Dr. Joseph N. Barney, Jr., Fredericksburg, was re-elected president, and Dr. William J. Chewning, Fredericksburg, secretary.——At the eleventh semiannual meeting of the Southwest Virginia Medical Society, held at Marion, July 17 and 18, the following officers were elected: President, Dr. Albert S. Priddy, Marion; vice-presidents, Drs. W. K. Vance, Bristol, Tenn., and T. M. Cherry, Glamorgan; secretary-treasurer, Dr. Peyton B. Green, Wytheville. The next meeting will be held in January at Roanoke. ——At the fourth annual meeting of the South Piedmont Medical Society, held in Chase City, July 16, the following officers were elected: President, Dr. Floyd J. Gregory, Keysville; vice-presidents, Drs. Samuel Lile, Lynchburg; W. Macon Smiley, Houston, and Luther A. Robertson, Danville; secretary, Dr. George A. Stover, South Boston (re-elected), and treasurer, Dr. James L. Kent, Lynchburg (re-elected). Dr. Stuart McGuire, Richmond, who was the guest of honor of the society, gave an address on suppurative peritonitis.

WEST VIRGINIA.

Personal.—At the annual meeting of the State Board of Health, Dr. Joseph E. Robins, Claremont, was elected president and Dr. Hugh A. Barbee, Point Pleasant, was re-elected secretary. Seventy applicants for license appeared and were examined.——Dr. John C. Cook, Fairmont, jumped from a buggy to avoid a collision with a train in Grafton and sustained a severe sprain of the ankle.——Dr. W. C. McGuire, Huntington, has been commissioned executive health officer of Cabell County and president of the county board of health.

Local Anti-Tuberculosis Association.—The West Virginia Anti-Tuberculosis League has been chartered with a capital stock of $1,000 by Drs. Daniel Mayer, Charleston; Hugh A. Barbee, Point Pleasant; Richard T. Davis, Charleston, and Wallace H. Longstreth, Terra Alta. The object of the league is: "To furnish information, instruct and teach ways and means of preventing tubercular infection and raising the standard of physical resistance; to arrest the progress of and to effect cures in those who are now or may be infected with tuberculosis; to encourage the establishment of state, public and private sanitariums in West Virginia, and to centralize cooperative efforts by organizing local, county and municipal leagues, to be under the immediate management of competent professional counsel, thus enabling unfortunate victims of tuberculosis and its tendencies to obtain and have modern sanitorial management, training and treatment within the confines of their respective homes." Dr. Daniel Mayer is secretary, Dr. Hugh A. Barbee, treasurer, and Dr. Wallace Longstreth general field agent of the league.

GENERAL.

Yellow Fever.—Ten cases of yellow fever were reported August 10 from the military post of Cienfuegos, Cuba. The source of the infection has not yet been determined. Dr. Agramonte, the yellow fever expert, and Major Henry P. Birmingham of the Army Medical Department have gone to Cienfuegos to take charge of the situation and report. Sergeant Metcalf, hospital corps, U. S. Army, died at Cienfuegos from yellow fever, August 12. The other cases are light and no new ones are expected. The detachment of the Army at Cienfuegos has been using a portion of the Civil Hospital building for hospital purposes, and it is believed that the infection came from unrecognized cases in the civil end of the hospital. The military forces will accordingly vacate the hospital.——The U. S. P. H. and M.-H. Service states that there have been only five cases of yellow fever in the United States this year, four of which occurred in Galveston in March last, imported from Para, and one case at the Mississippi River quarantine, below New Orleans.

Psychiatrists to Meet.—The International Congress for Psychiatry, Neurology, Psychology and the Care of the Insane will be held in Amsterdam, Sept. 2-7, 1907. Among the delegates from governments and different societies may be mentioned Dr. Henry G. Beyer, medical inspector, United States Navy; Drs. Smith Ely Jelliffe, Carlos F. MacDonald, Joseph Collins and B. Sachs, New York City; Dr. W. W. Keen, Philadelphia; Dr. W. A. White, Washington; Dr. Mary A. Wolfe, Norristown, Pa.; Dr. C. H. Hughes, St. Louis, and Dr. E. E. Southard, Boston. Among the papers announced are a considerable number from the United States. There will be three exhibitions, one of historical documents relative to former epochs in the history of the treatment of the insane, another showing objects relative to the nursing of lunatics and neurotics, a third showing instruments employed in the psychiatric, neurologic and psychologic laboratories. Receptions, excursions and other entertainments have been provided for the members.

CANADA.

Home for Medical Council.—The Ontario Medical Council has purchased a building site on University Avenue at a cost of $18,150.

Smallpox.—Dr. Charles Sheard, health officer of Toronto, reports that there are 27 cases of smallpox in the city and that 63 people are quarantined. Two sources of infection have been traced.

New Quarantine Station.—Dr. Montizambert, superintendent of Dominion quarantines, and Dr. Alfred T. Watt, Victoria, superintendent for British Columbia, have gone to Prince Rupert to establish a quarantine station.

New Medical Building.—The competition for plans for the new medical building for McGill University, Montreal, has resulted in the acceptance of the plans of Messrs. Brown and Vallance, Montreal. The new building will cost not less than half a million dollars.

Honor Registrar Pyne.—At a meeting of the Ontario Medical Council, held in Kingston, a resolution was unanimously adopted bearing testimony to the faithful work, the unremitting energy and vigilance of the retiring registrar, Hon. Dr. Robert Allay Pyne, Toronto, who, after nearly 30 years' service, has been obliged to resign.

Attending British Association.—The following Canadian physicians are attending the meeting of the British Medical Association: President Dr. Richard A. Reeve, Irving H. Cameron, Fred N. G. Starr, Dr. Allan M. Baines, James A. Temple, Herbert A. Bruce, Arthur W. Maybury, Helen MacMurchy, and William Oldright, Toronto; Dr. William Burt, Paris, Ontario; Dr. Alfred B. Atherton, Fredericton, N. B.; and Drs. Herbert S. Birkett and Starkey, Montreal.

Hospital News.—Belleville, Ont., will spend $10,000 on a new isolation hospital.——A new hospital is to be erected at Calgary, Alta., at a cost of $140,000. It is to consist of a main building, maternity hospital, isolation hospital and nurses' home.——A $12,000 hospital is to be built at Souris, Man.——A maternity hospital and nurses' home is to be added to the New Westminster (B. C.) Hospital.

Academy of Medicine Officers.—The following is the complete list of the first officers of the Academy of Medicine, Toronto: President, Dr. James F. W. Ross; vice-president, Dr. Alexander McPhedran; secretary, Dr. Herbert J. Hamilton; treasurer, Dr. David J. G. Wishart; members of Council, Mr. Irving H. Cameron, Dr. John T. Fotheringham, Herbert A. Bruce, Fred N. G. Starr, Edmund E. King, Richard A. Reeve, William P. Caven, Harry B. Anderson, John A. Amyot, Albert A. Macdonald, Robert J. Dwyer and Robert D. Rudolf. Section on Surgery: Chairman, Dr. Newton A. Powell; editor, Dr. Charles B. Shuttleworth, and secretary, Dr. Harry A. Beatty. Section on Medicine: Chairman, Dr. William J. Wilson; editor, Dr. John Ferguson, and secretary, Dr. W. Harley Smith. Section on Pathology: Chairman, Dr. William Goldie; secretary, Dr. E. Stanley Ryerson, and editor, Dr. Henry S. Hutchison.

Personal.—Drs. Oswald M. Jones, Frank W. Hall and Richard H. Carter, Victoria, B. C., are in Europe.——Dr. Donald Armour, formerly of Toronto, has been appointed lecturer on the spinal cord at the College of Physicians and Surgeons of London, England.——A portrait of former Dean Walter B. Geikie of Trinity Medical College, is being painted and will be hung in the Toronto Academy of Medicine.——Drs. Harry James and J. S. Pritchard, Toronto, have been added to the resident staff of the Muskoka Sanatorium.——Dr. F. H. Scott, Toronto, has been appointed teacher of physiology in University College, London, England.——Dr. Correlli C. Field has been made a member of the dispensary and outdoor staff of the Winnipeg General Hospital and Dr. P. H. Galloway has been made orthopedic surgeon of the institution.——Dr. John L. Bray, Chatham, has been made registrar of the College of Physicians and Surgeons of Ontario, vice Dr. Robert A. Pyne, Toronto, resigned.——Dr. Robert M. Simpson, Winnipeg, has gone to Europe.——Dr. William Bayard, Saint John, N. B., who has been in practice in that city for 70 years, has received the degree of doctor of laws from his alma mater, the University of Edinburgh.——Dr. Edward A. Preston, St. John, N. B., is reported to be critically ill from heart disease.

Society Meetings.—The twenty seventh annual meeting of the New Brunswick Medical Society was held in St. John, July 16. The registrar reported 273 names on the provincial register. The following officers were elected: President, Dr. Joseph M. Deacon, Milltown; vice-presidents, Drs. John R. McIntosh, St. John, and A. G. Ferguson, Dalhousie; secretary, Dr. Robert G. Day, St. John; corresponding secretary, Dr. Clinton T. Purdy, Moncton; treasurer, Dr. George G. Melvin, St. John, and trustees, Drs. Alban F. Emery, William Warwick and A. Pierce Crocket, St. John. The next meeting of the society will be held in St. Stephen, July 16, 1908.——At the sixteenth annual meeting of the Maritime Medical Association held in St. John, N. B., July 17 and 18, the president in his annual address made a plea for less crowding in cities and the enactment of a law preventing the marriage of persons physically or mentally unfit. The following officers were elected: President, Dr. Murdock Chisholm, Halifax, N. S.; vice-president for Nova Scotia, Dr. George E. DeWitt, Wolfville; vice-president for New Brunswick, Dr. J. V. Anglin, St. John; vice-president for Prince Edward Island, Dr. John Jardine, Summerside; secretary, Dr. George Melvin, St. John, N. B., and treasurer, Dr. George W. T. Farrish, Yarmouth, N. S.

FOREIGN.

Addition to Cancer Institute.—The Berlin Cancer Institute, which is under the direction of von Leyden will receive a considerable enlargement about October 1. New laboratories for the investigation of cancer will be built in a house in the neighborhood of the Charité.

Reception for Visiting Scientists.—In honor of the foreign scientists who will visit Berlin for the International Congress of Hygiene a reception will be held in the exhibition hall in the zoological garden September 28, under the auspices of the medical profession of Berlin.

Alleged Cholera in St. Petersburg.—A cable report, dated August 8, states that apprehension has been aroused by the suspicious death of a cab driver, supposedly from cholera. The sanitary authorities have quarantined sixteen cab drivers who lived in the house where the man died, and are taking other rigorous preventive measures.

Orthopedic Surgeon Appointed for German Schools.—Dr. J. Taendler has been appointed orthopedic surgeon to the schools in Charlottenburg. The object of this new arrangement is a thorough investigation and control of school children affected with spinal curvature. As an aid in this effort, orthopedic gymnastic courses will be established in the gymnasiums (Turnhallen) of the schools.

Personal.—Sir Thomas McCall Anderson, Glasgow, has been appointed honorary physician in ordinary to King Edward, to succeed the late Sir William Gairdner.——Prof. Alexander McPhail, of St. Mungo's College, Glasgow, has been appointed lecturer on anatomy in the Charing Cross Hospital Medical School of the University of London.——Dr. Graham Steele, Manchester, has been appointed professor of medicine in the University of Manchester.

Cerebrospinal Meningitis in Western Germany.—Some alarm has been created by the demand of some of the Berlin political papers for a thorough official investigation of the spread of cerebrospinal meningitis in western Germany. The *Deutsche medizinische Wochenschrift*, July 25, expresses the opinion that there is no real cause for alarm as, although there is an increase of the number of cases in Westphalia and the Rhine provinces, it is not so marked as to justify the fear of an extensive spread of the disease.

LONDON LETTER.

(From our Regular Correspondent.)

London, Aug. 3, 1907.

Sanatorium for Consumptives.

Reference has previously been made to the results achieved at the sanatorium built in connection with the Brompton Hospital for Consumptives. To Dr. Paterson, the superintendent, belongs the credit for inaugurating the graded system of outdoor employment that has brought about the results. The important point is the systematic adjustment of occupation to the condition and capacity of the individual. Patients in the worst condition remain in bed and are attended as in a hospital. Those fit to leave their beds, but not strong enough for exertion, rest on couches in the open air, under cover, if necessary, and occupy their hands with some light task, such as making wool mats or sewing. The next stage is regulated walking for varying distances at a pace adjusted to the patient's condition. Then from mere walking, patients are promoted to carrying light baskets of stones or mold, which work respresents the first grade in outdoor labor. Gardening follows in an ascending order until the strongest men do heavy work. Thus, while the patients' lungs are healing their frames are built into a robust condition which renders them fit to work when discharged and more resistant to recurrence. All the patients, whatever their previous vocations, can easily learn the simple sort of manual operations involved, but any special skill or aptitude possessed by individual patients is brought into play. When a man is fit to be discharged he is set to work at his own trade, if he has one, for three weeks, so as to get the muscles in order to take up active life again. The course for women is, within proper limits, similar to that for men. The hours for outdoor work are from 10 to 12 and from 3 to 5. In addition patients who are fit to do so, make their own beds, clean out their own rooms, wash their own dishes, etc. The work is a remedy for the listlessness and ennui which are so common in sanatoriums. The patients are interested in what they do and having something to show for their work derive a satisfaction which is absent when mere exercises are adopted. They have transformed extensive grounds and converted a wilderness into a beautiful garden.

VIENNA LETTER.

(From our Regular Correspondent.)

Vienna, July 27, 1907.

Hospital Statistics.

According to the figures of the bureau of statistics the number of beds available in the public hospitals and other charitable institutions in Austria is 37,610, or one bed for each 700 of the population. These figures do not include institutions such as sanatoria, asylums for the insane nor maternity hospitals. Comparison shows that 30 years ago the available beds numbered only 18,916, or a ratio of one bed for each 850 of the population. As regards cost of maintenance of hospitals, this has increased in the last 30 years by 40 per cent. Each patient now costs the state 36 cents daily.

Poisoning by Caustic Potash Solution.

The frequency of poisoning by means of caustic potash (common lye) was discussed at a meeting of the Vienna Medical Society recently; at the same time measures were considered whose adoption should restrict the large number of these accidents. The chief causes of the accidents were the ease with which the poison could be obtained—for household purposes—and the lack of any pungent or disagreeable odor to warn those who inadvertently swallow the solution. The concentration of the commercial solution varies from 7 per cent. of the salt to 32 per cent. The accidents usually befall children, who ignorantly taste or drink the liquid. There is no law forbidding the sale of this dangerous preparation to children. In seven years 362 cases of injuries by this caustic alone have been collected from the Vienna hospitals. Of these patients 18.6 per cent. died, 10 per cent. had to be operated on, and of the survivors 93 per cent. of the injuries resulted in permanent stricture of the esophagus, which in some cases proved fatal later. The only way of preventing future accidents, or at least of rendering them less frequent, seems to be by prohibiting its sale except by registered druggists. This would tend to awaken the public to the fact that the preparation is a dangerously toxic one.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Pernicious Malarial Fever.

Pernicious malarial fever rarely begins as such and is evidenced by the so-called "congestive chill." This congestive chill occurs when there is an intense and profound chilling of the surface of the body causing a consequent dangerous congestion of the internal organs. This is followed by an enormous rise of temperature, up to the danger point. All this is due to an enormous number of red corpuscles being ruptured at once by the plasmodia so that such an anemia can occur as to leave less than a million red corpuscles per cubic millimeter. The patient can die in the first congestive chill, often dies in the second, and probably never survives the third. The symptoms during the chill are those of brain pressure as shown by coma, or there may be such congestion of the lungs as to interfere with respiration, or the heart may be so disturbed that death occurs from its failure, or there may be bloody urine from congested kidneys. A pernicious chill can resemble apoplexy, or a diabetic or drug coma. Children with such severe chills often have convulsions. Other cases can resemble sunstroke on account of the hyperpyrexia. Pernicious malarial fever rarely is such until after several attacks of milder chills.

The diagnosis of pernicious malaria having been made, if the type can be ascertained by previous malarial chills having occurred, we know the length of time we have for the specific to act. If the type is not known, no chances should be taken, but quinin should be administered both hypodermatically and by the mouth. If there is sufficient time the quinin may be administered by the mouth in doses of from 20 to 30 grains (1.5 to 2 grams) five or six hours before the expected paroxysm, and smaller doses at other periods during the twenty-four hours.

When quinin is given with a hypodermic syringe it should be injected intramuscularly, and probably but rarely intravenously. When given intramuscularly (the most frequent method when the hypodermic syringe is used) it is a mistake to believe that in ordinary conditions it will be absorbed more rapidly than by the stomach. By the intramuscular method, however, there is no question that there is a reservoir of quinin for constant absorption for a number of hours. During the first twenty-four hours, two or three injections, of from 6 to 8 grains (40 to 50 centigrams) each, should be given. Later, probably, one injection a day is sufficient. With proper cleanliness and a proper solution of the most soluble salts abscesses will rarely be caused. The best muscles for injection are the deltoid the biceps or the glutei.

The most soluble salts of quinin for hypodermatic use are the quinin and urea hydrochlorid, and the quinin bihydrochlorid (bimuriate); the latter is perhaps the better. One cubic centimeter (15 minims) of water will dissolve 20 centigrams (3 grains) of either of these salts readily, and even 25 centigrams (4 grains), hence a loaded hypodermic syringe, viz., 2 cubic centimeters (30 minims) can allow the administration of 0.5 gram (8 grains) of the bihydrochlorid of quinin.

The part selected for injection should be thoroughly cleansed and rendered aseptic. The syringe should be aseptic, and the water used should be sterile, and abscesses or tetanus will not occur. If swelling and inflammation take place at the site of the injection, a thick wet dressing of one part of alcohol to three parts of water, covered with rubber tissue or oil silk and kept in place by a bandage, will soon reduce it.

Hemoglobinuric Fever.

This severe type of malarial fever is, of course, recognized by blood appearing in the urine; this is always a dangerous symptom and shows that the malaria is of a pernicious type, consequently active treatment is indicated. It has been the subject of considerable discussion as to whether or not quinin can cause hemoglobinuria; in other words, whether these hemoglobinuric attacks are caused by the quinin or by the disease.

Dr. William H. Deaderick, Mariana, Ark. (The Journal A. M. A., June 1, 1907), states that hemoglobinuria denotes the inability of the liver to take care of the large number of broken-down red corpuscles in a given time. If at any time this destruction of red corpuscles is excessive, as occurs in malarial fever, and especially that variety which occurs in southern climates, the liver is unable to metabolize this enormous amount of hemoglobin and the surplus is passed off by the kidneys, and bloody urine is the result. Some individuals, even when the malarial fever is not severe, readily leak this blood from their kidneys and have hematuria or hemoglobinuria.

Dr. Deaderick says: "Hemoglobinuric fever occurs as a rule in those who have dwelt in the endemic locality at least several months, and usually from two to four years, and in the majority of cases occurs in persons who have suffered from repeated attacks of malarial fever." He states that the form of parasite found in the great majority of cases is the estivoautumnal. He thinks that quinin will probably never cause, and will often prevent hemoglobinuria, although it is certain that the majority of patients who have had hemoglobinuria have also previously taken quinin. This, however, is simply a case of *post hoc* and not *propter hoc.*

Brem, in The Journal A. M. A., Dec. 15, 1906, states that quinin should always be given in malarial hemoglobinuria, and that under its use the passage of blood by the kidneys will cease. He gives quinin intramuscularly, and believes that the best results will be obtained by giving 10 grains intramuscularly every four hours, during the first forty-eight hours, or 15 grains may be given for the first three or four injections. Two different preparations of quinin have been used for intramuscular injections, the bihydrochlorid and the hydrochlorid with urea, the bihydrochlorid proving the less irritating and the less likely to cause abscess.

On the other hand, Ketchen, in the *British Med. Jour.*, Nov. 10, 1906, states that he has seen quinin cause hemoglobinuria. He thinks that malarial germs should be found in the blood before quinin is given, as there may be a separate parasite causing hemoglobinuric fever.

The consensus of opinion, however, seems to be that quinin should certainly be given in hemoglobinuric fever, and hypodermatically. It may also be stated that malarial germs may cause hemoglobinuric fever and still not be found in peripheral blood.

Schropshire, writing in The Journal A. M. A., Sept. 5, 1903, says that in hemoglobinuric fever 40 grains of quinin *per diem* should be given hypodermatically or intravenously until the period of expected exacerbation is passed, half that dose until the time of several exacerbations have passed, then the drug discontinued for three or four days; but he would give 20 or 30 grains of quinin every four or five days for six weeks. He would also combine the methylene blue treatment with the quinin, giving from 3 to 6 grains two or three times a day.

The method of injecting quinin intramuscularly is above described under the heading of "Pernicious Malarial Fever." If it is deemed best to give quinin intravenously, as suggested by Schropshire, either the quinin and urea hydrochlorid or the quinin bihydrochlorid would best be dissolved in physiologic saline solution, viz., 0.9 of 1 per cent. of sodium chlorid in distilled water.

Remittent Malarial Fever.

This is the estivoautumnal variety of malarial fever, and has often been called bilious remittent fever. Several sets of the plasmodia of this special form of malaria are in the blood, and the sets of germs maturing at different times cause a more or less continuous fever. A frequent use of the thermometer, however, will often show short periods without fever, and we may thus obtain an indication of the best time to administer the quinin, it being advantageous to give a large dose several hours before a periodical rise of temperature. If no rhythm can be discovered with the thermometer, the quinin should be given regularly, with every other day a small dose of calomel.

The quinin is best administered in elastic capsules, perhaps from 12 to 20 grains being given every twenty-four hours, depending on the susceptibility of the patient to the drug, marked cinchonism being avoided. The quinin should not be given on an empty stomach, milk being a very good menstruum for it. [For methods of administering quinin, see The Journal A. M. A., Aug. 3, 1907, page 428.] The amount of quinin and the length of time it should be given in this disease depends largely on the locality in which the disease occurs, much larger doses being required to effect a cure in some regions than in others. Salol or salicylic acid, used in small doses as a partial antiseptic to the upper part of the bowels, is of advantage, as owing to the congestion of the liver in this disease bile is imperfectly produced, and considerable bowel infection occurs. If the every-other-day small dose of calomel does not work satisfactorily, a small dose of a saline laxative should be given. Severe purging should not be caused, however, and the amount and frequency will depend on the condition of the patient.

The temperature, the pulse, the mouth, the nutrition and the general hygiene are all to be watched and treated with the same care as in typhoid fever. Remittent malarial fever is persistent and troublesome to treat, and under most favorable conditions, generally lasts from two to three weeks or longer. It is a serious sickness, and should always be treated as such. The convalescence is often protracted and requires tonics and the prolonged use of quinin, perhaps combined with small doses of arsenic, and often a change of air before health is completely restored.

The salol is best given in capsules, put up dry, as:

℞.	gm.		
Phenylis salicylatis	6	or	ʒiss

Fac capsulas 20. Sig.: A capsule every six hours.

Salol should not be given if there is any kidney congestion.

A good tonic during convalescence is as follows:

℞.	gm.		
Arseni trioxidi	04	or	gr. 2/3
Strychninæ sulphatis	04		gr. 2/3
Ferri reducti	1		gr. xv
Quininæ sulphatis	4		ʒi

M. et fac capsulas 20. Sig.: A capsule three times a day, after meals.

Correspondence

Pseudo-Original Articles—The Case of Dr. Arthur E. Gue.*

Library of the Surgeon General's Office.
Washington, D. C., July 30, 1907.

To the Editor:—The library of the Surgeon's General's office of the War Department endeavors to index all original matter in medical periodicals, unless of an absolutely trifling nature. As a matter of course, memory cannot be relied on to determine whether an article has already been marked, and its inclusion by the editor of a periodical among "original articles" is, therefore, accepted. Occasionally a paper appears in several journals marked as "original" in each, with no note to show that it has appeared or is to appear in any other. As this practice causes useless work in carding until it is detected, and also smacks somewhat of disingenuousness, it is thought that a particularly glaring example will be of interest to your readers and to the editors of many medical journals. The article in question is entitled "The Mechanical and Chemical Effect of Milk on the Human," by Arthur E. Gue, of Detroit.

Before the title became familiar to the eye and so instantly distinguished among the hundreds of articles marked daily for carding, the above named production was noted here during the last few months in the following publications, always included among "original articles":

1. *Chicago Medical Times,* 1907, xl, 204-207.
2. *Colorado Medical Journal,* Denver, 1907, xiii, 45-48.
3. *Louisville Monthly Journal of Medicine and Surgery,* 1906-7, xiii, 367-369.
4. *Medical Bulletin,* Philadelphia, 1907, xxix, 168-171.
5. *Medical Council,* Philadelphia, 1907, xii, 138-140.
6. *Milwaukee Medical Journal,* 1907, xv, 76-79.
7. *Physician and Surgeon,* Detroit and Ann Arbor, 1907, xxix, 120-123.
8. *Toledo Medical and Surgical Reporter,* 1907, xxxiii, 161-163.
9. *Virginia Medical Semi-Monthly,* Richmond, 1907, xii, 33-35.

As soon as the opening words "Milk is the normal secretion of the mammary glands of mammals," etc., became as familiar as the first words of Genesis or of the Declaration of Independence, the weary examiners ceased to affix the mystic sign calling for carding, and so it is believed the article has escaped record in at least as many more journals as I have already named. Walter D. McCaw,

Major, Surgeon, U. S. Army, Librarian, S. G. O.

[Comment: Some time ago The Journal, under the heading "Cumbering the Record," editorially called attention to this same evil which was then rather prominent in medical literature, both here and abroad, viz., the reprinting of the same article in different medical publications, some in identical form, sometimes disguised in title.

The instance of multiple publication referred to above by Major McCaw is not comparable in the number of journals utilized by many authors. Some five years ago we called attention to an article written by a Dr. H. Plympton of Brooklyn, which appeared as original in some twenty-eight different journals, including four weeklies. However, the above paper was offered to The Journal and was refused, and probably Dr. Gue sent his remarkable contribution to many journals that did not accept his offer and publish it.

Undoubtedly this practice insures a wider circle of readers, but each needless repetition—and almost all such repetitions are needless enough—diminishes the value of the aggregate of the medical literature of the day, and it makes matters uncomfortable for the bibliographer. If the titles are slightly changed, as is sometimes the case, a fraud is practically consummated on the medical reading public. Most of the transgressors are not among the eminent of the profession, but there are some honored names that are not specially honored by their multiple appearances in this way. If an article is really valuable it will command attention and secure a wide circulation by reproduction in honest reprints and excerpts much better than by this multiplication of spurious first appearances. It is also an imposition on medical editors and publishers, who are not desirous of publishing as original matter what has already appeared elsewhere. The amount of set up matter that has to be "killed" on this account is not insignificant. In fact, the practice is morally inexcusable. As matters are and as our correspondent shows, it is still one of the standing evils in medical periodical literature.—Editor.]

Personal Surgical Errors.

New York City, Aug. 8, 1907.

To the Editor:—It is doubly gratifying to read such an article as that with the above title in The Journal, July 20. The world is full of honest men, but not so full of brave men, for it takes such a man to own and proclaim his mistakes publicly. Among these errors is one to which I desire to call particular attention; namely, the employment of the catgut purse-string suture in dealing with the stump of the amputated appendix. The patient died suddenly on the third day. The postmortem showed that the suture had given away, and that the bowel contents had escaped into the peritoneal cavity, causing the patient's death. The author continues: "I then commenced to use linen thread; many of these patients, however, complained so bitterly of pain in the region of the stump for several months that I later made use of two separate catgut sutures, the outer strand hardened either with formalin or chromic acid." In my opinion the operator has gone from one danger to another. There is already a long list of accidents, a number of them fatal, from the use of this purse-string suture method. Since I read my paper before the Association in June, other cases have come to my knowledge. If every operator were as courageous as Dr. MacLaren, I doubt not that I could swell the list of accidents to a considerable extent.

I earnestly call the attention of surgeons to what I believe to be a grave error in technic. The simple silk or linen ligature applied to the stump, one-quarter of an inch from the cecum, with disinfection, by carbolic acid, of the small bit of mucosa beyond the ligature, does away with the danger of hemorrhage, and, so far as I can inform myself, the danger of leakage. I have failed to find a list of accidents from its employment. As yet I have not a single one, and I have made wide inquiry, and I would be greatly obliged for any reports of such cases. I am of the opinion that any method which requires the traumatism of a suture in the cecum, or in the stump of the appendix, is faulty in that it is entirely unnecessary, as well as unsafe, when compared to the ligature.

John A. Wyeth.

Dr. Knopf and Morphin in Tuberculosis.

New York, July 30, 1907.

To the Editor:—On the day following the meeting of the National Association for the Study and Prevention of Tuberculosis there appeared in the *Philadelphia North American* a sensational article, reporting that I advised the killing of dying consumptives quickly and painlessly by heavy doses of morphin, and that I admitted that it was my daily practice to do so. It was furthermore said that there had been a bitter debate and that the session adjourned in confusion. These false statements were copied by nearly all the newspapers in the United States, were cabled to Europe and made the rounds in the papers and magazines of England and the whole European continent. In spite of explanations and denials I sent to the Associated Press, in spite of a strong letter written by Dr. George Dock, the presiding officer of the meeting, and sent to the leading medical journals of America, giving the true version of my remarks, the false statement has continued to be published and republished and commented on to the great detriment of the anti-tuberculosis crusade all over the world. For example, ignorant consumptives in St. Louis, who had read the sensational lie, refused the visit of the nurses sent to them by the Society for the Relief and Prevention of Tuberculosis. The *St. Louis Republic,* which published this item, said: "Consumptives, since they read that report, apparently have a dread that the visit of the nurse may mean morphin to end their suffering." It thus became necessary to issue the following statement, by order of Prof. Frank Billings, president of the National Association for the Study and Prevention of Tuberculosis:

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*According to the American Medical Directory Dr. Gue is a graduate of the Chicago Homeopathic Medical College, 1891.

> Various daily newspapers published on May 8, what purported to be a report of the remarks of Dr. S. A. Knopf of New York, before the National Association for the Study and Prevention of Tuberculosis, in which he was made to say: "It is my practice and your sacred duty when you see a dying consumptive before you to give the sufferer morphin in plenty that the end may come quickly and painlessly."
>
> No such statement was made by Dr. Knopf, but since, in spite of an immediate explicit denial by the doctor, a great many newspapers in this country and Europe continue to publish the false report as authentic news, Dr. Frank Billings of Chicago, president of the National Association for the Study and Prevention of Tuberculosis, authorizes the following statement:
>
> > Quite apart from the false position in which the speaker was placed and the injury done him, the publication of such a piece of sensationalism can not fail to have a very deleterious effect on impressionable tuberculosis patients throughout the country, and may keep others from seeking needed medical aid.
>
> The following statement, made by Prof. George Dock of the University of Michigan, who presided at the meeting at which Dr. Knopf spoke, should preclude all further misunderstanding:
>
> > I heard clearly what Dr. Knopf said. I am sure that I know what he meant, and am sure that everybody in the room must have understood what he said. His words could not possibly be converted into the meaning given in the public press. It was perfectly clear that he meant to relieve patients in the last stages. Everybody knows that this prolongs life, while making it very much easier for the patient.
>
> Livingston Farrand, Executive Secretary.

I had hoped that this statement would stop all further comments on and circulation of the sensational falsehood. I confess that I have longed for the lie to die out, or, in spite of the loyalty manifested by my professional friends during these hours of trial, for which I beg them to accept my most heartfelt thanks, the ordeal had become almost unbearable.

Equally untrue was the report of the alleged "adjournment in confusion" and the "lively and bitter debate" which followed Dr. Flick's report, condemning the use of morphin and its compound. In refutation of this reflection made by Mr. Beamish on a body of scientific men, composed of many of the leading American physicians, who have devoted their lives to the study and prevention of tuberculosis, permit me to submit an extract from a letter which was received recently by Dr. Joseph Walsh, the secretary of the section:

> I was present as secretary of the section at which you spoke, and instead of the section breaking up in confusion, as was stated in the newspapers, the section closed in the perfectly regular way, and your statement as generally understood by the medical men seemed to be generally agreed with.

I beg The Journal of the American Medical Association to publish and the medical press of the United States in general to copy this communication in the hope that it will help individual members of the profession to refute once for all the inconceivable proposition that any physician true to his calling could possibly propound such a doctrine as shortening the life of any patient entrusted to his care. To the individual members of the profession in this country and abroad I address a personal appeal to embrace every opportunity to disabuse any individual who may labor under the misapprehension that I or any other member of the American medical profession recommended shortening the lives of consumptives or any others by the administration of morphin, chloroform or any other drug. I make this appeal not merely for my own sake, but, above all, for the sake of truth and for the sake of consumptive sufferers in this and in other countries. S. A. Knopf.

Queries and Minor Notes

STATUS OF HYOSCIN-MORPHIN ANESTHESIA.

Brooklyn, N. Y., Aug. 8, 1907.

To the Editor:—In the July number of the *Therapeutic Gazette* I find an article taken from the *Medical Record* advocating the use of hyoscin-morphin hypodermatically to relieve labor pains.

1. Will you tell me if it is considered safer than the scopolamin-morphin preparation?

2. If you consider it safe, what dosage would you advise, and how often repeated?

3. Do you consider the addition of cactin, as in the Abbott Alkaloidal Co.'s tablet, of any decided benefit? J. A. N.

Answer.—The article referred to in the *Therapeutic Gazette* is an editorial abstract of an article which appeared in the *Medical Record* Jan. 12, 1907, in which hyoscin-morphin-cactin was advocated to relieve pain. The *Therapeutic Gazette*, however, wisely omitted mention of the cactin in its abstract. The article in question, by Dr. W. H. Birchmore, bears all the earmarks of the class of articles known as "writeups." We make this statement on the character of the article itself and partly because this author, whose name we are unable to find in any directory, seems to have the habit of writing articles favoring proprietary remedies. We have a record of several, in some of which he praises other of Abbott's preparations.

1. Since hyoscin and scopolamin are recognized as being practically identical, both from a chemical and from a pharmacologic point of view, the combination on the market as hyoscin-morphin is presumably just as safe as, and no safer, and just as valuable as, and no more so, than the scopolamin-morphin combination which has been so much used in Germany, and to a less extent in this country, during the last six years, and concerning which a number of articles have appeared in The Journal.

2. Gauss (*Centbl. of Gyn.*, Jan. 12, 1907), who has elaborated the technic of this use of scopolamin, gives as the initial dose 0.01 gm. (1/6 grain) of morphin and 0.003 gm. (1/200 grain) of scopolamin and gives an additional dose of 0.00015 gm. (1/400 grain) of scopolamin at the end of from 30 to 45 minutes if the patient shows signs of returning memory as tested by her recognition of some object or experience, and repeats this dose of scopolamin as often as is necessary to prevent the return of memory, but almost always without an additional dose of morphin. Bass (*Münch. med. Wochschr.*, March 12, 1907), states that 0.01 gm. (1/6 grain) of morphin and 0.0003 gm. (1/200 grain) of scopolamin are sufficient, and the results are not materially improved by increase of dose. He reports the death of one child which he attributes to scopolamin (hyoscin) of which 0.00075 gm. (1/90 grain) were injected into the mother.

3. No. Cactin is a proprietary article put out by the Abbott Alkaloïdal Co., and claimed by them to be a concentration—whatever that may mean—of *Cactus grandiflora*, which is usually designated by pharmacologists as inert.

ROCHE'S EMBROCATION.

Easton, Pa., Aug. 1, 1907.

To the Editor:—Can you give me the approximate composition of a preparation called "Roche's Herbal Embrocation," widely exploited for whooping-cough and many other conditions, and put on the market by E. Fougera & Co. of New York?

David H. Ludlow.

Answer.—Roche's Embrocation is a nostrum and its exact composition is not known. From published formulas it appears that it is prepared by digesting a fatty oil with asafetida. The following formula for a similar preparation has been published: Coarsely powdered asafetida and alkanet, each 5.0 gm. (75 grains), are digested, with olive oil. 180 gms. (6 fluidounces), during eight days and then filtered. To the clear filtrate are added oil of caraway, oil of turpentine, each 9.0 gm. (2.25 fluidrams), oil of pine needles, 1.2 gm. (18 minims), and oil of bergamot, 0.8 gm. (12 minims). Another published formula directs that 2.5 gm. (38 grains) asafetida be digested for a few hours with 60 gm. (2 ounces) olive oil; the clear oil is decanted and mixed with 2 gm. (30 minims) each of oil of caraway and oil of turpentine, and a few drops of oil of bergamot.

CYSTOGEN.

Clarkson, Ky., Aug. 6, 1907.

To the Editor:—Will you kindly state whether or not the Council on Pharmacy and Chemistry has passed on the merits or demerits of the remedy called Cystogen, made by the Cystogen Chemical Co., St. Louis. It is claimed by the manufacturers that it is a remedy, *per se*, for cystitis. They claim this remedy to be: "A definite chemical compound with the formula of $C_6H_{12}N_4$, and when eliminated by the kidneys it decomposes to some extent, forming formaldehyd." Will you kindly give your opinion as to the correctness of these claims? B. C. Wilson.

Answer.—Cystogen is a trade name applied to hexamethylenamin (hexamethylenamina U. S. P.) This article is included with the list of "New and Non-Official Remedies" under the trade names, formin, methaform, uriform and urotropin. It has also been called hexamin, hexacystin, aminoform, cystamin, metramin, vesalvin, urisol, and gonocystin. These products are chemically identical but vary widely in selling price. Thus, the official hexamethylenamin is sold at about 20 cents an ounce, while Cystogen is sold at $1.00 an ounce.

LYSOL.

Lead, S. D., Aug. 7, 1907.

To the Editor:—Has there been published an analysis of Lysol? If so, can you tell me the constituents? F. E. Clough.

Answer.—Lysol is a solution of cresol in soft (green) soap, the solution containing 50 per cent. of cresol, and is practically identical with Liquor Cresolis Compositus, U. S. P.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Aug. 10, 1907:

Collins, C. C., and Whitmore, E. R., asst.-surgeons, appointed members of a board of officers to meet at Fort Riley, Kan., for the examination of such officers as may be ordered before it to determine their fitness for promotion.

Appel, A. H., deputy surgeon general, and Scott, G. H., asst.-surgeon, appointed members of an army retiring board to meet at Denver.

Buck, C. D., asst.-surgeon, assigned to duty as surgeon, U. S. Army transport *Crook*, sailing Aug. 10, 1907, from San Francisco to Manila, P. I. On arrival at Manila will report to the commanding general, Philippines Division, for assignment to duty.

Winter, F. A., surgeon, granted twenty days' leave of absence.

Wadhams, F. H., asst.-surgeon, Fort Slocum, N. Y.; Ruffner, E. L., asst.-surgeon Columbus Barracks, O.; Whitmore, E. R., asst.-surgeon, Fort Riley, Kan.; Halloran, P. S., asst.-surgeon, Fort Leavenworth, Kan.; Krebs, L. Le R., asst.-surgeon, Fort Hancock, N. J.; Phalen, J. M., asst.-surgeon, Fort Logan H. Roots, Ark., and Billingslea, C. C., asst.-surgeon, Fort Myer, Va., are relieved from duty at the posts designated after their names, and will proceed to San Francisco and take transport to sail from that place about Oct. 5, 1907, for the Philippine Islands. On arrival at Manila they will report in person to the commanding general, Philippines Division, for assignment to duty.

Porter, R. S., and Duncan, W. A., asst.-surgeons, relieved from duty in the Philippines Division, to take effect at such time as will enable them to sail from Manila about Oct. 15, 1907, for San Francisco, reporting on arrival by telegraph to the Adjutant General of the Army for further orders.

Farr, C. W., asst.-surgeon, leave of absence extended two months.

Rich, E. W., asst.-surgeon, reports for duty at target range, Williamsburg, Va. Left Camp Capt. John Smith, Jamestown Exposition, Va., same date.

Leeper, J. F., contract surgeon, left Army General Hospital, Fort Bayard, N. M., on sick leave of absence for three months.

Dickenson, C. F., contract surgeon, arrived July 28, at San Francisco, on the transport *Buford*, for leave of absence for one month.

Treuholtz, C. A., contract surgeon, left Army General Hospital, Fort Bayard, N. M., on leave of absence for two months.

Ashburn, J. K., contract surgeon, granted leave of absence for ten day.

de Quevedo, L. G., contract surgeon, granted leave of absence for two months.

Hutson, T. O., contract surgeon, granted leave of absence for ten days.

Kress, C. C., contract surgeon, granted an extension of ten days to his leave of absence.

Patterson, E. W., contract surgeon, and Mason, G. L., dental surgeon, sailed on the *Logan* August 5, from San Francisco, for Philippine service.

Hollingsworth, R. M., dental surgeon, sailed on the *Warren*, August 5, from San Francisco, for Philippine service.

Redewill, F. H., contract surgeon, granted leave of absence for ten days.

Huber, E. G., contract surgeon, ordered from Fort Snelling, Minn., to Fort Assinniboine, Mont., for temporary duty.

Long, C. J., dental surgeon, granted leave of absence from August 12 to September 5, inclusive; ordered to sail from San Francisco for Philippine service, September 5.

Navy Changes.

List of changes in the Medical Corps, U. S. Navy, for the week ending Aug. 10, 1907:

(Order issued by commanding general, Army of Cuban Pacification.) Mears, J. B., asst.-surgeon, granted leave for one month, under exceptional circumstances, with permission to visit the United States, to take effect about July 30, 1907.

Melhorn, K. C., and Biello, J. A., acting asst.-surgeons, appointed acting asst.-surgeons, from Aug. 2, 1907.

Clifford, A. B., asst.-surgeon, ordered to the *Maryland*.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Aug. 7, 1907:

Pettus, W. J., asst. surgeon general, granted leave of absence for twenty-six days, from Aug. 12, 1907.

Wickes, H. W., P. A. surgeon, granted leave of absence for one month, from Aug. 7, 1907.

Wilson, R. L., P. A. surgeon, directed to proceed to Fountainbleau, Miss., for special temporary duty, completion of which to rejoin his station at New Orleans.

Bahrenburg, L. P. H., P. A. surgeon, granted leave of absence for seven days, from July 15, 1907, under Paragraph 191, Service Regulations.

Robertson, H. McG., asst.-surgeon, granted leave of absence for five days, from July 25, 1907, under Paragraph 191, Service Regulations.

Mullan, E. H., asst.-surgeon, relieved from duty at Perth Amboy quarantine station and directed to proceed to Ellis Island for duty.

Wollenburg, R. A. C., asst.-surgeon, relieved from duty at Detroit, Mich., and directed to proceed to Ellis Island for duty.

Herring, R. A., asst.-surgeon, granted leave of absence for one day in July, 1907, under Paragraph 191, Service Regulations.

Porter, J. Y., sanitary inspector, directed to proceed to Fernandina, Mayport, Carrabelle, and Santa Rosa, for special temporary duty, on completion of which to rejoin his station at Key West, Fla.

Delgado, J. M., acting asst.-surgeon, granted leave of absence for one day in July, 1907, under Paragraph 210, Service Regulations.

Duffy, Francis, acting asst.-surgeon, granted leave of absence for six days, from Aug. 5, 1907.

Elfers, J. C., acting asst.-surgeon, granted leave of absence for twenty days, from Aug. 3, 1907.

Hicks, B. I., acting asst.-surgeon, granted leave of absence for twelve days, from Aug. 4, 1907.

O'Reilly, W. J., acting asst.-surgeon, granted leave of absence for eight days, from Aug. 8, 1907.

Savage, W. L., acting asst.-surgeon, granted leave of absence for thirty days, from Aug. 4, 1907.

Schwartz, Louis, acting asst.-surgeon, granted leave of absence for one day in July, 1907, under Paragraph 210, Service Regulations.

Simonson, G. T., acting asst.-surgeon, granted leave of absence for ten days, from Aug. 5, 1907.

Wetmore, W. O., acting asst.-surgeon, granted leave of absence for seven days, from July 7, 1907, under Paragraph 210, Service Regulations.

APPOINTMENT.

Dr. Rhoderick W. Browne appointed an acting asst.-surgeon for duty at Norfolk, Va., Aug. 7, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 9, 1907:

SMALLPOX—UNITED STATES.

Alaska: St. Michael, May 26, 1 case (from vessel).

Illinois: Aurora, June 1-July 27, 55 cases; Mechanicsburg, January 16-August 1, 19 cases.

Iowa: Davenport, July 1-31, 7 cases.

Kentucky: Lexington, July 20-27, 1 case; Louisville, July 25-August 1, 1 case.

Louisiana: New Orleans, July 20-27, 1 case (imported).

Missouri: St. Joseph, July 20-27, 2 cases.

New York: Buffalo, July 29, 2 cases.

Ohio: Hamilton, March 29-June 15, 21 cases.

Pennsylvania: Philadelphia, July 6-13, 1 case.

Washington: Spokane, July 6-27, 11 cases (1 imported); Tacoma, July 13-20, 2 cases.

Wisconsin: Milwaukee, July 20-27, 5 cases.

SMALLPOX—FOREIGN.

Brazil: Rio de Janeiro, June 16-July 7, 7 cases 2 deaths.

Canada: Winnipeg, July 20-27, 1 case.

China: Shanghai, June 15-22, 4 cases (foreign), 47 deaths (native).

Egypt: Cairo, June 3-July 8, 4 cases, 2 deaths.

Columbia: Barranquilla, July 24, present.

India: Calcutta, June 15-22, 12 deaths; Madras, June 15-July 5, 3 deaths.

Luxemburg: June 22-July 6, 1 case.

Madeira: Funchal, July 14-21, 40 cases, 3 deaths.

Mexico: Aguas Calientes, July 20-27, 5 deaths.

Russia: Libau, June 22-July 13, 3 cases; Riga, April 1-30, 12 deaths; July 6-13, 6 cases.

Spain: Barcelona, July 10-20, 2 deaths; Valencia, July 1-31, 12 cases, 3 deaths.

Turkey: Bassorah, June 22-29, present; Damascus, June 29-July 6, present.

YELLOW FEVER.

Brazil: Rio de Janeiro, June 16-June 30, 4 cases, 2 deaths.

Columbia: Barranquilla, May 27, 1 case, 1 death.

Cuba: Matanzas, August 4-6, 1 case, 1 death.

West Indies: Trinidad, Port of Spain, June 29-July 13, 3 cases, 1 death.

CHOLERA.

India: Bombay, June 25-July 2, 1 death; Calcutta, June 15-July 22, 44 deaths; Rangoon, June 22-29, 4 deaths; Kashmir, June 18-24, 1,149 cases, 879 deaths.

PLAGUE.

Africa: King William's Town, June 15-22, 1 case.

Brazil: Rio de Janeiro, June 16-July 7, 7 cases, 1 death.

China: Amoy, July 27, present..

Egypt: Alexandria, July 11-18, 13 cases, 8 deaths; Port Said, July 11-18, 1 case, 1 death; Behera Province, July 1 18, 1 case, 1 death; Beni Souef, July 11-18, 2 cases.

Formosa: June 22-29, 86 cases, 77 deaths.

India: General, June 8-15, 21,647 cases, 19,934 deaths; Bombay, June 25-July 2, 27 deaths; Calcutta, June 15-22, 25 deaths; Rangoon, June 22-29, 51 deaths.

Persia: Island of Bahrein, June 19, epidemic; Mohammerah, June 19, present.

Marriages

Samuel J. Terrill, M.D., to Miss Mertie Orr, both of Meta, Mo., at Clayton, Mo., July 29.

D. Earl Musgrave, M.D., to Miss Eliza Flournoy Wood, both of Standard, W. Va., August 7.

Jane Elizabeth Hoyt, M.D., Concord, N. H., to George W. Stevens of Claremont, N. H., June 26.

Oscar Edwin Fox, M.D., Reading, Pa., to Miss Alice Sylvia Hunt of Asbury Park, N. J., August 1.

Walter H. Allyn, M.D., Waverly, Ill., to Miss Helen MacMillan Hawley of Chicago, Ill., August 1.

Robert Morrison, M.D., Sheraden, Pa., to Miss Rosetta Ryan of Cambridge Springs, Pa., August 7.

Francis Swift Bourns, M.D., Seattle, Wash., to Miss Mary Catherine Doyle of Goderich, Ont., July 10.

James B. Shively, M.D., Shippensburg, Pa., to Miss Nellie G. Caldwell of Pittsburg, at Carlisle, Pa., July 31.

Lieut. William Hadley Richardson, assistant surgeon, U. S. Army, to Miss Alice Huey Goodin, at Fern Bank, Ohio, July 18.

La Barre Jayne Leamy, M.D., Philadelphia, to Miss Beatrice P. McGill Polphine of Media, Pa., at Wilmington, Del., June 30.

Deaths

Benjamin Grinell Strong, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1883; for many years a practitioner of Long Island City, N. Y., and coroner's physician of the Borough of Queens; for several terms coroner of Queens County, and a member of the staff of St. John's Hospital, Long Island City, died at his old home in Reading, Mich., from tuberculosis, July 26, after an illness of two years, aged 46. At a meeting of the Medical Society of Long Island City, held July 29, resolutions of sorrow and sympathy were adopted.

Edward W. Lee, M.D., L.R.C.P. Ireland, Dublin, 1862; a member of the Illinois State and Cook County and Chicago medical societies; for many years a well-known surgeon of Chicago, and for 20 years chief surgeon of the Pennsylvania Lines west of Pittsburg, and attending surgeon to the Cook County Hospital and other institutions, died at his home in Chicago, August 11, aged 67.

Silas Scarboro, M.D. University of Maryland School of Medicine, Baltimore, 1857; from 1863 to 1864 assistant surgeon of the Second Maryland Infantry, U. S. V., and invalided in 1864; a member of the Maryland House of Delegates from 1878 to 1882, and at one time a member of the Harford County school board, died at his home in Towson, Md., August 7, aged 80.

Hamilton Osgood (Years of Practice, Mass.); a member of the Massachusetts State and Suffolk County medical societies; for many years a practitioner of Boston, and at one time a member of the staff of the *Boston Medical and Surgical Journal;* an early student of hypnotism and suggestive therapeutics, died in Oxford, Eng., July 10, aged 68.

James Marcellus Hopkins Bateman, M.D. University of Maryland School of Medicine, Baltimore, 1867; formerly president of the State Board of Health of Maryland; a member of the State Board of Medical Examiners, and local surgeon of the Pennsylvania System, died at his home in Easton, Md., from nephritis, August 2, aged 62.

Thomas H. Sabin, M.D. Medical Department of the University of Wooster, Cleveland, Ohio, 1882; a veteran of the Civil War and an organizer of a cavalry company in the Spanish-American War; at one time physician to the Indian School at Sacaton, Ariz., died at his home in Casa Grande, Ariz., July 29, from heart disease, aged 63.

Andrew Dunbar Forsythe, M.D. Hospital College of Medicine, Louisville, Ky., 1897; a member of the Medical Association of the District of Columbia; for ten years a practitioner of Washington, D. C., died in the Georgetown University Hospital, in that city, July 30, from peritonitis, after an illness of five days, aged 33.

Thomas Boyers Brown, M.D. Medical Department of the University of Nashville, Tenn., 1898; a member of the Tennessee State Medical Association and Sumner County Medical Society, died at his home near Gallatin, July 30, from peritonitis, following typhoid fever, after an illness of two weeks, aged 32.

Leo W. Sapp, M.D. Cleveland University of Medicine and Surgery, 1856; one of the founders of the Huron Road Hospital, Cleveland, and for many years a member of the faculty of Western Reserve University Medical College, died at his home in Cleveland, August 4, after an illness of two months, aged 74.

George H. Stanley, M.D. Medical School of Harvard University, Boston, 1870; health officer of Pawtucket, R. I., for several years; a member of the Rhode Island and Providence County medical societies, died at his home in Pawtucket, R. I., July 30, from ptomain poisoning, after an illness of one week, aged 61.

John G. Geers, M.D. Miami Medical College, Cincinnati, 1876; for 30 years a practitioner of West Point, Iowa; mayor of the city in 1902 and 1903; a member of the school board for many years, and a member of the Iowa State and Lee County medical societies, died in a hospital in St. Louis, July 30, aged 53.

James F. Canavan, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1899; a member of the Michigan State and Grand Traverse County medical societies; first assistant physician at the Northern Michigan Asylum, Traverse City, died from appendicitis, July 26, aged 31.

Clarke C. Campbell, M.D. Jefferson Medical College, Philadelphia, 1846; surgeon of the Fifth Texas Volunteers, C. S. A., during the Civil War; afterward in charge of the City Hospital, Galveston; city physician of that city for three terms, died at his home in Fort Worth, July 27, aged 82.

Edward G. Ferguson, M.D. Faculty of Medicine of Queen's University, Kingston, Ont., 1863; at one time a professor in the Macon (Ga.) Medical College, and a prominent practitioner of that city for many years, died at Indian Springs, Ga., July 25, after an illness of two years, aged 65.

Christian E. Burkeholder, M.D. Rush Medical College, Chicago, 1899; of Jacksonville, Ill.; a member of the Illinois State and Morgan County medical societies; died at Our Saviour's Hospital, Jacksonville, July 28, two days after an operation for strangulated umbilical hernia, aged 31.

Wilson J. Flinn, M.D. Northwestern University Medical School, Chicago, 1891; a practitioner of Blaine, Kan., and for two terms coroner of Pottawatomie County, died at the home of his mother in Holton, Kan., August 1, from gallstone disease, after a prolonged illness, aged 45.

Winfield Scott Stone, M.D. Louisville, (Ky.) Medical College, 1874; a veteran of the Civil War; some-time township treasurer, and for nine years a member of the school board of Caledonia, Ohio, died at his home in that village, August 1, from neuritis, aged 61.

A. Dow Coburn, M.D. McGill University Medical Faculty, Montreal, 1892; a practitioner of Canterbury, N. B., died at the home of his mother in Fredericton, N. B., July 25, from tuberculosis, after an illness of more than a year, aged 36.

Charles A. Zimmerman, M.D. Curtis Physio-Medical Institute, Marion, Ind., 1896; some-time professor of electrotherapeutics in his alma mater, died suddenly at his home in Fort Wayne, Ind., from angina pectoris, July 29, aged 62.

Leonard S. Taylor, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1891; died at his home in Elgin, August 5, from septicemia, due to an operation wound, after an illness of several months, aged 39.

Edwin B. Crisswell, M.D. Cleveland Homeopathic Medical College, 1883; of Edwardsburg, Ind., who was injured in a fall from a street car in Elkhart, August 2, died in that city, August 6, aged 49.

Adolph Goldsmith, M.D. Missouri Medical College, St. Louis, 1885; a practitioner of St. Louis until he became an invalid, in 1895, died at the Missouri Baptist Sanitarium, St. Louis, July 30, aged 48.

Charles Neill, M.D. Toronto University, 1893; a native of Barry, Ont., died recently in Chicago, while on his way for his health to Texas, after an illness of about five years, from tuberculosis.

John Paxon, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1869; died at his home in Newtown, Pa., June 3, from cerebral hemorrhage, aged 65.

Thomas Watson Howard (Examination, Russell Co., Ala., 1888); died at his home in Girard, Ala., July 31, from uremia, after an illness of ten days, aged 65.

Samuel Wimpelberg, M.D. Jefferson Medical College, Philadelphia, 1883; of Yonkers, N. Y., died suddenly in Roosevelt Hospital, New York City, July 12.

Alexander M. Veasey, M.D. Kentucky School of Medicine, Louisville, 1886; formerly of Pittsburg, Pa., died at his home in Medora, Ind., July 28.

Marshall Dennis Kelley, M.D. University of Nashville (Tenn.) Medical Department, 1857; died at his home in Nashville, July 7, aged 76.

Thomas J. Prim (Examination, Clark Co., Ala.), 1884; died at his home in Salipta, Ala., recently, from fever, after a short illness.

John McMillan, M.D. McGill University Medical Faculty, Montreal, 1857; died at his home in Picton, N. S., May 1, aged 73.

James Dudley Mosher, M.D. College of Physicians and Surgeons, Baltimore, 1886; died at his home in Rawdons, N. S., May 4.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Then and Now.

In a letter recently received from the secretary of one of the most active county societies in an eastern state appear some observations which are worthy of repetition as emphasizing specifically a fact which has been repeatedly stated in a general way. Our correspondent says:

> For all I heard while at medical college, I would never have known that the ethics of practice of medicine differed in the least from that of selling swine. Nor did I learn that there was such an association as the American Medical Association, nor that it published a journal. However, I had run across that grand book of Cathell's and did not know that something was required of a doctor. After locating and beginning practice, I became a subscriber to the ———— *Medical Journal.* One day, in reading an advertisement of a book, I saw a review copied from "The Journal of the American Medical Association." For the first time I knew there was such an Association, and I knew at once that I wanted to belong to it. I had no idea where the headquarters were, but thought that they might be in Philadelphia. I wrote to Philadelphia, and, of course, my letter came back. I finally wrote to ———— and found that the headquarters were in Chicago. I wrote to headquarters and asked what was necessary to become a member, and was told that I must be a member of the West Virginia State Medical Association. This was the first time that I had ever heard of such an association, and did not know how to join or whom to ask. Finally, I met Dr. ———— of ————, and asked him if he knew anything about the West Virginia State Medical Association and how I could become a member. He said there were only two doctors within miles of his house who were members and that he was one. He gave me the address of the secretary and endorsed my application, and in this way I became a member of the state association and of the American Medical Association.
>
> Now, some one was to blame for this. The college should have drilled it into me that there were such associations and that it was my duty and privilege to become a member of them. The American Medical Association should have had some literature in my hands during my first student year. The State Medical Society should have sent me invitation after invitation to become a member as soon as I located in the state. They should have kept it up until I joined. I feel safe in asserting that no doctor in my county can say that he does not know how to become a member of his county medical society. Thinking of how little has been done for the average doctor, the wonder is not that we are better but that we are not worse.

Our correspondent's criticisms were unfortunately true. Medical colleges, even the best, formerly neglected the practical side of a student's training in professional matters. As a result, students were allowed to enter practice with no knowledge of their relations to their future patients, to their professional brethren or to the public. They knew nothing of what has been done by the organized profession in the past. They know nothing of the influence, possibilities or duties of the profession as a whole.

There has been some improvement, however, Since 1900 the American Medical Association each year has sent to every medical college enough copies of the Principles of Medical Ethics of the Association to supply one copy for each graduate of the school. In some of our more progressive colleges, prominent members of the faculty have given talks to the graduating classes on the practical side of medicine, the advantages of medical organization, etc. If our correspondent had been a member of the class of 1907 instead of 1897 he would have known something about the Principles of Medical Ethics and the American Medical Association before he graduated.

There has been a change, too, in medical organization work in the state. We venture to say that there are few, if any, reputable physicians now practicing in our correspondent's state who have not been invited to join their county and state societies. Along these lines there has been much improvement in the last five years. Of course, there is room for still more.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Massachusetts Board of Registration in Medicine, State House, Boston, September 10-12. Secretary, Dr. Edwin B. Harvey, 159 State House, Boston.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, September 17-19. Secretary, Dr. Louis A. Thomas, Des Moines.

STATE BOARD REPORTS.

Reference Table of Published Reports of State Boards of Medical Examiners.

Some reports of examinations held in various states are given in this issue. To facilitate reference to other reports previously published, the following table will be found of value:

State.	Date of Exam.	Journal. Page.	Journal. Date.	With Examination Questions.
Arizona	January	1293	April 13	No
	April	265	July 20	No
	July	436	August 3	No
Arkansas	January	1973	June 8	No
	April	436	August 3	No
California	December	824	March 2	Yes
	April	350	July 27	No
Colorado	January	2199	June 29	No
	April	182	July 13	No
Connecticut	November	258	January 19	No
	January	349	July 27	No
	March	349	July 27	No
Delaware	December	365	January 26	Yes
	June	351	July 27	No
Dist. of Columbia	October	168	January 12	No
	January	1293	April 13	No
Florida	May	518	August 10	No
Georgia	October	638	February 16	No
	April	350	July 27	No
	May	350	July 27	No
Idaho	October	257	January 19	No
	April	436	August 3	No
Illinois	October	448	February 2	No
	January	1974	June 8	No
	April	350	July 27	No
	May	350	July 27	No
Indiana	October	724	February 23	No
Iowa	December	638	February 16	No
	May	518	August 10	No
	June	518	August 10	No
Kentucky	October	257	January 19	No
	April	1974	June 8	No
Louisiana	October	258	January 19	No
	May	264	July 20	No
Maryland	December	724	February 23	Yes
	June	351	July 27	No
Massachusetts	November	258	January 19	No
	March	181	July 13	No
	May	351	July 27	No
Michigan	October	168	January 12	No
Minnesota	January	726	February 23	No
	April	265	July 20	No
Mississippi	October	258	January 19	No
Missouri	November	825	March 2	No
Montana	April	1974	June 8	No
Nebraska	February	182	July 13	No
Nevada	November	258	January 19	No
	May	182	July 13	No
North Dakota	January	541	February 9	No
	April	1700	May 18	No
	July	436	August 3	No
Ohio	December	449	February 2	No
Oklahoma	December	825	March 2	Yes
Rhode Island	January	726	February 23	No
	April	1974	June 8	No
	July	519	August 10	No
South Carolina	June	264	July 20	No
South Dakota	January	1293	April 13	No
Texas	April	517	August 10	Yes
	October	449	February 2	No
Utah	January	726	February 23	No
	April	1974	June 8	No
Vermont	January	1544	May 4	No
Washington	January	182	July 13	Yes
West Virginia	November	259	January 19	No
	April	1974	June 8	No
Wisconsin	January	1974	June 8	No
	April	519	August 10	No
	June	519	August 10	No
Wyoming	December	365	January 26	No
	March	1629	May 11	No
	June	436	August 3	No

Minnesota June Report.—Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, June 4-7, 1907. The number of subjects examined in was 15; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 68, of whom 50 passed and 18 failed. Seven reciprocal licenses were granted. The following colleges were represented:

PASSED.

College.	Year of Graduation.	Medicine.	Surgery.	Obst. and Gynecology.	Materia Medica.	Anatomy and Histology.	Physiology.	Chem., Tox. & Urinalysis.	Pathology & Bacteriology.	Prev. Med. & Med. Jurisp.	General Average.
Bennett Coll. of Ecl. M. & S.	1907	81	78	83	76	81	78	75	83	76	79.
College of P. and S., Chicago.	1907	74	77	75	75	75	76	60	94	77	75.8
College of P. and S., Chicago.	1907	82	83	82	77	80	80	80	88	70	80.2
Rush Medical College	1907	82	75	87	83	77	84	76	87	77	80.8
Northwestern University	1907	84	81	81	69	89	85	75	92	78	81.5
University of Minnesota.....	1907	83	82	81	75	93	86	76	88	78	82.4
University of Minnesota.....	1907	79	75	75	75	80	76	62	85	70	75.2
University of Minnesota.....	1907	83	81	91	88	80	81	80	95	79	84.2
University of Minnesota.....	1907	77	78	83	76	83	81	78	88	78	80.2
University of Minnesota.....	1907	78	75	84	82	91	84	78	84	79	79.4
University of Minnesota.....	1907	86	75	80	77	78	80	66	95	77	79.3
University of Minnesota.....	1907	88	82	79	67	86	80	76	91	78	80.7
University of Minnesota.....	1907	88	77	80	74	81	83	72	86	81	80.2
University of Minnesota.....	1907	88	85	94	76	77	90	75	90	82	83.
University of Minnesota.....	1907	85	82	83	71	82	83	70	83	80	79.8
University of Minnesota.....	1907	83	75	78	68	83	82	76	82	70	77.4
University of Minnesota.....	1907	85	76	84	86	82	80	81	89	79	82.4
University of Minnesota.....	1907	77	72	78	81	70	69	79	78	77	75.6
University of Minnesota.....	1907	80	80	80	68	72	75	60	81	79	75.
University of Minnesota.....	1907	78	80	80	66	75	75	77	86	77	77.1
University of Minnesota.....	1907	80	77	81	71	61	68	77	87	77	75.4
University of Minnesota.....	1907	71	70	83	87	79	78	65	79	78	76.6
University of Minnesota.....	1907	84	80	88	82	85	79	79	83	77	81.8
University of Minnesota.....	1907	79	71	83	67	79	76	77	88	77	77.4
University of Minnesota.....	1907	81	77	79	67	76	87	72	72	78	76.5
University of Minnesota.....	1907	81	78	80	77	58	75	80	71	76	75.1
University of Minnesota.....	1907	77	69	75	81	79	69	60	87	78	75.
University of Minnesota.....	1907	81	81	75	77	91	83	75	82	76	80.1
University of Minnesota.....	1907	72	70	79	72	94	81	63	72	78	75.6
University of Minnesota.....	1907	79	75	81	65	78	65	64	84	76	76.3
University of Minnesota.....	1907	82	75	81	73	75	82	78	86	80	78.7
University of Minnesota.....	1907	87	85	94	87	94	91	86	91	79	88.2
University of Minnesota.....	1907	86	83	88	90	79	93	77	91	82	85.4
University of Minnesota.....	1906	79	68	79	78	81	77	75	88	80	78.3
University of Minnesota.....	1906	83	78	81	72	77	75	68	84	77	77.2
University of Minnesota.....	1906	85	80	85	75	82	87	79	92	77	82.4
University of Minnesota.....	1906	91	83	92	83	91	79	78	81	81	83.2
Hamline University	1907	85	85	83	88	72	80	79	94	80	82.7
Hamline University	1907	80	77	80	80	66	76	71	71	74	75.
Hamline University	1907	79	82	77	84	83	84	79	92	75	81.6
Hamline University	1907	83	80	83	89	85	80	79	76	77	81.3
Hamline University	1907	85	78	79	85	77	83	79	85	80	81.2
Hamline University	1907	72	75	83	75	79	75	58	82	76	75.
Hamline University	1907	86	82	79	93	75	87	75	93	79	83.2
Hamline University	1907	77	78	73	89	72	75	71	86	75	77.3
Hamline University	1907	81	77	68	79	76	73	61	85	75	75.
Hamline University	1907	87	85	89	88	94	93	80	90	86	88.
Hamline University	1906	77	89	82	75	84	76	64	84	76	77.4
Hamline University	1906	80	76	66	75	83	75	67	86	75	75.8
Medical Coll. of Ohio.......	1890	90	82	90	84	87	90	71	70	80	82.6

FAILED.

College.	Year of Graduation.	Medicine.	Surgery.	Obst. and Gynecology.	Materia Medica.	Anatomy and Histology.	Physiology.	Chem., Tox. & Urinalysis.	Pathology & Bacteriology.	Prev. Med. & Med. Jurisp.	General Average.
University of Minnesota.....	1907	78	75	75	60	70	75	66	83	76	73.1
University of Minnesota.....	1907	80	61	72	69	75	69	53	77	74	70.
University of Minnesota.....	1907	69	75	78	85	80	64	42	74	79	71.7
University of Minnesota.....	1907	77	63	75	67	75	77	64	75	70	71.4
University of Minnesota.....	1907	75	82	78	61	78	66	45	70	75	70.
University of Minnesota.....	1906	72	62	76	66	70	69	74	71	76	70.6
Hamline University	1907	78	70	65	67	76	67	71	67	77	70.8
Hamline University	1907	73	70	71	75	50	76	58	74	73	68.8
Hamline University	1907	75	64	71	71	70	60	72	59	77	68.7
Hamline University	1907	74	65	63	86	65	60	66	73	75	69.6
Hamline University	1907	72	69	44	72	88	82	66	75	78	71.7
Hamline University	1906	67	61	66	61	58	65	69	68	76	65.6
Hamline University	1906	68	75	71	63	75	80	56	70	74	70.2
Hamline University	1906	67	67	62	84	62	75	62	88	75	71.3
University of Buffalo	1885	68	73	63	75	76	75	50	65	79	69.3
University of Buffalo	1892	21	21	41	25	00	59	00	42	67	30.6
Eclectic Med. Inst., Cincinnati	1907	66	78	79	66	72	75	39	66	79	68.8
Univ. of Toronto, Ontario....	1906	54	51	59	59	78	75	66	53	75	63.3

LICENSED THROUGH RECIPROCITY.

College.	Year. Grad.	Reciprocity with.
Colorado School of Medicine....................	(1904)	Texas
Rush Medical College	(1871)	Iowa
Medical College of Indiana	(1885)	Nebraska
Sioux City College of Medicine	(1906)	Iowa
University of Michigan	(1905)	Iowa
Albany Medical College	(1887)	Wisconsin
Wisconsin College of P. and S..................	(1905)	Wisconsin

The following questions were asked:

CHEMISTRY.

1. Define (a) specific gravity; (b) oxidation; (c) a base; (d) synthesis; (e) an element; (f) allotropy. 2. (a) Give the law of multiple proportions; (b) give the difference between a chemical compound and a mechanical mixture. 3. (a) Give a test for organic matter in drinking water; (b) what substances are commonly found in solution. 4. Explain the action of alcohol immediately applied to a carbolic acid burn. 5. Give metals of the alkali group, with symbols. 6. (a) Give freezing point of blood; (b) give test for blood pigment; (c) how do you estimate the hemoglobin. 7. (a) What is the chemical composition of the different urinary calculi; (b) name members of the purin group. 8. (a) Give a qualitative test for lactic and hydrochloric acids in stomach contents; (b) what is meant by total acidity. 9. (a) Name the carbohydrates found in the urine; (b) give a color test for diabetic blood. 10. Give qualitative test for uric acid; (b) give qualitative test for urea.

SURGERY.

1. Give symptoms and differential diagnosis of dislocation of the ankle. 2. Give differential diagnosis and treatment of fracture of lower end of femur. 3. Give etiology, pathology and clinical course of acute infective osteomyelitis. 4. Give differential diagnosis, clinical course, and treatment of gonorrheal arthritis. 5. Give symptoms and differential diagnosis of vesical calculus. 6. Give technic of circumcision. 7. Define sapremia, septicemia and pyemia. 8. Give method of ligating brachial artery at middle of arm and name structures to be avoided. 9. Give treatment of corneal ulcer. 10. Describe trachoma and give treatment.

OBSTETRICS.

1. Describe the superior strait and give its dimensions. 2. Give classification of labor as to presentation and position. 3. Give treatment for the nausea and vomiting of pregnancy. 4. Give diagnostic signs of death of fetus in utero. 5. Give diagnosis and management of hydrocephalus in labor. 6. Enumerate the various malpresentations and describe your management of a case of shoulder presentation. 7. Give your management of a case of complete placenta prævia, the os being rigid and the cervical canal not readily penetrated. 8. Give etiology and treatment of phlegmasia alba dolens. 9. Give causes and treatment of subinvolution of the uterus following confinement. 10. Give indications for craniotomy, Cesarean section and Porro operation.

MATERIA MEDICA.

1. Incompatibility: (a) explain the term as used in materia medica; (b) give general principles. 2. (a) What is carbolic acid; (b) criticise the following:

℞. Acid carbolic, liq......................Drachm. ss
Sodii bicarb ....Drachm. v
Gentian. fluidext. ....Oz. i
Aq. aurantii flor., q. s. ad....................O. i
M. Sig.: Half an ounce in a little water to be taken three times a day before meals.

3. Cocain: (a) Source? (b) Physical properties? (c) Local action: On the eye (conjunctiva and pupil?) Hypodermically? (d) Constitutional action: On nervous centers? On respiration? On temperature? (e) Routes through which it enters the circulation? Single dose to exceed which is dangerous? 4. (a) Name two reliable teniacides: State the preparation of each commonly used and give dosage; (b) name three reliable heart stimulants; (c) three hypnotics; (d) a drug which stimulates reflex activity of the spinal cord; (e) three depressants of spinal cord activity. 5. Give the derivation of—(a) arbutin; (b) apiol; (c) apomorphin; (d) brucin; (e) cicutin; (f) eserin; (g) hydrastin; (h) emetin; (i) scopolamin; (j) veratrin. 6. Veratrum viride: (a) Source? (b) Chief physiologic action? (c) Official preparations with dose? (d) Principal alkaloids? 7. Give the average adult dose of the official fluidextracts in general. Name the exceptions in which this would be a dangerous dose and state average dose of each exception. 8. (a) What is massa hydrargyri? Mercurous chlorid? Mercuric chlorid? (b) Explain how ferrous carbonate is obtained in Blaud's pill. 9. Name the medicines which have become established as specifics and the disease in which each is so used. 10. State a safe dosage rule where prescribing for children.

PRACTICE OF MEDICINE.

1. Give causes and symptoms of gastralgia. 2. Describe a case of multiple neuritis. 3. Describe seborrhea oleosa; seborrhea sicca. 4. Give symptoms and treatment of acute prostatitis. 5. Give causes and symptoms of pulmonary emphysema. 6. Give causes and symptoms of acute endocarditis. 7. Give general management of sunstroke. What are its most important sequelæ? 8. Give general causes and symptoms of neurasthenia. 9. Give symptoms of chronic parenchymatous nephritis, including results of chemical and microscopic analysis of urine. 10. Name at least four of the principal diseases in which we usually find enlargement of the spleen, not including primary disease of the organ itself.

GYNECOLOGY.

1. Give diagnosis and treatment of pyosalpinx. 2. What abnormal condition of the uterus may produce dysmennorrhea? 3. Enumerate all the subjective and objective symptoms of tubal pregnancy. 4. Describe your management of a case of abortion with severe hemorrhage. 5. Describe treatment for posterior displacement of uterus.

DISEASES OF CHILDREN.

1. Give etiology, symptoms and treatment of mycotic stomatitis. 2. Give etiology and symptoms of rachitis. 3. Give pathology and symptoms of infantile palsy. 4. Enumerate causes of infantile convulsions. 5. Describe a case of spina bifida.

TOXICOLOGY.

1. (a) Define "poison," "antidote;" (b) classify antidotes according to action; (c) give composition of an effective antidote to be used where no definite information can be obtained as to poison taken, and explain action. 2. Resolve treatment of poisoning into routine steps in the order of importance. 3. Give symptoms and treatment of poisoning by strychnin. Give physiologic test where strychnia is suspected as the lethal agent. 4. Name three commercial articles in common use which are frequent sources of arsenical poisoning; (b) symptoms of; (c) antidotes. 5. Describe Reinsch's test and the method of differentiating between arsenic, mercury and antimony. 6. How is death produced in poisoning by aconite? by digitalis? by morphin? by hydrocyanic acid? by nicotin? 7. Given a poisonous dose of morphin in a susceptible subject, describe the symptoms of poisoning in order of occurrence. 8. Describe fully how you would treat such a case. 9. Differentiate between alcoholic narcosis, morphin poisoning and cerebral hemorrhage. 10. What are ptomains?

MEDICAL DIAGNOSIS.

1. (a) Name the casts in the urine; (b) give their significance; (c) give the clinical sognificance of albuminuria. 2. Differentiate

general tuberculosis and typhoid fever. 3. Given a case of aortic stenosis, how would you know it? 4. Show value of a leucocyte count in a questionable case of typhoid fever or appendicitis. 5. In what diseases would you use the microscope to make or confirm a diagnosis. 6. Differentiate the different throat exudates and state with what diseases they are commonly associated. 7. In a case of edema of the legs, what would you look for? Show by elimination. 8. (a) What is: Kernig's sign, von Graefe's sign, Dietl's crisis, Argyll-Robertson pupil, Koplik's spots, Romberg's symptom, McBurney's point? Give significance and value in diagnosis. ()b Give diagnostic value of lumbar puncture. 9. Name the differential diagnostic points in "paresis." 10. (a) What conditions simulate gallstone colic and how do you differentiate? (b) Diagnostic value of the determination of hydrochloric acid in stomach contents.

MEDICAL JURISPRUDENCE.

1. (a) What is meant by presumption of death and of survivorship? (b) How are such questions usually decided? 2. What is the cause of death following burns? 3. What are the most characteristic signs of death by drowning? 4. How do you distinguish between intellectual and moral insanity? 5. Give some conditions legally justifying the induction of premature delivery.

PREVENTIVE MEDICINE.

1. What in your opinion is the best procedure to prevent the spread of tuberculosis? 2. Describe some practical method whereby a tubercular patient, confined to the house, may get a good supply of pure air. 3. How are the following diseases usually transmitted: Typhoid fever, yellow fever, malaria, tuberculosis and diphtheria? 4. (a) What are the dangers from impure drinking water? (b) Give practical method for obtaining pure water for the home. 5. What in your opinion is the most sanitary method of heating and ventilating a dwelling in this climate during the winter season?

PATHOLOGY.

1. What are the pathologic changes in the blood in (a) pernicious anemia, (b) chlorosis. 2. Give gross and microscopic appearance of interstitial hepatitis. 3. Give pathology of cystic ovary. 4. Give forms and pathology of appendicitis. 5. Give pathology of poliomyelitis.

BACTERIOLOGY.

1. In what infectious diseases is immunization of value. 2. Describe the malarial organism. 3. Describe and give method of staining (a) tubercle bacillus, (b) gonococcus. 4. Describe Widal's test and how it is made. 4. Describe method for bacteriologic diagnosis of diphtheria.

ANATOMY AND HISTOLOGY.

1. (a) Describe the kidney; (b) give the histology of the kidney. 2. (a) Describe the spleen; (b) give the histology of the spleen. 3. (a) Describe the thyroid gland; (b) give the histology of the thyroid gland. 4. If you were to remove the superficial layer of lymphatics from the neck, what structures would you meet and what would you unavoidably sever in so doing? 5. Describe the triangles of the neck. 6. Describe the muscles of respiration. 7. Describe the saphenous vein and give its relations. 8. Describe the internal iliac artery and give its relations. 9. Describe the external iliac artery and give its relations. 10. Describe the brachial artery and its relations.

PHYSIOLOGY.

1. Describe the functions of the liver and the uses of the bile. 2. Explain the secretion of urine by the glomeruli and renal epithelium. 3. Describe in detail a complete cardiac revolution and enumerate the causes of the normal heart sounds. 4. Describe the formation of a blood clot. 5. What is the function of the lymphatic system? What is (a) lymph and (b) chyle? How is the movement of the lymph maintained? 6. Describe the change which the blood undergoes in passing through the capillaries of the skin and lungs. 7. What are the sources of heat in the animal body and by what means is it regulated? 8. Explain the physiologic phenomena that take place in "ankle clonus." 9. Describe the changes the food (albuminous foods, starches, and fats) undergoes in the duodenum and explain how it is absorbed by the lacteal and portal vein. 10. What is the function of the spinal cord? What centers are located in it? Note: Credits will be given for all diagrams used in explaining questions.

California Examining Board Report.—A number of interesting points are to be found in Dr. Dudley Tait's report to the California State Medical Society last April (*California State Journal of Medicine*, June, page 128). Control of matriculation requirements in California are where they properly belong, in the hands of the State Board of Medical Examiners. Dr. Tait says: "There is no more radical method of exterminating the purely mercenary medical college than by exacting of all matriculants a high standard of preliminary education." One California college had, in 1905-6, 42 freshmen, but in 1906-7, when an examiner from the board passed on the credentials of matriculants, the standard of requirement being the same, the number of freshmen was 7, a reduction of 83.3 per cent. Regarding the laws of California regulating medical practice, the act of 1901 was obtained only by allowing a special act for the osteopaths. The result was that, although the number of licentiates for the regular, homeopathic and eclectic schools was materially reduced, the osteopathic board registered large numbers and these without examinations. Further, among those registered by the osteopathic board there were many who had failed ignominiously before the medical board. Only recently the osteopaths declared openly that their ambition was "to be known as practitioners of medicine in the broad sense of the term." While higher requirements were being demanded of the three schools of medicine, there was a wide door by which the illiterate could enter into the practice of medicine. Hence the new law, although it was not what could be termed ideal, was imperatively demanded. Dr. Tait rightfully urges the cooperation of all reputable physicians with the examining board toward the enforcement of the new law against illegal practitioners. The experience of California in regard to the osteopaths emphasizes what is now coming to be better appreciated: That there should be no class legislation or special privileges for any individual who desires to practice medicine in any form. Let them all enter by the same door and comply with the same standards of preliminary and medical education.

Texas June Report.—Dr. T. T. Jackson, secretary of the Texas State Board of Medical Examiners, reports the written examination held at Austin, June 25-27, 1907. The number of subjects examined in was 12; total number of questions asked, 144; percentage required to pass, 75. The total number of candidates examined was 93, of whom 73 passed, including 31 non-graduates, and 20 failed, including 17 non-graduates. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Howard University, Washington	(1907)	78.
College of P. and S., Chicago	(1905)	80.
Keokuk Med. Coll., College of P. and S.	(1906)	87.
Hospital Coll. of Medicine, Louisville	(1905) 80; (1907) 80,	80.
Kentucky School of Medicine	(1894)	75.
Tulane University of Louisiana	(1907) 78, 78, 79, 79.7, 80,	82.
University of Iowa	(1889)	84.
Maryland Medical College	(1905) 86.5; (1907)	87.5
St. Louis University	(1907) 84,	86.5
St. Louis College of P. and S.	(1898)	79.
University of Nashville	(1907)	82.
Vanderbilt University	(1900) 83; (1907) 85,	91.4
Memphis Hospital Medical College	(1898) 75; (1905)	83.
University of Texas	(1904) 80; (1906) 92; (1907) 84, 84.8, 86.5, 87, 87.5, 87.6, 88, 88.5, 89, 89, 89.6, 90, 90, 91, 94.	

FAILED.

College.	Year. Grad.	Per Cent.
Kentucky University	(1906)	68.5
Flint Medical College	(1907)	67.7
Meharry Medical College	(1906)	69.7

Pharmacology

ANOTHER CONSUMPTION CURE (?).

The C. S. Roberts and Hydrocine Attempt to Exploit the Tuberculous.

We have had occasion to comment on the diabolical cruelty exhibited by cancer fakers in deluding their victims with false hopes and by inducing them to delay such treatment as might be effective until too late. Next to cancer, tuberculosis offers the most promising field for such vampires, for it is a disease in which the patient is always hopeful and always ready to say that he is better; just such a condition as makes him an easy victim for those who are without principle and ever ready to prey on the hope which springs eternal in the human breast.

During the past three months, physicians all over the country have been receiving postal cards announcing the discovery of a new and wonderful remedy for consumption. The card is signed, "C. S. Roberts, M.D., Member N. Y. State Medical Society and American Medical Association." It is to be regretted that what Roberts says regarding his membership is true. Until within the last few months Roberts lived at Syracuse, N. Y., and is a member of the Onondaga County Medical Society and consequently of the Medical Society of the State of New York. Last December he became a member of the American Medical Association. This was just before his removal to New York City, and he evidently obtained this membership because he was going into this wretched business and wanted to use his membership as an apparent guarantee of his ethical standing. As soon as the Onondaga County Medical Society discovered the business Roberts had gone into he was asked to resign, but this he refused to do. Hence it became necessary for the society to go through the legal form of trial before expelling him from the society. We understand that his trial can not come off until September, and that Roberts is fighting to retain his membership.

According to the postal card, Roberts is "just commencing to introduce to the medical profession (on strictly ethical) lines)", this is put in parenthesis probably for emphasis, "a positive cure for tuberculosis in any form." "This discovery," he says, "is the result of fourteen years' scientific study and experimentation," but so far as we have been able to learn, Roberts has not been noted as performing any remarkable cures of tuberculosis in Syracuse, nor was it known that he was using this wonderful remedy. The last paragraph of the postal card is supposed to be a clincher:

> "Doctor, a trial will prevent your tubercular patients from saying your neighbor doctor is curing his patients in a few weeks right at home, while you are sending them at great expense in time and money to the remote resorts for consumptives."

Judging from the circulars, Roberts seems to have gone to New York to help exploit a nostrum—hydrocine—put out by the "Medical Food Co.," and evidently the postal card is the initial move in a scheme to exploit the medical profession.

Incidentally, it might be said that some two or three years ago Roberts was interested in a scheme to work the doctors by getting them to invest in a water still, and the circular letters he sent to physicians at that time sound very similar to the circulars he is now sending out puffing this specific for consumption. In one of the "still" letters[1] he states that he made $3,200 in less than two months on an investment of $300. Evidently something must have happened to the "still" business, for such a man would hardly give up a business netting $2,900 in two months, even to exploit a remedy that is to relieve the human race of one of its most fatal diseases.

The recipient of the postal card above referred to is told that if he will send 15 cents in postage stamps he will be furnished with the "theory, literature and abundant testimonials and a $3 size sample to prove what we say." This part of the agreement is lived up to. The theory is furnished, plenty of literature, including testimonials, and also a box of the tablets. The theory ought to take with an ignorant layman, and the literature certainly is promising and hopeful enough to convince the most desperate individual that he could be cured.

The wonderful remedy is known as hydrocine—hyper-oxidized hydro-carbon. The circular tells us that "the physician is unquestionably entitled to a full, frank and candid statement of the composition, nature and character of any and every medicinal preparation he is asked to prescribe." This sounds excellent, and then follows the formula:

FORMULA.

Hyper-oxidized hydro-carbon (vegetable)	28	gr.
Pure Rock Sugar	8	gr.
Powdered Pancreatin	.1-20	gr.

The oxids are liberated in the stomach and thrown into the circulation.

It is barely possible that there is somebody on this mundane sphere that can tell what "hyper-oxidized hydro-carbon (vegetable)" is. Most of us have a knowledge of pure rock sugar and powdered pancreatin, but when we come to the other ingredient, we fear the majority of us would have to give it up.

However, we find this in the printed circular:

> "The hydro-carbon is extracted from oils of cinnamon, coniin, peppermint, spruce, myrtle, chekan, marrubium, myrrh, turpentine and thymol, is then condensed, and positively all toxic properties are eliminated. The residue is hyper-oxidized, predigested by pancreatin, mixed with a small quantity of powdered rock sugar and pressed into 30 grain tablets."

There we have it. And when we have it, what have we?

The literature is of the usual quackish order, the optimistic kind that will make the physician who does not stop to think feel that it is something worth trying at least.

Of course, there are testimonials—several of them. What nostrum was ever introduced, whether to the public or to the profession, that did not have testimonials ready? Many of the testimonial givers we have not located, but they may be genuine for all that. One who speaks in high praise of the nostrum is Dr. O. P. Barber of Saginaw, Mich., who is given as "professor of surgery, Michigan College of Medicine and Surgery, Detroit, Mich." Dr. Barber's success is really remarkable when it is considered that he disregarded Dr. Roberts' instruction to select an incipient case, for he seems to have taken one with extensive cavities, in the third stage, a man with undoubted complications, whose sputum was so offensive that the doctor asked him to expectorate in the closet in the next room. He also neglected to give a "good liver cathartic at the start," as the circular advises, but put him at once on hydrocine. Possibly Dr. Barber did not carry out the full instructions because he did not get them from the right source, for he tells us that he was led to use the remedy on the advice of a layman, from whom he seems to have obtained his early supplies. However, notwithstanding these palpable violations of the correct method of using the preparation, this unpromising patient recovered to such an extent that the cavities all filled up and over 40 per cent. of the patient's lung consists of scars. This was proved by the *x*-ray. Dr. Barber had other equally remarkable cures.

Another name that is often seen in a certain class of literature appears in connection with this hydrocine. This is Dr. J. W. P. Smithwick, of LaGrange, N. C. Dr. Smithwick, however, is given to writing very favorably of preparations that are not in the Pharmacopeia, such as glycobenphene, borobenphene, tongaline, bromidia, maltopepsine, ecthol, phenalgin, dermapurine, Angier's petroleum emulsion, thialion, etc., for we find his testimonials in the advertising literature of all of these articles. Dr. Smithwick, who, by the way, is given as "first vice-president of the American Congress on Tuberculosis," and therefore should be an authority on the subject, seems also to have had a most notable experience, for every patient treated recovered, and his cases included not only pulmonary tuberculosis, but also hipjoint disease, lupus vulgaris, etc., and of the worst sort.

When we began to receive Roberts' postal cards and were asked to show up the scheme, we thought the card itself was so quackish that no intelligent physician would risk even the 15 cents. It seems, however, that some have been "almost persuaded," and we have been astonished to receive letters asking if it is not possible that this nostrum may do what its promoters say it will do, evidently feeling that possibly, after all, the long-looked-for remedy has been discovered. How foolish! If Roberts and the promoters (who are, perhaps, making him a cat's paw) really had a remedy that would do what they claim this one will do, there would not be words in the English language strong enough to characterize their villainy and inhumanity in keeping it secret. If, on the other hand, the stuff is a fraud, then it is simply another instance to add to the list of attempts to humbug the public, and to make money out of their suffering. Either horn of the dilemma is certainly reprehensible, and to have one who is supposed to have once been a reputable physician mixed up in it should be a source of regret to every member of our profession.

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[1] The following is a copy of a circular letter, imitation typewritten, sent out by Roberts. The physician to whom it was addressed, said: This is the third letter I have received from Dr. Roberts in the past few weeks, none of which I have answered."

Syracuse, N. Y., Nov. 26, 1904.

Dear Doctor:—My letters to you of recent date may have found you busy with your own affairs; they may have found their way into your waste basket (never to return with any profit to you). However, permit me to say I meant well and hoped to favor you.

You may be interested in knowing that my profits since being interested in this company (September 29) on an investment of $300 have been $3,200.

I will state for your information, Doctor, that one of the four ways in which to make money on this proposition by associating with this company to the extent of $300 to $500 (and this amount is all you can invest with them) is by the sale of their Automatic Water Still in your county by any method you may choose to adopt for a period of 15 years.

This Still is the greatest household device I ever saw; it requires no more room than, and can be used as, an ordinary tea-kettle and does not require as much watching and care. The water is boiled and the steam condensed in the presence of pure hot air, giving the nicest pure and live water, entirely free from the taste of ordinary boiled or distilled water. I know of no water for table use so nice and pleasant to the taste. The Still is capable of distilling several gallons per day. The price is reasonable and within the reach of everybody, and one should be in the home of every family in your town and you can do your patients no greater favor than recommending one of these to them.

This Water Still has been endorsed by every board of health where sold and by all physicians who have seen it.

Why not accept the company's liberal offer to pay your fare one way for the purpose of an investigation. If this business was not high class and worthy they certainly would not make you such terms.

If at all interested, please let me hear from you for further information, or I will arrange for your transportation to Rochester.

Very truly yours, C. S. ROBERTS.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

August 3.

1 Evolution of Gastroenterology. H. W. Bettmann, Cincinnati, O.
2 *Separation of the Urine of Two Kidneys. G. Luys, Paris.
3 *Primary Dysmenorrhea. M. Glasgow, New York.
4 *Eye Symptoms of Sporadic Trichinosis. F. J. Parker, New York.
5 Venereal Prophylaxis. R. S. Wilcox, Providence, R. I.
6 Need of Earlier Diagnosis. J. N. Hall, Denver, Colo.
7 *Two Unusual Cases of Rectal Hemorrhage. C. B. Kelsey, New York.

2. **Separation of Urine.**—Luys describes the endovesical separation of the urine devised by him some years ago, and compares it with the less useful, more difficult and harmful method of catheterizing the ureter.

3. **Primary Dysmenorrhea.**—Glasgow directs attention to the presence of disturbances connected with menstruation, without any lesions of the genital organs, which are referred to the sedentary life led by city-bred women. He claims that prophylaxis should be begun in childhood, and outlines briefly the treatment that can be carried out with benefit in such cases. This consists of intermenstrual hot douches, exercise, nutritious food and tonics. Glasgow has found the internal administration of hydrastis and nux vomica particularly useful.

4. **Eye Symptoms of Sporadic Trichinosis.**—According to Parker these symptoms are edema of the eyelids, associated with conjunctival hyperemia, tenderness of the globes, with pain on motion, ecchymosis under the conjunctiva, diplopia, neuro-retinitis and hemorrhages.

7. **Rectal Hemorrhage.**—Kelsey reports two cases, one of which almost terminated fatally, of hemorrhage following an attempt to treat hemorrhoids by means of an injection method, in one case, and under local anesthesia with water, in the other. Kelsey says that the danger of bleeding is inherent in any method which consists in first rendering the parts to which ligatures are to be applied artificially edematous to the point of actual devitalization. He condemns roundly both of the methods employed in the cases reported.

New York Medical Journal.

August 3.

8 *Carcinomatous Metastases in Unusual Sites. G. L. Peabody, New York.
9 Intradural Resection of Posterior Roots of a Number of Spinal Nerves for Relief of Intractable Pain. G. W. Jacoby, New York.
10 Etiology and Treatment of Pruritus Ani. H. A. Brav, Philadelphia.
11 *The Leucocytes in Dengue. E. B. Vedder, Manila, P. I.
12 Present status of the Methods of Physical Therapeutics. H. F. Wolf, Philadelphia.
13 Examination of the Eyes of Pupils in the Public Schools of Memphis. J. L. Minor, Memphis, Tenn.
14 *Postoperative Treatment of Malignant Disease of the Buccal Cavity. J. S. Wight, Brooklyn.
15 Treatment of Gonorrheal Epididymitis. J. M. Edwards, Mankato, Minn.

8. **Carcinomatous Metastases.**—In the case reported by Peabody, the organ primarily affected was the right breast. There were numerous metastases in the lungs, kidneys, thyroid and suprarenals, but the unusual locations were in the pia of the brain and cord, and in peripheral nerves. The point of secondary interest in the case was the occurrence of pigmentation of the skin, confined chiefly to the skin of the front of the chest, and assumed to have been caused by the disease of the suprarenals.

11. **Leucocytes in Dengue.**—Vedder found that leucopenia is a constant feature of dengue, and that there is a marked reduction in the polymorphonuclear count early in the disease. Coincident with this decrease in polymorphonuclears is an increase in the small lymphocytes, and a gradual, though much more moderate, increase in the large lymphocytes. There is a similar gradual but slight increase in the eosinophiles.

14. **Postoperative Treatment of Cancer of Mouth.**—Wight claims that recurrent malignant growths of the mouth can be kept under control by injecting carbolized petrolatum (from 3 to 5 per cent.) into the growth. It is hyperisotonic with the juices of the body and the blood serum; reduces inflammation; cuts down edematous granulating surfaces; is strongly germicidal, and remains in contact with surfaces acting continuously through a long period of time. He reports three cases; two of the patients died from other causes without any recurrence of the tumor, and five months after the operation there was no sign of recurrence in the third case. Wight says that when removal of the upper jaw is necessary this may be done readily by making an incision from the angle of the mouth to the malar bone on either side, and cutting through the cartilage of the nose, so as to raise the nose in this superior flap. This method gives the best cosmetic results.

Boston Medical and Surgical Journal.

August 1.

16 Past, Present and Future of Tuberculosis. F. C. Shattuck, Boston.
17 *Daily Care of Tuberculous at a General Hospital as an Aid to Solving Local Tuberculosis Problems. A. K. Stone and C. Floyd, Boston.
18 Neurologic and Psychiatric Diagnosis. L. F. Barker, Baltimore.
19 Historical Development and Relative Value of Laboratory and Clinical Methods of Diagnosis. R. C. Cabot, Boston.

17.—See abstract in The Journal, June 1, 1907, page 1893.

Lancet-Clinic, Cincinnati.

August 3.

20 *Consideration of Retrodisplacements of Uterus in Relation to Pregnancy. C. W. Barrett, Chicago.
21 *Non-lithogenous Obstruction of Biliary Ducts. A. H. Cordier, Kansas City, Mo.
22 *Comminuted Fracture of Left Frontal Bone. P. C. Layne, Ashland, Ky.

20.—See abstract in The Journal, Dec. 1, 1906, page 1849.

21.—See abstract in The Journal, Dec. 8, 1906, page 1945.

22. **Fracture of Os Frontis.**—Layne reports the case of a man who was struck over the left eye by a piece of a broken emery wheel. The man was rendered unconscious, and a nearby physician simply dressed the wound after thorough cleansing. Thirty-six hours after the injury the man was still unconscious. Layne examined the wound and found that the superior maxilla had been comminuted and that the brain had been pulpified in the left frontal region. After clearing out all clots and broken-down brain tissue there remained a cavity in the frontal region of the brain large enough to admit a full-sized orange. A severe infection of the cranial cavity followed, but not a suppurative meningitis. After thorough antiseptic treatment the patient finally recovered, and about five weeks after the injury left the hospital in perfect condition mentally and physically, with no after results from either the injury or the suppuration in the cranial cavity.

Kentucky Medical Journal, Bowling Green.

August.

23 Medical Milk Commissions and Certified Milk. H. E. Tuley, Louisville, Ky.
24 President's Address, Kentucky Valley Med. Assn. J. R. Carroll, Campton.
25 Compound Fracture of the Leg. J. V. Prewitt, West Point.
26 Treatment of Typhoid. J. P. Keith, Hopkinsville.
27 Management of Normal Labor. H. D. Rodman, Bardstown.
28 *Cysts of the Pancreas. T. S. Lewis, Lexington.
29 *Poison in Cigarettes. S. S. Amerson, Sullivan.
30 Nervousness and Faith. T. Perkins, Tribune.
31 Diagnosis of Primary Blood Disease. B. J. O'Connor, Louisville.
32 Conservatism in Surgical Treatment of Injuries to Extremities Sustained in Railway Accidents. A. O. Sisk, Earlington.
33 Prophylaxis in Gynecology. T. C. Holloway, Lexington.
34 Summer Diarrhea. J. F. Young, Monticello.

28. **Cysts of Pancreas.**—Lewis reports the case of a woman, who first complained of stomach trouble about 15 years ago. She had so-called bilious attacks every two or three months, attended with vomiting of yellow fluid of intensely bitter taste. These attacks were accompanied by cramps in the stomach region. The appetite was always good, but just before these attacks it was ravenous. Six months previous to seeking medical advice the patient began to notice a fulness in the region between the lower margin of the costal arch and the umbilicus. Then she began to have attacks of what appeared to be gallstone colic. A number of gallstones the size of the end of the little finger were passed, but the patient did not get relief from all the symptoms. An operation was advised and was done. The gall bladder was found enlarged and full of stones. The tumor noted in the region of the umbili-

cus proved to be a cyst of the pancreas, containing about three quarts of a thin, watery fluid, of a yellowish-green color. The sac was washed out and stitched to the edges of the wound. Convalescence was uneventful, except for the enormous quantities of fluid that came from the sac, and the digested, moth-eaten appearance of the fat wall about the mouth of the fistula. The patient eventually made a complete recovery.

29. **Poison in Cigarettes.**—Amerson maintains that the poison in cigarettes is manufactured in the cigarette as it is smoked. He says that in the smoking of the cigarette carbon monoxid is formed, and the inhalation of this gas is what does the harm. The smoke from cigars and pipes is so strong that it can not be inhaled. This is not true of the cigarette. Amerson says that he has never known or heard of a cigarette smoker being hurt who did not inhale the smoke. He thinks that the evidence is conclusive that the poison in cigarette smoking is due to the smothered fire forming carbon monoxid, and this being inhaled, little by little, kills the smoker.

Ohio State Medical Journal, Columbus.

July.

35 Endonasal Surgery. A. B. Thrasher, Cincinnati.
36 Metaphysics of Medicine. S. Mumaugh, Lima.
37 *Methods of Advancement of Eye Muscles. J. E. Cogan, Cleveland.
38 Result of the Examination of the Eye, Ear, Nose and Throat of the Children in the Public Schools of Springfield, O. C. L. Minor, Springfield.
39 Dichotomy. J. C. Larkin, Hillsboro.
40 *Curability and Treatment of Tabes Dorsalis. H. H. Drysdale, Cleveland.
41 *Seventeen Complete Prostatectomies. W. D. Hamilton, Columbus.
42 *Advance in Diabetic Therapy. L. A. Levison, Toledo.

37. **Methods of Advancement of Eye Muscles.**—Cogan describes a new advancement operation, which he believes is an improvement on the operations of Worth and Stevenson. He says that the operation has the advantage of eliminating the danger of perforation, and its possible consequences, and that it is easy of execution. There is no unnecessary constriction or strangulation of the muscle, and no posterior stitch to pull it forward.

40. **Curability of Tabes Dorsalis.**—Drysdale endorses Fraenkel's physiologic exercises in the treatment of tabes. A brief description is given of this method.

41. **Prostatectomy.**—Hamilton reports 17 prostatectomies, three having been done through the perineum, and the remainder suprapubically. There were four deaths in the series. One patient died of suppression, one from uremic intoxication, and two from urinary sepsis and exhaustion. No mention is made as to the operation done in the fatal cases.

42. **Diabetes.**—Levison considers the dietetic treatment of diabetes the most successful, claiming that it will give results in excess of drug treatment.

Therapeutic Gazette, Detroit.

July 15.

43 Management of Pregnancy. R. Peterson, Ann Arbor, Mich.
44 Laceration of the Genital Tract and their Repair. F. C. Hammond, Philadelphia.
45 *Development of Occult Finger Prints. R. L. Pitfield, Philadelphia.
46 Hot and Cold Applications in Medicine. A. E. Blackburn, Philadelphia.
47 *Formic Aldehyde Disinfection by Means of Potassium Permanganate. E. M. Houghton and L. T. Clark, Detroit.
48 *Infant Feeding. S. A. Visanska, Atlanta, Ga.
49 *Effective Formula for Catarrhal Cholangitis and Its Congeners. C. G. Davis, Chicago.

45. **Occult Finger Prints.**—Pitfield exposes the print to the fumes of osmic acid, so that the lines stand out as black as ink. He says it is sufficient to rub the thumb on the nose before making the print, and if the hands are not washed frequently there is enough sebaceous material on them to make faint prints after twelve hours' exposure of the prints to osmic acid. Mineral oils he found but slightly susceptible to osmic acid.

47. **Formalin Permanganate Disinfection.**—Houghton and Clark believe that most thorough disinfection is accomplished by adding potassium permanganate to formaldehyd because the whole volume of gas and moisture is liberated during a very short time.

48.—See abstract in The Journal, May 4, 1907, page 1545.

49.—This appears to be a write-up of probilin pills or some similar preparation.

Medical Fortnightly, St. Louis.

July 10.

50 Reduction of the Tip Tilted Nose. C. C. Miller, Chicago.
51 *Medical Expert Testimony from the Viewpoint of a Physician. R. B. H. Gradwohl, St. Louis.
52 *Medical Expert Testimony from the Viewpoint of the Bar. I. V. Barth, St. Louis.
53 *Expert Testimony. D. G. Taylor, St. Louis.
54 The Criminal Law and the Medical Expert. A. N. Sager, St. Louis.

51. **Medical Expert Testimony.**—Gradwohl urges the proper teaching of legal medicine in medical colleges. This, he says, will make the practitioner of medicine acquainted with the subject so as to enable him to make a credible and creditable witness when he is brought into court, and it will also train him to assume the important position of legal autopsy physician to county coroners. Gradwohl also suggests that some changes in our system of jurisprudence will place the medical expert in the honorable position which he ought to occupy.

52. **Id.**—Barth says that it is not the part of our jurisprudence to eliminate the medical expert witness, but rather to make him more effective in the judicial trial. To accomplish this it is not necessary to change fundamentally this system of jurisprudence, but rather to perfect the present methods. Let the hypothetical question be subjected more completely to the discretion of the trial court, which should require that it be framed to the end of bringing the matters involved clearly and concisely before the jury. The court should exercise its privilege and right to appoint an expert, or experts, who may testify to the end of elucidating the matters theretofore in evidence. Barth believes that it is not necessary, nor, in some cases practical, to resort to the panel of expert jurors, or to the board or commission of experts, nor is it wise to deny the parties to the suit the right to summon their own witnesses. On the other hand, he thinks that the court should limit the number of these so summoned, and should interrogate carefully the expert or experts, summoned and paid by the court, on all the matters testified to by those experts introduced by the parties litigant. And, finally, there should come to the lawyer and to the physician a deep appreciation of their sense of duty—duty owing to themselves and to the community looking to an orderly procedure and to the end of justice.

53. **Id.**—Taylor suggests that an approach to an effective remedy along these lines might be to have the expert triers of the particular fact after a full examination of witnesses submitted by both sides report to the jury through a representative their conclusions and then under a rule of evidence provide that no other opinion testimony should be permitted. In this way the jurors would only receive the conclusion of the commission and the conflicting opinion testimony would be eliminated; the jurors would be left ultimately to decide all questions of fact and the party litigant would have had the benefit of producing his witnesses and cross-examining his opponent's witnesses. This latter plan Taylor offers simply as a suggestion to be considered and discussed by those who are trying to lead us out of our difficulties.

American Journal of Medical Sciences, Philadelphia.

August.

55 Signs of Pre-Dementia Præcox. S. E. Jelliffe, New York.
56 *Surgical Treatment of Goiter. M. B. Tinker, Ithaca, New York.
57 *Tendon Transplantation in Congenital and Acquired Talipes. A. P. C. Ashhurst, Philadelphia.
58 *Care of Gunshot Wounds of the Abdomen. G. T. Vaughan, Washington, D. C.
59 Causes and Treatment of Sterility in Women. E. Reynolds, Boston, Mass.
60 *Influence of Tuberculous Ancestry on Prognosis in Pulmonary Tuberculosis. K. von Ruck, Asheville, N. C.
61 *Pathology of Adenoids and Adenoid Tuberculosis. E. H. White, Montreal.
62 *Congenital Laryngeal Stridor. T. J. Reardon, Boston, Mass.
63 Advisability of Tympanomastoid Exenteration in Suppurative Otitis Media. H. O. Reik, Baltimore.
64 Causes of Failure in Plastic Operations on Female Genitalia. S. M. Brickner, New York.
65 *Chronic External Ophthalmoplegia. W. C. Posey, Philadelphia.
66 Value of Paradoxical Reflex. A. Gordon, Philadelphia.

56. **Surgical Treatment of Goiter.**—Tinker discusses the clinical history of goiter, and emphasizes the importance of early diagnosis and the value of operation in such cases. He says that reports of cases treated by medical measures alone show a death rate higher than those in which operation is done, and this in spite of the fact that usually only the most unfavorable cases have been submitted to excision. Operative measures have cured or relieved a proportionately larger number of patients than any other treatments. In view of these facts, Tinker says that all patients resisting the approved therapeutic measures should be urged to consult a competent surgeon.

57. **Tendon Transplantation in Talipes.**—Ashhurst believes in tendon transplantation in the treatment of selected cases of congenital and acquired talipes. In infantile palsy he insists that as a rule from one to two years should be allowed to elapse between the onset of the paralysis and the resort to tendon transplantation, the paralyzed muscles being treated by means of massage and electricity in the meantime. In congenital clubfoot Ashhurst considers it safer to allow a longer period to elapse before resorting to tendon transplantation. He uses chromicized catgut and makes a mattress suture. He does a periosteal transplantation. Six typical cases are reported.

58. **Gunshot Wounds of Abdomen.**—Vaughan adds three cases to his series of 14 reported previously. In one of the cases there were ten perforations in the small intestine (the ileum), and two in the bladder. Six of the perforations were closed with silk sutures, and two inches of bowel, containing the remaining four sutures, were resected. One opening in the bladder was closed. The other opening was so deep in the pelvis as to be inaccessible, without opening the bladder and suturing it from the inside. Rather than do this, permanent drainage was provided to the bladder, and the patient eventually made a complete recovery. In the second case, nine holes were found in the bowel, distributed through about the last seven feet of the ileum, and two in the bladder. All the holes were closed with silk sutures, the abdominal cavity was thoroughly irrigated with salt solution and closed with drainage. The patient died from peritonitis 26 hours afterward. In the third case the liver, stomach, pancreas and kidney were injured. No irrigation was used, the blood and clots were simply sponged out and the abdomen was closed without drainage. About two months after the operation an abscess formed in connection with the pancreas. This was opened and drained. The discharge continued for five weeks, when it ceased, and the opening healed.

60 **Influence of Tuberculous Ancestry on Prognosis.**—It is shown by von Ruck that the indications point in favor of the view that the mere fact of a tuberculous family history being shown in an individual case will not diminish the patient's chances of recovery.

61. **Adenoids and Adenoid Tuberculosis.**—White examined 75 adenoids histologically and found that primary tuberculosis occurs in about 5 per cent. of all the cases. He says that tuberculosis, therefore, is not an important factor in the production of adenoid hypertrophy, but that in the development of pulmonary tuberculosis adenoids may sometimes be direct channels of infection. Their importance, however, is probably more often indirect by predisposing to catarrhal inflammations of the upper respiratory tract. Adenoids and tonsils are considered important channels of infection in tuberculosis of the cervical glands.

62. **Congenital Laryngeal Stridor.**—Reardon reports one case, which is made the basis of a very full discussion of the clinical history of this affection.

65. **Chronic External Ophthalmoplegia.**—Posey reports one case of this affection, the patient being a girl, 16 years of age. Both eyes were fixed, the right eye looking straight ahead, with the left slightly divergent, and all motion was abolished, except when the patient was requested to look down. Ptosis to a marked degree existed on both sides. The thyroid was normal, and there was no enlargement of the hands and feet. The pupils reacted to light and accommodation stimuli. In the right eye vision equaled 5/9 and in the left eye it equaled 5/7.

University of Pennsylvania Medical Bulletin, Philadelphia.

June.

67 Opsonins and Vaccines as Applied to Surgical Therapy. D. H. Bergey, Philadelphia.
68 *Copper in Human Liver. L. A. Ryan, Philadelphia.
69 *Coagulability of Blood in Disease. M. Solis-Cohen, Philadelphia.
70 *Improved Method of Staining Fibroglia, Myogalia, Myofibrillæ of Striped Muscle, etc. A. F. Coca.

68. **Copper in Liver.**—Ryan says that there can be no question but that copper is a constant constituent of liver tissue, although it is by no means established that it is a normal necessary constituent, but rather what may be termed an accidental constituent, derived from copper-containing foodstuffs. When absorbed into the animal circulation, copper forms stable albumin copper salts, especially in the liver, where probably it is stored as a nucleinate of copper; because of the stability of these salts the copper is excreted exceedingly slowly.

69. **Coagulability of Blood in Disease.**—Solis-Cohen made 65 observations with practically negative and unsatisfactory results. Each disease did not seem to have a certain definite clotting time; the average period was about the same in the different diseases. In a given disease, and even in the same patient, the clotting time varied greatly, the variations having no relation to the degree of the patient's temperature, to the character of the food or of the drugs administered, to the time of day the observations were made, or to their relation to meal time. The results obtained by other investigators could not be confirmed.

70. **Improved Method of Staining.**—The steps of the method employed by Coca for staining fibroglia, myoglia, etc., are as follows: 1. Zenker fixation. 2. Paraffin sections at 5 micra or less. 3. Removal of paraffin, etc., to 95 per cent. alcohol. 4. Ninety-five per cent. alcohol containing 1 per cent. iodin, five to ten minutes. 5. Directly into water without previous removal of the iodin. 6. Concentrated aqueous solution of magentarot (Grübler), fifteen minutes. 7. Rinse in water. 8. Three to five minutes in the following: Indigo-carmin (Grübler), 0.75 grm.; saturated aqueous picric acid, 100 c.c.; distilled water, 100 c.c. 9. Differentiate in 95 per cent. alcohol one to two minutes. 10. Absolute alcohol, one minute. 11. Xylol, balsam.

Archives of Pediatrics, New York.

July.

71 *Study of Conditions of Osteomyelitis in Young Children by Roentgen ray. T. M. Rotch and A. W. George, Boston.
72 *Status Lymphaticus and Enlargement of Thymus treated with Roentgen ray. A. Friedlander, Cincinnati.
73 *Pneumococcus Arthritis in Infants and Children. A. F. Furrer, Cleveland.
74 *Eclampsia of Mother as Cause of Early Nephritis in Child. C. G. Grulee, Chicago.
75 *Study of Hospital and Dispensary Milk in Warm Weather. J. H. M. Knox, Jr., and E. H. Schorer, Baltimore.
76 *Suggestions for Reducing Infant Mortality from Summer Diarrhea. C. Herrman, New York.
75 *Study of Hospital and Dispensary Milk in Warm Weather. Croupous Pneumonia. D. J. M. Miller, Philadelphia.

71.—See abstract in The Journal, July 6, 1907, page 69.

72. **Enlargement of Thymus.**—Friedlander reports one case of status lymphaticus with enlargement of the thymus gland that yielded to treatment with the Roentgen ray after other treatment had failed to produce other results.

73. **Pneumococcus Arthritis.**—Furrer reports a case of pneumococcus arthritis occurring in an infant 16 months old. The right elbow was first affected, and then the left knee. The bacteriologic examination of pus taken from the elbow showed a pure culture of an organism resembling Fraenkel's diplococcus. Animal inoculations were not made. Later the patient developed pneumonia and then symptoms pointing to an abscess in the liver. The infant died, having lived six months after the original joint infection. A necropsy was not made. Furrer also tabulates 26 previously reported cases of pneumococcus arthritis occurring in infants and children.

74. **Eclampsia of Mother and Nephritis in Child.**—Grulee reports a case, a study of which leads him to believe that it is justifiable to regard eclampsia in the mother as one of the causes of the so-called idiopathic nephritis, encountered in children.

75. **Hospital and Dispensary Work.**—The study of milk carried on by Knox and Schorer emphasizes the importance of pasteurizing all milk designed for infant feeding during the summer months. The authors urge that pasteurization should be done as soon as possible after the milk is produced.

76. **Reducing Infant Mortality from Summer Diarrhea.**—Herrman urges instructing the mothers of the very poor in the duties of the expectant mother, and in the feeding of infants.

Northwest Medicine, Seattle.

July.

78 Leprosy as Seen by the Hawaiian Practitioner. P. R. Waughop, Seattle, Wash.
79 Clinical Course and Treatment of Pleurisy. J. Sutherland, Spokane, Wash.
80 Opsonic Index in Tuberculosis. W. R. M. Kellogg, Seattle.
81 *Case of Congenital Exomphalic Hernia. C. N. Suttner, Walla Walla, Wash.

81. **Congenital Exomphalic Hernia.**—In the case reported by Suttner the intestine, stomach and liver were outside of the body, simply covered by peritoneum and the attenuated splanchnopleure. The deficiency in the abdominal wall extended from one-half inch of the ensiform cartilage to within one inch of the symphysis pubis. The structures were replaced in the abdomen, the liver being retained in place with two sutures, and the opening was closed with 28 sutures. The wound healed by first intention, and the child was well at the time of writing.

California State Journal of Medicine, San Francisco.

July.

83 *Ischemic Paralysis and Contracture Treated by Bone Shortening. T. W. Huntington, San Francisco.
84 Amplitude of Accommodation at Different Periods of Life and Its Relation to Eyestrain. E. Jackson, Denver, Colo.
85 *Aneurism of the Left Ventricle. W. C. Voorsanger, San Francisco.
86 Dermoids of Scalp. R. Brown, Santa Barbara.
87 Gonorrheal Conjunctivitis. M. E. Hart, New York.
88 Differential Diagnosis of Organic from Functional Dyspepsia. D. Fulton, Los Angeles.
89 Effect of Chemicals on the Heart Nerves. W. E. Garrey, San Francisco.
90 Throat Infections of Childhood. S. T. Pope, Watsonville, Cal.

83. **Ischemic Paralysis and Contracture.**—In a case of this kind Huntington resected one and one-eighth inches of the ulna and radius at about the upper part of the lower two-thirds. The bones were wired together. The wounds healed well and bony union was complete at about the end of two months. At present, the range of motion in the hands and fingers is fully if not more than one-half normal.

85. **Aneurism of Left Ventricle.**—In Voorsanger's case there was a cavity with a fibrous rim, just under the chordæ tendinæ, about 8 c.c. from the apex. This cavity contained a large clot. The valves were all normal, except the mitral, which contained a few thickenings. The pathologic diagnosis in the case was hydrothorax pericarditis, mitral insufficiency, hypertrophy of left ventricle, dilatation of right ventricle, aneurism of the left ventricle in the upper third near the auricle.

Montreal Medical Journal.

July.

91 *Excision of Cecum for Carcinoma. O. M. Jones, Victoria, B. C.
92 Life and Works of Sir Almroth Edward Wright, with Reference to Opsonic Treatment. G. E. J. Lannin.
93 *A Prolonged Fast. A. A. Martin, Montreal.
94 Traumatic Asphyxia. C. K. P. Henry, Montreal.

91. **Excision of Cecum for Carcinoma.**—Jones reports five cases and points out particularly the difficulty of making an early diagnosis. He excises the cecum and unites the colon to the ileum. One man is alive and well, six years after the operation. Two of the patients died, one twelve months after the operation and the other one month after operation.

93. **Prolonged Fast.**—Martin describes his experiences during a nine days' fast, when he partook of no nourishment whatever, though he drank freely of what water he desired, about three ordinary tumblerfuls a day. Various tests were made by fellow physicians, and the result is carefully recorded.

New Orleans Medical and Surgical Journal.

August.

95 Ergot and Quinin as Oxytocics. L. M. Griffin, Oakley, La.
96 Rosacea of the Chin and Nose. J. V. Shoemaker, Philadelphia.
97 Epilepsy from Hydrocephalus after Complete Ossification of Cranial Bones. E. M. Robinson, Birmingham, Ala.
98 Treatment of Chronic Heart Disease. J. B. Elliott, Jr., New Orleans, La.
99 Diagnosis of Cardiac Diseases. T. Ragan and S. L. White, Ruston, La.
100 *Atropin in Acute Intestinal Disturbances. C. W. Allen.
101 Etiologic Factors in Insanity. E. M. Hummel, Jackson, La.
102 Some Things the General Practitioner Can and Should Do with the Stomach Tube. J. T. Halsey.
103 *Detection and Significance of Occult Blood in Feces and Stomach Contents. J. A. Storck, New Orleans.

100. **Atropin in Acute Intestinal Disturbances.**—In three cases of polyp and one of acute intestinal indigestion, Allen employed successfully 1/50 grain of atropin. In one case three doses were given, with an hour interval between each. Another patient received about ⅛ of a grain during five or six hours.

103. **Occult Blood.**—Storck emphasizes the importance of detecting occult blood in the stomach contents and in the feces, and commends Adler's benzidin test, which is conducted as follows: The sample of feces or stomach contents is stirred with water to a thick paste. About 4 or 5 c.c. are then placed in a test-tube, and 1 c.c. of glacial acetic acid is added. After shaking the tube, 2 c.c. of a freshly prepared concentrated solution of pure benzidin in 90 per cent. alcohol, heated, are added, with an equal amount of hydrogen dioxid. If there are even minimal traces of blood, the color turns, almost at once, a deep green, which passes into a bluish green if there is much blood. In the presence of very large quantities of blood, the color is almost black. The tint gradually fades into a dirty brown. This test is more easily applied than either the aloin or guaiac test, and is much more sensitive, being in the ratio of 1 to 200, or against 1 to 10,000 in the guaiac and aloin tests.

Journal of the Arkansas Medical Society, Little Rock.

June.

104 *President's Address, Ark. Med. Soc. C. T. Drennen, Hot Springs, Ark.
105 Value of Organization in Medicine. J. A. Wyeth, New York.
106 *The Medicine of the Physician. C. S. N. Hallberg, Chicago.

104.—See abstract in The Journal, June 22, 1907, page 2145.

106.—See abstract in The Journal, June 22, 1907, page 2146.

Journal of Kansas Medical Society, Columbus.

June.

107 President's Address, Kansas Medical Society. L. L. Uhls, Osawatomie, Kan.
108 Value of Blood Examination in Children. M. T. Sudler, Lawrence.
109 Nystagmus. J. S. Wever, Kansas City, Mo.

The Medical Fortnightly, St. Louis.

June 25.

110 A Definition of Life. W. W. Crane, Sinclair, Ill.
111 Dermatologic Axioms. N. E. Aronstam, Detroit.
112 Opsonic Treatment of Bacterial Diseases. O. H. Brown, St. Louis.

Colorado Medicine, Denver.

June.

113 The Doctor and the Public. E. Stuver, Fort Collins, Colo.
114 The Physician in Politics. C. F. Andrew, Longmont, Colo.
115 Congenital Hypertrophic Stenosis of the Pylorus. C. B. Lyman, Denver.
116 Gastroenterostomy. I. B. Perkins, Denver, Colo.

Southern California Practitioner, Los Angeles.

June.

117 Syphilis of the Mouth. G. MacGowan, Los Angeles, Cal.
118 Primary Angina Ludovici. H. A. Kiefer and R. Hagan, Los Angeles.
119 Prevention of Tuberculosis, Venereal Diseases and Alcoholism. G. H. Kress, Los Angeles.
120 Plastic Surgery of the Mouth. C. D. Lockwood. Pasadena, Cal.
121 Prevention of Insanity. F. E. Corey, Alhambra, Cal.
122 The More Important Cerebral Lesions. W. H. Dudley, Los Angeles.

American Medicine, Philadelphia.

June.

123 Therapeutics of Bright's Disease Based on Its Etiology. W. H. Porter, New York.
124 Metabolic Aspects of Overfeeding and Underfeeding. R. W. Webster, Chicago.
125 Necessity for Routine Examination of Ear Drums of Children with Fever. W. B. Hoag, New York.
126 Modern Development of Physical Methods of Healing. A. N. Baer, Milwaukee, Wis.
127 Diagnosis in Intussusception. M. M. Hull, Atlanta, Ga.
128 Bacteriologic Studies of Smegma. R. C. Rosenberger, Philadelphia.
129 Drainage in Treatment of Acute Appendicitis. J. G. Sheldon, Kansas City, Mo.
130 Abnormal Lactation. J. Knott, Dublin, Ireland.
131 Serum Therapy in Exophthalmic Goiter. A. Heineberg, Philadelphia.

The Columbus Medical Journal.

June.

132 Injuries and Foreign Bodies of the Ear, Nose and Throat. T. V. Fitzpatrick, Cincinnati.
133 Training Schools for Nurses in Hospitals for the Insane. I. A. Bradley, Columbus, O.
134 Teaching of Biologic Subjects in the Colleges of Liberal Arts and Science in Ohio. S. R. Williams, Oxford, O.
135 What Should be the Requirements to Gain One Year's Advanced Standing in the Medical Colleges of Ohio. J. U. Barnhill, Columbus, O.
136 Place of Materia Medica in the Curriculum. J. G. Spenzer, Delaware, O.
137 Teaching of Chemistry in Colleges of Liberal Arts and Science in Ohio. J. G. Spenzer, Delaware, O.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

July 20.

1 *Vibrating Sensations in Diseases of the Nervous System. R. T. Williamson.
2 Spa Treatment of Neurasthenia. E. J. Cave.
3 Laryngismus Stridulus in New-born Infants. E. Smith.
4 *Value of Rhythymical Exercises in Treatment of Spasmodic Neuroses. T. S. Wilson.
5 *Educational Aspect of the Cancer Question. C. P. Childe.
6 *Possible Clue to Solution of the Cancer Problem. C. G. Mackay.
7 *Inflammatory Changes in Posterior Spinal Root Ganglia in Cases of Cutaneous Cancer. G. L. Cheatle.
8 *Case of Streptococcic Conjunctivitis. H. H. B. Cunningham.
9 Bodies Found in Ticks. F. C. Wellman.
10 Iodin and Typhoid. G. V. Perez.
11 Simultaneous Dislocation of Both Shoulders. M. J. Lyden.
12 A Fifteen Pint Hydrocele. A. E. Horn.

1. **Vibrating Sensation in Diseases of Nervous System.**—In the investigations he has made, both on the well and the sick, Williamson made use of a tuning fork nine inches long and its prongs five and a half inches long. He has found this as useful, practically, as the more delicate and more powerful instrument. He claims that the vibrating sensation is a delicate test for detecting slight impairment of sensation, although the vibrating sensation may be lost, when other forms of sensation are felt, or are only very slightly impaired. This is sometimes the case in early tabes, in slight peripheral neuritis, and often in diabetes mellitus. In diseases strictly limited to the motor structures, the vibrating sensation is not lost, even at an advanced period of the disease. In any case in which the disease appears to be one causing lesion only of the motor parts of the nervous system, if it should be found that the vibrating sensation is lost, this fact indicates that the disease is affecting also sensory structures; and thus it may be of diagnostic value. In cases of paraplegia from spinal caries, and occasionally in spinal syphilis, the loss of the vibrating feeling may be the only objective symptom of affection or sensation, at an early stage of the disease. In hemianesthesia, if the vibrating feeling is lost when the foot of the tuning fork is placed on the edge of the sternum on the side of the tactile anesthesia, but felt on the other side, the case is one of hysterical or functional hemianesthesia, or of malingering; while in hemianesthesia due to organic disease the vibrating sensation is felt when the foot of the vibrating tuning fork is placed on the edge of the sternum on the side of the tactile anesthesia.

4. **Rhythmical Exercises in Spasmodic Neuroses.**—Wilson endorses highly the value of rhythmical exercises in the treatment of spasmodic neuroses. He says that each case must be treated individually, and exercises must be given which are best calculated to break up the morbid combinations, and to induce the habit of new associated movements. It is important, he says, that day by day for days or weeks the muscular mechanism be kept so constantly tired by various rhythmical exercises that there is no energy left for the irregular spasmodic jerkings.

5. **The Cancer Question.**—Childe claims that there are abundant reasons now for an endeavor to bring the lay knowledge of cancer in the line with present surgical views, and to convince the public that a considerable share in the possibility of cure rests with them, and that it varies impersonally with the delay in seeking advice.

6. **Possible Solution of Cancer Problem.**—Mackay reports the case of a woman, who had a typical cirrhous cancer of the breast. The tumor was removed, recurred and was then subjected to irradiation, from the Roentgen ray. The patient's condition became very serious and a severe attack of pleurisy with effusion made matters worse. Suddenly the patient began to feel much better, and the local conditions were entirely altered. Even the recurrences of the tumor decreased in size and changed their appearance, and eventually disappeared almost entirely. Mackay suggests that it was the serum that was responsible for this change, showing that a growing cancer produces in the serum a force which is antagonistic to the development of the cancer. He thinks that his patient would certainly have died but for the pleural fluid, by which she was inoculated, and that the inoculation saved her life. He asks whether that inoculation could not have been done artificially, and thinks it not too visionary to entertain the hope than a method founded on imitating what appears to have taken place in this case may eventually be possible.

7. **Changes in Spinal Root Ganglia in Cutaneous Cancer.**—Cheatle refers briefly to a belief expressed some time ago that the spread of cancer in the skin is associated with degenerative changes in the posterior spinal root ganglia, which supplies the area invaded. He reports two cases, in which cancer had begun on the cutaneous distribution of one ganglion and spread into the cutaneous distribution of its neighbors; yet it was only in the ganglion on the distribution of which the cancer had begun that inflammatory changes could be seen. The other ganglia into whose cutaneous distributions the cancer had spread, showed changes of degeneration.

8. **Streptococcic Conjunctivitis.**—Cunningham reports a case of this kind, which in its early appearances did not differ materially from the ordinary acute catarrhal conjunctivitis. Examination of the discharge showed streptococci almost in pure culture. The eye was lost, in spite of all efforts made to save it.

The Lancet, London.

July 20.

13 General Surgical Anesthesia. F. W. Hewitt.
14 Plague. W. J. R. Simpson.
15 Common Sporadic Seven-day Fever of Indian Ports Simulating Dengue. L. Rogers.
16 *Experiments on Prolonged Protein Feeding. D. Forsyth.
17 Male Triplets with Eclampsia in Patient Aged Sixteen. R. Ollerenshaw.
18 *Effect of Tuberculin on General Tuberculo-opsonic Index in Tuberculous Patients. H. H. Clarke and H. G. Sutherland.
19 Multiple Hereditary Developmental Angiomata of the Skin and Mucous Membranes, Associated with Recurring Hemorrhages. F. P. Weber.
20 Case of Partial Perforation of Bowel, Simulating Appendicitis. W. P. Blumer.
21 Injury to Shoulder, Herpes Zoster, Influenza. J. Allan.
22 Case of Supernumerary Digits. W. H. W. Attlee.

16. **Experiments of Protein Feeding.**—Forsyth summarizes the results of his experiments as follows: 1. Fowls kept for long periods on protein diet but otherwise under healthy conditions show no hypertrophy or microscopic changes in the thyroid glands. 2. Their bony tissues are not affected provided the deficiency of calcium and other bases in the meat diet is made up by a supply of lime. 3. In none of the birds was any change indicative of gout observed. 4. Each of the four fowls maintained under the above conditions showed an unusual amount of colloid in their pituitary glands. 5. The thyroid glands of carniverous birds of prey are not obviously larger, proportionately, than those of other classes of birds, nor are there any peculiarities of microscopic structure in the glands of carnivorous and graminivorous birds referable to differences in their natural foods.

18. **Effect of Tuberculin on Opsonic Index.**—Clarke and Sutherland found that following the injection of tuberculin a rapid rise of the opsonic index occurred within two hours. It rose to a maximum in four hours, fell to its original level in six hours, and was succeeded by the usual negative and positive phases.

Journal of Obstetrics and Gynecology of the British Empire, London.

July.

23 *Pelvic Inflammation in the Female. T. Wilson.
24 *Epilepsy and Status Epilepticus in Connection with Pregnancy and Labor. R. Jardine.
25 *Relation of Frequency of Fetal Heart Beat to Sex and Weight of Child. J. C. H. Leicester.
26 Hysterectomy in Case of Fibroid Tumor of Uterus Firmly Bound Down by Adhesions. J. N. Stark.

27 Bilateral Primary Tuberculous Salpingitis with Secondary Infection of the Perivascular Lymphatics of the Uterine Wall. C. Lockyer.
28 Relation of Alterations in the Ammonia Coefficient to the Toxemia of Pregnancy. C. N. Longridge.

23. **Pelvic Inflammation.**—Wilson discusses the clinical history of 1,092 cases of pelvic inflammation in the female.

24. **Epilepsy in Pregnancy.**—The first case reported by Jardine was one of epilepsy in which the attacks, which were very numerous and occurred at short intervals, began toward the end of the pregnancy. There was no albumin in the urine, so that Jardine absolutely ruled out the possibility of the case being one of eclampsia. The patient died, and the infant died on the third day. The second patient had no attacks until she became pregnant. The greatest number of fits occurred on the day after delivery. In the third case the patient had convulsions when 12 years old, and then not again until she was in the sixth month of pregnancy. They recurred during the second and third pregnancy. The fourth patient began to have convulsions shortly after she was 10 months old. Since her marriage the attacks were not convulsive, but consisted of loss of consciousness. During pregnancy the attacks increased in frequency, and more so during the period of lactation.

25. **Frequency of Fetal Heart Beat.**—Leicester concludes his paper as follows: 1, Sex has practically no effect on the frequency of the fetal heart beat; 2, it is impossible in any given case to form even a rough judgment as to sex from the rate of the fetal heart beats; 3, weight does seem to exercise, as a general rule, a distinct influence, since the slower the rhythm of the fetal heart the bigger the child is likely to be.

Indian Medical Gazette, Calcutta.

June.

29 *Application of Vaccino-therapy to Dysentery. W. H. C. Forster.
30 Small Incinerators. H. A. Haines.
31 Report of the Medical College Hospital, Calcutta. C. P. Lukis.
32 Rat-poisoning and Its Effects in Azamgarh City. J. N. Walker.
33 Operation for Entropion. R. Heard.
34 Melanotic Sarcoma and Sarcomatous Melanoma. O. St. J. Moses.
35 Two Surgical Cases. M. H. Thornely.

29. **Vaccino-Therapy in Dysentery.**—Forster has given the subject of treating bacillary dysentery by vaccino-therapy considerable attention and study. He finds that a vaccine can be prepared from the Shiga bacillus, which in therapeutic dose gives rise to no greater discomfort than a little local tenderness. The vaccine he used consisted of an emulsion of the dead bacilli in normal salt solution, to which 0.5 per cent. of carbolic acid had been added. The vaccine is injected subcutaneously in line with the outer border of the rectus muscle, half an inch above the umbilicus.

Dublin Journal of Medical Science.

July.

36 Why Are the Great Motor and Sensory Tracts of the Central Nervous System Crossed? A. F. Dixon.
37 Splenic Enlargement and Its Influence on the Blood. T. L. De Courcy.

Journal of Tropical Medicine and Hygiene, London.

July 1.

38 Plague. W. J. Simpson.
39 Case of Mycetoma in Cyprus. R. A. Cleveland.

Presse Médicale, Paris.

40 (XV, Nos. 39-40, pp. 313-328.) The End of the Myogenic Theory of the Heart Action. (Fin de la théorie myogène.) E. de Cyon.
41 Duration of Bed Rest after Physiologic Childbirth. (Durée du séjour au lit.) L. Bouchacourt.
42 Prophylactic Measures when Soldiers are Given Leave of Absence or Discharged for Pulmonary Affections. (Hygiène sociale.) L. Landouzy.
43 *Serious Anemia in the Course of Acute Infectious Diseases. (Anémies graves, etc.) L. R. Dumas and Poisot.

43. **Serious Anemia in the Course of Acute Infectious Diseases.**—In the first of the three cases described a child of 11, with miliary tuberculosis, developed pernicious anemia of the plastic type. In the second case a child of 20 months presented symptoms of a severe acute bronchopneumonia, but the *Staphylococcus aureus* was found in all its organs and there was proliferation of the bone marrow, of the myeloid type, with corresponding changes in the composition of the blood. The diagnosis had been acute bronchopneumonia at first, but was corrected to otitis with septicemia and pernicious anemia. The child had been previously healthy, except for a transient diarrhea two months before the sudden onset of the fatal illness.

Revue de Chirurgie, Paris.

44 (XXVII, No. 4, pp. 529-712.) *Congenital Angioma of the Face. (Angiome caverneux de la face.) D. J. Cranwell.
45 *Spontaneous Hernias of the Semilunar Fold. (Hernies du repli semi-lunaire de Spiegel.) L. Thévenot and Gabourd.
46 *Luxation of Semilunar Fibrocartilages of Knee. (Luxations des cart. semilun. du genou.) (Commenced in No. 3.) C. Dambrin.

44. **Angioma of the Face.**—In the case described by Cranwell the patient was a young man and the tumor in the left cheek had been noted since infancy and had gradually increased in size until it was as large as a child's head. It had pushed inward the jaws and teeth and pushed up the bones of the cheek. It was a comparatively solid growth, the skin above was normal, and the tumor was removed without much difficulty after ligation of a number of blood vessels. Notwithstanding the adherence of the tumor and the almost inevitable hemorrhage, the final outcome of operative treatment has been excellent in all such cases. If not removed, the progressive growth of the tumor dooms the patient. In the case described a number of angioliths the size of a pea could be palpated through the skin, and others were found in the tumor.

45. **Hernia of the Semilunar Fold.**—Thévenot and Gabourd report two cases of hernia in the space between the outer margin of the rectus and the insertion of the muscular fibers of the transversalis, near McBurney's point. They review the similar cases in the literature and discuss the diagnosis and treatment. The hernia occurs on a line joining the umbilicus and anterior superior iliac spine; after passing between the aponeuroses of the transversalis and internal oblique the hernia comes in contact with the aponeurosis of the external oblique, which may hold it back or be pushed out by it. When the hernia is small, the symptoms may be vague and be ascribed to dyspepsia, enterocolitis, etc. If on the left side, sigmoiditis is surmised; if on the right, chronic appendicitis. If a tumor is palpated it is differentiated as a hernia by the usual signs, but in case these are lacking the diagnosis may be difficult. The prognosis is better in men than in women. Obesity renders control of the hernia more difficult and inflammation may ensue. Radical treatment is indicated for the young, and may be necessary for older and obese patients, but recurrence is liable, as with umbilical hernia. In case of obesity and weak heart a truss is preferable to herniotomy.

46. **Recurring Dislocation of Semilunar Cartilage of Knee.**—Dambrin's article gives comparative summaries of eighty-seven cases of luxation of the semilunar cartilage in which it was removed, and of thirty-four others in which it was merely reduced and fastened in place. His conclusions favor partial removal of the cartilage, as this is a simple, easy and effectual intervention. The only conditions in which he would advocate meniscopexy are those arising when the cartilage is partially torn in front or at the side, or when its attachments are merely stretched without being actually torn. In these circumstances, careful fixation will retain the meniscus in its normal position. The literature cited shows the remarkable results obtained by appropriate arthrotomy in treatment of recurring luxation. Research on the cadaver shows that a vertical incision, about 6 cm. long, is preferable, exactly between the anterior and the lateral ligaments, carefully avoiding injury of the latter. In seventy-four cases of partial extirpation of the dislocated semilunar fibrocartilage the results were perfect. Lockwood's patient was able to dance and mount a horse within a few months, and Owen's patient won the championship at football a few months afterward. Recurrence was never observed, and ankylosis developed in only one case. The minor points of the technic are reviewed in detail.

Archiv f. klinische Chirurgie, Berlin.

47 (LXXXII, No. 3, pp. 615-954.) Detachment and Suture of Nerves. (Nervennaht und -Losung.) F. v. Auffenberg.
48 Experimental Research on Steam Sterilization of Dressings. (Dampfdesinfection der Verbandsstoffe.) Gerdes.
49 Two Thousand Operations for Appendicitis. (Zur Appendicitis-Frage.) A. V. and E. Moschcowitz (New York).
50 Operations for Appendicitis at Marburg. (Epityphlitis-Fälle, 1893-1906.) R. Henking.
51 Sacral Operations on Rectum and Uterus. (Sacrale Op. am Mastdarm und Uterus.) F. Goldschwend.

52 Clinical Manifestations with Gastrointestinal Pseudoleukemia. (Gastroint. Pseudoleukämie.) M. Hoffmann.
53 Retroperitoneal Tumors in Pelvis. (Retroperit. Beckentumoren.) Neupert.
54 Asepsis in Surgery of Ears and Nose. (Aseptik in der Ohren- und Nasenchirurgie.) G. Heermann.
55 N. I. Pirogoff. W. I. Rasumowsky.
56 Experimental Study of Gastroenterostomy, Enteroanastomosis and Resection of Bowel. (Gastroenterostomie, Darmresection, etc.) Pochhammer.
57 Teratoma of Upper Jaw. (Teratoma des Oberkiefers.) V. v. Bergmann.
58 Double Empyema. (Doppelseitige Empyem.) D. Hellin.
59 Bone Cysts and Fibrous Osteitis. (Knochencysten und Ostitis fibrosa v. Recklinghausen.) H. v. Haberer.
60 Fracture of the Center for the Epiphysis of the Calcaneum and Similar injuries of the Bones in Youth. (Fractur des Epiphysenkerns des Calcaneus). P. Haglund.
61 Idiopathic Retropharyngeal Abscess. (Idiopath. Retrophar.-Abscess.) F. Kempf.
62 Who First Recommended Burnt Sponge for Goiter? (Spongia usta gegen Kropf.) P. Richter.
63 Technic of Amputation of Breast. (Amputatio mammæ.) K. Vogel.

Correspondenz-Blatt f. Schweizer Aerzte, Basle.

64 (XXXVI, Nos. 1-5, pp. 1-168.) *Vertigo as a Symptom. (Der Schwindel als Krankheitssymptom.) Huguenin.
65 Epidemic of Cerebrospinal Meningitis in Switzerland in 1901. (Epidemie. etc., in Kanton Thurgau.) Walder.
66 Transient Stenosis of Superior Vena Cava with Tuberculous Affection of Right Lung. (Temporäre Stenose der vena cava superior.) W. Spirig.
67 Leukemia. (Zur Kasuistik der Leukämie.) A. Studer.
68 Treatment of Appendicitis. (Perityphlitis.) E. Hagenbach.

64. **Vertigo as a Symptom.**—Huguenin describes the mechanism of vertigo as it is observed in various affections and its differential value, especially in cases of paralysis of the ocular muscles. It seems to be a prerogative of paralysis involving the oblique muscles. Total unilateral oculomotor paralysis may be accompanied by vertigo so intense that the patient staggers as he walks, with a tendency to nausea and vomiting. With horizontal vision there is little or no vertigo, as the objects are seen in normal position. With upward vision one of the figures reflected on the retina slants, but it generally falls outside the field of vision. With downward vision objects are reflected slanting, and the individual feels as if everything around him were falling to one side and the floor moving up or down. Diagrams are given to illustrate the different mechanisms involved.

Dermatologische Zeitschrift, Berlin.

Last indexed, XLVIII, page 180.

69 (XIII. No. 10, pp. 688-748.) Urticaria with Depressions. (Urt. depressa.) H. Vörner.
70 *Roentgen Treatment of Leprosy at Memel Leprosorium. (Behandlung Leprakranker mit R.-Strahlen.) O. Lassar and others.
71 (No. 11, pp. 749-826.) Idiopathic Atrophy and Hardening of the Skin. (Id. Hautatrophie und Sklerodermie.) P. Rusch.
72 *Results of Treatment of Cutaneous Affections with Ultraviolet Rays. (Uviollichtbehandlung bei Hautkrankheiten.) A. Strauss.
73 Lupus with Venous Congestion. (Lupus pernio.) R. Polland.
74 (No. 12, pp. 827-912.) *Origin of Mercurial Colitis and Stomatitis. (Pathogenese der merkur. Col. und Stomatitis.) J. Almqvist.
75 (XIV, No. 1, pp. 1-66.) *Present Status of Treatment of Lupus and its Indications. (Lupus vulgaris.) A. Blaschke.
76 *Prevention of Epididymitis in Treatment of Gonorrhea in Acute and Subacute Stages. (Verhütung der Epid.) J. Neuberger.

70. **Roentgen Treatment of Leprosy.**—Nine lepers were given systematic Roentgen treatment, but the results were not encouraging except in the early phases of the disease, when the lesions were few and isolated. The benefit obtained in cases of this kind, it was stated, justifies continuance of the treatment. Two or three exposures a week were made, each from 10 to 15 minutes in duration, and with the tube about 10 cm. from the skin. Inflammation and gangrene followed the exposures in some of the advanced cases. The local reaction to the exposures was similar to that observed with chemical applications.

72. **Ultraviolet Rays in Treatment of Cutaneous Affections.**—Strauss has treated 350 patients with various skin affections by exposure to the ultraviolet rays. He gives summaries of 42 of the cases, with a number of illustrations. He found that preliminary application of a medicated salve enhanced the action of the rays—carbolic acid in alopecia, corrosive sublimate in lupus, solution of hydrogen dioxid in infected wounds. The drugs seemed to be absorbed better under the influence of the hyperemia.

74. **Pathogenesis of Mercurial Colitis and Stomatitis.**—Almqvist relates extensive research which has demonstrated that three factors predominate in the causation of mercurial inflammation of the colon and mouth: The action of the chemical; the action of hydrogen disulphid on a mucous membrane; and the injury of the membrane. By combining these factors he was able to induce in animals lesions identical in every respect with those of mercurial colitis and stomatitis in men. Putrefactive processes in the mouth and large intestine generate the hydrogen disulphid, which causes erosions or loosening of the mucosa. The gas is absorbed through the erosions it causes, and, if the blood contains mercury, a deposit of mercurial sulphate occurs in the outer loops of the capillaries. The endothelium of the vessels becomes coated with the mercury sulphate, and the physiologic functions are interfered with. The nutrition of the part suffers; the vessels become partly paralyzed, and dilatation follows, with degenerative processes in consequence of the nutritional disturbance. Experiments with other metals did not cause the precipitation of the sulphate from the absorbed hydrogen sulphid possibly because they are not dissolved by the blood in the same way as mercury. In any event, they evidently do not combine in the same way with the sulphuretted hydrogen gas.

75. **Modern Treatment of Lupus.**—Blaschko summarizes his communication in the statement that lupus has lost its old reputation as a frightful affection. It is not considered any worse now than many other skin diseases, and often proves easier to treat than certain obstinate forms of psoriasis and eczema. He thinks that the greatest triumph of modern methods of treatment is that the affection now is arrested in its earlier phases. Before many years, he adds, there will no longer be any cases that will require Finsen or hot-air treatment. Patients now apply to a physician early, and the affection is nipped in the bud, which is one of the greatest triumphs of modern dermatology.

76. **Prevention of Epididymitis.**—Neuberger states that epididymitis developed in only 6 out of 200 patients whom he treated for gonorrhea on the principle of injection of small amounts of a weak disinfectant, left in contact for only three or four minutes, repeating the injection three or four times a day. He warns the patient that the fluid must be injected very gently, not forcing it into the posterior urethra, but injecting it very cautiously and slowly, as the patient stands with the penile portion of the urethra pendent, carefully refraining from distending the urethra. If the gonorrhea runs a mild course, it heals in from two to four or six weeks under this gentle treatment with a weak disinfectant. In case of much inflammation and edema, he applies antiphlogistic measures at first, and then injects only 3 c.c. of the disinfecting fluid. After the acute and subacute stages are past, irrigation according to Janet will then quickly change the picture and complete cure soon follows, as a rule.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

77 (XXXIII, No. 23, pp. 913-952.) *Pathogenesis and Specific Destruction of Cancers. (Pathogenese und spez. Abbau der Krebsgeschwülste.) E. v. Leyden and P. Bergell.
78 Peculiar Double Granules in Trachoma Cells. (Doppelkörncheu-Parasiten?—in Trachomzellen.) R. Greeff.
79 The Antityphoid Protecting Substance Obtained by the Brieger Technic. (Nach der Briegerschen Schüttelmethode hergestellte Typhusschutzstoffe.) R. Bassenge.
80 Proposal for Conventional Standard for Estimating Degree of Knee Jerk. (Fixierung des Intensitätsgrade des Knie-Phänomens.) A. Pick.
81 *Methods and Importance of Measurement of Pulse Pressure. (Pulsdruckmessung.) F. Klemperer.
82 Treatment of Descending Diphtheria uninfluenced by Antitoxin. (Ueber heterochthone Serumunwirksamkeit und ihre postoperative Behandlung bei deszendierender Diphtherie.) (Commenced in No. 22.) H. Klose.
83 Electrode for the Ear. (Neue Ohrelektrode.) K. Herschel.
84 Army Medical Corps in the Netherlands. (Militärsanitätswesen.) van de Moer.

77. **Specific Action of Liver Ferment on Cancer.**—In a previous communication, summarized in these columns, von Leyden called attention to the fact that every local injection or application to a cancer is followed by a reaction which takes the form of increased proliferation of the growth. Injections of pancreatin and of radioactive substances are the only known exceptions to this rule; there is no increased growth after their application. Experiments with other organ extracts since have demonstrated that liver extract, containing a fer-

ment which splits that part of the simplest peptone which pancreas extract does not affect, displays a similar lack of growth-stimulating effect when injected into a cancer. More than this, it has an actual destructive action, the cancer tissue breaking down under the influence of the enzyme contained in the liver extract, with necrosis and dissolving of the tissues. This occurred strikingly, he asserts, in the case of a large sarcoma of the neck, in a recurrent mammary cancer and in an extensive uterine cancer originating in the vagina.

The effect is so rapid and extensive and toxic substances are generated in such amounts that, for the present, the method can not be applied in therapeutics. Cancer tissue in the test-tube is not destroyed and dissolved in the same way as in the living subject. In this point the liver extract differs from pancreas extract, but its action on the living cancer is incomparably more energetic and selective than that of pancreas extract on the living tumor. The facts observed seem to indicate that the constant, unrestricted growth of the cancer—in which lies its special malignant feature—is due to the lack or inadequate supply of a probably specific, ferment-hydrolytic force present in the normal organism. The total or partial lack of this substance explains the unchecked growth of the cancer. As the cancer grows, its avidity uses up this substance still more rapidly. The liver extract used in the experiments was obtained fresh by pressure from the ground liver of animals.

81. **Study of Blood Pressure.**—Klemperer expatiates on the importance of the study of the blood pressure and describes extensive experience with the various technics. He has been especially pleased with von Recklinghausen's apparatus for determining the pulse amplitude, that is, the difference between the extremes of the diastolic and systolic pressures. Five months of daily tests of the blood pressure in healthy persons and in patients have shown that the normal standard of amplitude is about 60 cm. water. The amplitude is exceptionally large in arteriosclerosis and small in heart disease, etc. It is not decisive in regard to the reciprocal relations between the heart energy and the peripheral resistance, but it affords better insight than mere determination of the blood pressure alone, and is particularly instructive when sphygmography and sphygmomanometry are combined.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

85 (LXXXVI, Nos. 5-6, pp. 391-586.) *Experiences with Rectoscopy. (Rektoskopie.) G. Sultan.
86 *Congenital (not operative) Gaps and Slits in the Mesentery and their Importance as Causes of Intestinal Occlusion. (Lücken und Spalten des Mesenterium.) W. Prutz.
87 Clinical, Pathologic, Anatomic and Radiologic Study of 10 Cases of Multiple, Cartilaginous Exostosis. (Exostosis cart. mult.) F. Pels-Leusden.
88 Thickening of Tubercle of Tibia in Adolescence. (Verdickung der Tub tibiæ.) H. Jacobsthal.
89 Mechanical Ileus in Acute Inflammatory Abdominal Affections. (Mech. Ileus.) M. Martens.
90 Chronic Deforming Tendovaginitis and Luxation of Peroneus Tendon. (Tendovag. chron. def. und Luxation der Peronealsehnen.) O. Hildebrand.
91 New Formation of Lymph Glands with Carcinoma and Sarcoma. (Neubildung von Lymphdrüsen.) C. Ritter.
92 *Curative Results of Fractures of Leg treated by Bardenheuer's Method of Extension. (Unterschenkelbrüche und die Extensionsmethode.) Schrecker.
93 Laceration of Renal Pelvis and Ureter with subsequent Paranephritic Cyst. Operation. Recovery. (Nierenbecken und Ureterzerreissung.) A. Hildebrandt.

85. **Rectoscopy.**—Sultan describes a few cases to illustrate the importance of rectoscopy as a diagnostic measure in certain cases of lesions in the sigmoid flexure or upper rectum, or cases in which the intestinal lesion can be inspected through an artificial anus. The rectoscope should always be used in the knee-chest or knee-shoulder position, as this favors introduction of air—this pneumatic principle being a great advantage for the inspection. He warns, however, that the procedure is by no means free from danger when the walls of the intestine are inflamed or weak from any cause, and advises refraining from the use of the rectoscope in case of much debilitated, anemic patients with relaxed tissues. In one case which he relates in detail the rectoscope was introduced readily for 20 cm., but insufflation of air ruptured the wall of the rectum or sigmoid flexure and the patient, a woman of 53, with chronic catarrh of the large intestine, succumbed seven weeks later. Spastic contraction of the intestinal wall simulated a tumor, but the weakened wall was unable to resist the pressure of the insufflated air.

86. **Gaps or Slits in Mesentery as Cause of Intestinal Occlusion.**—Prutz reviews the literature on this subject, giving summaries of 18 cases in which operative relief was attempted and 24 without, with 9 other cases of defects in the mesentery which had not caused any trouble. He discusses the causes, symptoms and indications in the various conditions. In some of the cases on record internal incarceration must have occurred previously and spontaneously subsided, as transient threatening attacks had been observed before the attack recorded.

92. **Bardenheuer's Extension Treatment of Fractures of the Leg.**—Schrecker produces convincing testimony as to the value of the Bardenheuer method of extension in treatment of fractures of the leg. The broken bones were restored to normal structure and in nearly every case to normal function. The technic is not so complicated and tedious as generally assumed, although it requires greater attention from the physician than a plaster cast. The results, however, are incomparably better, as he shows by concrete examples and statistics from the Cologne clinic. Entire functional restoration, enabling the laboring man to resume his usual work, required on an average five and one-half months. Of 63 patients treated with extension 91.8 per cent. regained complete functional use of the limb, including 40 who had both bones fractured. Seven of the patients were more or less incapacitated for work, but resumed their occupations. The mechanism of the extension is briefly described. For certain fractures the tip of the foot is suspended from a cord over a pulley directly above, carrying a weight of 2.2 pounds. Traction is also exerted from the side, above and below the fracture, with one weight of about 4.5 pounds on each side, while longitudinal extension is secured with a weight of 22 pounds. The strips of adhesive plaster on each side of the foot are joined beneath, a little below the sole, where the cord is fastened, to insure more even traction on both sides of the foot and to promote absorption in the joints. The technic may be modified to suspend the leg at two or more points. The longitudinal extension draws the stumps of the bone out of their dislodgment in the muscles, and further reduction is seldom necessary. It also reduces the pressure of the stumps on each other and on the periosteum, thus averting a tendency to excessive callus formation. A plaster cast is unable to accomplish this. The pressure of the cast is liable to induce atrophy of the points where it rests and, as they atrophy, the cast becomes loosened. While the limb is being exercised the weights are removed. Bardenheuer lays great stress on the patient's doing the exercising himself, after the first, as he instinctively stops short of the point where pain is induced.

Gazzetta degli Ospedali, Milan.

94 (XXVIII, Nos. 30-36, pp. 305-384.) Diplococcus Aggressins. (Aggressina diplococcica.) A. Barlocc[illegible]
95 *Failure of Operative Treatment of Ascites in Cirrhosis of the Liver. (Cirrosi epatica.) G. Caponetto.
96 *Sodium Citrate in Infantile Gastrointestinal Affections. (Citrato di sodio.) L. Miserocchi.
97 *Diagnostic Importance of Auscultation of the Mouth in Pulmonary Tuberculosis. (Rantolo orale.) S. Vallivero.
98 *Diagnostic Significance of Grocco's Triangle in Pleurisy with Effusion. (Triangolo di Grocco.) G. Padoa.
99 Differentiation of Typhoid, Paratyphoid and Miliary Fever. (Tifo, paratifo e lebbre sudorale.) C. S. Materazzi.
100 General Anesthesia with Heroin and Chloroform. (Eroinocloronarcosi.) P. Volta.
101 *Physical Measures in Treatment of Emphysema of the Lungs. (Enfisema pulmonare.) E. De Renzi.
102 Experimental Study of Pellagra. (Pellagra.) G. Tizzoni.
103 *Favorable Results of Diphtheria Antitoxin in Treatment of Epidemic Cerebrospinal Meningitis. (Meningite cer.-sp. epidemica.) A. Balduzzi.
104 Chemistry of Stomach and Intestines in Hysteria and Epilepsy. (Chimismo gastrico ed intestinale nelle forme convulsive.) A. Borri.

95. **Failure of Operative Treatment of Ascites from Cirrhosis of Liver.**—Caponetto reports extensive experimental research in this line, on dogs, with negative results. All the dogs died after complete occlusion of the portal vein or ligature of the mesenteric alone, irrespective of whether omentopexy was done or not. His clinical experience, he declares, confirms his verdict that successful surgical treatment of the ascites in the cirrhosis of Laennec is an unattainable ideal.

96. **Sodium Citrate in Infantile Gastrointestinal Affections.**—Miserocchi reports favorable results from the use of sodium citrate in sixty-seven cases of gastrointestinal disturbances in young infants. The action of the drug was prompt and effectual, although less marked at first in acute gastroenteritis. He thinks that it facilitates the digestion of various kinds of milk and theorizes to explain the mechanism. He gave a tablespoonful of a mixture of 5 gm. of sodium citrate in 300 gm. of sweetened and sterilized water, after each feeding.

97. **Oral Râles as Sign of Pulmonary Tuberculosis.**—Vallivero reports that he was able to detect Galvagni's "oral râles" in 60 cases of pulmonary tuberculosis while he never discovered them in a large number of cases of other pulmonary affections. Applying the ear to the open mouth, a delicate râle is heard during inspiration or expiration, or both, not corresponding to the pulse nor the movements of swallowing. Galvagni called attention to this sign of tuberculosis as early as 1875, but its importance is not generally recognized. Vallivero affirms that its constant presence at all stages of pulmonary tuberculosis and its constant absence in other pulmonary affections have been abundantly established and certify to its pathognomonic character.

98. **Grocco's Triangle in Pleurisy with Effusion.**—This communication from Grocco's clinic at Florence reviews the various articles that have been published confirmatory of his assertions in regard to the diagnostic value of a triangular area of dulness in the region next to the spine on the side opposite to a pleuritic effusion. This sign was recently discussed with favorable comment in an editorial in THE JOURNAL, Feb. 2, 1907, page 423. Grocco ascribes the area of dulness mainly to the displacement of the organs pushed aside by the pleuritic effusion. The displacement of the anterior portion of the mediastinum causes the "retrosternal sound" of Banti, but the displacement of the posterior portion of the mediastinum causes the triangle of paravertebral dulness described by Grocco. He has found it unmistakable in every case of unilateral pleuritic effusion in his experience, with two exceptions. These were elderly men who had had repeated attacks of pleurisy and pneumonia, and the pleura was probably fastened down by adhesions. The triangular area of dulness was observed in several cases of pneumonia, but in each instance there was a coinciding pleuritic effusion. The triangular area changes its location as the patient changes his position. In case of a double effusion the triangular area is observed on the side opposite the largest effusion, and the area of the dulness decreases in size when the effusion is tapped.

101. **Physical Measures in Treatment of Emphysema of the Lungs.**—De Renzi gives iodin and arsenic and has the patient exercise in a Waldenburg apparatus, breathing in compressed air. In one of the cases described, the lungs have returned to normal size and the expiratory force has risen from forty to ninety-five, while the patient has gained about twenty pounds in weight.

103. **Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis.**—Balduzzi reports favorable results from the use of diphtheria antitoxin in fifty-nine cases of epidemic cerebrospinal meningitis. It was used for its generic action in stimulating the defensive reactions. This was marked in the cases in which the organism was capable of a response, but in the fulminating cases no benefit was apparent, as the organism did not have time to feel the stimulating action of the serum and produce the defensive substances. The usual dose was 1,000 units. Antistreptococcus serum was also used in a few cases.

Nordiskt Medicinskt Arkiv, Stockholm.

105 (XXXIX, Surgery, Nos. 2-3.) *Influence of Professional Telephoning on the Organism, especially on the Ear. (Einwirkung des berufsmäss. Telephonierens.) N. R. Blegvad.
106 *Treatment of Tuberculosis of the Hip in Children. (Hüftgelenktub. im Kindesalter.) C. M. F. Sinding-Larsen.
107 *Chronic Inflammatory Tumors in Abdominal Cavity. (Tumoren in der Bauchhöhle.) H. Waldenström.
108 (No. 4.) Inflammation around the Intramuscular Tendons (Deltoid). (Peritenitis—Tenalgia—intra-deltoidea.) N. V. Akerblom.
109 Direct Visual Inspection of Esophagus Trachea and Bronchi. (Ueber Oesophago-, Tracheo-, und Bronchoskopie.) E. Schmiegelow.

105. **Influence of the Organism of Professional Telephoning.**—Blegvad found retraction of the tympanic membrane in 26.4 per cent. of 371 telephone girls examined at Copenhagen. This anomaly was observed only in the ear used in telephoning. He found no indications that the hearing was impaired by professional telephoning when previously normal, and neither did he find any evidence that the hearing was rendered more acute. The ear seems to accommodate itself better and better to the work in time, but this, he thinks, is probably because the telephone girls learn to pay less attention to sounds in the environment. There was no evidence to show that professional telephoning could produce an ear affection, but instances were encountered in which an electric shock or sudden noise over the wire aroused a slumbering ear process or induced one. It is important, therefore, that persons with sound ears and normal hearing capacity should be engaged for this work. Anemic, nervous and nervously disposed individuals should be excluded from the telephone service. In a few cases, possibly only in the predisposed, he observed headache and subjective symptoms on the part of the ear, such as pain, pressure, humming in the ears and hyperesthesia. He thinks that the long sitting still, the sudden loud noises coming over the wire and the fact that the operators are generally girls, explain these phenomena. No serious injury has ever been observed at Copenhagen from an electric shock over the wire. He considers the cap receiver worn by the young women as liable to induce acne on the outer ear and itching in the meatus which may lead to eczema, otitis of the outer ear, otomycosis and the like. Its chief disadvantage, however, is that it can not be removed from the ear so quickly as the handreceiver in case of a sudden, unexpected electric shock. The article fills more than 100 pages and concludes with a bibliography.

106. **Treatment of Tuberculosis of Hip in Children.**—Sinding-Larsen is in charge of the seashore sanatorium at Fredriksvärn and in this monograph of 262 pages gives the full clinical histories and details of treatment of 56 boys and 44 girls. Conservative treatment is the rule to the utmost possible extent, before operative measures are attempted, and the patients are kept a long time at the sanatorium, 1,453 days being mentioned in one case. All but 12 of the boys and 6 of the girls were cured, while 5 others still have fistulas.

107. **Chronic Inflammatory Tumors in Abdominal Cavity.**—Waldenström reports three cases of chronic inflammatory tumors in the abdominal cavity. Cocci alone were found in the pus. Hofmeister and Borelius have published each two cases of the kind, but they ascribed theirs to actinomycosis. Waldenström thinks that pyogenic cocci were responsible for the tumors, and that a diagnosis of actinomycosis should not be accepted without discovery of the ray fungus.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

MANUAL OF DISEASES OF THE EYE. For Students and General Practitioners. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Fifth Edition, Revised. Illustrated. Cloth. Pp. 391. Price, $2.00 net. New York: William Wood & Co., 1907.

MEMORIA ANUARIO Correspondiente al Curso Academico de 1905 á 1906. Que se publica en cumplimiento de lo que dispone el articulo 26 del Reglamento Universitario. Paper. Pp. 366. Havana: Manuel Ruiz S. en C. Imprenta y Papeleria, 1907.

MANUAL OF SURGERY. For Students and Physicians. By Francis T. Stewart, M.D., Professor of Surgery, Philadelphia Polyclinic. Illustrated. Flexible Leather. Pp. 778. Price, $3.50 net. Philadelphia: P. Blakiston's Son & Co., 1907.

ELEMENTS OF HUMAN PHYSIOLOGY. By Ernest H. Starling, M.D. Lond, etc., Jodrell Professor of Physiology, University College, London. Eighth Edition. Cloth. Pp. 716. Price, $3.75 net. Chicago: W. T. Keener & Co., 1907.

THIRTY-FIRST ANNUAL REPORT of the Managers and Officers of the New Jersey State Hospital at Morris Plains for the Year Ending Oct. 31, 1906. Paper. Pp. 118. Trenton, N. J.: John L. Murphy Pub. Co., 1907.

SURGICAL INSTRUMENTS IN GREEK AND ROMAN TIMES. By John Stewart Milne, M.A., M.D., Aberd., Keith Gold Medallist in Clinical Surgery. Illustrated. Cloth. Pp. 187. Oxford: The Clarendon Press, 1907.

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints. Volume VI. Paper. Pp. 407. Lancaster, Pa.: New Era Printing Co., 1907.

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Original Articles

THE OPSONIC INDEX AND THE TUBERCULIN TEST.

THEIR RELATIVE VALUE IN THE DIAGNOSIS AND TREATMENT OF EARLY TUBERCULOSIS IN CHILDREN.*

THOMAS MORGAN ROTCH, M.D.
Professor of Pediatrics, Harvard University.
AND
CLEAVELAND FLOYD, M.D.
Assistant in Bacteriology, Harvard Medical School.
BOSTON.

With the increasing interest and aroused public sentiment in the question of tuberculosis, the demand for means of making an early diagnosis in this disease grows more urgent. Not only will the physician demand more and more of the pathologist in connection with this subject, but the laymen will expect it from the general practitioner. This will be found to be especially true in the case of children when the anxious mother has the child under close observation and each slight symptom invites attention.

The well-known truth that an early diagnosis in tuberculosis usually means cure is more evident to-day than it ever was. The child, whose vitality is proportionately greater than that of the adult, frequently on receiving an infecting organism into its lungs speedily overcomes the infection, and the pathologic process may become quiescent. Years may intervene before any other symptoms arise, and perhaps not until, as a young adult, he may enter a factory, or sweat shop, or may be exposed to bad hygienic surroundings do we see develop in such an individual symptoms of marked tuberculosis following his debilitating surroundings and from the resistance of the body being brought below par.

The number of children who will be found to show this sequence of early infection, temporary quiescence and later return with pronounced symptoms will not be appreciated until special work is carried out in this line of study.

Among about 40 children recently examined by one of us, and living in families in which tuberculosis had occurred within the past eight years, 25 per cent. were found who showed definite signs of consolidation at one apex. All but one or two of these patients were free from any symptoms and appeared to be perfectly well. If we can recognize in a child the tuberculous infection in the closed stage before tubercle bacilli are thrown out in the sputum, our endeavor to prevent the dissemination of the disease is greatly aided. The adult can be taught to appreciate the importance of cleanliness, but who can control the small boy and prevent him from expectorating promiscuously wherever he goes, to the detriment not only of his own family, but of the whole community?

It is also important not to allow the stamp of tuberculosis to be put on a family when the disease does not exist, but is only simulated by some other disease, such as syphilis, influenza and chronic pneumococcus infection. If a correct differential diagnosis be made in these cases, the hardship of tuberculosis treatment and the isolation of the child are done away with and the parents are relieved from a tremendous anxiety.

The two means which are at present claiming the attention of the medical world for the early diagnosis of tubercular infection are the tuberculin test and the opsonic index. Tuberculin is a powerful agent, and on account of its ability to do harm in inexperienced hands should only be used with the greatest care and by trained observers. Koch's old tuberculin has been used extensively by us both at the infants' and at the children's hospitals. Valuable information has been obtained, and in our hands its proper use has proved to be without danger.

The solution for using this test is prepared as follows: One cubic centimeter of Koch's old tuberculin is added to 999 c.c. of boiled distilled water—one c.c. of this solution equals one milligram. The dose of this solution for an infant or young child is from two to five milligrams, according to the age. In using this test a record of the child's temperature must first be kept every two hours for twenty-four hours. If it is then found that the temperature is irregular or high, the test is not of much value. If, however, the temperature is regular and not over 37.7 C. (100 F.), the test can be used, and has been found in our experience to be of considerable value. After the part of the skin to be injected has been thoroughly washed first with soap and water and then with alcohol and the hands of the operator and the syringe disinfected, the injection is made. If the child is not tuberculous, no symptoms will be noticed, unless occasionally in certain cases of syphilis. If it is tuberculous, the temperature will rise in from eight to twenty-four hours after the injection and will fall again within about twenty-four hours. During the period of reaction there may be a certain amount of malaise, but in our experience there is little or no danger of serious results. A positive reaction will be obtained in about 95 per cent. of cases of tuberculosis. A negative reaction does not positively exclude tuberculosis, although it is very strong evidence against it.

In giving tuberculin to children it is a question whether the best results can be obtained by beginning with a small dose and gradually leading up to the dose which will produce the reaction, or to give a reacting dose at once. It has been held by some observers that the small primary dose produces a certain amount of immunity which interferes with the desired final and marked reaction which proves that tuberculosis is present. On the other hand, it is now usually accepted that the small dose repeated with intervals of three days does not cause immunity and gives a less violent reaction. It is to be understood that too large a dose of tuberculin is as dangerous as too large a dose of any drug, notably opium, strychnin, or arsenic, which in proper doses are harmless, while in toxic doses they may be fatal. An instance of this truth is the following, and is noted simply that as in drugs so in the tuberculin test extreme caution should be taken before administration.

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* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

A boy 8 years old was seen by a physician, the history being that he had been having some slight lesions of the skin of the legs and arms, represented by small blisters, for three weeks. However, he looked fairly well. He complained of slight epigastric pain. Physical examination was negative, except that a number of small fluctuating and nodular swellings of the legs and arms and an occasional indurated area were detected. The white count was 17,800. Pulse was 120, respirations 30, temperature 100 F. The Roentgen ray showed no involvement of the bones. One of the lesions was incised and smears taken which showed a negative result. The urine was normal. Eleven days later, as he was not improving, 4 milligrams of Koch's solution (by mistake undiluted) were given for the diagnosis of a suspected tuberculosis. Two hours later the boy had a chill, headache and a temperature of 104.8 F. Later there was vomiting and high pulse, which continued during the night. Pulse was 150, respirations 50, temperature 106.5 F. He became cyanotic, collapsed and died the following day at 8:30 a. m. The autopsy showed acute general miliary tuberculosis and tuberculous ulceration of the cecum, but no lesions pointing toward the immediate cause of death.

As a corollary to confirm the tuberculous reaction in this case was the following history:

Another child, a girl about 6 years old, had been sick for some weeks. She had a slight cough, with loss of appetite and weight, and was pale. Physical examination was practically negative, except possibly lessened resonance of the front of the lungs. Temperature ranged from 100 to 101; pulse was 120; respirations 30. The Roentgen ray, however, showed small areas of slight consolidation in both lungs. She was gradually growing worse, and in order to obtain a definite diagnosis she was, at the same time and by the same physician, given the same dose (4 c.c.) of Koch's solution undiluted. In a few hours the temperature was found to be 106 F., the respirations were slightly increased, and the pulse was increased in rapidity, but except that she felt rather sick, she had no other symptoms, and by the next morning the temperature was the same as before the administration of the tuberculin. From this time all the symptoms improved; the signs in the lungs entirely disappeared, the *x*-ray showed no definite signs of pulmonary disease, and in another month she seemed to be perfectly well. A question for future study to decide is whether or not the tuberculin in this latter case was curative.

If the temperature is under 100 F. 1/10 milligram is given as the initial dose. When no reaction is obtained the second dose of 1 milligram should be given three days after the first injection. A third injection after an interval of three days more has frequently been necessary and has been 3, 5 or even 10 milligrams, according to the age of the child.

If an undecisive reaction is obtained with the second injection, the third should be smaller in order not to get a violent result with the larger dose. Two other of our cases were of special interest. These children—respectively 10 and 13 years old—showed signs of consolidation of both apices, with loss of weight, with cough and with expectoration. An examination of the sputa failed to show the tubercle bacillus, but numerous influenza bacilli were present. Three injections of tuberculin were given, the maximum dose being 10 milligrams without a reaction. These cases were undoubtedly cases of chronic influenza with consolidation, and the removal of the fear of tuberculosis was a great blessing to these families.

A positive reaction consists not only of a rise of one or more degrees of temperature above the previous level, but as much importance is to be placed on the constitutional symptoms and signs. When, following the injection of tuberculin, the patient complains in from 24 to 36 hours of headache, feverish sensations and nausea, and there are vomiting and diarrhea, with marked tenderness about the seat of the injection, and especially if there is an appearance of cogwheel or harsh breathing and râles over the suspected area, the result is positive, even without a decided rise of temperature. Some cases will give almost all these symptoms and others very few, but the examination of the chest immediately following a reaction is of great importance.

The opsonic index may be a great aid in diagnosis when, on account of extreme prostration, or a high irregular temperature, tuberculin can not be given. If we follow the index in a case of pulmonary tuberculosis we find it runs in three different ways: low, high and fluctuating. They are important from a diagnostic point of view in the order given. Thus when we find a constant low index it may mean tuberculosis or only a lowered general resistance to the tubercle bacillus. When the index is constantly high we are generally justified in believing that the body is constantly taking up into itself small quantities of tubercular products, which from some focus stimulate it to increased resistance and, therefore, keep the index high. Tuberculosis is practically always present when this occurs.

The fluctuating index is of still greater value in that it indicates overdosage of the system with products from a tuberculous focus, and we, therefore, get a series of positive and negative phases. When the symptoms indicate tuberculosis and the physical signs correspond, we are generally safe in our diagnosis if the index is found to be a fluctuating one.

Of still more importance is the treated serum reaction. This test is made in the same way as the ordinary opsonic index, except that both the normal and pathologic sera are treated for 10 minutes at 60 F. in water before using. If the opsonins in the pathologic serum are concentrated, they are not affected by heating, whereas those in the normal serum are destroyed. Comparison of these will then show practically no phagocytosis in the test with normal serum, as its opsonins have been destroyed, whereas the opsonins in concentrated form in the pathologic serum are unaffected and phagocytosis occurs. This test is very reliable and will clinch a diagnosis when it occurs. Unfortunately, in the earliest cases it can not always be done, as the opsonic content of the serum may not be sufficiently concentrated. The index then may tell us a great deal as to the presence or absence of tuberculosis.

The effect of tuberculin on the index is a variable one, depending on the dosage and the time when it is given. If tuberculin is given in sufficient doses there first occurs a negative, followed by a positive phase of the index. If the dose is a very small one, the negative phase may be so temporary that it will be missed and only the positive appear. When the dose is sufficient to produce a reaction in the patient, there is a marked negative phase and after a number of days the index returns to normal and gradually enters the positive phase to remain there several days. The sense of well-being so often seen in patients for a number of days after they are well over the reaction from tuberculin occurs when their resistance is increased and the index above normal.

The opsonic index may also give us some idea of how the patient will stand the increasing doses of tuberculin given for a tuberculin test. If an examination of the index before inoculation proves it to be low, and the initial injection gives a marked negative phase, it is probable that further injections of increased strength will not only give a marked lowering of the index, but the constitutional symptoms of a reaction as well. The general rule in giving vaccine, that when the index is very low the first injection should be small, applies to tuberculin as well as to the vaccine of staphylococcus, pneumococcus and other organisms.

In the treatment, Trudeau believes that minute doses, steadily increasing and extending over several months, should be given, seeking, if possible, to avoid reaction. This will increase the patient's resistance, improve the general condition and aid in healing the process. Wright believes that the dose of tuberculin should be controlled by the index, the object being to keep the index high with continuous small doses of tuberculin. Whether or not this is sufficient in treating tuberculosis is undetermined, as there are many other factors in the production of immunity besides opsonins. We certainly have not found it necessary to follow the opsonic index when we have used the tuberculin therapeutically.

When we have used small increasing doses over a long period of time we have seen numerous cases in which the final results have certainly been favorable. Reactions have been very few, and we are, therefore, encouraged to continue our studies in this direction.

CONCLUSIONS.

The early diagnosis of tuberculosis in children is more important to-day than ever before on account of the increased facilities for a cure and the possibility in this stage of preventing the spread of the disease, and also because a quiescent process may be prevented from becoming an active one.

Tuberculin is a valuable diagnostic agent in early tuberculosis, but when not used properly is dangerous, and in inexperienced hands may bring disaster.

The opsonic index may be of great aid in the early recognition of tuberculosis, especially when tuberculin can not be given on account of temperature or prostration. The use of the opsonic index may give some indication for the control of the dose of tuberculin used for diagnosis as well as for its therapeutic effects.

DISCUSSION.

Dr. Charles G. Kerley, New York, said that Dr. Koch's observations at the Babies' Hospital agree practically with Dr. Rotch's statements, particularly that no harm is done by injection and that one injection usually suffices. The usefulness of it has been demonstrated also in case of tuberculous peritonitis, in which diagnosis is often difficult, when there is no sputum to examine. For some time this method has been of signal service to Dr. Kerley; it strikes him as a useful measure in diagnosis.

Dr. F. S. Churchill, Chicago, said that the subject is too young for us to draw any general conclusions; not enough cases have been studied. He mentioned a case in which tuberculin was given by Dr. Hamilton—the dose being regulated by opsonic index—in his service at the Presbyterian Hospital. The patient, a boy 11 years of age, who was in the hospital for about six months with tuberculous peritonitis, eventually got well. Of course, patients with tuberculous peritonitis get well without tuberculin. With regard to Dr. Rotch's suggestion that vaccine be used for diagnosis, he is inclined to think fully as much value can be attached to the phenomenon of agglutination with these various organisms. In many instances of meningococcus cerebrospinal meningitis on record the phenomenon of agglutination has been observed.

Dr. Isaac A. Abt, Chicago, said that he wished to throw out a warning not to be too reckless. He has had some sad experiences when repeated doses were given. He mentioned a child of 7 or 8 who had obscure spinal trouble in which tuberculous spondylitis was suspected, and after the first dose of tuberculin no reaction occurred. Repeated inoculations with tuberculin were made, never exceeding 2 mm. In the course of two or three weeks the child developed tuberculous meningitis, and he thinks that every one felt some latent tuberculous focus had been started up.

Dr. L. C. Ager, Brooklyn, said that in foreign literature, more particularly the French, there seems to be wide divergence of opinion as to a safe dose. Here in America we ought to determine how much we ought to use. Dr. Rotch speaks of using as much as 10 mm. at a dose. On the other hand, some French authorities only give doses of a fraction of a milligram, and say that anything more than 2 or 3 mm. is unsafe for children. All case reports ought to state definitely the dose and number of repetitions. He asked if Dr. Rotch had confined his experiments to the one preparation.

Dr. Louis Fischer, New York, said that he has not used tuberculin much in the last five years. He would be afraid to use it until we have a little more positive knowledge of its real value. The value of the opsonic index, he thinks, is still one that has to be carefully studied. The opsonic index can not be applied in private practice. The men who have used it excessively speak against its use for general purposes. Dr. Fischer stated that he would hesitate to advise tuberculin for therapeutic purposes, and even in those obscure cases in which physical signs are absent, as in a central process of the lungs, he would rather go on record as being one who would wait than to run the risk that he saw one patient take within a few hours after administration of tuberculin. The tuberculin test is like others except the specific antitoxin in diphtheria. He does not think that we have reason to say that any serum is a specific in cerebrospinal meningitis or tuberculosis. There are patients with tuberculosis who do not respond to tuberculin, and at the same time have tuberculosis. Dr. Fischer would rather use ordinary methods of physical examination for the present. Even so small a dose as .1 of a mm. he saw result fatally within a few hours.

Dr. A. W. Fairbanks, Boston, asserted that in his opinion one reason for the strong sentiment against tuberculin is due, especially as it emanates from Berlin, to Virchow and his pupils, and especially to Langerhans. Dr. Fairbanks said that he can remember Langerhans pointing out case after case that had come to autopsy with miliary tuberculosis, and telling the students that the disease had been disseminated by the tuberculin. It is well known, he said, that Virchow and his pupils, and particularly Langerhans, were prejudiced; the reason for this undoubtedly lies in the fact that soon after the discovery of antitoxin, Langerhans' son was taken with diphtheria. The antitoxin was injected—presumably late. The child died. Ever since then—or at least, Dr. Fairbanks said, up to 1898—Langerhans has been bitterly opposed to the use of any serum. His teaching, and that of some of Virchow's pupils, has been a factor in prejudicing medical men. It has taken Dr. Fairbanks nearly nine years to overcome his reluctance to its use, and in a large clinic of tuberculous patients he has opposed its use until within the last year.

Dr. S. J. Walker, Chicago, asked Dr. Rotch whether, in his experience, the inoculation has been beneficial in the treatment of tuberculous adenitis. Dr. Walker has had experience with two cases of tuberculous adenitis, and so far as the diagnosis was concerned, the opsonic index gave no clue. It was practically normal and did not vary above or below. In one case the treatment was continued over a length of time without any benefit. He has been unable to find anything in the literature regarding the therapeutic value of tuberculin in tuberculous adenitis.

DR. R. S. ROWLAND, Detroit, Mich., has been doing a limited amount of work with the Wright theory, but it is too early, he said, to draw any conclusions. Several interesting facts were brought out by some of the other workers in Detroit. One patient with tuberculous peritonitis, too bad for operation, was given tuberculin as a last resort and improved rapidly. The appetite improved first, then the general condition, and the fluid disappeared from the abdomen. The condition was so good that operation was delayed, and now it is not thought necessary to operate. Dr. Rowland saw a postoperative case beginning to show improvement, but whether or not this was due to the opsonic treatment or to the time in the disease, he is unable to say. However, the opsonic index has been higher than it was before this treatment, and the patient's condition is much better. Two facts have been brought out by this treatment. One that may be of value in the future, and which he thinks worthy of consideration, is the fact that in tuberculous peritonitis if the index is low before treatment, it can be raised so as to have the patient in better condition for operation. He thinks that operation is indicated as well as the opsonic treatment in most cases. After operation the opsonic index goes down and remains low for a long time, and this shows possibly that operation may be simply an autogenous method of producing vaccine. It may be that this is the reason why operation is of value. Dr. Rowland's observations lead him to believe in smaller doses of vaccine for therapeutic purposes than Dr. Rotch has given, from 1/3,000 to 1/4,000 mg. of tuberculin (T. R.) is a sufficient initial dose. This is gradually worked up as the patient can stand it. He also mentioned a case of meningitis—diplococcus meningitis. He saw the case late and after securing the vaccine the child had improved to such an extent that he was not allowed by the parents to use it. If he had given the vaccine he would probably have thought the improvement due to it.

DR. T. M. ROTCH, Boston, said that he has been using entirely Koch's original preparation. So far as he knows there is no great difference in the efficacy of the two preparations, only care must be exercised if using a new preparation to give much smaller doses. In these cases he investigated he gave the tuberculin without diluting. Those two children had enough to kill cows. As to the danger, he said that besides what has been done at the Children's and Infant's Hospital and at the Massachusetts General Hospital, a large number of children are being treated every day in this way. It is routine treatment to discover early tuberculosis. The work is done efficiently by Dr. Floyd of Boston. Dr. Rotch said that if tuberculin is given properly, there is no more danger than in giving opium, strychnin or arsenic. The dose for children is from 2 to 5 mm. He has never given 10 mm. That amount has been given at the Massachusetts General Hospital, but he thinks that from 2 to 5 mm. is the best dose. One milligram very seldom gives reaction. If one wishes to get a slight reaction, the interrupted treatment, one can begin in that way, but if a reaction is desired in one dose more should be given. Dr. Rotch can see no reason for not using this measure in private practice. It is taking a shorter time to determine the disease. Ordinarily he has an exceedingly intelligent class of people to deal with, and they are glad to know, because if it is beginning tuberculosis there is opportunity for cure. From 2 to 5 mm. is given as a diagnostic dose. For therapeutic measures he starts with small doses, going over a period of weeks and months. In adenitis they have had favorable results at the Massachusetts General Hospital. In the wards there were 25 cases of cerebrospinal meningitis in which he used antitoxin. It looked as though it might cure these patients at first. The final conclusions, however, were that it probably was not curative, but they have been using diphtheria antitoxin with the meningococcus vaccine, and this will carry up the opsonic index. Then they stop the antitoxin and go on with the vaccine. In the last ten or twelve years children that come into the Children's Hospital, no matter what appears to be the trouble, are given diphtheria antitoxin. This has given opportunity of comparison with other vaccines. Dr. Rotch has just reported a series of cases of cerebrospinal meningitis. He thinks that it is doubtful indeed whether or not the vaccine treatment is going to be any more curative than antitoxin, but it is worth trying. A case which was brilliant, but which he does not think proves anything, was that of a child 5 years old in private practice attacked within twenty-four hours; there was high temperature and the child could not swallow. Dr. Rotch gave it a dose of 50.000,000 organism; the next day it recognized its mother, ate and swallowed, and in two weeks it was sitting up; not cured, but with subacute symptoms of contractures. He said that he should not have stopped there, but should have known when to give another dose. This physicians have yet to learn.

THE DIAGNOSIS OF ANEMIA.*

RICHARD C. CABOT, M.D.
BOSTON.

We may be concerned either with the fact, or with the type. Is anemia present? If so, what kind?

The question whether or not anemia is present can be decided only and sufficiently by testing the hemoglobin. We should never assume that anemia is present either from the symptoms alone, or from the appearance of the patient, or from both taken together. Mistakes from this cause are many. On the other hand, there can be no mistake in supposing that the patient who has a low hemoglobin is anemic, and practically no mistake in supposing that the patient whose hemoglobin is normal, or nearly so, is not anemic.

Diagnoses of anemia are very much more frequent than the facts justify. Patients are frequently treated for anemia when nothing more than a pale skin substantiates the diagnosis. The treatment does no harm except in so far as it may prevent us from taking measures more appropriate for whatever disease does genuinely exist. On the other hand, the mistake of assuming that a patient is not anemic, because there is a good color in the face, may lead to more serious consequences.

When the hemoglobin is normal, then, we need go no further in our blood examination, and may rest satisfied that anemia is not present. If the hemoglobin is low, we must endeavor, both by a general physical examination and by a study of the blood, to determine what type of anemia is present.

The important types of anemia may be classified as follows:

1. Chlorosis.
2. Pernicious anemia.
3. Secondary anemia, including:
    - (a) Parasitic types.
    - (b) Other types.

Rarer varieties are:

4. Myelophthisic anemia.
5. Aplastic anemia.

The first two types mentioned above are distinguished from the others by the fact that we have no idea of their cause. In this sense they may be and have been called "primary." The other types of anemia are "secondary" in the sense that they would not exist but for the presence of other diseases of one or another organ.

In the practical work of distinguishing these types of anemia the history of the case is of value to us chiefly when it points to some disease to which we can attribute the anemia as a result. If there is a history of recent malaria, dysentery or hemorrhage, this is important, though not conclusive, evidence that the anemia belongs to the type called secondary. If the history gives presumptive evidence of the presence of malignant disease, of nephritis, or syphilis, it may afford us a useful hint regarding the type of anemia present. But so far as the symptoms of anemia itself are concerned, they are quite indistinctive and almost useless to us in differential diagnosis, because they do not differ essentially from those which may be produced by cardiac disease (organic or functional), or by a variety of debilitated states. The pallor and weakness, the dyspnea, the stomach troubles, the slight edema of the ankles, the throbbing arteries and disturbed sleep are all non-characteristic of the anemia to which they are due, because perfectly similar symptoms may be produced by other diseases.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

On the other hand, considerable aid is given us by taking account of the age and sex of the patient and by taking a good look at him. Thus anemia existing in a girl between 17 and 25 is generally of the type known as chlorosis, while severe anemias in persons past 45, who do not complain of any special local symptoms but chiefly of general weakness, are very apt to turn out pernicious.

It is, therefore, on the physical examination of the body generally, and the blood in particular, that we must depend for definite diagnosis. To this subject I now turn.

The most important differential point in the physical examination of cases found to be anemic is the determination of the presence or absence of some organic disease known to be capable of producing anemia. On the other hand, a negative physical examination, including a negative examination of the urine, is a most important piece of information. Provided we know that anemia is present, a negative physical examination in a young girl points strongly to chlorosis, and in a person past 40 points strongly to pernicious anemia. I do not think there is any type of anemia which can be positively determined by the blood examination alone. Consequently, in the description of the different types to which I now turn, I shall group together all symptoms, physical signs and hematological data, which together determine diagnosis.

I. CHLOROSIS.

There is no such thing as chlorosis in boys, and if it occurs in a woman past 30 it is almost invariably a relapse or recurrence of a chlorosis established earlier. The typical age, as has already been stated, is from 17 to 25, that is, during the years immediately succeding those in which the function of menstruation is established. Though the patients complain of weakness, dyspnea and the other symptoms common to all anemias, they are usually not emaciated, but rather plump. Physical examination is negative or shows nothing more than systolic murmurs at all the valvular orifices of the heart, with perhaps slight edema of the ankles. The menses are often suppressed, and dyspepsia in one or another type is almost always present. The blood shows a reduction of hemoglobin to a point which averages 40 per cent. of the normal, while the red cells are not far from the normal point, averaging about 4,000,000 to the cubic millimeter. This discrepancy between the reduction of red cells and the reduction in hemoglobin means that each cell contains only about half the amount of hemoglobin present in a normal red cell. This fact is technically known as a "low-color index," and is further revealed in the stained film by the striking pallor of the centers of the corpuscles and the general tendency to a diminution in the diameter of the cells. There is nothing remarkable about the white cells. The disease seems to be getting rare—rarer than pernicious anemia.

II. PERNICIOUS ANEMIA.

The onset of this variety is strikingly insidious. Patients can rarely tell within a year or two when it was they began to feel the general weakness and incapacity for the relief of which they seek advice. There are usually no striking local symptoms, and physical examination in the early stages of the disease may be absolutely negative. It is only relatively late that we see the pale yellow tint of the skin, or find any changes in the function of the spinal cord. Patients are usually well nourished, for their digestive functions are rarely disturbed except for relatively short periods of time. The red cells are usually reduced to 2,000,000 or less at the time the patient first consults a physician. This reduction is in striking contrast to the absence of severe pain or other local symptoms. The hemoglobin is usually reduced relatively less than the number of corpuscles, that is, with a count of 2,000,000 red cells we may have 50 per cent. of hemoglobin. The white cells are usually subnormal. In the stained specimen we see that each cell contains as much hemoglobin as it ought. There is no pallor of the centers and the cells are strikingly oversized. This is the most important single point in the diagnosis of the disease. Less important are the great deformities, the changes in staining reaction, or the presence of nucleated red corpuscles.

This blood picture is not absolutely characteristic of the disease, but, when taken in connection with the history and the physical examination as above outlined, it is almost pathognomonic.

The diseases most likely to be confused with pernicious anemia are cancer of the stomach, myxedema, nephritis, cardiac disease and one or another of the parasitic anemias. Each of these will now be discussed, as types of secondary anemia.

III. SECONDARY ANEMIA.

1. *Malignant Disease and Pernicious Anemia.*—In the vast majority of cases malignant disease produces no anemia that is at all likely to be mistaken for pernicious anemia, but now and then we see cases, especially of gastric cancer, in which the count of red corpuscles will not distinguish the two diseases. Here the presence of marked and especially of continuous digestive troubles, together with a considerable degree of emaciation, a low-color index, and the presence of small-sized, poorly-stained red cells, with relatively few megaloblasts, or none at all, points to cancer of the stomach. Of course where a tumor can be felt the difficulty of diagnosis is not likely to arise. If, on the other hand, the patient is relatively well nourished, has periods of weeks or months during which digestion is good, and if the blood shows a high-color index and large-sized red cells—greatly deformed, abnormally stained and often nucleated—the disease is probably pernicious anemia.

2. *Myxedema.*—A clinical history and picture identical with that of pernicious anemia may be found in myxedema, except as regards to the data afforded by blood examination. The age of the patient, the insidious onset, the good nutrition, the general symptoms of anemia, the digestive disturbances (occasional, not continuous), may be the same in both diseases. But here the blood examination sets us right, for the blood of myxedema is never strikingly similar to that of per-

nicious anemia, but presents the characteristics of other types of secondary anemia, as described in the last paragraph.

3. *Nephritis.*—Only the external aspect of the patient and the general complaints are confusing here. The blood is quite unlike that of pernicious anemia, and the examination of the urine should help us to a speedy differentiation of the two diseases. It should be remembered, however, that pernicious anemia can and often does coexist with a considerable degree of those senile changes in the kidney which receive the name of interstitial nephritis when they become extreme. This coexistence of the two diseases should not be interpreted as anything more than coincidence. The nephritis is in no sense the cause of the anemia, for in the vast majority of cases this type of nephritis runs its course without any anemia whatever.

4. *Cardiac Disease.*—This malady is similar to pernicious anemia only in the symptoms which it presents, and sometimes in the pallor which accompanies it—a pallor due presumably to the imperfect filling of the subcutaneous blood vessels. The absence of any considerable anemia easily distinguishes the two diseases as soon as the hemoglobin test is made.

5. *Myelitis*—Diffuse or patchy sclerosis of the spinal cord accompanies a large proportion of all cases of pernicious anemia. In some of these cases the cord symptoms are so prominent and the symptoms of anemia so mild that the diagnosis of myelitis is made—the anemia being altogether overlooked. The blood examination, however, is usually as characteristic as in the cases without cord symptoms, and if we do not forget altogether to examine the blood the diagnosis is easy. The importance of differentiating simple myelitis from pernicious anemia with cord changes lies in the fact that the latter usually runs a much shorter course than the former.

6. *Parasitic Anemias.*—The fish tapeworm (*Dibothriocephalus latus*) is often carried by an individual without any anemia resulting. In other cases the blood is more or less diseased, and in a considerable group the blood may be absolutely identical with that of pernicious anemia, as has been shown by the minute and careful studies of Schaumann among the Finnish fishermen.

Hookworm disease, on the other hand, while often producing a very severe type of anemia, rarely produces a blood picture similar in all respects to that of pernicious anemia, for in hookworm disease, even when the red corpuscles are reduced to 1,000,000 or less, the color index usually remains low, the corpuscles small or of normal size, palely stained and less deformed than in pernicious anemia. Abnormal staining reactions and the larger types of nucleated red cells are less frequent, while the increase of white cells, and especially of eosinophiles, is usually distinctive.

In both the parasitic anemias just described, however, an examination of the feces is the mainstay of diagnosis, for in cases severe enough to produce a profound anemia the eggs of the parasites responsible for the disease are sure to be easily found.

IV. MYELOPHTHISIC ANEMIA.

As a result of a leukemic overgrowth of white cells in the bone marrow, as in the latter stages of leukemia, the red-cell-forming tissue of the marrow is apt to become so much compressed that a pressure atrophy occurs. As a natural result of this the supply of red corpuscles sent out into the blood stream becomes progressively diminished, and a grave anemia develops. This happens in almost every case of leukemia, both of the so-called lymphatic and the so-called myelogenous type, provided the patient lives long enough for the development of the pressure atrophy above described. In conditions other than leukemia, myelophthisis anemia is not often seen, but a few cases have been recorded resulting from malignant disease affecting the bone marrow.

The diagnosis of this type of anemia must depend wholly on its cause, that is, on the recognition of an overgrowth of cells of one or another variety, which drive the red-cell-forming tissue into a corner. This means in most cases the recognition of the disease leukemia, one of the easiest of all diseases to recognize.

In practical diagnosis, therefore, this type of anemia raises no considerable difficulty; it is here introduced merely because from the point of view of pathogenesis it deserves to be distinguished from the other varieties above described.

V. APLASTIC ANEMIA

Most of the recorded cases of this rare disease have occurred in young girls and have been accompanied by severe purpura. The blood is like that of pernicious anemia, except that the erythrocytes are smaller and rarely contain nuclei, while all the granular varieties of leucocytes are greatly diminished. Postmortem we find fatty marrow in the long bones, with no trace of regenerative effort.

ELEMENTS OF DIAGNOSIS IN ANEMIA.

	Chlorosis.	Pernicious Anemia.	Secondary Anemia in General.	Parasitic (Secondary) Anemia.	
				Due to a Fish Tapeworm.	Due to a Hookworm.
Cause. ..	0	0	+	+	+
History..	Not helpful.	Not helpful.	Very helpful.	Helpful.......	Helpful.
General physical examination.	Not helpful.	Not helpful.	Very helpful.	Eggs in stools.	Eggs in stools.
Blood ...	Small cell type.	Large cell type.	Small cell type.	Large cell type (sometimes).	Small cell type (usually).

SUMMARY AND CONCLUSIONS.

1. In the diagnosis of anemia it is essential to take account of all the facts in the case. The etiologic factors and the data of general physical diagnosis are as important as the hematologic findings. Especially is this true in the types of anemia known as secondary.

2. There are but two important types of anemia, if we are to distinguish by blood examination alone. To the first type (the small cell type) belongs the anemias secondary to hemorrhage, malaria, nephritis and other diseases which lead to increased destruction of red corpuscles. So far as the blood picture is concerned, chlorosis is identical with the types just mentioned. It is distinguished wholly by the absence of etiologic factors and by the age and sex of the patient.

3. Pernicious anemia usually, but not invariably, can be recognized by the blood picture alone. If the data of blood examination are combined with those obtained by a careful history and physical examination the diagnosis is one of the clearest and surest in medicine. The most important single fact in the blood examination is the great reduction in red corpuscles, with a relative increase in the amount of hemoglobin per corpuscle (large cell type of anemia).

4. The parasitic anemias are not always to be recognized by blood examination, but present no difficulties of diagnosis if the eggs of the responsible parasites are sought. Myelophthisic anemia is easily recognized by the evidences of its cause and offers no difficulties in diagnosis.

THE TREATMENT OF ANEMIA.*

S. J. MELTZER, M.D., LL.D.

NEW YORK.

I do not intend to read a paper on the details of the treatment of anemia. All are familiar with the chief measures and remedies employed in this treatment: Iron, arsenic, rest, nutrition, fresh air and other dietary and hygienic measures. As to the particulars, any of the many good text-books will give the desired information. But to do some justice to the task assigned to me, which at a weak moment I have thoughtlessly accepted, I shall discuss briefly some points in the treatment of anemia which, to my mind, mark a distinct progress. I do this with special pleasure, since the underlying work of some of these points was done in this country by men to whom the medical profession of this country owes a debt of gratitude for their continued splendid activities in the fields of science and practice of medicine.

The first point I wish to bring out refers to the progress made in the method of transfusion. In secondary anemias, especially in those following acute or chronic hemorrhages, the best measure of treatment of the anemia would be to replace the lost blood. But a century of attempts to carry out blood transfusion proved futile. Alien blood, or defibrinate blood of the same species, is harmful to the recipient, and the method introduced by Von Ziemssen, namely, the rapid withdrawal of blood by a syringe from the vein of a spender and its immediate injection, without defibrination, into the vein of the receiver, had very little success in practice. The method generally in vogue at present is, as you know, the venous infusion of one form or another of a so-called physiologic salt solution. Obviously these solutions do not replace the essential element of the blood, the red cells.

Within this year, however, the problem of transfusion has been brought nearer its solution by a bound, through the experimental and clinical efforts of George W. Crile. Using the improved technic of Carrel, he established an end to end union between a vein of a donor and an artery or a vein of a receiving animal, thus establishing a transfusion in which the blood of one animal is flowing directly into the vessels of another animal free from the dangers of intermediary manipulations. In a long series of experiments, that surgeon-physiologist has studied the effect of such a direct transfusion on the receiving animal and obtained most gratifying results. Even after complete exsanguination of an animal, with complete stoppage of respiration and with only a barely perceptible auricular heartbeat, a direct transfusion led invariably to a complete recovery of that animal. Crile next tested that method in a desperate post hemorrhagic case of anemia in a human being, brothers lent themselves as spenders, and obtained the same blissful result. In a recent communication before the Society for Experimental Biology and Medicine, Crile summarized his present clinical results by stating that the direct transfusion is a positive cure in all acute hemorrhagic anemias, and that in pathologic hemorrhages not only is the anemic condition invariably benefited but also the hemorrhages themselves are, in most instances, controlled without special treatment.

Permit me to point out that the experiments which that admirable man of Cleveland has carried out on seventy dogs will, undoubtedly, save thousands of human lives, and I feel called on to add that the so-called humane societies, which direct their agitation against animal experimentation and which just now, in their libelous circulars, are dragging the good name of Crile into mire, are engaged in a criminal activity which moral men, and especially physicians, should strongly resent.

The second point I wish to bring out concerns a simple method of treatment of pernicious anemia based on an advance made in the understanding of its etiology. The pathology of this disease, which is also designated as primary or idiopathic anemia, is admittedly obscure, but it was generally assumed that the cause is probably within the blood itself. During the past few years several writers have advanced the view that the disease is caused by an infection or an intoxication from the gastro-intestinal canal. These surmises had not much significance, since no facts were available showing a connection between the anemia and some definite form of infection or intoxication. Recently, however, in a profound and extensive study of the chemistry of the feces and the urine and of the bacteriology of the feces of fifteen cases of pernicious anemia, Christian A. Herter made a discovery that within the intestinal tract of such patients certain specific putrefactions are going on which are caused by the activity of anaërobic bacteria and that the *Bacillus capsulatus aerogenes,* discovered by Welch, is greatly in evidence in the feces of these patients. With the recovery of the patients from their anemic condition the predominance of this anaërobic bacillus in the feces disappears. Here we have a definite, well-established fact that at least in a certain number of cases of pernicious anemia, the anemic symptoms run parallel to the presence of well-defined anaërobic bacteria in the intestinal tract, and are probably caused by them. Among other measures of treatment in these cases, Herter recommends frequent and thorough irrigation of the colon, since it is the chief thriving place of these bacteria. Following this suggestion, Dittmar and Hollis were able to report a few months ago cures in two cases of pernicious anemia by irrigation of the colon which resisted all other methods of treatment. A few years ago Grawitz reported several cures of pernicious anemia treated by lavage, irrigation, restricted proteid diet of animal origin and other merely dietetic measures. It may be that lavage, as well as the restriction of the proteid diet, are unessential to the success. At any rate, the discovery that a good many cases of pernicious anemia are due to intestinal putrefaction, caused by anaërobic bacteria, and that some of these patients can be cured simply by efficient irrigation of the colon, present surely a valuable scientific and practical progress.

The third point I wish to touch on very briefly relates to the rôle of iron in the animal organism and its use in the treatment of anemia.

It is an old, well established clinical observation that inorganic iron is a most efficient remedy in chlorosis. For the last two or three decades, however, its use was opposed to and ridiculed by able physiologic chemists and pharmacologists on the ground that inorganic iron can not be assimilated or even absorbed. The history of the scientific struggle over this subject is very interesting and instructive, but I could not think of entering on it in the brief time allotted to me. I shall only say that, as I believe, the struggle is now decided in favor of the clinical position and that recent pharmacologic writers, at least the majority of them, fully admit that ingested inorganic iron is just as capable of being absorbed and assimilated as the organic iron compounds of the food.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

In connection with the last-mentioned problem, I wish to state briefly my view of the relations of the ingested iron to the iron of the hemoglobin, a view which is based on well established clinical and experimental facts, as we know them at present.

The normal animal body commands a large reserve fund of iron which is far in excess over its immediate requirement. The liver, bone marrow, and especially the spleen, are the main depositories for the reserve iron, where it is preserved in the form of resistant organic compounds, like *ferratin,* for instance. All ingested and absorbed iron, no matter of what character and origin, goes first to one of these depots, where it becomes converted into the organic compounds; The first function of the absorbed iron is, therefore, to increase the iron reserve. The iron requirements of the blood are supplied from the organic compounds of the iron reserve, which becomes then converted into hemoglobin; the ingested iron, no matter of what character, is never utilized directly for the construction of hemoglobin. In normal conditions the iron requirement of the blood is small and presents a comparatively constant quantity, which varies but little with the size of the reserve fund of iron, provided the latter does not sink below a certain limit. The quantity of the reserve iron, on the other hand, is apparently capable of greater variation, but also only within certain limits. The greater ingestion of iron has therefore, in the normal animal, no influence on the conditions of the hemoglobin in the blood, as at best it swells only the iron reserve.

From the point of view presented here the metabolism of iron has certain features in common with the metabolism of carbohydrates. No matter in what form the carbohydrates are ingested, they are always deposited in the liver in the form of glycogen, where it exists in excess over the immediate requirements of the body, and from where the blood is being continually provided, after the conversion of the glycogen into sugar, with an amount just sufficient to keep up a certain constant quantity. Iron then, like the carbohydrates, is stored up in the body in the form of intermediary organic compounds into which all ingested materials are converted and all requirements of the body are drawn on.

In conclusion, I may perhaps be permitted to point out that iron is an indispensable constituent of the animal body and, in conformity with the law governing all other bodily constituents, it is provided in considerable excess over the normal requirements of the organism; in other words, they are provided with factors of safety.

DISCUSSION

ON PAPERS OF DRS BUNTING,* ASHFORD AND KING,* CABOT AND MELTZER.

Dr. Theodore Potter, Indianapolis, said that he has noted the frequency of pernicious anemia in the rural districts. During the last year, for instance, out of five successive patients with pernicious anemia seen in a period of nine weeks, four came from the country. To be sure, the location may have something to do with it. Indianapolis, with its population of nearly 200,000, surrounded by a thriving farming community, has brought to it a good deal of consultation practice from that part of the country. Four out of these five patients came from the country, all men, between the ages of 47 and 55, all farmers. While that proportion is not always the rule, Potter has, for some time, been impressed with the rural prevalence of pernicious anemia. In the medical society it is a common thing to hear reported cases of chlorosis, factory and shop girl's anemia, leukemia, Hodgkin's disease and pernicious anemia, but it is noted that many of the cases of pernicious anemia come from the rural districts.

Dr. A. D. Atkinson, Baltimore, said that he had had a patient with uncinariasis who apparently recovered perfectly. The patient died of pulmonary tuberculosis, four years after treatment for hook-worm disease with thymol, and the autopsy showed no lesion in the intestinal tract.

Dr. Augustus A. Eshner, Philadelphia, declared that the papers read on this subject have done much to sweep away the attempted differentiation between primary and secondary forms of anemia, especially Dr. Cabot's classification. Dr. Cabot makes three tabulations of anemia, but he points out that the blood changes in chlorosis are practically the same as those in other forms of so-called secondary anemias. The distinction between so-called primary and secondary forms of anemia must disappear with constantly increasing knowledge. While some forms are due to obvious causes, others are of more obscure origin. Thus we recognize parasitic and other forms of anemia, but the causes of chlorosis and of pernicious anemia are at present beyond our scrutiny. As pointed out by Dr. Bunting, however, there is a reasonable probability, in a considerable group of cases at least, that the cause is a toxic one. In view of that fact, and especially in view of the blood findings, it seems that it would be wiser to make a classification based on the blood findings rather than on the etiology. Dr. Eshner proposed, accordingly, a division of anemias into qualitative and quantitative. The designation qualitative may be applied to the type of pernicious anemia, in which there is a change in the relation between the number of blood cells and the percentage of hemolglobin, causing a low blood index, while the designation quantitative is applicable when there is a depreciation in both the hemoglobin percentage and the number of blood cells. A given specimen of blood may, of course, exhibit both quantitative and qualitative changes.

Dr. Woods Hutchinson, New York City, said that the more time spent in the study of cases of chlorosis, and the more careful examinations made from every point of view, the fewer cases will be found. He believes that we have been confusing other things with chlorosis, especially incipient tuberculosis. The more the anemias are studied the more will it be found that toxins of some sort played a part in their causation. The motto of a celebrated detective when assigned to a case was "*Cherchez la femme,*" "Look for the woman." In the anemias, our motto should be "Look for the toxin," whether of endogenous or exogenous origin. We may have intoxications set up by bacteria kept as household pets in our own intestines, or we may have toxins which develop from the waste of our own tissues under certain conditions. While the anemias are now divided into primary and secondary, he believes the time will come when primary forms will be abolished and all recognized as secondary. Since Dr. Herter's recent paper, he believes that bacteriologists are now on the track of the particular organism causing pernicious anemia.

In regard to the use of iron he believes that large doses in chlorosis often very considerably improve the condition of the blood, but he deplores the indiscriminate use of iron. It was thus reasoned out in the earlier days: There is hemoglobin in the blood; hemoglobin contains iron; therefore, if the blood is low in color, give iron. But the flaw here is, that although hemoglobin contains iron, it can be split into two moieties, one containing all the pigment, the other none, and the latter contains all the iron. Giving iron will not make pigment.

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*The paper of Dr. Bunting and that of Drs. Ashford and King were published in The Journal August 10.

Another point refers to the dose of iron and the way to give it. The total amount of iron in the body is about 45 grains, and we frequently give 20 or 25 grains a day in Blaud's pill, while the actual amount of iron that can be absorbed is only three-quarters of a grain a day. Moreover, more iron than the body actually needs for its maintenance is contained in the ordinary articles of diet unless these be unduly restricted. The trouble lies in a faulty absorption of iron if anywhere. Dr. Hutchinson believes that if we would study our own cases from the point of the toxins and consider the iron administered as having an effect on intestinal sepsis and putrefaction, we would get better results.

Dr. James K. King, Watkins, N. Y., said that in a few of his cases the blood pressure was very low; in one case it was as low as 40. This was very unusual. He recently saw a woman, 52 years old, in whom had been made the diagnosis of pernicious anemia, according to the most exhaustive examinations. The blood picture of pernicious anemia seemed positive. Every therapeutic measure, including hydrotherapy, vibration, massage, electricity, the various forms of iron, tonics, the red iodid of mercury internally, and hypodermics of the salicylate of mercury had been tried without effect. Colon irrigations were also used faithfully with Kemp's tube for cleansing the bowels, relieving toxemia, aiding in the absorption of food, and stimulating the circulation. No improvement resulted from these various measures. It seemed as though nothing more could be done for her relief. A prominent physician was called from New York, who gave little hope of any improvement. The circulation was so bad and the heart action so weak that she suffered much from dyspnea. At this time saline injections were given twice a day after a thorough irrigation, beginning with eight ounces and working up to a pint twice a day. This amount was allowed to remain after the irrigation. These injections raised the blood pressure, as shown by the readings from the instruments, and also from the physical symptoms, such as pressure, headache, etc. It is now two months since the treatment was begun. The blood pressure has risen from 40 to 80 mm. mercury. The blood count increased from erythrocytes, 1,040,000; leucocytes, 2,340; hemoglobin, 20 per cent.; to erythrocytes, 2,381,000; leucocytes, 3,800; hemoglobin, 43 per cent. She has improved very much in every way, and goes about like other people. After trial with all other things with absolutely no effect on the condition, it was a great satisfaction to see these results from the saline injections. The saline fluid should be retained so that it can be absorbed.

Dr. Allen A. Jones, Buffalo, said that in a series of 8 cases of pernicious anemia that came into his hands since Oct. 1, 1906, in private and consultation practice, one patient was 70 years of age, one 63, another 55, and the rest between 40 and 60, excepting two women whose ages were 33 and 29, respectively. With regard to the blood picture in pernicious anemias, there is the low red cell count, with a change in the color index and the large cell type. Also it is not always easy to find the megaloblasts; he did not think we should rely on the presence of megaloblasts to come to a definite diagnosis of pernicious anemia if other things were present. Before arriving at a positive diagnosis a study of the stomach should be made; in the majority of these cases of pernicious anemia there is found a complete suspension of the secretory function of the stomach, an achylia gastrica. This is so common that Dr. Jones regards it as of considerable value. He spoke of cases, of course, in which he could exclude the secondary anemias. He depends in iron therapy on the use of the Blaud pill, well prepared, in preference to the proprietary preparations. He feels that he loses valuable time if he places his patients for weeks or for months on the proprietary preparations of iron. If one gets a good Blaud pill he will get decided and good results, not only in cases of typical chlorosis, which are rare, but in many cases of secondary anemia. With regard to the treatment of pernicious anemia, occasionally it was his experience to find a patient improve so decidedly under treatment that he continues well for years. Dr. Jones has under observation a woman in Pennsylvania illustrating this point. It is remarkable how she improved under the use of arsenic. Why, he does not know. All physicians are familiar with the marked improvement that occurs in some cases under the use of arsenic.

Dr. Stanley P. Black, Los Angeles, Cal., discussing Dr. Cabot's paper, said he believes that Dr. Cabot is not justified in separating Class 1 into two groups. There is no question in Dr. Black's mind but that all forms of anemia have a cause, and that there is no such thing as a primary anemia. When called primary anemia it is because of our ignorance or inability to find the cause. So *Bothriocephalus latus* anemia and other forms of anemia of toxic nature should be left in the same class; they have the same blood picture. He thought that ultimately the cause of all the anemias would be found. With regard to the physical signs in chlorosis, there is one sign that is frequently present in these cases, a hypoplasia of the genitalia and cardiovascular system. This is frequently found in chlorosis and is an important factor in the diagnosis. There is another type of blood picture that Dr. Cabot has not mentioned, practically a preliminary picture in secondary anemias, the chlorotic type, in which the hemoglobin is reduced, but the red cells are not reduced to the same limit. After severe hemorrhages there is an immediate reduction in the number of red cells; but the hemoglobin falls *pari passu*, the color index being normal. After a certain length of time, the hemoglobin is diminished and we get the same blood picture as in chlorosis. This type is found very often in secondary anemias before they reach the chlorotic stage.

Dr. Abraham J. Hobson, Hampton, Iowa, said that, as a practitioner in a country town of about 3,000 inhabitants, he has been struck with the frequency of pernicious anemia there. In his practice covering a period of twenty years he saw at least 20 cases, and in none of them was there any doubt as to the diagnosis. A careful examination had been made and the diagnosis was based on the blood findings; some had been diagnosed by specialists in Chicago. He has at present three cases in his own practice and two cases seen in consultation. He asked: "Is pernicious anemia more common in Iowa than it is elsewhere in this country?" These five patients are all women, the youngest 35, the oldest 65 years old. All are farmer's wives and well to do, and therefore the anemia could not be the result of starvation.

Dr. Frank Smithies, Ann Arbor, Mich., said that whatever form of anemia presents itself, an exact diagnosis can only be obtained by study of the complete picture—the clinical manifestations as well as the findings from careful examinations of the blood. With regard to the treatment, he wished to lay special emphasis on rest, fresh air and proper diet. By rest, he meant absolute rest in bed, often for a long time. In particularly severe cases, ice bags over the precordia do much to control dilatation and slow the pulse. By fresh air, he means outdoor air, the patients being in the sunshine eight or ten hours daily. They should be carefully protected from the rays, to guard against sunburn. With regard to diet, he has seen many cases in which careful feeding—sometimes by the spoonful, at short intervals—had carried patients over blood crises, where all forms of medication had accomplished nothing. In ordinary cases he has seen the best results come from a rich albuminous diet, with plenty of raw meat and egg. He was glad to note that a previous speaker had mentioned the importance of stomach analyses in anemics. In pernicious anemia especially, he had found achylia common. In these patients, hydrochloric or tartaric acid should be supplied, and in the cases of low motility, lavage should be given. In reference to the finding of low blood pressure which one of the speakers had mentioned, this is so commonly found in diseases not due to anemia that he did not consider it of diagnostic value. He had used the Erlanger apparatus and found that low systolic and diastolic pressures are the rule, but the findings have but rarely been of great value in directing therapy. He, too, had noted the large number of cases which came to Dr. Dock's clinic from the country-side. He had, however, always considered that this was because of the geographic situation of Ann Arbor, rather than that the disease was especially peculiar to farmers. The disease is rarely recognized in the villages and small towns, and consequently the cases drift into institutions or larger cities. He thought, however, that this point might be worth investigating. Perhaps, then, some definite regions of origin might be discovered.

Dr. **Norman Bridge**, Los Angeles, Cal., said that he failed to hear mentioned the one medicament of great value in chlorosis. This drug is pre-eminently valuable in chlorosis as a therapeutic measure capable of increasing the hemoglobin of the blood. It has been shown, and clearly enough, he believes, that iron in many of these cases is of little value. The one drug he had in mind was calomel in tonic doses—not cathartic doses—that is, from 1/50 to 1/30 of a grain, given three times a day. but not oftener. How it works or operates he does not know or pretend to know. But that it has a power vastly greater than the iron preparations in securing good blood and increasing the iron in the blood, there was no question in his mind. It should be given at least a month continuously, and there is, of course. no objection to giving at the same time iron or any better tonic—or all together.

Dr. C. H. **Bunting**, Charlottesville, Va., referred to the multiplicity of the causes of pernicious anemia. Dr. Cabot has divided this type into pernicious anemia and the anemia due to parasites. Experimental work has shown that one may expect to find a multiplicity of causes, because various toxins can be used to produce the same picture in animals. In human pathology, then, one may have a variety of causes producing the condition in the blood which is described as the picture of pernicious anemia. He believes that the great majority of the cases, however, which are recognized as cases of pernicious anemia are due to practically the same cause; this is true, although clinically and pathologically one can not separate the cases which are due to a parasite from those which are due to unknown causes. As to the treatment, there is one suggestion to be made from the pathologic side: Rest, fresh air and diet are very important in enabling the bone marrow to produce and reproduce new red cells. But the essential thing must be the removal of the cause. In the *Bothriocephalus latus* anemias we have a good example of what results when the cause is removed, recovery. Consequently, he believes that we have one certain indication in every case of pernicious anemia, and that is the careful treatment of the gastrointestinal tract.

Dr. **Bailey K. Ashford**, Washington, D. C., said that he approved of Dr. Hutchinson's remarks regarding the influence of iron. Iron is of value in certain cases of uncinariasis in which the recovery is slow; in such cases iron does well. But ordinarily iron is not necessary. As to the possibility of uncinarial anemia being produced by a toxin, we have not yet been able to demonstrate any such toxins, but there are certain facts which might make this probable in uncinariasis. He wished to call attention in this connection to the hyaline degeneration of the arteries of the Malpighian corpuscles of the spleen.

Dr. **Richard C. Cabot**, Boston, said that Dr. Bunting's classification of anemias into primary and secondary is simply a question of convenience; there is the same clinical picture and pathologic anatomy in the anemia from *Bothriocephalus latus* as in pernicious anemia. It is merely convenience that makes us call one primary and the other secondary. Dr. Cabot said that Dr. Ashford's work in Porto Rico is really a campaign against a disease of the whole people, for a considerable majority of the population of Porto Rico have uncinariasis. Now through the energy and honest effort of Dr. Ashford the island is likely to be freed of the disease. Dr. Cabot said that he never hears or speaks of this disease but that he feels the greatest debt of gratitude to Dr. Ashford for what he has done toward saving the population of this island from inefficiency and from disease. In regard to the existence of pernicious anemia in the rural districts Dr. Cabot said that out of 337 cases he has seen, more than two-thirds come from the rural districts; whether a coincidence or not, this certainly is a striking fact. Pernicious anemia will be found to be a common disease in every part of the country if it is looked for. Pernicious anemia is ten times more common than myxedema and five times more common than leukemia. Dr. Cabot has tried saline injections, as he has tried many other treatments for pernicious anemia. Out of the 337 patients with pernicious anemia three are alive, and he does not believe they got well by reason of what he did for them. This fact made him rather slow in accepting anything in the way of therapeutic measures, whether intestinal flushings, or arsenic, or rest, fresh air, which he always gives, or anything else. He has never been able to make up his mind that arsenic does any good.

Dr. **S. J. Meltzer**, New York, said that it is not fair to bring up here the fatal case in Philadelphia as an argument against the value of direct transfusion as a method. The case may prove, if it proves anything, that in certain pathologic states transfusion is inadvisable. Crile, however, introduced the method of direct transfusion primarily for anemias caused by hemorrhages of traumatic origin. In these cases the direct transfusion apparently renders excellent service. The method, therefore, marks a distinct progress in the treatment of anemia, and that is all Dr. Meltzer claimed for it. The celebrated clinician, Niemeyer, is quoted as saying that his success was due to the use of iron in chlorosis. He gave Bland's pills in large quantities. Dr. Meltzer would advise other physicians to do the same, the opinion of some physiologic chemists and hematologists notwithstanding. The history of the pharmacology of iron for the last twenty-five years teaches that, in the practice of medicine, the clear-sighted clinician is very frequently a safer guide for the practitioner than physiologic chemists, some of whom venture to offer positive opinions in fields in which they possess neither theoretical nor practical personal experience.

AN INVESTIGATION OF THE NATURE OF PROTEID-SOAP COMPOUNDS AND OF THE STAINING OF PURE FATS AND LIPOIDS BY SCHARLACH R AND SUDAN III.*

LEON K. BALDAUF, M.D.
ALBANY, N. Y.

These studies were undertaken for the purpose of further investigating certain reactions on which Klotz[1] bases in large part his interpretation of pathologic calcification and which, as his interpretation is not in accord with that reached by Wells[2] and independently by me,[3] are matters of considerable importance in the elucidation of this interesting problem.

The observations in question are those concerning the value of the so-called proteid-soap compounds and of the staining of fats and lipoids by Sudan III and Scharlach R.

PROTEID-SOAP COMPOUNDS.

Klotz, as the result of a series of microchemical examinations of various kinds of calcified tissues, concluded that the deposition of lime in tissues undergoing calcareous degeneration is dependent on the formation of calcium soaps as an intermediate step. He further states that an essential factor in the production of these soaps is the initial combination of a soluble soap and an albuminous substance. He does not assume, however, that this is the essential process in all varieties of pathologic calcification, but states that in exceptional cases there may be two other possibilities: First, "that under certain conditions the calcium salts act directly on the neutral fats present in the degenerating cells."

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* From the Department of Physiological Chemistry, Bender Laboratory, Albany, N. Y. This investigation was pursued under a grant made by the Committee on Scientific Research of the American Medical Association.

[1] Studies on Calcareous Degeneration. I. The Process of Pathological Calcification. Jour. Exp. Med., 1905, vii, 633.

[2] Pathologic Calcification, Jour. Med. Research, 1906, xiv, 491.

[3] Chemistry of Atheroma and Calcification (Aorta), Jour. Med. Research, 1906, xv, 355.

or, second, "that the neutral fats are first broken down into fatty acids and that these react with the calcium salts to form the soaps."

As he was convinced that the combination of soaps with proteid is a necessary intermediate product in certain forms of calcareous degeneration, he attempted to reproduce the reaction in the test tube. To a weak solution of a soap (sodium stearate, oleate or palmitate), a dilute solution of egg albumen was added. In a half hour or longer, at room temperature, a white flocculent precipitate appeared. This he considered to be a combination of the soap and the egg albumen. When this product was treated with Sudan III the same pinkish color, visible in the "soap" granules in tissues undergoing calcification, was seen to be present. The amount of precipitate, he states, is further increased by the passage of carbon dioxid (CO_2) through the solution. Acid calcium phosphate, which does not affect simple solutions of egg albumen, when added to a mixture of egg albumen and soap causes a rapid and dense precipitation.

As microchemical reactions in tissues are notoriously unreliable and controlled only with great difficulty, these reactions in the test tube necessarily formed the basis of Klotz's theory and their explanation is, therefore, of the greatest importance.

The first step in the present investigation was to determine the nature of this precipitate, that is, whether a real combination of proteid and soap does occur, and if not, to ascertain the actual composition of the precipitate. These experiments were carried out with egg albumen and the blood serum of horses. The soluble soaps used were sodium stearate and sodium oleate. In repeating the experiments of Klotz an identical reaction was obtained, that is, on the addition of the soap solutions to the egg albumen or horse serum a flocculent precipitate appeared which gradually increased in amount and reached its maximum at the end of twenty-four hours. In order to determine whether or not this was the result of a true combination of proteid and soap or merely a precipitation of some substance in the mixture, the following experiment was performed: Two lots of 100 c.c. each of horse serum were taken; to one, 100 c.c. of distilled water were added, and to the other 100 c.c. of freshly-prepared 5 per cent. sodium oleate solution. At the end of twenty-four hours a finely granular precipitate was visible in the serum-water mixture, while in the serum-soap solution a copious flocculent precipitate appeared. These were filtered and yielded clear straw-colored filtrates. In order to determine whether or not any combination of proteid had taken place in the soap-proteid mixture, duplicate total nitrogen determinations were made, by the Kjeldahl method, on aliquot parts (5 c.c.) of each of the filtrates. The results were as follows:

TOTAL NITROGEN.

SERUM AND WATER MIXTURE.	SERUM AND SOAP MIXTURE.
20.15 c.c. of $\frac{N}{10}$ acid.	20.15 c.c. of $\frac{N}{10}$ acid.

From these figures it is easily seen that the nitrogen (proteid) contents of both filtrates was the same and that no more nitrogen was thrown out of solution by the soap than by the water alone. This finding is of considerable importance, for if a true combination of proteid and soap had taken place the filtrate obtained after the removal of the precipitate would have contained less nitrogen (an indication of soluble proteid) than the filtrate from the serum-water mixture, where no combination was suspected. As this did not occur, the conclusion is inevitable that the precipitate is not a proteid-soap compound, but must consist of a mixture of other substances thrown out of solution.

In order to throw more light on this reaction, experiments were made to determine the influence of the colloids (globulins, albumins) and salts of the serum and egg albumen in the precipitation of the soaps.

GLOBULINS.

The fact that Klotz emphasized the increased precipitation after the passing of carbon dioxid through the fluid suggested the possibility of the globulins of the serum being the main constituent of this precipitated material. It is a well-known fact that globulins are precipitable from neutral solution on addition of carbon dioxid gas. Globulins, therefore, were prepared from normal horse serum in the usual way (ammonium sulphate method with dialysis). The globulin thus obtained was dissolved in a 10 per cent. solution of sodium chlorid and a small quantity of it added to a weak solution of sodium stearate. Immediately a heavy flocculent precipitate appeared. As a control, however, a 10 per cent. solution of sodium chlorid was added to a solution of the soap, and an apparently identical precipitation occurred.

It was evident, therefore, that the material precipitated in the first instance was not the globulin but the soap. This reaction is analogous to the salting out of soaps in their commercial manufacture. In an attempt to exclude this factor the globulin was put in solution with the smallest possible quantity of salt, but in every case control experiments using solutions of the same strength of sodium chlorid showed an equal and similar precipitation. The only part then which the globulin can play in this precipitation lies in the reaction noted above in which the globulin of the serum or of the egg albumen can be precipitated by the addition of water alone.

INORGANIC SALTS OF THE BLOOD SERUM AND EGG ALBUMEN.

To a weak solution of sodium stearate, an equal quantity of physiologic sodium chlorid solution was added. As control, an equal quantity of distilled water was added to another portion of the sodium stearate solution. At the end of twenty-four hours a precipitate was visible in both tubes, but was more marked, however, in the sodium chlorid solution. In the sodium stearate and water mixture the precipitate was finely granular and, to a certain extent, diffuse, while in the soap-sodium chlorid mixture it was more flocculent and the supernatant fluid slightly translucent.

As a further control, a solution of the normal salts of the serum were obtained as follows: One hundred c.c. of horse serum were added to 400 c.c. of distilled water. The mixture was then boiled and the proteid coagulated by the careful addition of acetic acid. The filtrate, clear and colorless, was then evaporated to dryness to remove the excess of acetic acid and by the addition of distilled water was brought up to the original volume of the serum. A similar solution of salts of egg albumen was obtained after removal of the coagulable proteids. To 10 c.c. of each of the proteid-free solutions 10 c.c. of sodium stearate solution were added. At the end of twenty-four hours a precipitate was visible which, although much finer in appearance, approximately corresponded to the precipitate formed by the addition of the physiologic sodium chlorid solution to the sodium stearate. As the result of these tests it may be stated that while the inorganic salt content of egg albumen or of serum does not probably cause the whole of the voluminous precipitate obtained on addition of soap to the proteid, it is a factor in the production of a small amount of it.

In this connection attention must be called to the calcium content of the egg albumen (1.7 to 2.9 per cent. of the ash) and blood serum (.015 per cent. of the serum). In both of the reactions with these fluids and the soaps this calcium is undoubtedly a factor in precipitating this latter as calcium compounds.

ALBUMINS.

The effect of salt-free albumins was then investigated. These were prepared by dialyzing egg albumen and horse serum for about ten days or until tests for chlorids were negative. In each instance the precipitated globulins were filtered off; in the case of the serum a small amount of water soluble globulin probably still remained in solution. Comparing solutions of albumins so prepared plus stearate soaps with the control solutions of egg albumin and serum albumin respectively in water, at the end of twenty-four hours no difference was visible. In all the tubes a very small amount of a very finely granular precipitate occurred.

These reactions render it probable that the albumins do not enter into the composition of the precipitate which is formed when the soaps react with the egg albumen. In order, however, to exclude the possible factor of the albumin inducing a "colloidal precipitation" experiments were performed with other colloid substances, for instance, gelatin and starch. With gelatin a marked precipitation was apparent with the soaps, but as the admixture of calcium salts with this substance could not be eliminated, solutions of other colloids like starch were tried.

A rather fluid starch paste was prepared. Some of thus was added to equal amounts of egg albumen and blood serum. In both cases a somewhat gelatinous precipitate occurred which was shown to consist of starch. Solutions of starch added to the soap solutions caused a precipitate which was analogous to that produced by water alone. Apparently, therefore, colloids may precipitate starch from solutions as well as soaps, but the reverse does not occur.

Thus far only a small amount of the precipitate has been accounted for. We have shown that the inorganic salts of the serum are responsible to a slight extent in the precipitation of the soaps; the albumins on account of their colloidal nature; possibly also in the same degree, while the globulins enter only slightly into the composition of the precipitate as a result of the dilution of the mixture by the solutions added.

FATTY ACIDS.

The changes occurring in soap solutions suggested the possibility of fatty acids playing a part in the precipitate. For example, a weak solution of sodium stearate or oleate freshly prepared and filtered is translucent and free from any precipitate. When tested with litmus it is alkaline in reaction. If it is allowed to stand for twenty-four hours a granular precipitate in the case of the stearate, gelatinous in the case of oleate, gradually appears.

If the precipitates are filtered off and the filtrates allowed to stand for twenty-four hours a similar precipitate reappears. This precipitate is insoluble in water, but dissolves readily in ether and chloroform. Such a chloroform solution reacts acid to litmus and contains fatty acid. These facts just outlined can be easily explained. Part of the soap on passing into solution undergoes dissociation and hydrolysis with the production of sodium hydroxid (NaOH) and free fatty acid. The mixture, therefore, becomes alkaline and the fatty acid gradually precipitates. This passes into solution in the chloroform.

With these changes in mind, the proteid-soap compounds were examined as follows: A quantity of the precipitate obtained on the addition of a sodium oleate solution to egg albumen in suspension was now shaken up with the neutral chloroform and found to a great extent to be soluble. Tested with litmus, the chloroform reacted acid to litmus and the neutral point was only reached after the addition of a definite amount of a decinormal solution of sodium hydroxid. This observation, therefore, demonstrates conclusively that the major portion of the precipitate which Klotz considers to be a proteid-soap compound is composed of fatty acids.

Fatty acids may also be thrown out of solution on the addition of weak acids. If carbon dioxid (CO_2), which in aqueous solutions is a weak acid, be passed through a solution of soap, a flocculent precipitate gradually separates out, which when taken up in chloroform and tested, reacts acid to litmus. In the formation of the hypothetical proteid-soap compound Klotz emphasized this increased precipitation on the addition of carbon dioxid. He further states that the precipitation is increased by the addition of a solution of acid calcium phosphate. This reaction is, of course, due in part to the precipitation of the fatty acids by the acid solution and also to the formation of insoluble calcium soaps by the addition of a soluble calcium salt.

To summarize briefly: The so-called proteid-soap compound does not exist. The material may be due in small part to a precipitation of the soaps by the inorganic salts of the serum or egg albumen and in small part to globulins thrown out of solution. An equally small part is caused by a precipitation of the soaps or fatty acids by the colloid substances in the serum and egg albumen. The main portion of the precipitate, however, consists of fatty acids obtained from a hydrolysis taking place in the soap solutions.

THE STAINING OF FATTY COMPOUNDS WITH SUDAN III AND SCHARLACH R.

Klotz states that the soaps are ready solvents for Sudan III. He attempts to demonstrate this by making a concentrated aqueous solution of the soap and adding powdered Sudan III. He states that the clear deep red solution which results can be filtered, diluted and, when evaporated to dryness, yields pinkish yellow areas which are distinguishable from the golden-red staining fat. He cites the statement of Fischler, who asserts that Sudan III is soluble in soap solutions, but who further states, however, that the soap when stained with Sudan III rapidly loses its color when treated with 70 per cent. alcohol, the color being transferred to the alcohol. With this latter statement Klotz fails to concur wholly. He admits that this is true in regard to soap solutions in the test tubes, but states that soaps in the tissue are less soluble in weak alcohols. The retention of the stain there, he thinks, is due to the combination of the soaps and proteids already discussed. These observations, in view of our experience with the proteid-soap compounds, demand re-investigation.

Scharlach R and Sudan III are soluble in alcohol, chloroform, ether, toluol, acetone, etc., and in certain fats and lipoids. When added to water no color is imparted to the fluid even at the end of several days. It is generally accepted that the stains are insoluble in water.

SOLUBLE SOAPS.

If to a fairly concentrated solution of sodium oleate which has been freshly made and filtered a small quantity of Sudan III is added, after "thorough mixing," no color is immediately imparted to the fluid. Gradually, however, the solution assumes a pinkish color which, after standing for a while, becomes much deeper. At the end of twenty-four hours the solution is colored a deep red. If some of this solution is shaken with ether or chloroform the color immediately leaves the aqueous solution and is transferred to the chloroform and ether. When tested with litmus the solution reacts strongly acid, and if evaporated to dryness, reddish yellow granules of fatty acid are visible under the microscope.

The colorless condition of the soap solutions immediately after the addition of the Sudan III and the gradual reddening of the mixture must be attributed to the same reaction previously described where the soaps slowly undergo hydrolysis and the fatty acids formed thereby gradually assume the stain which eventually colors the solution a deep red. In other words, the deep orange red color is not due to the soaps which have taken up the stains, but rather to the fatty acids formed by hydrolysis and temporarily held in solution by the soaps.

CALCIUM SOAPS.

To a quantity of the original reddened aqueous solution of the soluble soap a quantity of absolute alcohol was added sufficient to raise it to a 70 per cent. alcohol solution. When this alcoholic solution was treated with a soluble calcium salt, a pinkish white precipitate appeared at the end of twenty-four hours, the supernatant fluid remaining deep orange red. The precipitated substance was filtered off; when dried it appears white and very fluffy in consistence. It is insoluble in water, but dissolves in chloroform when a few drops of a mineral acid are added. The precipitate is, therefore, calcium soap which does not take the stain with Sudan III.

In order to prove this point more decisively attempts to stain calcium soaps were made in another manner. Calcium soaps were prepared by the precipitation of the soluble soaps—sodium stearate and oleate—with a soluble salt of calcium. The collected precipitate was thoroughly washed with water to remove soluble salts and afterward with alcohol to remove traces of fatty acids. In the case of the stearate a finely granular opaque white salt was obtained, while with the oleate compound a rather gelatinous material resulted.

A relatively large quantity of the insoluble calcium stearate was suspended in an absolute alcohol solution of Sudan III. As has been previously shown, calcium soaps are rather insoluble in cold absolute alcohol. The suspended material, now filtered off, appears pinkish white. Washed with absolute alcohol, the pinkish color disappears and is imparted to the wash alcohol. The insoluble soap remains opaque white. The pinkish color of the soaps treated with Sudan III is not due to real staining, but is produced by a mere mechanical mixture of the dissolved stain and the insoluble compounds. Attempts which were made to stain these soaps by methods outlined below were also fruitless.

NEUTRAL FATS AND LIPOIDS.

It was deemed extremely important to determine if Scharlach R and Sudan III could be used as differential stains for the various fats and lipoids. Several methods of demonstrating this were tried. For example, the examination of frozen sections of colloids (gelatin, celloidin) and of various fresh and dehydrated animal tissues impregnated with solutions of the fat and lipoids to be examined. These methods were abandoned in favor of the following, which seemed to be more applicable to the problem:

To solutions of fats and lipoids Scharlach R and Sudan III respectively were added. The resultant clear solution was thrown into water and the fats precipitated out of their original solution. This method we considered relatively successful because of the ease with which the stained fat can be separated from the solvent. While the fats are fairly soluble in alcohol and ether, they dissolve much more readily in chloroform, which is also an excellent solvent for Sudan III and Scharlach R. Chloroform also will not mix with water, that is, it is insoluble in that liquid.

If, therefore, a chloroform-Sudan III solution of a fat is added to water the fat will precipitate out, so will the chloroform, although both may be colored red, the fat rises to the surface of the fluid while the chloroform settles to the bottom, allowing an easy differentiation. The chloroform, however, must be removed by evaporation with heat before one may say definitely that the red globules are the fatty compound and not the chloroform. In this method a portion of stain remains adherent to the floating fat, while most of the insoluble stain is suspended through the fluid. It is necessary, therefore, that this fat be not filtered, but skimmed off, redissolved in the solvent and reprecipitated several times in order to be certain that the red color is due to the fat alone and not to any of the insoluble stain which may have been accidentally caught in the suspension. This method, although a cumbersome one, has been found most excellent for determining the staining power of various fats and lipoids. The same method may be used when alcohol is employed as a solvent.

In his original communication Klotz expresses a preference for Sudan III, for while he found that Scharlach R stained more intensely, staining with Sudan III was more satisfactory in that the precipitation of crystals from the saturated solution was more easily obviated. In the method which I adopted this difficulty was not encountered. Scharlach R and Sudan III were used interchangeably. No differences were noticeable in fats and lipoids stained with either Scharlach R or Sudan III except differences which would distinguish the original alcohol solutions. Scharlach R stains fats more intensely, the red being much deeper and more pronounced. Fats stained with Sudan III assume more of a deep orange-red color. The staining of fats by these dyes is dependent on the fact that these dyes are more soluble in the fats than in the solution in which they are originally dissolved.

FATTY ACIDS.

Pure oleic, palmitic and stearic acids were employed in the following experiments:

Oleic Acid.—To a definite quantity of oleic acid a small amount of Sudan III in substance was added; solution occurred immediately and the liquid oleic acid was colored a deep red. This color was much more intense than that of the saturated 70 per cent. alcoholic solution. When the oleic acid was filtered into distilled water it separated as deep red opaque globules. Repeated solution and reprecipitation failed to cause the acid to lose its deep red color.

Palmitic Acid.—The acid was dissolved in absolute alcohol and Sudan III added. The solution was now filtered into distilled water. The acid thrown out of solution was not nearly so deeply tinted as the oleic acid and appeared light red in color. If the fluid on which this reddish fatty acid material was floating is heated to about the boiling point the fatty acid melts into globules which take on an intensely red color exactly similar to that obtained when the stain was dissolved in the oleic acid. On cooling the acid separated out as firm red globules. This material collected and redissolved in absolute alcohol was filtered again into distilled water. The fatty acid which now separated out appeared almost white, the slight pinkish color being due to the color of the fluid in which it was suspended. If, however, pure palmitic acid is heated to its melting point and a few particles of the Sudan III are added the acid dissolves the stain and the fluid takes on the deep red color which was noticed in the case of the oleic acid.

Stearic Acid.—The same results were obtained with this acid.

CHOLESTERIN.

This substance obtained in pure form from gallstones was treated by the same method. The first precipitate appeared deep red, but further solution and re-precipitation removed all the color until the final material was almost a pure white. If cholesterin is raised to its melting point and Sudan III in substance is added the fluid cholesterin dissolves the stain and takes on the same deep red color noticed with the oleic acid and fluid palmitic acid. This indicates that only when cholesterin is in a fluid state will it take the stain.

NEUTRAL FATS.

Neutral fats were obtained from both mutton and beef suet. Treated in a manner similar to the other fats, the neutral fluid or semi-fluid fats retained their deep red color after repeated precipitations.

LECITHINS.

Lecithins were prepared from the yolks of eggs and from brains dehydrated with dried calcium sulphate. A quantity of egg lecithin dissolved in a chloroform solution of Sudan III was added to water. The deeply red-colored chloroform fell to the bottom of the vessel. On removal of the chloroform by heat over a water bath, the stain came out of solution and suspended itself in the fluid; the lecithin, on the other hand, assumed a swollen pasty condition like a stiff emulsion which retained a distinct salmon-yellow color. This gelatinous material, which could be lifted out of the solution on a stirring rod, was transferred to fresh amount of distilled water, in which it then dissolved, coloring the aqueous fluid a light yellow pink.[4] This indicates that lecithin in solution has the power to stain feebly.

In a second experiment with lecithin a quantity of a chloroform solution obtained from dehydrated brain was added to Sudan III solution. The filtered solution was allowed to evaporate spontaneously and the residue examined under the microscope. Everywhere orange-red globules (lecithin) were interspersed among a yellowish granular material. Lecithin stained with Sudan III, after impregnation in gelatin, also took a salmon-red color. It is obvious, therefore, that lecithin in substance, like the neutral fats, will take and retain the stain.

From these observations it may be concluded that the staining of solutions of the soluble soaps by Sudan III is due to their hydrolysis into fatty acids in which bodies Sudan III and Scharlach R are soluble and which are, therefore, colored by them.

After repeated solution and re-precipitation oleic acid and the neutral fluid fats stained by Sudan III retain their original deep red color. Palmitic and stearic acids and cholesterin, on the other hand, become decolorized by this process and, therefore, can not be stained by these bodies. Lecithin gives a salmon-red color when stained with Sudan III. This is interesting because it places lecithin, so far as staining reaction is concerned, between the fluid fats and the soaps and solid fats.

According to Michealis,[5] the staining of fats by Sudan III is purely a physical and not a chemical process, but he admits that the physical properties of a body depend on its chemical character. He considered the union between Sudan III and oleic acid a physical one depending on the property of the unsaturated fatty compound in becoming oxidized. While this may be an explanation for the retention of the stain by the oleic acid, neutral fats and perhaps lecithins containing oleic acid radicals and the non-retention by the palmitic and stearic acids, the fact that other crystalline lipoids like cholesterin act similarly to the crystalline fatty acids suggest that the question as to the staining of the substance depends on its physical condition entirely.

This is particularly emphasized in the experiments with palmitic and stearic acid and cholesterin, where it was shown that when these substances were transformed by heat to their fluid condition they dissolved the stain immediately. On return to their solid state, however, they refused to retain the dye. Again those fatty compounds which at room temperature are fluids or semi-fluids are those which hold the stain even after repeated solution and reprecipitation.

This explains the cause of the discrepancies in the statements of various authors[6] as to the staining of fatty acids with Sudan III or Scharlach R.

It is believed that the results obtained warrant the statement that only those compounds of a fatty nature take these stains when they possess the physical characteristics of a fluid or semi-fluid at room temperature; other substances which allow of liquefaction by increase of temperature also react to the dye when in their fluid state. Such substances are butyric acid, oleic acid, triolein, tributyrin and lecithin. Palmitic and stearic acids and their neutral glycerids and cholesterin come into this group when the temperature is above their melting point.

The results show that neither calcium nor sodium soaps, palmitic nor stearic acids will at room temperature take the stain with Sudan III or Scharlach R, hence the material staining by these substances which Klotz described as occurring at certain stages in calcareous degeneration can not be any of these compounds. In all probability it is a mixture of oleic acid, triolein and lecithin. This agrees with the findings which I have reported as a result of the chemical analysis of aortas in various stages of calcification.

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[4] Koch: Zeit. f. physiol., Chem., 1903, xxxvii, 181.

[5] Ueber Fett Farbstoffe, Archiv. f. Path. Anat. und Physiol., 1901, clxiv, 263.

[6] Daddi (L.): Nouvelle méthode pour colorer la graisse dans les tissue, Arch. Ital. de Biol., 1896, xxvi, 142; Rieder (H.): Ueber die Verwendbarkeit des Farbstoffes Sudan III in der klinischen Mikroskopie, Deutsch. Arch. f. klin. Med., 1897, lix, 444; Handwerck (C.): Beiträge zur Kenntniss vom Verhalten der Fettkörper zu Osmiumsäure und zu Sudan, Zeitschr. d. Wissensch. Mikroskopie, 1898, xv 177.

GENERAL CONCLUSIONS.

1. The so-called proteid-soap compound of Klotz is not a true chemical combination, but a mixture made up mainly of fatty acids with small amounts of calcium soaps and globulin.
2. Sudan III and Scharlach R stain substances of fatty nature only when they are in fluid or semi-fluid. As oleic and butyric acid, triolein, tributyrin and lecithin are in this state at room temperature, they form a group to which must be limited the application of microchemical methods.

THE METHOD OF DETERMINING THE TOTAL AMOUNT OF THE FECAL BACTERIA BY WEIGHT AND ITS CLINICAL SIGNIFICANCE.*

J. DUTTON STEELE, M.D.
Associate in Medicine, University of Pennsylvania. Bacteriologist to the Presbyterian Hospital.
PHILADELPHIA.

The most accurate method of estimating the total amount of bacteria in the feces is that devised by Strasburger,[1] which determines the actual dried weight of all the bacteria whether living or dead.

Attempts to form an idea of the proportion of bacteria in the feces by plating a given quantity and then counting the colonies is inaccurate for several reasons—principally because a large proportion of the intestinal flora die in their passage through the colon and only a relatively small number of micro-organisms can be cultivated from the stool. Moreover, the different portions of a stool are far from homogeneous, and what is true of one portion will not be true of another.

It must be remembered that results obtained by Strasburger's method are entirely quantitative. No distinction is made between the putrefactive and fermentative bacteria, but the whole bulk of the intestinal flora, living and dead, is measured. Which form of bacteria predominates must be ascertained by other means, chiefly by cultivation, although Ehrlich's aldehyd reaction and the reaction of the feces to litmus may be of some assistance.

Through the use of Strasburger's method various facts have been determined concerning the intestinal bacteria, of which many are new and some are at variance with the received ideas of the physiology of the intestines.

DIET AS A FACTOR.

The diet is probably the most important factor in determinating the amount of bacterial growth in the intestines. Foods that are easily digested and well absorbed comparatively early in their passage through the gastro-intestinal tract leave little or no residue on which the bacteria can live—consequently under such a diet the bacterial count will be low under almost any circumstance. When the diet contains foods which are hard to digest and in which the residue is large the reverse is the case. Consequently the sort of diet must always be taken into consideration in interpreting the amount of fecal bacteria. This is easily seen in Table 1, consisting entirely of normal cases. The following is a summary:

Full home diet gave 18.1 to 20.5 per cent. bacteria.
Full hospital diet gave 18.2 to 21.1 per cent. bacteria.
Semi-liquid hospital diet gave 15.6 per cent. bacteria.
Milk diet gave 13.2 per cent. bacteria.

The great influence that diet has on the intestinal bacteria suggests that the best remedy for excessive bacterial action in the bowel is modification of the diet.

TABLE 1.—NORMAL CASES.

Sex and Age.	Diet.	Stool.	Per Cent. Bacteria	Grams per Diem.	Length of Observation.
1. Male; 38 yrs.	Full home diet	Formed: alkaline; brown.	20.5	7.4	6 consecutive days.
2. Same case...	Same..........	Same..........	18.1	7.4	4 consecutive days.
3. Male; 30 yrs.	Full hospital diet.	Formed; alkaline.	19.1	....	2 consecutive days.
4. Same case...	Milk diet; 2 qts. daily.	Formed; alkaline; brown.	13.2	....	2 consecutive days.
5. Female; 45 yrs.	Semiliquid hospital diet.	Formed; alkaline.	15.6	2.2	3 consecutive days.
6. Male; 30 yrs.	Full hospital diet.	Formed; alkaline.	21.1	4.9	Same.
7. Female; 40 yrs.	Full hospital diet.	Formed.	18.2	2.7	Same.

NATIONALITY AS A FACTOR.

The percentage of bacteria in the feces of American subjects taken from hospital patients and normal persons of the more prosperous class—professional men and private patients—is lower than that given for Germans by Strasburger, who says that he finds that a quarter to a third of the dried weight of the stool is bacteria. This difference in our results is probably to be explained by the fact that the diet is not the same in the two countries. Further investigations in America may show that classes of society who employ coarse foods may show a higher percentage of bacteria. In any event, the proportion of bacteria in the feces is probably higher than has been usually supposed, and this must be considered in estimating the total nitrogen of the stool. The presence of bacteria would furnish an amount of nitrogen that would lead to very confusing results in metabolic work unless the amount of bacteria present was determined and allowances made for this source of error.

BACTERIAL INCREASE.

The bacteria of the feces are *increased:*

1. In conditions in which there is excessive bacterial growth in the stomach, such as achylia with diarrhea; one such case showed 38 per cent. The great influence of a modification of diet in restricting bacterial growth under these circumstances is shown by a case of carcinoma of the pylorus with partial obstruction in a woman of 60 years. There was a great amount of putrefactive and fermentative change in the stomach, with considerable retention but not complete obstruction. Notwithstanding the number of micro-organisms that must have escaped into the bowel through the pylorus, the bacteria in the stool were but 3 per cent., showing that not enough food material came through the pylorus to per-

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

* From the Clinical Laboratory of the Presbyterian Hospital in Philadelphia.

[1] Strasburger: Ztschr. f. klin. Med., 1902, xlvi, 5 and 6; 1903, xlviii, 5 and 6.

mit of much bacterial growth in the bowel. Later, when the pylorus became more patulous (probably through the separation of a slough) and the retention disappeared, the bacteria rose to 22 per cent.

2. In two cases of hyperacidity—one with diarrhea—the bacteria went as high as 28.5 per cent. on a hyperacidity diet containing a large proportion of proteid and fat and consequently with little residue. I believe this represents a high proportion of bacteria for such a diet. This increase in bacterial growth in hyperacidity may be due to insufficient digestion or to the chemical irritation of the excess of HCl. The reason why a chemical irritant, that is in itself an antiseptic (as HCl), may be associated with abundant bacterial growth in the intestine may be explained on the assumption that the normal intestine has a certain power of self-protection against bacteria. Whether this power lies in the intestinal wall, as suggested by Schütz,[2] or in the antagonism that the colon bacilli of the bowel offers to excessive growth of other micro-organisms (Herter[3]), I do not know. But there seems to be good reason to believe that the normal intestine does possess some such protective power and that anything that interferes with the normal functions of the bowel will probably disturb this inhibitory property. Consequently an excess of HCl may favor bacterial growth for the reasons just given.

3. Poor starch digestion in one case gave 27 per cent. When the starch of the diet was reduced in quantity to one-half of what it had been the bacteria fell to 14 per cent. The reaction of the stool in this case was strongly acid.

4. The bacteria were increased in one case of chronic cholecystitis to 38 per cent. (full diet). One case of gumma of the pancreas gave 22 per cent. (liquid diet). Both of these diagnoses were confirmed by operation; two cases of intestinal indigestion showed high percentages of bacteria.

5. The growth of the intestinal bacteria is increased by the administration of various so-called intestinal antiseptics.[4]

BACTERIAL DECREASE.

The fecal bacteria are decreased in amount:

1. In diets leaving small residues, for reasons given above.

2. In uncomplicated constipation usually spoken of as atonic. Schmidt and Strasburger have shown that in uncomplicated constipation the ingested food is too thoroughly absorbed in its passage through the gastrointestinal tract, consequently very little residue is left on which the intestinal bacteria may grow, and as a result the proportion of bacteria in the feces is reduced to 10 per cent. or under. Schmidt suggests that the products of bacterial action, such as gases and various aromatic substances, may be necessary stimulants for the normal activity of the intestinal muscles, and when this is absent constipation results. I am inclined to agree with Schmidt that certain forms of constipation may be caused in this manner. Other cases of constipation showed no diminution but an increase of bacteria (Table 2).

3. The intestinal bacteria are not increased in jaundice. If the older idea and teaching was true, namely, that bile is an antiseptic and that one of its functions is to prevent excessive bacterial activity in the intestine, then we would expect the bacteria to grow more luxuriantly when bile is absent from the intestine. This is not the case, however. In one case of gallstones and jaundice the bacteria were much diminished (see Table 3, Case 1). Strasburger says that in his cases of simple jaundice the bacteria were very low. I am inclined to believe that the reduction in the bacteria in jaundice occurs because the diet is usually reduced in such conditions and not because the absence of bile inhibits bacterial growth.

TABLE 2.—INTESTINAL BACTERIA INCREASED.

Age and Sex.	Clinical Diagnosis.	Date.	Diet.	Stool.	Per Cent.	Grams per Diem.
1. Female; 25 yrs.	Hyperacidity 56-34; very constipated; gastroptosis and dilatation.	Oct. 26.	Eggs and milk.	Hard; scybalous.	28.3	
2. Female; 35 yrs.	Achylia with diarrhea.	Oct. 26.	Light mixed diet.	Badly digested; lumpy; soft.	30.4	
		Oct. 27.	Same....	Same..........	20.7	4.1
		Oct. 30.	Same. ...	Same..........	38.0	5.4
		Oct. 31.	Same....	Liquid.........	30.2	
3. Male; 48 yrs.	Chronic cholecystitis; operation; anacidity; no jaundice.	Nov. 7.	Schmidt.	Formed.........	32.3	
		Nov. 8.	Same. ...	Same..........	20.0	
4. Male; 45 yrs.	Poor starch digestion; neurasthenia; hyperacidity; starch reduced ½.	Feb. 4.	Hyperacidity.	Foul; liquid; acid.	27.0	
		Feb. 8.	Starch reduced.	Neutral........	14.0	
5. Female; 50 yrs.	Abdominal pain and flatus.	....	Full home diet.	Formed and brown.	26.4	3.4
6. Male; 30 yrs.	Gumma of pancreas; operation; no jaundice.	....	Milk; toast; oatmeal.	Brown, formed, neutral, offensive. Bile slight. Fat not noticeable.	22.1	4.05

TABLE 3.—BACTERIA DECREASED.

Age and Sex.	Clinical Diagnosis.	Diet.	Stool.	Per Cent.
1. Male; 52 yrs.	Gallstone colic; jaundice; all symptoms mild.	Milk and eggs.	White; pasty; acid; much fat; no bile.	2.0
Same......	Still jaundiced........	Full diet	Alkaline; brown; bile present.	10.5
2. Female; 25 yrs.	Chronic constipation; period of passage 48 hours; "atonic constipation."	Schmidt.	Brown; formed; hard; microscopically no food remnants.	9.82

4. Certain intestinal antiseptics reduce the growth of the intestinal bacteria decidedly. In my own experience this result has been obtained by the use of bismuth salicylate and betanaphthol given by the mouth in normal persons. Because this result was obtained in normal individuals it does not necessarily follow that the same result would be obtained in cases in which the functions of the intestines are disturbed. Indeed, as I have said, it has been the experience of others as well as myself that various antiseptics given under such circumstances increase rather than diminish the growth of the intestinal flora.[5]

THE TECHNIC OF THE METHOD.

The possibility of separating the bacteria from the rest of the feces depends on the fact that the bacteria are so nearly of the same specific gravity as distilled water that they can not be centrifugalized out of a watery suspension of the feces, but remain suspended in the supernatant fluid. Taking advantage of this, the bacteria can be removed by washing with the centrifuge. Then if the specific gravity of the wash-water is lowered by the addition of large amounts of alcohol the relation of the bacteria to the fluid is changed to such an extent that the micro-organisms can be readily centrifugalized out, separated, dried and weighed.

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[2] Schütz (R.): Archiv. f. Verdauungskrank., 1901, p. 58.

[3] Herter: Bacterial infections of the digestive tract, New York, 1907.

[4] Steele (J. Dutton): Experimental Observations on the Value of Intestinal Antiseptics, Trans. of Assn. of Am. Phys., 1907.

[5] Schmidt and Strasburger: Fæces des Menchen, second edition, Berlin, 1905, 4; also Steele loc. cit.

Unless the period of passage of the feces has been ascertained to be normal it is better to mark the beginning and end of each period of examination by carmin. The use of the Schmidt diet is not necessary. Indeed, I have found that this diet is not desirable because it leaves very little residue and so of itself reduces the total amount of bacteria to a lower point than that which is usually found.

The whole stool is saved. Unless the feces are liquid they are rubbed up with a known amount of distilled water until they are smooth and semiliquid and as homogeneous as it is possible to make them. This is a modification of my own, intended to make it easier to obtain a specimen of the stool that is fairly indicative of the average amount of bacteria contained in each cubic centimeter. Strasburger takes out but 2 c.c. of the formed feces. It seems to me that since the different portions of the stool differ so in consistency and composition this method of Strasburger leads to considerable error. I believe that this modification insures a much more accurate idea of the total bacterial content of the stool.

Two portions of 5 c.c. are measured off with a pipette of large caliber. I use for this purpose an ordinary 5 c.c. pipette with the tapering end cut off and with the necessary correction made at the upper mark. One of these portions of 5 c.c. is put into a porcelain dish and dried over a water bath and later in a drying oven in order to determine the dried weight. The addition of a little alcohol and thorough mixing will hasten the process of drying and prevent caking of the feces.

The second portion is washed free from bacteria. This is done as follows: The wash-water is 0.5 of 1 per cent. HCl solution in distilled water. The acid increases the solubility of the salts and soaps of the feces. I usually employ about 100 c.c. of this solution at the beginning of the washing. The feces are thoroughly mixed with the wash solution and then centrifugalized. The use of the water motor or electric centrifuge is almost essential. Each tube is centrifugalized for about one and one-half minutes, then the cloudy supernatant liquid is poured through a layer of gauze. This fluid contains the bacteria in suspension. All of the mixture (the wash water and the feces) is centrifugalized the same way and then the residue in the tubes is shaken up with more of the wash water and centrifugalized again. This is repeated until the supernatant liquid after the centrifugalizing is transparent, showing that approximately all the bacteria has been washed out. If a smear is made of the residue at this point it will be found that the bacteria are not entirely washed away, but are evidently very much reduced. They occur singly, while in the unwashed feces they are in great lumps and masses. I do not believe that it is practicable or even possible to wash the feces entirely free of micro-organisms.

Strasburger recommends that the wash water be centrifugalized for a short time at high speed in order to remove any stray particles of solid residue from the suspension of bacteria. I believe this is a mistake, for if the decanting is carefully done in the first instance then, in my experience, the sediment obtained with the second centrifugalizing is composed almost wholly of bacteria which would be lost if this part of the procedure was always carried out. The suspension of bacteria is then mixed with a liberal portion of alcohol and evaporated down slowly at a temperature of 40 to 50 C. until it amounts to not more than 50 c.c. in all. This takes approximately twenty-four hours. It is then mixed with at least twice its volume of alcohol, preferably absolute alcohol, although this is not absolutely necessary. This lowers the specific gravity of the fluid to such an extent that now the bacteria readily centrifugalize out.

The mixture is then centrifugalized until the supernatant liquid is quite clear. This make thirty minutes or more for each tube. The residue, which consists of the bacteria, is washed with pure alcohol and is shaken up with ether to remove the fat; then it is again washed with alcohol. All of this washing is done by means of the centrifuge. The bacteria are next washed out of the tube with a little alcohol and evaporated to dryness and dried in the oven at moderate heat, dried in the desiccator and weighed. Smears of the final preparation show that it consists of bacteria with a very few minute particles of other material. These particles are only visible with high power and are very few in number, perhaps two to each field of the 1/12 objective. They stain with methylene blue, and Strasburger suggests that they are cellulose, which they may well be. At any rate, the error arising from the inclusion of these small particles in the dried weight of the bacteria must be very small and is probably balanced by the bacteria that it is not possible to wash out of the residue in the first washing. During the preparation of the bacteria the first portion of 5 c.c. has been dried and weighed. We then know the dried weight of 5 c.c., the weight of the dried bacteria in 5 c.c., the original volume of the stool and the volume after the addition of a known amount of water. It is then easy to calculate the data that we desire, namely, the volume of the stool, its dried weight, the weight of the dried bacteria and the percentage of bacteria in the dried weight.

DISCUSSION.

Dr. Mary Gage-Day, Kingston-on-Hudson, N. Y., asked concerning Dr. Steele's experiments with intestinal antiseptics, which antiseptics increased the bacteria. She said that, since one is apt to give antiseptics to check fermentation, it is a practical point to avoid those which Dr. Steele found to increase the bacteria.

Dr. J. Dutton Steele, Philadelphia, said that the question of intestinal antiseptics is confusing, because no systematic work has been done on it. In all the medical literature on the work that has been done with these antiseptics, using either this method or counting, Dr. Steele said that he found only two antiseptics mentioned as apparently decreasing the bacteria, and they are salicylic acid and bismuth salicylate. Given to normal people they caused a decided diminution of the fecal bacteria. In one of Dr. Steele's cases in which he gave betanaphthol, the bacteria were found to be doubled, and that is in accord with the results obtained by men working in Germany, particularly, who gave intestinal antiseptics.

Pityriasis Rosea.—Aronstam, in the *Medical Fortnightly*, states that this disease resembles intimately ringworm of the body, presenting, however, larger crescentric and circinate lesions than ringworm. The macules look yellow, do not exhibit an inflammatory zone nor vesiculation at the margin; they are but slightly scaly, and as a rule invade the trunk in preference. They are non-parasitic and disappear under indifferent medication within about two weeks.

DIFFUSE CARCINOMA OF THE STOMACH, ESOPHAGUS AND DUODENUM.*

HENRY A. CHRISTIAN, M.D.
Physician-in-Chief to the Carney Hospital and Assistant Professor of the Theory and Practice of Physic, Harvard University.
BOSTON.

The most common form of carcinoma of the stomach is the one presenting a more or less sharply demarcated tumor near the pylorus. Less frequently there is simply a diffuse thickening of the stomach wall with not very sharply defined margins. Occasionally the latter type involves almost the entire extent of the stomach, causing a diffuse thickening of the stomach wall. The former type usually has an ulcerated surface; in the latter often the mucosa remains intact. When there is a very extensive involvement of the stomach in a diffuse growth the term "leather bottle stomach" has been applied, and it is not an inapt descriptive term. Such cases are uncommon, and it seems worth while to place another on record, especially since in this case a large extent of both esophagus and duodenum in addition to almost the entire stomach were involved.

Patient.—L. K., aged 62, was admitted Jan. 23, 1906, to the Massachusetts General Hospital, in the service of Dr. R. H. Fitz, by whose permission I report the case.

History.—Family and past history negative in so far as concerns the present trouble. Habits good, neither tobacco nor alcohol indulged in.

History of Illness.—For the past three months the patient had had what he termed "stomach trouble," with a full feeling after eating small amounts. For two months he had had pain in the epigastric region. At first there were eructations of gas, now very slight. There has been no nausea, but food regurgitated easily for a time after each meal. This latter condition became less marked. The pain continued and grew worse. Vomiting occurred frequently from five minutes to one-half hour after eating. Vomitus was not large in amount and had not been observed to contain food eaten the day before. There had been no evidence of blood in the vomitus. Appetite poor; patient said he thought he vomited from one-third to one-half of what he ate. Bowels constipated since onset of present illness. Dejecta formed, firm, not ribbon like. For two weeks he had been short of breath and feet and legs had been swollen. He had passed but little urine for ten days. He drank little water, however. He urinated two or three times at night. For six or seven years he had had bleeding piles. The patient thinks that he has lost much weight and grown very weak during past three months.

Physical Examination.—A large framed, emaciated man with skin dry and slightly rough, mucous membranes slightly pale, pupils normal, tongue moist and clean, throat negative, heart not enlarged, no murmurs, radial and brachial arteries thickened but not beaded. Pulses synchronous, regular, slow, good volume, fair tension and regular size; veins of arms and chest visible and prominent. Lungs: no dulness, few medium moist râles in both lower backs. Abdomen full and moderately distended, with a few bluish distended veins extending upward on the chest wall. Flatness in the flanks and in the lower portion of the abdomen up to within two inches of the umbilicus, shifting on turning from side to side, and with a slight fluid wave. Moderate tenderness in the epigastrium, especially just below the ensiform and also in both hypochondria, but more in the right. No palpable masses. Circumference of abdomen at umbilicus, thirty-three inches. Liver flatness beginning at sixth rib and extending to costal margin; edge not palpable. Splenic dulness 2x3½ inches, edge not palpable. Kidneys not palpable. A few pea and bean sized glands in groins, axillæ and neck. Moderate edema of ankles and legs up to knees. Urine: slightest possible trace of albumin with an occasional epithelial cell and rare hyaline cast.

Lavage and Test Meal.—Stomach tube was passed down for fourteen inches, where it met an obstruction and could be passed no further. A large catheter was then used, which passed the obstruction and about one ounce of yellowish liquid was removed. There were no signs of blood. An Ewald test meal was given and after one hour removed by means of the catheter. The stomach could hold nineteen ounces of water, of which fifteen ounces could be recovered. Inflation showed the lower border to lie two and one-half inches above the umbilicus. The residue from test meal showed no free hydrochloric acid with Congo red or Töpfer's solution. There was a weak reaction for lactic acid. The guaiac test for blood was negative. Total acidity was 0.2 per cent. Stool showed no blood by the guaiac test and was otherwise negative.

Course of Disease.—January 30, an increase in abdominal fluid was noted. Swallowing was difficult and only liquids and soft toast were taken. Patient vomited occasionally, but the vomitus was not bloody.

February 3, abdominal circumference thirty-five and one-half inches. Much discomfort, especially at night. Patient continued to grow weaker until he died February 10.

Autopsy (M. G. H., No. 1596).—Examination of body 18½ hours later, by Dr. Oscar Richardson, showed a well developed, emaciated old man. The peritoneal cavity was filled with thin brownish red fluid, but the peritoneum was smooth and glistening. The anterior margin of the right lobe of the liver lay 3 finger breadths below the costal margin in the right mamillary line. The right pleural cavity contained a slight amount, the left a considerable amount of brownish red fluid. The peribronchial lymph nodes were enlarged and on section showed here and there rather large areas of grayish yellow homogeneous tissue. Lungs, pericardium, heart and liver were not abnormal. The gall bladder, which was free from stones, was distended and was slightly distorted by adhesions about it, which bound it to the intestine. The common bile duct was free, but just above where it extended along the wall of the duodenum it was slightly dilated and where it coursed along the pancreas and in the wall of the thickened duodenum it was slightly narrowed. Pancreas, spleen, adrenals, kidneys, bladder, prostate, seminal vesicles and testes appeared normal.

The wall of the esophagus, beginning at a point about at the level of the bifurcation of the trachea, was moderately thickened along its course down to the stomach. The wall of the stomach was thickened and measured at the pyloric end, where it was thickest, about 1.5 cm. The wall of the duodenum for a distance of 4 or 5 cm. was similarly thickened. The stomach as a whole was thickened, and the thickening was diffuse in character, although a small portion (about size of end of thumb) of the cardia to the left of the esophageal orifice was of about normal thickness and character. On section the increase in the thickness of the wall of the esophagus, stomach and duodenum seemed to be principally in the region of the submucosa, where the tissue was homogeneous, firm, gray-white in color. The mucosa of the stomach in several places was slightly thickened and rounded up over the thickened submucosa.

The retroperitoneal lymph nodes along the aorta and pancreas were enlarged and on section their tissue was firm, grayish and homogeneous. The peritoneum along the lesser curvature showed grayish, thin, plaquelike areas. Cultures from heart showed *Streptococcus pyogenes*, from the liver *Streptococcus*, *Staphylococcus aureus* and *Bacillus coli*.

Anatomic Diagnosis.—Carcinoma of stomach with extension into the esophagus and into the duodenum; metastases in retroperitoneal and bronchial lymph nodes and in lung (microscopic); chronic pericholecystitis; ascites; hydrothorax; slight arteriosclerosis; streptococcus septicemia.

Microscopic Examination.—Portions of the esophagus, stomach and duodenum show a diffuse infiltration with cancer. All portions of the wall of these viscera are involved, but in general the submucosa shows the greatest degree of thickening. The tumor is in the form of scattered epithelial cells, here and there gathered in small masses and these are separated by a fair amount of rather edematous stroma. In the muscularis there are scattered cells as well as small cell groups both within the muscle bundles and in the intervening connective tissue. The individual cells are of medium size and irregular shape. The nuclei are round, oval or of irregular shape, vesicular with finely divided chromatin and often a distinctly acidophilic rounded nucleolus. Mitotic figures are fairly frequent. Here and there is an occasional larger mass of epithelial cells, but these as a rule show no glandular arrangement. Rarely there is a distinct cell grouping, however, in form of tubular glands. The mucosa seems quite intact so far as tumor growth is concerned.

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Sections from several lymph nodes show infiltration with the same type of epithelial cells. In one there are large cell masses and here the cells are more or less fused together so that cell outlines are indistinct. The general impression here, however, is that the cells tend to a flattened type. Still in the masses are fairly definite gland spaces, and in other lymph nodes is found a definite tubular type of atypical glands. The tumor for the most part is of the diffuse infiltrating type and only here and there suggests an origin from the squamous epithelium of the esophagus. A stomach origin with extension to esophagus and duodenum seems more probable in this case in consideration of macroscopic and microscopic appearances. A section of lung shows minute metastases, chiefly in the perivascular lymphatics. Here in many places the tumor is distinctly of tubular gland type.

In a careful search of the literature I have been unable to find a case with such extensive involvement of stomach, esophagus, and duodenum with diffuse carcinoma as occurred in this case. Extensive carcinoma of the stomach, however, is not very uncommon. In 791 collected cases, Welch[1] found that 61 (4.7 per cent.) involved the whole or greater part of the stomach. The nodular, ulcerating type of carcinoma, however, which may be very large and infiltrate much of the stomach wall, is to be distinguished from the diffusely infiltrating type which causes a very uniform thickening of the stomach wall with little or no ulceration of the mucous membrane and Welch's figures include both types. The latter type constitutes a distinct group of tumors of the stomach and they are not very common. At the Boston City Hospital in 27 autopsied cases of gastric carcinoma there have been none, and in fifty-six autopsied cases of the same condition at the Massachusetts General Hospital two cases of such diffuse carcinoma. Of the latter one case is the one reported above. The other (M. G. H., No. 531) occurred in a man, 44 years old. The stomach in this case was small; its wall generally thickened. The mucous membrane showed no ulceration. Microscopic examination showed in the submucosa and muscularis scattered epithelial cells, singly and in small groups.

Welch[2] has reported one case in which the stomach was shrunken to the size and shape of a kidney, with thickening of all coats and without ulceration of the mucosa. A second case reported by him was similar, though the primary growth was in the ovaries.

Hektoen[3] described two cases, one very typical of this group, with no ulceration of the mucosa, the other with an ulcerated mucosa and perhaps not quite so typical, but still belonging to this group.

Perry and Shaw[4] have collected all of the cases of cancer of the stomach, primary or secondary, autopsied at Guy's Hospital from 1826 to 1900. Among these have been included some few cases of sarcoma and the total number of cases is 306. Of these fifteen were diffuse carcinomata involving the entire, or almost the entire, stomach. Of these, Cases 17 and 297, probably also Case 194, showed diffuse carcinoma of the stomach with extension into the esophagus. However, there was no extension into the duodenum in either of these cases.

Graves[5] and Cadd[6] each report one typical case belonging to this group. Doubtless other cases have been reported, but the reports are not easily accessible. Among the older writers undoubtedly some of the cases diagnosed fibrosis of the stomach were in reality cases of diffuse carcinoma without ulceration. In most of the reported cases the stomach was very greatly shrunken as well as thickened. Marked shrinkage, however, had not occurred in the case reported here by me.

DISCUSSION.

Dr. Arthur D. Hirschfelder, Baltimore, asked Dr. Christian whether or not in this case there was the usual anacidity of the stomach, and if there were any disturbances in the pancreatic secretion. He also asked if there was imperfect meat digestion or absence of secretion or any evidence of results of it.

Dr. Henry A. Christian, Boston, stated that the case showed the usual picture of cancer of the stomach, with reduced acidity. There was nothing especial in connection with the pancreas. The tumor did not extend down far enough to block the duct from the pancreas. The stools were examined, but did not show anything to suggest pancreatic disturbance, and there was no histologic evidence in the pancreas to suggest any such disturbance. There was some acidity of the stomach, but no free hydrochloric acid. In other words, the case was clinically like any other case of cancer of the stomach, except for the absence of a palpable tumor. The most prominent feature was the moderate degree of obstruction of the esophagus by the upper portion of the tumor.

THE DIAGNOSIS OF KIDNEY INSUFFICIENCY AND THE TREATMENT OF UREMIA.*

OLIVER T. OSBORNE, M.D.
Professor of Materia Medica, Therapeutics and Clinical Medicine at Yale University.
NEW HAVEN, CONN.

I do not believe that uremia is caused by diseased kidneys alone, but that it is largely due to disturbances of the liver. The liver makes bile and glycogen, and stores the latter and iron. It also makes urea out of ammonium salts, which probably reach the liver in combination with sarcolactic acid or as lactate of ammonium. Extirpation of the liver in animals almost entirely prevents the formation of urea, which excretion is replaced by the ammonium salts and perhaps by leucin and tyrosin, and death soon occurs, generally preceded by convulsions. The liver has a controlling action on toxins, alkaloids and strong drugs, and it is this organ that allows a larger dose of a drug to be tolerated by the stomach than when given hypodermatically. In other words, the liver is our Pasteur filter, and the blood leaves it standardized. If any disease or condition interferes with liver function the system is poisoned by its inability to care for the waste products of its own metabolism, urea is diminished, and ammonium carbamate remains in the blood. The liver cells prepare the decomposition metabolic products for kidney excretion, and if they do not prepare them perfectly, the kidneys are irritated and disturbed by their effort to excrete substances that are not chemically perfect for such excretion. Hence malfunction of the liver will sooner or later cause irritation, chronic inflammation, and pathologic kidneys.

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[1] Pepper's System of Medicine, ii, 561, 1885.

[2] Johns Hopkins Hosp. Bull., 1893, iv, 98.

[3] The Journal A. M. A., 1898, xxx, 1384.

[4] Guy's Hospital Reports, 1904, lviii, 121.

[5] Practitioner, 1905, lxxv, 172.

[6] Brit. Med. Jour., 1906, i, 1343.

* Read at the Annual Meeting of the Connecticut Medical Society, at Hartford, May 22-23, 1907.

The amount of kidney excretion depends largely on the blood pressure. Anything that causes a general contraction of the blood vessels, provided the renal arteries are not constricted, will increase the flow of urine, while if the blood pressure becomes very low, as in conditions of cardiac failure or shock, there may be no excretion at all. Chemical changes in the blood plasma also modify the amount of urine excreted. Urea, dextrose, sodium chlorid, and various salts are diuretic because they increase the specific gravity of the plasma and the blood then seeks water from the tissues or from the gastrointestinal tract, and this increased amount of water in the blood soon causes diuresis. Caffein is a diuretic because it soon dilates the blood vessels of the kidney, while digitalis is a diuretic in cardiac debility.

The flattened epithelial cells lining the capsules of the glomeruli or Malpighian bodies take water and salts from the blood and pass them into the beginning of the urinary tubules. The activity of these cells seems to depend on the activity of the circulation through the capillaries of the Malpighian bodies, though they may be stimulated by some drug, such as caffein. Sugar and albumin are also probably excreted through the glomeruli. The rodded cells in the convoluted tubules excrete urea, uric acid, creatinin, and certain salts such as sodium chlorid, sulphates and phosphates, and with these enough water to keep the salts in solution. A change in blood pressure or anything that upsets the equilibrium of the circulation, whether functional or organic, climatic or nervous, will change the circulation in the kidneys sufficiently to modify the urinary excretion.

It is stated that the microscope will show a marked difference in some of the epithelial cells in the glandular portion of the kidney when these cells are in activity or at rest. These cells in activity show granules or grains of segregation (Renaut), and these aid chemically in picking toxins or salts out of the blood and excreting them into the urinary tubules. This would seem to be an internal secretion, so to speak, and preparations from these active glandular portions of the kidneys have been fed to patients whose kidneys are defective.

According to our present knowledge the glomeruli and the convoluted tubule represent the glandular portions of the kidney and each tubule may have alternating periods of activity and rest, while the other tubes of the kidney are probably excretory ducts. It is quite probable that if for any reason the excretion or secretion from the glomeruli is abnormal, the secretion or excretion from the convoluted tubules below will also be disturbed. If they are disturbed the first defect noticed is a diminished excretion of urea, while much disturbance of the glomeruli will allow a leakage of albumin.

According to Atwater, a normal adult at rest excretes in twenty-four hours, about a quart of water in the urine, about a quart by the lungs, about a pint by the skin, and about a half pint with the feces; i. e., a total of five and one-half pints of water. If no water is ingested, the blood plasma soon has its specific gravity greatly increased, and in spite of taking what water it can from the tissues, its ability to act as a solvent to carry and to aid in the excretion of salts is greatly diminished. If water is not ingested and foods poor in water, especially proteids and nucleins, are taken, their oxidation to urea and uric acid makes the thirst of the blood for water greater and the ability of the blood to carry nutrition and excrete waste products still less. Hence a certain amount of water is absolutely necessary for proper excretion. On the other hand, if more water is ingested than can be excreted, the vessels become distended with blood of low specific gravity, and the heart labors to circulate this increased abnormal amount of fluid. If the heart and kidneys are competent, unless there is sufficient exertion to cause profuse sweating, the extra amount of water will soon be excreted by the kidneys. If the heart is debilitated or the kidneys insufficient, edema and dropsy will occur. Also in this hydremic condition of the blood the nutrition of the cells is interfered with, as water is not absorbed from the stomach and intestines as it should be and therefore the nutriment is not properly digested nor properly absorbed and circulated.

Therapeutic conclusions are easy to draw, viz., that when the urine is diminished in amount and of high specific gravity, and the circulation is perfect, and the kidneys not badly defective, and there are no edemas, more water should be ingested. On the other hand, in conditions of weakened circulation where there are edemas and where there is serious kidney insufficiency, but little water should be ingested, and, for a short period, perhaps, very little. When the skin is dry and the surface tissues seem to shrivel, though large amounts of urine are passed by the kidneys, with the circulation good, and without edemas, water should be allowed in large amounts.

It is, then, wrong to push water ingestion in cardiac weakness; it is wrong to push water in serious kidney defect; it is wrong to withhold water in diabetes; and the amount of water allowed in gout depends on the condition of the heart and kidneys. Water should generally be given freely in high temperatures unless there are edemas, as it helps to excrete the toxins caused by the disease. After chloroform and ether anesthesia, especially if they have been prolonged, a high colon injection of physiologic saline solution should be given. This supplies water to the blood that has through perspiration or otherwise had its water reduced. It also acts as a diuretic and tends to prevent albuminuria from renal congestion due to the anesthetic. In acute nephritis water should be allowed in small amounts only, as it is badly excreted. In chronic nephritis with high blood pressure large amounts of water can do nothing but increase the blood pressure and put more strain on the cardiac muscle. The same is true in arteriosclerosis. All of this is equally true of large amounts of milk or any other liquid.

Acute nephritis and chronic parenchymatous nephritis give so many evidences of their presence that the diagnosis is unmistakable. Chronic interstitial nephritis, however, begins so insidiously that we should try and foretell its probable development. Cardiac lesions which cause more or less passive congestion of the abdominal organs tend to cause nephritis, and the same is true of liver disturbance. We should take note of long continued intestinal indigestion which allows irritants to reach the kidneys as indicated by the appearance of indican in the urine, and these continued irritants of the kidneys can later cause chronic nephritis.

A little higher blood pressure, a little increased nervous irritability and more frequent urination, with a total increased amount of urine of a low specific gravity are signals of warning. Soon the urine shows an occasional hyaline cast, then an intermittent trace of albumin, and the kidney irritation becomes positive. With this intestinal indigestion more toxins are produced, and, reaching the liver, interfere with its perfect metabolism. Less urea is formed and more uric acid and ammonium salts, and more ammonium carbamate is left in the blood, all to the disadvantage of the kidneys. If with these signs there are some joint disturbances, with or without chronic endarteritis, and later arteriosclerosis, the condition called gouty is present and the kidney resulting is the gouty kidney.

If the above set of signs and symptoms are allowed to persist, chronic nephritis will almost surely develop, and even if on repeated examinations of the urine albumin and casts are not found, we still do not know that the kidneys are perfect organs. The twenty-four hours' urine must several times be collected and examined as to the ability of the kidneys to excrete the various salts, and the results of these examinations associated with the condition of the circulation, skin, and digestive system may decide whether or not chronic interstitial nephritis is present.

It must be positively stated that the absence of albumin and casts from the urine in such cases is not a proof that interstitial nephritis is not present. An estimate of the nitrogen excreted in the urine in twenty-four hours seems to be the surest indicator of the kidneys' ability to functionate. If small amounts of urea and large amounts of ammonium compounds are excreted in the urine, i. e., the reverse of normal, the liver is at fault. If there is much indican and the sulphates are increased in the urine, there is intestinal disturbance and substances are getting into the blood which will sooner or later cause liver and kidney disease.

If the phosphates are much increased, especially in urine passed hours after a meal, there is probably a good deal of nervous and cerebral disturbance, while in nephritis the phosphates are generally diminished. If the chlorids are greatly diminished as they are likely to be in nephritis there will probably be edema. After several such examinations of the twenty-four hours' urine have been made, while the patient is on a general mixed diet, it can be determined which article or class of foods, or particular salts he does not readily excrete, and such can be removed from his diet. Such examinations will also show what drugs he should not take.

With proper dietetic and hygienic care chronic interstitial nephritis may be postponed, and kidneys defective in parts, with the urine showing albumin and casts, can recuperate. As the whole kidney is often not symmetrically diseased, healthy portions of it can hypertrophy and do perfect work, while the diseased portions of the kidney either recuperate or atrophy and cease to pass abnormal urine. There is no known limit to the ability of the kidneys to regenerate. Hence a prognosis from the urine findings alone is difficult to make.

We now recognize that a little albumin may occur in the urine without any pathologic cause. Severe muscular exercise, beginnings of acute infections, severe mental disturbance, temporary debility of the circulation, menstruation, skin irritations, severe chilling and cold baths may all allow albumin to appear in the urine without any kidney defect whatever.

It should not be forgotten that inflammation of the prostate will cause albumin to appear in the urine, and in chronic prostatitis this albumin may be constant.

Persistent renal albuminuria, however, probably indicates nephritis except in the rare cases of orthostatic albuminuria. It must also be acknowledged that frequently recurring renal irritation sufficient to cause renal albuminuria probably leads sooner or later to chronic nephritis. Tube casts can be present without albumin, but it is often the trace of albumin that starts the hunt for tube casts.

I think that we may declare that a trace of albumin in the urine, in spite of the above exceptions, is never good physiology; that the term physiologic albuminuria is not a good one; that small amounts of albumin or even traces in the urine show kidney weakness or kidney irritation. Kidney weakness, then, should be protected by the kind of diet and life that will use the kidneys the least strenuously; if kidney irritation, by such mental, physical and physiologic rest as to remove the condition. In other words, an individual having such an albuminuria needs a proper diet and rest cure until he is over it, as continued irritation means future nephritis.

Centrifuged urines will often show hyaline and sometimes granular casts in normal individuals with normal kidneys, and certainly to centrifuge a previously sedimental urine is unfair to the individual from the insurance standpoint.

Many of the same causes that produce transient albuminuria can cause casts to appear in the urine, as passive congestions, severe exercise, athletic tests, chillings, irritations from alcohol and drugs. The cause being stopped, casts in such cases rapidly disappear.

Hyaline casts can occur during acute infection, in any bowel intoxication, in jaundice, and after anesthesia, and can easily occur from any simple irritation after forty years of age. Though traces of albumin probably exude at the same time from the same conditions which cause these casts to form, it may not be sufficient to show in the urine. Persistent casts, however, even if only hyaline and even without albumin, are indicative of interstitial nephritis, though the disease may not be progressive.

We must conclude that our ability to diagnose the condition of the kidneys or prognose the future does not rest on the finding of albumin and casts in the urine. Serious nephritis may be present and repeated examinations show no casts and no albumin, although at any examination, a series having previously been negative, large amounts of albumin and all kinds of casts may suddenly appear without apparent cause. I have personally seen many cases bear out this statement. On the other hand, it is only persistent albuminurias and persistent finding of casts that show there is nephritis. Intermittent findings or occasional findings may show only kidney irritation. With continuous finding of albumin and casts the actual condition of the kidneys can only be determined by the associated symptoms, viz., by a diminished output of salts, a greatly diminished or greatly increased bulk of the urine, the latter with low specific gravity, indigestions, headaches, circulatory disturbances, and eye symptoms.

According to Croftan[1] when urea disappears from the urine in uremia it also disappears from the blood, while ammonium salts are increased. This carries us back to the liver where urea is produced. When urea is injected into the blood experimentally it does not cause coma, but ammonium salts do. When in a nephritis case uremia is imminent, as especially shown by the urea-nitrogen of the urine being greatly decreased and the ammonia-nitrogen being greatly increased, our attention should be turned to the liver and not to the kidneys, and it may be the relief of the liver by saline purgatives that improves uremic conditions. We recog-

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1. THE JOURNAL A. M. A., Jan. 6, 1906.

nize that it is often dangerous to administer morphin to a nephritic patient, and yet a large amount of this morphin is re-excreted into the stomach and never was or would be excreted by even healthy kidneys, so that the mere holding back of the morphin by the kidneys is not the whole reason for its intense action. On the other hand, we know that in liver malfunction morphin is badly tolerated.

The high arterial tension of nephritis, and especially of uremia, is doubtless due to the toxins in the blood causing sufficient irritation to make the blood vessels contract. Many of these irritants are reabsorbed from the intestine in conditions of fermentation and putrefaction, one more reason for the proper cleansing of the bowel with cathartics and the prevention of further fermentation by a restricted diet. When constipation or maldigestion is in evidence in kidney disease the liver quickly is more and more disturbed and its ability to produce urea is decreased, the ammonium salts increase, and uremic symptoms are the result. Also, in this sluggish condition the bile is not properly liquid and more or less bilious congestion takes place. There are headaches from the bile irritation of the brain, the sclerotics and skin become yellowish, and the skin, endeavoring to excrete irritants from the blood due to the insufficiency of both liver and kidneys, becomes irritated, itches and may show urticarial disturbance. From the scratching, eczematous conditions occur, and if insufficient baths are taken and no massage is done the skin becomes dry and can not do its normal excretory work, and more trouble and irritation is thrown on the kidneys, and uremia is soon the outcome.

The length of time, in uremia, that the diet should be nothing but water, and hot baths should be taken, and saline purges given, depends entirely on whether the symptoms become better or not; it may be twenty-four hours, it may be forty-eight; but if no improvement occurs in two days, the case is probably hopeless. If there is improvement the diet should be such that there is a minimum amount of uric acid formed and a minimum amount of urea, and again we are aiming at the liver function. Intestinal fermentation may be prevented by the administration of sodium glycocholate in half-gram doses, and perhaps no bowel antiseptic is safer, considering the kidney defect.

Cardiac tonics are rarely indicated when uremia is pending or present. On the other hand, vasodilators, as nitroglycerin, are often of great value. Too great lowering of the blood pressure, however, in the chronic interstitial nephritis of old age should not be attempted, and would be pernicious if continued. The liquids and sodium chlorid given should depend entirely on the character of the circulation and whether or not there are edemas.

Whether or not there is an internal secretion of the kidneys, I have certainly seen life prolonged in nephritis by feeding fresh kidneys. I have not had much results from the nephritin tablets. Thyroid extract certainly aids in preventing convulsions in uremia, and is, I believe, the most efficient preventive of that symptom.

If there is severe pain, especially in the cardiac region, morphin must be administered though theoretically contraindicated. If there is coma and other symptoms of cerebral pressure, spinal puncture may relieve them, but is rarely of any avail.

If we have positively seen a case of chronic nephritis progress gradually from bad to worse, I do not believe it justifiable to use superhuman efforts to prolong life for a day or two. On the other hand, in uremia, when we are in doubt as to how far the pathology has proceeded, and in acute nephritis, we should do venesection in amount sufficient to decidedly lower the blood pressure. If the patient is debilitated and anemic, this venesection may be immediately followed by a small saline transfusion.

In acute nephritis, and when uremia is pending in chronic nephritis, and during uremia, high colon washings with physiologic saline solution should be done several times a day, and as hot as can comfortably be borne. The temperature may be 110 F., with a continuous return flow. A rectal tube can be passed a short distance, and with the hips elevated the water will flow readily into the colon. This hot colon douche will often relieve kidney congestion. If there is no edema, some of this solution should be left in the colon, and is one of the most efficient diuretics.

We may sum up the treatment of uremia as absolute muscle rest; the withholding of all food, not even giving milk; administering very little water by the mouth even if there is no edema, as the ability of the kidneys to excrete water, even, is often abolished; frequent colon irrigations of hot water, leaving some in the colon for absorption if the blood pressure is low and there is no edema; the administration of thyroid; hot sponging of the skin; venesection in most cases, repeated if necessary, as it has been shown that an ounce of blood will remove more toxins than eight or nine times that of fluid feces or than quarts of perspiration; and the administration of nitroglycerin if the pulse tension is high. If the uremic period is passed and the kidneys again begin to secrete and excrete, the diet and life of the patient becomes of primary importance, but that is not the object of this paper to discuss.

THE PHYSICIAN AND THE NEWSPAPER.

E. E. MUNGER, M.D.
SPENCER, IOWA.

There has always been a wide difference of opinion between physicians and newspaper men as to the propriety of advertising. There has been occasional newspaper comment relative to the much talked of, but little understood, Principles of Ethics. It has been assumed that it militates against the advertising function of the newspaper because one of its principles states that: "It is incompatible with honorable standing in the profession to resort to public advertisement or private cards inviting the attention of persons affected with particular diseases; to promise radical cures; to publish cases or operations in the daily prints, or to suffer such publications to be made; to invite laymen (other than relatives who may desire to be at hand) to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to employ any of the other methods of charlatans." The true physician has nothing to advertise except that which is found in the simple card which announces his presence and location in the community.

Physicians are the guardians of the health and physical welfare of the people; newspapers are the molders and often the creators of public opinion. The medical profession, personally, and the newspaper fraternity, through the press, come into closer touch with the community than any other profession or calling. No other two societies of men have so keen an understanding of human nature and its desires, passions, virtues, weaknesses and faults. The relations of the physician and the newspaper to the public embody great reciprocal obligations and rights.

Recently the press has been giving its attention to "graft," which, in all of its ramifications in the business and political fields, does not equal the graft that has resulted from the advertising of nostrums and quacks. Worse than graft are the wreck and ruin that are traceable to certain classes of advertisements, for an estimate of which one would have to journey through all the eleemosynary institutions of the land, making diligent inquiry as he traveled, listening to the story of the inebriate and dope fiend and their progeny. He would have to learn from the brothel the story of mistakes corrected by crime advertised for sale between the lines of crafty advertisements; but he would have to wait until Gabriel blows his trumpet for the heart-rending tale of the innocents—and their name is legion—whose lives were sacrificed in the dim gray dawn of their early existence. He would have to learn from the physician the amount of suffering, the number of surgical operations, blind eyes and other deformities, directly and indirectly traceable to advertisers who have failed to make good their guarantee to cure certain diseases in from ten to thirty days—a guarantee which every conscientious physician knows to be impossible of fulfilment.

Can not the press be made to realize that it is the ally of fraud and deceit when used as the mouth-piece of the get-rich-quick concerns that guarantee to cure the entire list of human diseases with some mysterious decoction of roots and herbs?

How long will the American press, with a few notable exceptions, continue to contribute inches to the campaign against the great white plague and sell columns to the men who talk about that "hacking cough" and promise to cure consumption with some wonderful new discovery?

The fraud of these advertisements is concealed in their seductive language, which appeals to a credulous and suffering people; when read by the side of news items and high-class, legitimate advertising and in connection with the editorial comment that sustains governments and so often determines their policies, the claims of the advertisers become truths to many because they are substantiated and verified by the very fact of their appearance in the medium which sows them broadcast.

One wonders what the paragrapher's pen would write should he see in his paper an advertisement setting forth that "L. E. Gall, a graduate of the leading law schools of America and Europe, with ten years' experience in the supreme courts of both countries, is now prepared to look after the interests of all who may require his services. Special attention given to criminal and civil cases. He guarantees acquittal in all cases of murder, infanticide, grand and petit larceny, embezzlement, forgery, blackmail, libel and slander. Divorces secured in two weeks. No publicity. Suitable homes provided immediately after acquittal. He was never known to fail. None of the lawyers in ordinary practice has the facilities for handling these cases that he has. Call at once and be convinced. No charge for being convinced."

It has been said that all the quacks do not advertise. Just as there are "yellow journals" there are "yellow doctors," and for ways that are dark and tricks that are mean they are most peculiar. That each calling contains members with whose services society could well afford to dispense should be apparent to all. It may be confessed that physicians themselves have not been without blame in the matter of quackery, for had there been less quibbling between schools of practice, whose differences are now fast fading away, the way would not have been prepared for the endless string of charlatans who have found it easy to ingratiate themselves into the confidence of so many of the people.

Let medical men continue to guard the public health, but let them put away their petty jealousies and frivolous contentions that open the gaps through which pretenders enter to mystify and cajole some of the most intelligent. Let honorable physicians tear down the walls that separate them; let them enlist the newspapers in a righteous cause and be coadjutors in the emancipation of suffering humanity from a thraldom which has already enslaved too large a part of the human family.

Every one who reads current medical literature even cursorily must be impressed by the frequent demands for a "campaign of education as the only means of fighting the nostrum and kindred evils." There is eminent authority for the statement that "it is the duty of physicians, who are the witnesses of the enormities committed by quackery and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors. As good citizens it is their duty to be ever vigilant for the welfare of the community and to give counsel to the public in relation to matters especially appertaining to their profession."

Living as we do in a nation of newspaper and magazine readers, are we discharging our duty to society when we fail to make use of these large and powerful educational institutions? If fraud can thrive and prosper with the press for its hotbed, can it be that truth can not be planted there, to flourish and grow until the former is blighted and killed by the inherent tendency of the latter to prevail?

Instead of being so very chary about newspapers might it not be advisable to use a little of their space for the education of the people—for the exposure of fraud and the teaching of the plain a, b, c's of health, free from technical phraseology—and thereby counteract, for the present, and ultimately wipe entirely out, the columns of rot with which so many papers are filled, setting forth the great efficiency of some nostrum? It is one of the crimes of the ages that any of the great discoveries made by men of science, who have labored unselfishly, without hope of reward, and given the fruits of their labors to humanity, should be prostituted, as they are, by mendacious charlatans. Witness the *x*-ray, with its great usefulness in a limited field of application and in the hands of those who are honest and sufficiently competent to make use of it, becoming the chief stock in trade of quacks. There is not sufficient capital on earth to enable these adroit, advertising frauds, these execrable advisers and mercenary monsters, to ply successfully their nefarious trade against a well-directed campaign of education. To be sure they will angle, possibly with new bait, but the fish will have learned to recognize the line from which dangles the hook with its dainty allurement.

The public should know that behind most of the cunning advertisements and reading notices are hidden fraud and deception, and that back of these are base pretenders, who trifle with life and disease, who prey on the unfortunate and feed fat on bodily ills. It does not seem possible to remedy these evils through medical journals alone. The people must be reached. "The members of the medical profession, on whom has ever been enjoined 'the performance of so many important and arduous duties toward the community,' will never have discharged their full duty until they have educated the people to that degree of intelligence in matters medical which shall convince them that they can receive with safety neither advice nor treatment from any other than the duly qualified and unpretentious sources where they are now wont to appeal after they have been bankrupted in health and bled to financial death by the conscienceless mountebanks into whose hands they have fallen.

Even the base pretenders themselves appeal at last to the medical profession for aid. Witness the spectacle of John Alexander Dowie, after having expended all the vigor of his powerful body in heaping abuse and vilification on the medical fraternity, appealing to the physician and beseeching him to hold his tottering old frame together while he endeavors to regain possession of his lost and ill-gotten gains to traduce anew his benefactors.

There is but one medium through which the people can be taught; it is the same medium that has furnished the instruction for present intolerable conditions; it is the greatest educational medium for the masses extant; it is the medium most eagerly sought and perused; it is the cheerful companion and indisputable criterion of almost every fireside—the newspaper.

How shall we make use of this medium? Certainly not by abusing it, for it has not been shown that even the great wisdom of the newspaper fraternity is sufficient to enable them to detect the cunning cupidity of some of their advertisers. Let the American Medical Association establish a Bureau of Education for the dissemination of such knowledge and advice as will enable the people of this country to act intelligently in matters pertaining to their own health and lives, thereby making it possible for them to assist the medical profession in their efforts to prevent disease, relieve suffering and prolong human life. Organized as this powerful association now is, this bureau would be in affiliation with each state and county society and there could be such a division and subdivision of the labor incident to the writing, editing and distributing of suitable articles for publication as would make a systematic campaign of education practicable. Organizations like the Austin Flint-Cedar Valley Society should also be affiliated with this bureau. Every decent newspaper in the United States would coöperate in this work by giving space in its columns to be filled with true information regarding health and everything affecting it. News of this kind would be of surprising and surpassing interest to readers. With the friendly aid rather than the opposition of the press more could be accomplished in a short time in the way of creating public sentiment in favor of certain reforms and in matters of legislation than can be accomplished by medical journals in the next twenty-five years.

As a result of public sentiment, created largely by the medical profession and the untrammelled press, the pure food bill has been enacted into law. In order that this law may become effective state laws must be made to conform with it. There is still work for the profession and the press. There is enough instructive, constructive and destructive educational ammunition stored up in THE JOURNAL arsenal of the American Medical Association, to say nothing of the other medical journal powder houses scattered over the country, soon to create public sentiment that will demand the needed state legislation if it be judiciously fired through the columns of the American press.

I will not be accused of anything worse, perhaps, than being a dreamer for expressing the belief that it is possible to carry on such a campaign of education as will result in public sentiment demanding what the physicians have so long striven for—a Department of Health with a representative in the Cabinet of this Government.

The *Ladies' Home Journal*, *Collier's Weekly* and a few other magazines and newspapers have recently taken a decided stand in opposition to the nostrum evil. Some papers have refused contracts for the most obnoxious advertisements. Editorially a few of the reputable newspapers are supporting the medical profession in its campaign against disease, food adulteration and quackery. To all of these who espouse our cause a vote of thanks is due from every medical organization on behalf of the American people, who will profit most by the press' championship for reform.

In this connection, and in view of courtesies extended by the medical profession to the ministry, the following item taken from a telegraphic report of the Presbyterian General Assembly for May 21, 1906, is of passing interest: "The 'quack medicine overture' was handled by the committee on bills and overtures, which recommended no action, as the church papers are private enterprises." Not even a resolution by a great body of righteous people condemning this most heinous thing. Pray tell us who "handled" the committee? And who "handled" the "handle" that "handles" the "private enterprise"?

The Chicago *Sunday Tribune*, in its issue of May 20, 1906, published a significant editorial with this caption: "The Preacher and the Newspaper." Quoting Bishop Fallows, it says: "The minister should use the newspaper as one of the most effective agents for assisting him in his chosen work." Are we better than the ministry, or are we worse, or what is the reason that we should entirely avoid the newspaper? By substituting physician for minister the rest of the article is apropos: "Modern society, with fast mails, telegraph, telephones and improved mechanical devices has developed the newspaper into a daily encyclopedia of information, illustration and inspiration which (should) prove one of the greatest aids in the general improvement of moral, social (and health) conditions toward which the physician ever strives. The individual physician makes his voice heard only by a limited number. The newspaper, with its agencies for the transmission of important items to all other journals of its class, makes its influence felt round the world. . . . It is easy to make a sweeping condemnation of the newspaper if one takes its records of sin and crime (and some advertisements) for a standard and talks of the effects of this publicity of human wickedness. It is easier to prove that the press has been a most powerful factor in bringing about the great reforms which have marked epochs of civilization. With the friendly assistance of the press he can make his effort for humanity far more effective and so do more for the cause of his Great Master."

Will the newspaper aid the medical profession in such a campaign of education in view of the probable financial loss it means to them? Let the question be answered by an extract from another editorial printed Jan. 23, 1906, in the same newspaper: "There are advertisers who labor under the belief that they can silence newspapers by drugging them with advertisements, or punish them, when outspoken, by withdrawing what they call their 'patronage.' No newspaper worthy of the name will be influenced by advertising conferred on it or withheld from it. Attempted terrorism will simply make an independent newspaper more determined to pursue a course which it believes to be right. That is the policy *The Tribune* will insist on if it shall never print another line of . . . advertising from now until the crack of doom. When *The Tribune* sells space to advertisers it does not sell its convictions."

It will require more time than is at the disposal of the present generation for physicians to counteract the influence now exerted by quackery through the medium of the press, unless they adopt some other method than that of simply dropping a word of advice into a wavering patient's ear as he hurriedly passes through the office.

With the newspapers as the allies of the physicians the malady can be eradicated, root and branch, and the pen be again proved mightier than the sword. The education of the masses will remedy the evil, and the newspapers will "do more for the cause of their Great Master" and further establish their title to the claim of being "the great factors for shaping public opinion, advancing reforms and accomplishing results," when they no longer add to the already alarmingly large number of hapless human beings, which they have steadily, but in a great measure innocently increased; who are being tossed about on this merciless, mercenary sea of quackery from one wave to another—now on the summit of hope, soon in the trough of despair, pausing at each port of promise, only to weigh anchor and drift out on the boundless ocean of symptoms, anxiety and fear and on into the eternity of despondency.

THE OPERATION OF GASTRO-JEJUNOSTOMY AND ITS PHYSIOLOGIC EFFECTS.*

HERBERT J. PATERSON, M.A., M.B., B.C. (Cantab.), F.R.C.S.
Surgical Staff, London Temperance Hospital; Hunterian Professor, Royal College of Surgeons, England.
LONDON, ENGLAND.

When your distinguished President of last year conveyed to me a cordial invitation to be present at this meeting of the American Medical Association, I accepted at once, thinking of the opportunity which I should have of seeing for myself and profiting from the work of the many in your country whose fame has spread across the sea. When I came to seek for a subject on which to address you, however, I realized the rashness of my ready compliance. So much work has been done here on that branch of surgery in which I am especially interested that I felt that, were I to dwell on any purely surgical aspect of gastric disease, I should be going over ground already familiar to you, and so should be trespassing too far on that indulgence and leniency which I have heard you so invariably extend to those who are your guests.

In my Hunterian lectures,[1] delivered before the Royal College of Surgeons last year, I gave the results of some investigations into the effect of the operation of gastro-jejunostomy on the metabolism of the human body. After some consideration I determined to pursue those investigations further and to lay the results before this meeting.

When, as was the case but a few years back, the operation of gastro-jejunostomy was performed only as a last resort in cases of pyloric stenosis, physiologic questions were a secondary consideration, but at the present time, when the operation is frequently advised for conditions such as intractable gastric ulcer, in which it is an operation of expediency rather than of necessity, a knowledge of its precise effects on the gastric and metabolic functions of the body must be one of the determining factors in the decisión for or against operation. It is on this aspect of gastro-jejunostomy that I purpose to offer some observations for your consideration.

THE EFFECT OF GASTRO-JEJUNOSTOMY ON THE FUNCTIONS OF THE STOMACH.

The Presence of Bile in the Stomach.—All observers are agreed that a certain amount of bile finds its way into the stomach after the operation of gastro-jejunostomy. It is said that the quantity is at first fairly abundant, but after a few weeks considerably less.

In my own experience it is rare to find bile in the fasting stomach, and I regard its presence under such conditions as evidence of inefficiency of the efferent opening. The fluid drawn off one hour after a test breakfast often appears to contain bile, but Gmelin's test usually gives a negative result. If the gastric contents be tested two hours after a test meal, Gmelin's test is frequently obtainable. I use the expression obtainable advisedly, for considerable care is often requisite to demonstrate the presence of bile, although from the appearance of the gastric contents one would judge that it is present in some quantity.

Indeed, I believe that the amount of bile which regurgitates into the stomach is considerably overestimated. Gmelin's test does not give a positive reaction unless bile be present to the extent of about 5 per cent., and the green color of the test is, as a rule, only just visible and sometimes can not be seen at all. It is probable, therefore, that the regurgitated bile forms not more than 5 or 6 per cent. of the stomach contents. I need hardly point out that if bile gains entrance into the stomach pancreatic secretion must do so as well.

Granted, then, that there is a permanent reflux of bile into the stomach after gastro-jejunostomy, the question arises, Is its presence harmful? All the evidence indicates that it is not, provided the efferent opening of the anastomosis is efficient. Dastre[2] and Masse[3] have shown that in dogs the presence of bile in the stomach does not interfere with the digestion and general health. The well-known case reported by Moynihan[4] as well as the results of the operation of cholecysto-gastrostomy in man, confirm these observations, while the metabolism experiments, to which I will refer later, afford further evidence to the same effect. Indeed, I think we may safely affirm that, in part at least, the beneficial effects of gastro-jejunostomy on gastric ulcer are due to the entrance of the alkaline pancreatic juice and bile into the stomach.

The Effect of Gastro-jejunostomy on the Gastric Secretion.—The most marked effect of gastro-jejunostomy is the diminution of the total acidity of the gastric contents which follows operation. At first sight it would appear that this diminution is but the result of partial neutralization of the gastric contents by the bile and pancreatic juice which gain entrance into the stomach. But the problem is not such a simple one.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Gastric Surgery, London, 1906.

[2] Archives de Physiol., 1890, ii, 316.

[3] Congres Francais de Chirurgie, 1898, 300.

[4] The Work of the Digestive Glands.

Time will not permit me to describe in detail the observations which I have made on this interesting subject, so I will briefly indicate what appear to me to be the chief factors at work.

From an examination of a considerable number of cases I find that the average diminution of the total acidity after gastro-jejunostomy is about 35 per cent. There are several reasons which appear to me to indicate that this diminution is not due solely to partial neutralization.

First, judging by the amount of bile usually found in the stomach, the diminution is too great to be the result of a purely chemical reaction.

Second, if the diminution were the result of a chemical reaction we should expect all the free hydrochloric acid to be neutralized, but this is not invariably the case. In several cases I have found free hydrochloric acid present, and in those cases in which it has been present before operation it can usually be demonstrated after operation, by giving a suitable test meal, such as Leube's.

Third, there is a diminution of the total chlorids in the gastric contents which must be the result, not of neutralization, but of diminished secretion. Two factors at least, therefore, appear to be at work in bringing about the diminution of total acidity which is found after gastro-jejunostomy: 1, A diminution of the total chlorids secreted; 2, partial neutralization of the gastric contents by bile and pancreatic juice.

The brilliant researches of Pawlow[5] and his co-workers have demonstrated the striking interdependence of the secretions of the digestive glands, and it is this interdependence which seems to me to afford us a reasonable explanation of the diminution of chlorids. We may, I think, safely assume that during the churning movements of the stomach some of the gastric juice will be, as it were, squeezed through the anastomotic opening. This escape of some of the acid will prevent the total acidity rising as high as would otherwise be the case. But it will have a further effect. The presence of an acid fluid in the jejunum causes a secretion of pancreatic juice (Wertheimer).

Thus after gastro-jejunostomy, if my hypothesis be correct, the early presence of acid in the jejunum will lead to a flow of pancreatic juice at an earlier period of digestion than in a normal individual. With this earlier stimulation of the pancreas there will be a correspondingly earlier diminution of the gastric secretion, and, as a consequence of this, a diminution in the total chlorids secreted by the gastric mucous membrane. Possibly other factors are at work, such as an inhibitory effect of secretin or other constituent of the pancreatic juice. In those cases in which there has been hyperacidity before operation the removal of the abnormal excitation of the gastric mucosa, which results from spasmodic stenosis of the pylorus, will lead to a considerable diminution of the total chlorids, and it is certainly significant that it is just in these cases of gastric ulcer with hyperacidity that the diminution of the total acidity of the gastric contents is most marked.

The Effect of Gastro-jejunostomy on Gastric Digestion.—Some authorities maintain that gastric digestion is lost after gastro-jejunostomy. Even if this were true, it is not of such importance as would at first sight appear, for we know from the experiments of Pachon and Carvallho[6] on dogs, from the observations made on Schlatter's[7] celebrated case of total gastrectomy, as well as from the clinical evidence afforded by those patients who have survived complete removal of the stomach, that Nature is able to dispense with this organ. There is, perhaps, nothing more wonderful in the whole range of surgery than that human beings should not only survive the operation of total gastrectomy, but should remain for years in the enjoyment of perfect health and activity. I need hardly remind you that the first surgeon to conceive and carry out this daring project was one of your own countrymen.

Notwithstanding, however, Nature's adaptability, the retention of gastric digestion undoubtedly adds to the resisting power of the individual in the struggle for existence. Personally, I do not believe that loss of gastric digestion is a necessary consequence of a short circuit between the stomach and jejunum. Those who have expressed an opposite view base their conclusions on the subsequent diminution of chlorids found in the gastric contents. This argument is not conclusive, as the chlorids may be greatly diminished without the loss of gastric digestion. Further, unless atrophy of the mucous membrane is advanced owing to disease existing before operation, there is, in my experience, usually a progressive increase in the chlorids secreted during the digestion of a test meal. A more conclusive indication of the extent of gastric digestion can be gained from an examination of the feces. Schmidt has shown that only the gastric juice can digest raw connective tissue. I have on many occasions fed patients, after gastro-jejunostomy, on raw beef, but have never found any undigested connective tissue on microscopic examination of the feces.

The Effect of Gastro-jejunostomy on the Motility of the Stomach.—Impairment of the motility of the stomach is a much more serious matter than impairment of its secretion, for it appears that the stomach, if its peptic power be reduced, endeavors to make up for the failure of digestive power by greater energy in moving on its contents. Under these circumstances the food leaves the stomach incompletely digested, but this does not seem of serious import, for Von Noorden maintains that the intestine can vicariously assume the peptic functions of the stomach. I have already pointed out that after gastro-jejunostomy some diminution of the gastric secretion occurs; if then it were the case that gastro-jejunostomy in addition impairs the motility of the stomach, the usefulness of the operation would be considerably curtailed.

Diverse views have been expressed on this subject. Hartmann and Soupault, Rydygier, and Rosenheim found the motility of the stomach permanently impaired; Carle and Fantino, on the other hand, maintain that the emptying of the stomach is hastened rather than retarded. It is, I think, possible that in such investigations the existence of impaired motility before operation has not always been excluded. Although motor insufficiency be present after operation, we can not assume that the insufficiency is due to operation unless we have shown the stomach to have been normal in this respect before operation.

I have investigated the motility of the stomach before and after gastro-jejunostomy in a considerable number of cases, but I will now refer only to three typical examples:

Case 1.—The first of these was a woman on whom I performed gastro-jejunostomy for repeated attacks of hemorrhage from a gastric ulcer. Examination before operation showed that on an average the stomach was empty three and a half hours after a test breakfast. Two months after operation a number of observations showed that the stomach was empty four hours after a similar test meal. You will observe that although the motility was slightly impaired by operation, the delay in evacuation did not exceed the physiologic limits. This case raises the question: How does gastro-jejunostomy influence those cases of gastric ulcer in which the motility of the stomach is not impaired? I will return to this point later.

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[6] Comptes rendus de la Société de Biologie, 1893, 794.
[7] Hofman: Münch. med. Wochschr., May 3, 1898.

Case 2.—The second observation was carried out on a patient on whom I performed gastro-jejunostomy for gastric tetany, with almost complete pyloric stenosis and greatly impaired motility. Two years after operation examination showed the stomach to be empty on two occasions four hours after a test breakfast, and on another occasion, four hours after a full dinner, only 25 c.c. of fluid containing a trace of bile was drawn off.

Case 3.—Observations on a third patient showed that before operation 20 c.c. of fluid remained in the stomach four hours after a test breakfast. One month after operation, at which a chronic gastric ulcer with dense adhesions to the abdominal wall was found at the cardiac end of the stomach, examination showed that on one occasion 15 c.c., and on another occasion 5 c.c. of slightly green, tenacious fluid, showing a faint Gmelin's reaction, remained in the stomach three and a half hours after a test breakfast.

From these and numerous other observations I think we may conclude that, in those cases in which the motility is markedly impaired by pyloric stenosis or by adhesions, the operation of gastro-jejunostomy usually results in a marked improvement in the evacuation of the stomach contents. In those cases, on the other hand, in which before operation the motility is unimpaired, gastro-jejunostomy may either slightly retard or slightly hasten evacuation, but inasmuch as this retardation or acceleration falls within the physiologic limits we are justified in saying that in cases in which the motility is normal before operation the evacuation of the stomach is for practical purposes unchanged by gastro-jejunostomy.

Is Gastro-jejunostomy a Drainage Operation?—The observations on the motility of the stomach which have already been mentioned are against the view that gastro-jejunostomy is a drainage operation, and W. B. Cannon and J. B. Blake[8] in their invaluable article also put forward strong arguments against such a supposition. These writers, too, from observations on dogs by means of Roentgen rays, have come to the conclusion that in cases in which the pylorus is unobstructed the food continues to pass through the pylorus rather than through the new opening. Are we justified in assuming that this holds good for a human being if the anastomotic opening is made of large size? It is at least suggestive that in the only case in Cannon and Blake's series in which the food passed out through the anastomotic opening rather than through the pylorus the opening which had been made was a large one. This observation appears to me to be a most important one. It emphasizes the necessity for a large anastomotic opening, which is, in my judgment, the most important point in the technic of gastro-jejunostomy.

To What Are the Beneficial Effects of Gastro-jejunostomy on Gastric Ulcer Due?—Most writers have assumed that gastro-jejunostomy is a drainage operation, and have attributed the beneficial effects of the operation on gastric ulcer to hastened evacuation of the stomach. If this be true it follows that, in those cases of gastric ulcer in which the motility of the stomach is normal, the operation of gastro-jejunostomy would be of no avail. This has not been my experience. I have already told you of a case in which the motility was slightly impaired after operation. Notwithstanding this impairment the patient rapidly improved, lost all her gastric symptoms and has remained ever since in excellent health. Indeed, some of the most striking successes I have witnessed have been cases in which before operation there was no evidence of delayed evacuation of the stomach. We must, therefore, I think, look for some other factor than drainage to explain the influence of gastro-jejunostomy on gastric ulcer.

There is a general agreement that hyperacidity is the factor which prevents healing of gastric ulcer. After gastro-jejunostomy there is a marked diminution of the total acidity of the gastric contents, which diminution does not depend on improved evacuation. Are we not justified in assuming that it is to this diminution of the gastric acidity that the beneficial effects of gastro-jejunostomy on gastric ulcer are due?

THE EFFECT OF GASTRO-JEJUNOSTOMY ON THE METABOLISM OF THE HUMAN BODY.

In the year 1897 Jöslin[9] published some observations on the metabolism of two patients on whom gastro-jejunostomy had been performed. He maintained that as a result of this operation there is a marked diminution of the proportion of nitrogen absorbed from the food, and an ever more marked diminution in the fat absorption. These conclusions have been accepted without question. In my book on Gastric Surgery, published last year, I gave details of observations on four patients in whom the absorption of fat and nitrogen was practically unaffected.

There still are writers who dilate on the evil consequences of this operation and of the interference with the physiology of digestion which it entails. Two years ago a distinguished surgeon wrote: "It is improbable that so much interference with the anatomy and physiology of digestion as this operation involves can be tolerated without some ill effects." As recently as six months ago another writer remarked: "The interference with the physiology of digestion which such an operation entails is not well tolerated." He then pointed out the necessity for the existence of the acid medium of the stomach with its pepsin for the digestion of the fat cells and starch granules.

I have already pointed out to you the evidence that connective tissue digestion continues after gastro-jejunostomy, and I will now endeavor to prove, from the further observations which I have made, that these hypotheses about interference with the nutrition of the body are unsupported by chemical pathology or clinical experience. Indeed, it was the remarkable evidence I obtained in investigating the remote history of a large number of patients on whom gastro-jejunostomy had been performed which led me to doubt the accuracy of Joslin's conclusions, and to test their correctness by the touchstone of experimental demonstration.

CLINICAL OBSERVATIONS.

Observation 1.—This was carried out on a man aged 26, five months after I had performed anterior gastro-jejunostomy for gastric ulcer. During the four days which the observation lasted, the patient absorbed 91 per cent. of the nitrogen taken in his food and 92.3 per cent. of the fat. Now in a series of metabolism experiments on 75 apparently healthy individuals on a mixed diet, Harley and Goodbody found that the highest nitrogen absorption amounted to 97.07 per cent. and the lowest to 90.1 per cent. of the nitrogen taken in the food, the average absorption being 93.46 per cent. of the nitrogen taken in the food. As regards fats, Harley and Goodbody found that the highest absorption amounted to 98.5 per cent., and the lowest to 90.19 per cent. of the fat taken in the food, the average absorption of 79 observations being 95.05 per cent. If you will compare the results of my observation after gastro-jejunostomy, you will see that the nitrogen absorption is only 2.4 per cent. below the average, and the fat absorption 2.7 per cent. below the average, and both nitrogen and fat absorption are higher than the lowest absorption found in a healthy individual.

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[8] Annals of Surgery, May, 1905.

[9] Berl. klin. Wochschr., 1897, 1047.

OBSERVATION 2.—This observation on a patient (also on a mixed diet) seven months after gastro-jejunostomy and suture of a perforated gastric ulcer, showed a nitrogen absorption of 90.5 per cent., and a fat absorption of 92.5 per cent. Comparing these figures with those which I have quoted from Harley and Goodbody, you will observe that the nitrogen absorption is 2.9 per cent., and the fat absorption 2.5 per cent. below the average, but both nitrogen and fat absorption are above the lowest percentages found in healthy individuals.

OBSERVATION 3.—This was made on a patient on a mixed diet two years after gastro-jejunostomy for gastric tetany, and I may mention for the interest of those who regard the functions of the duodenum with reverence, that there existed complete obstruction of the pylorus, so that the food could pass only through the anastomotic opening. During four days on a liberal mixed diet (40 kilograms for each kilogram body weight) the patient absorbed 92.1 per cent. of the nitrogen taken in the food, and 92.7 per cent. of the fat. In other words, the nitrogen absorption was 1.3 per cent. and the fat absorption 2.3 per cent. below the average, both nitrogen and fat absorption being above the lowest absorption found in healthy individuals.

OBSERVATION 4.—This was carried out on a patient on a milk diet one month after gastro-jejunostomy for gastric ulcer. The nitrogen absorption amounted to 92.7 per cent. of the nitrogen in the milk taken, and the fat absorption 94.7 per cent. Compared with the average absorption of a healthy person on a milk diet, these figures show a diminished nitrogen absorption of 1.5 per cent. and a diminished fat absorption of 1.4 per cent., both nitrogen and fat absorption being higher than the lowest percentage absorption found in a normal individual.

OBSERVATION 5.—This was made on a patient on a mixed diet, one month after gastro-jejunostomy for pyloric stenosis. In this instance 92.4 per cent. of the nitrogen and 93.5 per cent. of the fat taken in the food was absorbed, the figures being 1.0 per cent. and 1.5 per cent., respectively, below the average, but both well above the lowest normal absorption.

The preceding observations were made on patients on whom anterior gastro-jejunostomy had been performed; the remaining four observations were carried out on patients on whom I had performed the posterior "no-loop" method.

OBSERVATION 6.—This was carried out on a patient on a milk diet one month after gastro-jejunostomy for gastric ulcer. The nitrogen absorption was 91.2 per cent. and the fat absorption 92.3 per cent. of the fat taken in the food, that is, the nitrogen absorption was 3.0 per cent. and the fat absorption 3.8 per cent. below the average.

OBSERVATION 7.—This was made on a patient on whom I had performed gastro-jejunostomy for duodenal ulcer with partial stenosis and who was on a milk diet. The nitrogen absorption was 92.2 per cent., and the fat absorption 95.4 per cent.; that is, the nitrogen absorption 2.0 per cent. and the fat absorption 0.7 per cent. below the average absorption on a milk diet in a healthy individual.

OBSERVATION 8.—This was made on a patient on whom I had performed gastro-jejunostomy for gastric ulcer. The patient was placed on a milk diet and the observation lasted seven days. During this period the man absorbed 93.5 per cent. of the nitrogen and 94.1 per cent. of the fat taken in the food. In this case the nitrogen absorption was 0.9 per cent. and the fat absorption 0.9 per cent. below the average.

OBSERVATION 9.—This, too, was made on a patient on a milk diet twenty-four days after gastro-jejunostomy for gastric ulcer. In this patient 92.4 per cent. of the nitrogen and 96.8 per cent. of the fat taken in the food were absorbed, a diminution of 1.8 per cent. in the case of the nitrogen, and in the case of the fat an increase of 0.7 per cent. above the average.

Taking the whole series of nine observations, the average diminution of nitrogen absorption is 1.7 per cent. and the average diminution of fat absorption 1.9 per cent., while in every instance the variation is within the limits found in individuals who are in good health.

It may be urged that in those cases of this series in which there was no pyloric stenosis the food passed out through the pylorus rather than through the anastomotic opening. If this be true, although I am not prepared to admit it, it does not affect the conclusions to be drawn from the observations. We know clinically that gastro-jejunostomy has a very beneficial effect on gastric ulcer. This effect is probably due to the diminution of the acidity of the gastric contents which the operation brings about. Which route is taken by the food is a matter of academic interest, as it does not affect the therapeutic value of the operation. The important point is that the short circuit does not appreciably affect the metabolism whether the pylorus be patent or not, for you will observe that in those patients who have marked pyloric stenosis the absorption after operation is as good as in those in whom the pylorus is patent.

It is interesting to look back and observe how incomplete knowledge leads to the formation of erroneous hypotheses, and how as knowledge progresses facts apparently irreconcilable become reconcilable. Pawlow showed that the injection of acid into the duodenum causes a flow of pancreatic juice and that the acid chyme passing through the pylorus acts in the duodenum as the normal stimulus of the pancreatic gland. Herein apparently lay the cause of the loss of fat absorption which was supposed to follow gastro-jejunostomy.

Since after this operation the food passes directly into the jejunum, it was urged that the normal stimulus of the pancreas is absent, and that consequently there is a diminished flow of pancreatic juice, and as a result of this serious impairment of fat absorption. Now, Wertheimer has shown that the flow of pancreatic juice can be excited by the introduction of acid into the jejunum, and more recently Bayliss and Starling[10] have demonstrated that the stimulus is not a reflex one, but due to a substance which they call secretin, which is conveyed to the pancreatic gland through the blood stream. Therefore, both the hypotheses as to the diminished fat absorption and as to the cause of this supposed diminution are now shown to be erroneous. The physiologic and chemico-physiologic facts as we know them agree, for I hope that I have been able to prove that the digestion and metabolism of the human body are practically unaffected by the operation of gastro-jejunostomy, while the researches of Wertheimer and Bayliss and Starling tell us why the alteration of the route taken by the chyme does not prevent adequate stimulation of the pancreatic gland. Is it not a striking example of the wonderful power which Nature possesses of adapting herself to the altered conditions brought about by surgical intervention?

These experimental observations are supported by the evidence of clinical experience. May I remind you of

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10. Proceedings Royal Soc., 1902, 352.

one striking fact. As I have pointed out before, there are at the present time children alive and in perfect health on whom this operation was performed in early infancy. It is inconceivable that they would have lived for six or seven years and developed into strong healthy children had the operation the harmful effects which have been attributed to it.

Lastly, let me say this: Just because gastro-jejunostomy is not in itself harmful, there is a danger that we may be tempted to resort to it in doubtful cases in the hope that good may come. Great as is my respect for gastro-jejunostomy, I am no advocate of such a course. To operate for subjective symptoms in the absence of definite clinical and chemical signs is, to say the least, unscientific. Above all, we must guard against the failure and discredit which results from operation on neurasthenics and on those patients who, as Dr. W. J. Mayo so pithily puts it, "have had their movable organs fixed and their removable ones removed." Such persons, as we all know, are often only too ready to tempt fortune further at the shrine of surgery. Neither gastro-jejunostomy nor any other surgical procedure short of the removal of the higher centers of their brains will cure such of their ills.

The technic and statistics of gastro-jejunostomy I do not purpose to discuss. They have been recently fully dealt with in addresses delivered before this association. If you will allow I should, however, like to bring to your notice two time-saving devices which I have found of great value. The first is this set of suture reels. Each reel is of a different length so that the different sizes of silk or thread are wound on different sized reels, and the surgeon is able to see at a glance without examination of the suture material, which size of ligature he requires during the course of the operation.

The other device is this pattern of needle, which may be called a "grip-eyed" needle. It is designed to obviate the inconvenience and delay caused by the accidental unthreading of needles during suturing, and is especially adapted for continuous suturing. By pulling the suture firmly into the extremity of the eye furthest from the point the thread is firmly gripped so that it can not slip out.

SUMMARY.

To sum up, we are, I think, justified in drawing the following conclusions as to the physiologic effects of gastro-jejunostomy:

1. A certain amount of bile and pancreatic juice enter the stomach after gastro-jejunostomy, but the amount is small and has no injurious effect.

2. The acidity of the gastric contents is markedly diminished, usually about 30 or 35 per cent. This is due partly to a diminution of the total chlorids secreted, and partly to the partial or complete neutralization of the free hydrochloric acid by the alkaline bile and pancreatic juice, and probably also to earlier stimulation of the pancreatic secretion, and compensatory earlier fall of the gastric secretion. In gastric ulcer cases the removal of spasmodic stenosis of the pylorus likewise tends to diminish the total acidity.

3. Gastric digestion is impaired but not lost after gastro-jejunostomy.

4. The motility of the stomach, if normal before operation, is for practical purposes unaffected. Gastro-jejunostomy is, therefore, not a drainage operation. Its beneficial effects on gastric ulcer are due to the diminution of the acidity of the gastric contents.

5. Gastro-jejunostomy has no material effect on the metabolism of the human body, the percentage of nitrogen and fat absorbed being within the limits observed in individuals who are apparently healthy. This chemicopathologic evidence is supported by evidence of clinical experience.

In conclusion it is my pleasant duty to thank you one and all most cordially for the honor you have done me in inviting me to address this meeting of your association. Conscious as I am of the fragmentary nature of my remarks, I would remind you that just as "Nature exists in leasts," so the science of medicine has been built up by the accumulation of little facts. I venture to think that the dry bones of the observations which I have put before you are in reality clothed with the interest of practical importance in the surgery of the stomach.

Be that as it may, this at least I hope, that such visits as mine serve as an evidence of that good fellowship which should, and I believe does, exist between members of our profession in the old world and in the new. Although separated by the sea, we are united in the brotherhood of our common art. May we each glory in the share the other takes in its advancement. Let us say, as Marcus Aurelius said of old, "What matter by whom the good is done"?

And here may I pay a tribute to those in your country, some of whom now no longer speak to us, who have played so great a part in the progress of gastric and intestinal surgery. To mention only a few of these, the work of Halsted and Cushing on intestinal suturing, the work of Murphy on intestinal anastomosis, and the brilliant results of the Mayos, Ochsner, Finney, Deaver and others, are landmarks in the history of the surgery of the stomach. And let us not forget the early work of Senn, the father of intestinal surgery, and of O'Connor, whose conception and intrepid execution of the first total gastrectomy gave a powerful stimulus to gastric surgery. All honor to those early pioneers. Let us strive to follow in their footsteps.

"Science moves but slowly, slowly, creeping on from point to point;
Men, my brothers, men the workers, forward, forward let us range."

The science and art of surgery is incomplete and incompletable. We are aiming for a goal which we may never reach, but as your great writer, Emerson, says:

> "The persuasion that we must search that which we do not know, will render us beyond comparison, better, braver, and more industrious, than if we thought it impossible to discover that we do not know, and useless to search for it."

DISCUSSION.

DR. JOHN J. GILBRIDE, Philadelphia, has been interested in the question of metabolism following the operation of gastroenterostomy for several years. Most surgeons, he said, have been of the opinion that the operation of gastroenterostomy is purely a mechanical one and not a physiologic procedure, but Dr. Paterson's investigations show that the operation has a physiologic basis, and that the amount of nitrogen and fats absorbed are not decreased but actually increased. Most other observers have shown that bile is constantly present in the stomach following gastroenterostomy. At first the amount of bile present is rather large; later it becomes less, and finally, after several months, it is present only during the process of digestion. In reference to the lowered secretion of the gastric juice, Dr. Gilbride said that Mintz was the first to point out that following gastroenterostomy there is a reduction in the amount of gastric juice, and in some instances the chemical constituents of the secretion are so reduced as to render that secretion little more than water. Dr.

Paterson showed that there is a reduction of the chlorids in the gastric secretion, but the amount is not sufficient to materially disturb digestion. So far as the beneficial effects of the gastroenterostomy on the ulcer are concerned, Dr. Gilbride believes that there is an increase in the rapidity with which the stomach empties itself, together with a lessening of the irritating effect of the gastric contents passing over the surface of the ulcer; and that there is also a reduction in the total acidity of the gastric contents. As to the effect of the short circuiting of the gastric contents on the secretions of the duodenum and pancreas, Dr. Gilbride mentioned that Pawlow is of the opinion that it is necessary to have the acid gastric contents pass over the surface of the duodenum in order to excite this secretion. However, Wertheimer and others have shown that this is not necessary, as was pointed out by Dr. Paterson: that when the gastric contents escape directly from the stomach into the jejunum there is an excitation of the secretions into the duodenum.

Dr. Walter B. Cannon, Cambridge, Mass., did not consider gastroenterostomy a drainage operation. In the stomach there are peristaltic waves going toward the pylorus. There results from these waves increased pressure on the food as the pylorus is approached. If there are two openings for the food to go through, the pyloric opening and the stoma, the food will go out through the pylorus rather than through the stoma. Another result of these waves, he said, is that the peristalsis, as it mixes the food, mixes it in the pyloric end rather than in the cardiac end of the stomach. The food comes out through the pylorus as a thin fluid. It does not go out through the stoma because of the thicker consistence the food has in regions somewhat remote from the pyloric opening. The observations which Dr. Blake and Dr. Cannon made were made with the Roentgen ray, and there has been some question whether the pictures seen were true pictures. However, their results have been recently confirmed by observations made in the College of Physicians and Surgeons of New York City. A string was fed to dogs with a small bag of shot tied to the end of the string. In almost all of the cases it was found that the string passed out through the pylorus and thus into the small intestine. Many other observations were also made. The stomach was connected with the lower ileum and also with the colon, and the animal, for a time, gained in weight, which could not be possible if the food did not go out through the pylorus. Dr. Cannon thinks we are justified in concluding, therefore, that when there is a double way, the natural and artificial, the natural passage will be taken and not the artificial. Dr. Paterson, he said, mentioned one case in which they had a large opening, and stated that the food went out both ways. That was true only when fluid food was given; in this case semisolid food went out only through the pyloric opening and through the stoma.

Dr. J. W. Draper Maury, New York, thought that it might be interesting to direct attention to the experiments just referred to by Dr. Cannon. At the Surgical Research Laboratory they took a dog on which a gastro-jejunostomy had been done. The animal was fed with a piece of meat with a small bag of shot tied to it. After several days the animal was opened and the course taken by the string, which had been tied to the pterygomaxillary ligament, was studied. A number of such experiments were carried out, and in but a single instance had the bag of shot passed out through the stoma. In every other case it passed out through the pylorus. In the one exception the string passed down through the stoma, but instead of going on it came toward the pylorus, entered the stomach again, again passed out through the stoma and back into the stomach through the pylorus, completing two cycles. A second series of experiments was made to show whether the food passed through the pylorus or not. A very low gastroileostomy was done. Animals so operated on invariably gained in weight for a short time, about a week; then lost weight very rapidly and died; probably not because of the fact that the stomach was not functionating, but for other reasons. Another series of experiments was done with a piece of string. A gastroenterostomy was done at about the middle of the ileum and allowed to heal thoroughly. Then a piece of string was fed and attached to it a piece of meat of undigestible type. The free end of the string was tied to the pterygomaxillary ligament and left long enough to come half way down between the pylorus and stomach. A few days later the animal was fed fat. An hour afterward the animal was opened, and the lacteals on the oral side of the meat were gorged; those distal to it, between the meat and the stoma, were empty. The conclusion is either that no fat goes through the stoma, or it may be that no pancreatic juice was able to pass the temporary obstruction.

Dr. Herbert J. Paterson, London, England, thought that experiments on animals are open to criticism. He said that we are scarcely justified in assuming that the conclusions drawn from observations on aimals hold good for human beings. The experiments in which animals were fed on bags of shot are undoubtedly of great interest, but at the same time the interest is an academic one, for he, for one, is not in the habit of feeding his patients on such indigestible food. It does not interest him as a surgeon whether bags of shot pass out through the pylorus or through the anastomotic opening. Such experiments interest us as scientists, not as surgeons. The practical point which Dr. Paterson endeavored to bring out is this: that whether the food passes out of the stomach through the pylorus or through the artificial stoma—whether the pylorus is patent or not—the existence of a short circuit between the stomach and jejunum has for practical purposes no effect on the metabolism of the human body, while we do know that it has a very beneficial effect on gastric ulcer. Therefore, he submits that when the operation of gastrojejunostomy is deemed advisable clinically, one need not, on physiologic grounds, hesitate to perform it.

ANATOMY OF THE PALATE, NORMAL AND CLEFT.*

TRUMAN W. BROPHY, M.D.
CHICAGO.

It is not my purpose to describe in detail the anatomy of the palate, normal and cleft, but to point out the deviations from the normal as observed in the cleft. In the human embryo of about the third week, the face is in progress of development. From the front of the cephalic mass five tubercles bud out, of which the middle one passes vertically downward. This tubercle is double, and in it the intermaxillary bones are developed which contain the incisor teeth. Therefore, it bears the name "incisive tubercle."

The rudimentary superior maxillary bones, which are widely separated, are developed at each side of the incisive tubercle, though not united with it. While the fourth and fifth tubercles are separated in front, they subsequently unite in the median line to form the mandible.

Simultaneously the palate begins to be formed by the approach toward the median line of the two horizontal plates, developing from the maxillary processes on either side. If the palatal processes of the superior maxilla unite in the median line and blend also with the incisive bones, and the vomer grows downward to meet the palatal processes in their line of union, the upper jaw and lip will be normal. If, however, the superior maxillary and intermaxillary processes fail to unite with each other, cleft palate and harelip in one of their many forms will result. In the presentation of this subject, I desire to point out the cause of the deformity in question and a method of practice tested by the lapse of many years, by which the defect may be overcome at a time in life when it can be most easily and successfully accomplished.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

WHAT IS THE CAUSE OF CLEFT PALATE?

The literature on this subject is voluminous and largely theoretical. In reviewing this literature, we find a great similarity of views expressed by various authors. Heredity, prenatal impressions and imperfect nutrition during the early months of gestation are assigned as causes.

The condition of the mouth of a child who has a congenital cleft palate is described thus: "Want of coaptation, resulting from defective formation in the palatine plates of the maxillary and palate bones, is the cause of congenital deficiencies of the parts in question." Again: "The palate plates are arrested in their growth and permanent fissure of the palate is the result. The principal effects resulting from an absence of a portion of the palatine organs are an impairment of the functions of mastication, deglutition and speech." The definition generally given for cleft palate is: "A congenital deformity characterized by a fissure or fissures of the palate, due to arrested development."

From the foregoing quotations, we find that the opinions expressed are, that congenital cleft palate is the result of incomplete development of the tissue necessary to enter into its complete formation.

The opinions of authors thus expressed have been based, no doubt, on their observations of the open space between the oral and nasal cavities.

The deformity is not the result of "defective formation in the palatine plates," nor "congenital deficiencies of the parts in question," nor "arrested growth of the palate," nor "absence of a portion of the palatine tissue." All children who have congenital cleft palate, with rare exceptions, have in the palate the normal amount of tissue, although it is not united in the median line; it is cleft.

Congenital cleft palate has a predisposing and an exciting cause. The predisposing cause is heredity. The exciting cause is mechanical, the application of force in embryo. I have little faith in the theory that prenatal impressions cause failure of union of the bones in question. In the greater number of cases in which this cause has been given, on inquiring, it has been found that the mental shock occurred subsequent to the time when, if physiologic processes were not interfered with, union of the bones would be complete. It is too apparent to require argument that a mental impression could not separate a suture. Prenatal impressions, possibly, may be a factor in causing failure of union, but we have no authentic evidence to that effect.

I believe, however, that defective nutrition, or general debility of the mother during the early months of gestation from any cause, may delay union of the palatal plates. Nature does not fail to develop the necessary bone and soft parts to form a normal palate. But it does fail to bring the parts into apposition and unite them.

The bones having failed to unite prior to the fifth month of intrauterine life, the mandible, as soon as the muscles of mastication become active, brings pressure on the palatoalveolar inclined planes of the ununited superior maxillary bones, and, acting as a wedge, forces them apart and widens the breach. Moreover, the pressure of the tongue and the flexed position of the head with the symphysis of the mandible resting on the sternum may contribute to some extent to the force which is exerted by the lower jaw on the palatal arch and which forces the bones apart.

Having operated on over 1,300 cleft palate patients, over 400 of whom were infants under 6 months old, I have found that the breadth of the upper jaw, as compared with the lower, is just as much broader than it should be as the distance between the borders of the fissure. When we bring the borders of the fissure into contact, we have brought the upper jaw back to its normal breadth and to its proper relation with the lower jaw. There are very few exceptions to this statement.

In young infants who have cleft palate, I have always found that by slightly forcing the chin upward the pressure of the lower jaw against the segments of the upper jaw will spring the cleft bones apart.

Writers who have given a great deal of thought to the subject and who have dwelt at great length on its etiology, those who have proposed the more generous use of phosphatic food for the mother during the period of gestation have been unconscious of the fact that the bones are not, as a rule, defective in structure nor incomplete in development. There is failure of union.

SUMMARY.

The causes of congenital cleft palate are:

1. Heredity.
2. Mechanical force exerted by lower jaw against the upper jaw in embryo.

In congenital cleft palate in young infants, the full amount of tissue is developed to form a normal palate; the defect is due to failure of union. General debility of the mother in early months of gestation may be a factor. Prenatal impressions possibly, but evidence not conclusive.

Treatment.—Close the separated bones within three months after birth when the bones are soft and easily bent and moved into correct position. The hard palate should be closed before the lip operation. The lip operation should follow within three months after the bones have been united. The soft palate to be operated on last, preferably when the patient is about 14 to 16 months old.

WHAT SHOULD BE THE ATTITUDE OF THE PROFESSION TOWARD THE HYGIENE OF SCHOOL LIFE?*

RICHARD COLE NEWTON, M.D.
MONTCLAIR, N. J.

In a recent number of the *Medical Record* the statement is made that "a conference of the masters and medical officers of the great schools of England is to be called to consider the subject of the hours of sleep necessary for the scholars: a course fully justified by the importance of the question."

We read in the public prints that the second International Congress on School Hygiene is to be held in London next August under the patronage of the King and the presidency of that eminent physician and philanthropist, Sir Lauder Brunton. I quote from the prospectus:

> The marked success of the First International Congress in School Hygiene, held in Nuremberg in 1904, in bringing together workers of all countries, and in giving an impetus to this work, has already been signalized by increased literary activity in nearly every country. . . . One of the happiest results of the Nuremberg Congress was that members of various professions, teachers, medical men, architects, engineers, administrators, officials and manufacturers, appreciated

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

how intimately their work and duties were correlated, and also learned how greatly each was indebted to the other. . . . One of the aims of the congress was to coordinate the efforts of these various workers, and to aid each separate investigator.

Here are gratifying evidences that in England a great advance has been made since Herbert Spencer recorded his disgust that the English landed gentry would spend hours of their time daily discussing the best methods of breeding cattle, but avoided the consideration of the education of their own children as something quite beneath their notice.

But how about America? Has anyone ever heard of a conference between medical men, architects, engineers and public officials in regard to school hygiene? Have the masters and medical officers of the great schools in the United States ever met to confer on the number of hours that school children should sleep? Might it not possibly seem slightly *infra dignitatem* for some of our highly-cultivated LL.D.'s and S.T.D.'s to meet some of our professors of the science and practice of medicine to talk over the hours of sleep most suitable for a school child? And yet any reasonable person will acknowledge that, so far as the welfare of the child is concerned, the regulation of its habits of life is far more important than a consideration of the force of the digamma or the elucidation of Babylonic inscriptions. In fact, I will go further than this and assert, without fear of successful contradiction, that the value of health and happiness is so much greater than the value of mere erudition that an investigation of the proper hours of sleep is of vastly more importance than any learned discussions whatever.

Our present ill-advised system of public instruction is constantly defeating its own ends and turning out invalids, cranks and "bookful blockheads ignorantly read," simply for the want of a well-balanced curriculum of instruction, according an appropriate place to physical education.

I am aware that a society for the promotion of school hygiene exists in this country, but I have not been able to learn the particulars of its scope or organization. There are also various committees, like the Committee on Physical Welfare of School Children of New York City, which are doing excellent work along these lines, but there is a lamentable want of correlation between the efforts of such bodies of workers and the boards of education. Unfortunately the medical profession in the United States seems inclined to keep strictly aloof from questions of school policy. The health of school children has been studied a great deal and much valuable matter has been collected and published, but this has yet to be systematized and made available for general use in the school room in the every-day life of the scholar.

It is by information, not argument, that the public is convinced, and we are now in the stage of collecting a vast quantity of information in relation to school children which bids fair to be of great use later on.

It is abundantly true that the science of hygiene has outrun its practical application in every direction, and in none more markedly than in the hygiene of school life. Splendid work has been done in Chicago, Boston, Brookline, Mass., and other places in this country, as well as in various foreign countries, notably in Germany; and that the need is there felt of amalgamating and systematizing the work of different agencies is shown by the call for the International Congress from which I have already quoted.

A striking evidence of the utter want of harmony between those interested in school hygiene in New York City was furnished at a conference between the commissioner of health, the superintendent of schools and the committee on the physical welfare of school children, recently held in the Academy of Medicine. The last named body was especially anxious to secure funds for the prosecution of their most valuable and interesting work from the board of estimate and apportionment. I paraphrase an extract from the report of the meeting which appeared in the New York *Sun:*

> Had everyone present agreed that these things ought to be done, the discussion on both the theoretical and practical sides of the issues involved would have been complex enough. When, however, it developed soon after the opening of the evening session that the representative of the board of education did not in the least agree with the health commissioner on questions of policy and detail, and that neither of them was prepared to endorse the sentiments of the chairman of the conference, everything became so tangled that the audience simply gave up trying to understand the knotty points, and contented themselves with applauding the dramatic efforts of the speakers.

A number of teachers were present and tried to help unravel the difficulties of the situation. Some of the ideas expressed were, however, impracticable, and some were too indefinite to be of value. Such a conference, however, is a step in the right direction. The problems of school hygiene will not be solved in a moment. Many of them are still unsolved after years of study.

A school superintendent in a nearby city wrote to me once that in his opinion a medical director should be connected with every school, who should have the power to close the school, shorten the hours of study or take any other steps which he might deem necessary for the health and well-being of the scholars. Nor does this gentleman stand alone in saying to the medical profession, "Come over into Macedonia and help us."

The medical inspection of schools, now so generally adopted, has received, so far as I have been able to learn, the unqualified approbation of the teachers, who desire its extension and perfection.

These are said to be the times of great unrest and nothing has felt the impulse of change and innovation more than the so-called systems of education. As physicians, however, we are not concerned in the ultimate fate of the humanities or the triumph of the utilitarian branches of study. We are, or we should be, interested in the place which physical education shall hold in the instruction of children, and we must do our share in the solution of this difficult problem. Parents and teachers alike are looking to us for help. In one case at least, that has recently been reported, legal aid was called in to prevent overstudy in the high schools in Brooklyn. A presentment was handed up by the Grand Jury of Kings County, New York, after their examination of several members of the board of education and the principals of the high schools, containing a recommendation that home study by the high school pupils should entirely cease, as the jury had reached the conclusion that these scholars were being forced far beyond their capacity to absorb and retain knowledge. This is the only instance that ever came to my knowledge in which legal aid has been invoked to limit the number of hours which pupils in the public schools shall devote to study.

It would be interesting to know the qualifications of the particular grand jury which took such a decided stand in regard to home study, because they have handled without gloves a question in regard to which they possibly were not competent to express an opinion. The instance is referred to here chiefly as it illustrates the dissatisfaction with public school methods which seems to be exceedingly common at the present writing, and which is no doubt largely due to the uncertainties and contradictions which appear in so much of the present writing and talking on the subject of education.

It is unquestionably true in educational matters, as in many others, that "unwarranted conclusions are being drawn and hasty proposals made in the matter of legislation because of the lack of a broad basis of evidence and careful statistics." Such instances, however, as the action of the Kings County Grand Jury serve to emphasize the greatly increased popular interest in questions of education, as well as in those of health.

As was recently pointed out, the leading popular magazines a short time ago would uniformly decline to publish papers on health and hygiene which to-day they are glad to publish and are willing to pay $100 apiece for. This is solely because the public demands instruction in hygiene, and the magazine editors must provide it or the sales of their publications will fall off. The public is particularly anxious to learn something authoritative in regard to the hygiene of school life and the care and rearing of children. This demand comes not alone from those eager for sensational literature, but from our most earnest and philanthropic citizens. It is generally agreed that something is wrong, and the agitation will go on until the faults are discovered and eradicated.

It has been asserted in popular literature that several thousand children in New York City go to school every morning without their breakfasts. This statement naturally claimed considerable attention and led, I believe, to the inauguration of a movement to provide breakfasts for these children at the expense of the city. An investigation by the board of health, however, disclosed the fact that the children really did go to school breakfastless, not because no food was provided, but because they could not eat after the night spent in their ill-ventilated and overcrowded tenements. The Committee on the Physical Welfare of School Children also found that only 1.1 per cent. of 1,500 children investigated were not provided with some breakfast.

While no doubt sensational writing on this subject has served a good purpose, it is scarcely sufficiently broad in its scope or moderate in its statements to aid materially in the scientific solution of the social problems of the day. As has been well said, "The sentimentalist is of excellent service, provided that he or she be not permitted to make the laws before the physician, the statistician and political economist have had time to give reason and justice to the measure of relief proposed." According to Professor Gomperz, "The physician can never be absent from his post in the campaign against the encroachment of fancy on the domain of reason."

There has been much dispute, as you are aware, as to the age at which school life should begin, as well as to the number of hours which should be spent in school each day. Just now we are told by some that a school recess is unnecessary because certain rhythmical movements, called gymnastics, in which the pupils are made to indulge, may profitably take the place of the unorganized and crude motions in which the children naturally indulge in their play. Such reasoning shows the same breadth of mind and grasp of the important play-problem in education as has been evinced by those who would forbid a little child the delight of "Mother Goose's Melodies" because of their inherent improbability.

Some observer has laid down the dictum that he has never met with a case of chronic bad spelling in which there was not some defect of vision. This at first sounds convincing until we reflect that the normal eye is much more infrequent than that, now partly extinct, variety of public school scholar, the good speller. Here then is another place in which the services of the well-trained and broad-minded physician are needed. No doubt the perfunctory examinations of the eyes and ears of the scholars perpetrated, for the most part, by the already overworked teachers are better than no examinations, yet they are entirely inadequate to detect any but the grossest lesions and they have been so imperfectly applied that many pupils have been sent to oculists and aurists for treatment of which they stood in no need.

In the matter of teeth also experts should be employed for inspectors, as recommended by Dr. Osler, who has said, in effect, that he considers the question of sound teeth of greater national importance than that of the restriction of the consumption of alcohol.

A "hospital" school was started in Chicago to furnish proper instruction for slightly subnormal and invalid children to provide laboratory facilities for the scientific investigation of the phenomena connected with their conditions, as well as to afford special training for the teachers and nurses for this class of pupils. It is reported that 60 per cent. of the children who have received instruction and medical care in this institution are now working with normal children in the regular schools. Truly a gratifying result, showing again the great and beneficent truth that Nature is wondrous kind and that if one will study her laws and give her the aid she requires at the time that it is required, great and unexpected good can be wrought out for the unfortunate and backward child.

The old procrustean method of education dubbed the unfortunate waif a dunce, and then proceeded to shut out all hope by condemning him to tasks which he could not master and rendering his mental confusion and darkness worse, if not irreparable, by punishment and derision until he was driven out into the streets, if a poor man's son, to become a vagrant and a law-breaker, and if the offspring of wealthy parents to pass a scarcely more profitable existence, possibly in a sanatorium or under the care of a keeper.

That some more efficient supervision must be exercised over the school sports, which should be recognized as a part of the education and in which all the pupils and teachers should participate, the following goes to show. Murphy, the well-known trainer of college football teams, said some time ago that boys under 16 years ought not to be allowed to play hard football games. I quote his words:

> The greatest evil in trying to develop university football players is that so many otherwise promising players are strained by hard playing before they are sufficiently developed in growth or strength to stand the great strain of football in other than purely friendly or boyish games under some sort of watchful and intelligent direction by their elders.

With this sentiment I am disposed to agree fully, after having watched with some care the training and development of a high school football team during the past year. Here seems to be a menace to the best interests of the most promising of our school boys quite analogous to the injury which too early attendance at kindergarten and school inflicts on the public school scholars generally, and here is another of the places where the medical profession must interfere.

That interscholastic and even freshmen football contests should be abolished or modified I am strongly inclined to believe, yet there is no movement on foot to do this any more than there is to prevent too young children from the mental strain of too early attendance at school, in consequence of which they are listless, pale, sleepless and introspective at 10 or 12 years of age.

These are questions of the utmost importance. How shall they be met?

I believe that to provide the proper sort of physical instruction a special class of physicians will have to be raised up. Men of special fitness, themselves athletes or practical gymnasts, adepts in physiology and personal hygiene, who have had wide clinical experience with ordinary cases of sickness, and who are beside expert dietitians and have themselves enjoyed a university and a hospital training. Such are the physicians who should become the professors of physical training in our high schools and colleges.[1]

But let us never lose sight of the fact that the most important years of a child's education, both physical and mental, are the earliest years, and that, as pointed out by German educators years ago, a glaring fault of educational methods in the United States is that we put our youngest and most inexperienced teachers to do the most important work, namely, the instruction of the youngest children, so the most important work that the physical educator would have to do would be the teaching of the youngest children and the protection of their delicate bodies and pliant minds from the injuries now too often inflicted on them in their school life.

Besides these highly trained physical instructors, all the teachers will have to know more of the body and its functions. Physical education must be so taught in all the normal schools that the teachers shall become experts in the physical condition of children. Certainly they can soon learn by observation to determine whether any particular child feels well or badly, and if he is falling behind in his studies as well as in his weight and bodily fitness, whether this is due to ill health, neglect, bad surroundings or bad habits. Hoffmann has said, "It is probable that our public schools are as great producers of ill health as the mills."

In conversation with a superintendent of schools once I was informed that since a ventilating system had been put into an unhygienic old schoolhouse the town had saved the cost of the improvement in a short time in the salaries which they would otherwise have been obliged to pay the extra teachers to take the places of those made sick by the foul air of the building. He added that the ventilation of the building was still far from satisfactory.

This leads one to observe in passing that, in some schools at least, our present overloaded system of public school instruction is unspeakably cruel and exacting on the teachers. But we rarely give them a thought, and they seem to be too long suffering to complain. The physical director would relieve them of a part of their burden by assuming charge of the child's physical education and bodily welfare.

Thorough and painstaking examinations of the whole body and of each particular function of every pupil should be regularly made, and a complete chart should be filled out and compared with the admirable tables drawn up by Dr. Christopher and others after the careful weighing and measuring of many school children. I believe that such charts are now filled out and kept in some schools, not probably very exhaustively done and seldom, I suppose, sent to the parents.

The examinations of the physical condition and bodily development should occur just as regularly as those for mental prowess; marks should be given and should always be considered before the child is promoted. A child physically unfit to go into a higher grade should be dealt with as the case may demand. It might be either kept in the same grade, kept out of school for a longer or shorter time, or allowed to take only a part of the studies in the new grade. These points should be determined after a careful consultation between the physical director and the teachers of the other branches.

It is simply impossible to conceive of the number of broken hearts among the parents and of wrecked lives among the children that would be prevented by the simple rule of only promoting those children who are physically fit. If we add to this refusing a teachers' certificate to any one unable to pass a strict physical examination and the requirement that the teachers shall mingle in the children's games, we shall have made a long step toward the physical millennium toward which we believe the world is advancing.

As to the proper regulation of this physical instruction, and the providing of good men and women to do the work:—much of the examination and instruction of the girls would have to be done by women, who are, if anything, better adapted than men for the work:—the correct inspection of school houses and playgrounds and, in fact, the entire question of physical education, should be under a special board in each state; as suggested a few years ago by Dr. Cook, then Chairman of the Section on Diseases of Children of the American Medical Association. A board of five members, two at least of whom should be physicians, specially qualified for the work, should be appointed by the judges of the supreme court of the state. Let them receive adequate remuneration for the proper performance of their duties. This commission should have control over all the questions that we have hinted at; should appoint the physical instructors and supervise the inspection of the scholars and of the school houses, and should have the power to shut up any school in the state in which the laws, not alone of the state or of the United States, but of health and hygiene, are being violated.

The duty of our profession in the premises is to see that properly qualified men are put in office; that adequate legislation is enacted, and that this movement shall receive the proper support. So far from antagonizing the people by such a movement, we shall win their hearty cooperation. As hinted before, the medical profession have heretofore rather assumed the position of hanging back, and, according to the movement of securing a sound physical education for all our youth, faint praise or half-hearted acquiescence.

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[1] Since this paper was writtten I have read with interest Dr. Nicholas Senn's Jerome Cochran Lecture, delivered before the Medical Association of the State of Alabama (The Journal A. M. A., June 1, 1907), in which he advocates the foundation of hygienic institutes "where young physicians can receive the necessary education and training to prepare themselves for the high and responsible office of sanitary or health commissioner in the different communities." A somewhat larger scope must be given to such an institution before it can turn out the properly qualified medical director and physical instructor in the public and private schools. Yet there is no doubt that there is the same crying need for the latter as for the former class of experts, and that the same or similar facilities should be provided for their training and education.

But I assure you, my brethren, that the movement is now so strong that no power on earth can stop it, and that, unless we fit ourselves by study and experience to take our part in it, we shall not only fail in our duty to our day and generation, but the places that we should hold will be snatched from us by a body of physical educators raised to meet the growing demand, and we shall lose both in prestige and influence by their usurpation.

We must be up and doing. The proposition to appoint by law in each state a commission to take charge of the physical instruction in every public school and also, if need be, to look after the proper execution of the child labor laws, appointed by the judges of the supreme court of the state, in order to avoid, as far as possible, the cankering touch of politics, is a good one, and should receive our untiring and united support.

This matter should be brought up in each state society and advocated by as many of the state journals as can be enlisted in the work. I repeat that its importance can not be over estimated. There is a hiatus in the scheme of the physical education of children which only the expert and especially trained physician can fill, and the profession must see that such experts are provided, that they shall receive the recognition and exercise the authority which the great responsibility they will have assumed entitles them to. The problem of the proper education of our children can not be solved without just such expert skill, and these experts can not, it seems to me, exercise the proper authority and wield sufficient influence unless the enlightened and instructed medical profession shall stand solidly behind them.

Our duty is very plain. Let us at least not lag behind our English colleagues in doing our part in this great forward movement.

DISCUSSION.

Dr. Mary McCay Wenck, Sunbury, Pa., said that educating only school and college graduates as to the inevitable evil results of disease following wrongdoing does not reach the masses of young people. In Sunbury there is an immense silk mill employing about six hundred girls, many of whom are innocent country girls, entirely ignorant of the existence of vice. Some way should be found to educate them on this most important subject. Dr. Wenck asked: When patients present themselves with venereal troubles must the physician give to the unsuspecting wife an unvarnished statement regarding her condition? Is it the physician's duty to call a spade a spade to her? If it is a duty, Dr. Wenck fears that the divorce courts will be overflowing.

Dr. S. A. Knopf, New York City, said that there is not only a physical hygiene, but a mental and a moral hygiene which must be considered. In New York an effort has been made to improve the morals of children by removing adenoids—by attending to physical defects. In the truant school it was found that when adenoids, eyes and teeth were attended to there were fewer truants and the children became well behaved, and by and by they could be sent back to the other school. There is just as much physical as mental hygiene. There is a large population in all cities in which the child is underfed, and, while Dr. Knopf does not believe in pauperizing, he believes, he said, that when a child is going to school in the morning, with little or no breakfast and having for a lunch an apple and a cracker, that child can not do good work. In Berlin it was found that if the municipality appropriated a certain amount of money and gave such children a meat sandwich and one or two glasses of milk at noon they did better work, improved in weight and were better behaved.. Many thousands of school children in New York are myopic, astigmatic or have other defects of vision, and the result is that they can not see the blackboard; they are defective and are put back without any fault of their own. An effort is being made to have glasses provided. The children are sent to special clinics for diseases of the eyes and glasses are prescribed. The children are then sent back to the family physician, and if he does not attend to the matter they are sent to the dispensary. Now it transpires that there is not enough money to buy the glasses, so many are needed.

Dr. Knopf referred to the value of visiting school nurses and referred especially to a certain parasitic movement of the head which is frequent among the poor of New York. In former years a child so affected was simply sent home because it had a contagious disease. Finally, Dr. Biggs and Dr. Darlington, of the health department, created a corps of nurses, whose sole duty it was to clean the heads of the little ones. They attended to them, sent them home, and these children, instead of losing eighty days of school life, lost one or two days. That shows the value of attending to little ones while they go to school.

Dr. G. W. Drake, Hollins, Va., said that not only is it necessary to look after the prevention of bacterial diseases, but to look also to the prevention of what he calls self-produced diseases—diseases resulting from unhygienic habits of various kinds. Sufficient attention has been paid to ventilation, heating, lighting, but more than that is necessary; the curriculum of the schools needs to be looked after. The study hours, the sleeping hours, the resting hours—all these need to be looked after; and especially do physicians need to give advice as to the examinations. The examinations in some schools are ruinous, are destructive to health, destructive to life, and the trouble with our teachers is that they are not themselves educated in the true sense of the word. Education means a proper development or leading out of every organ of the body in symmetrical proportion, not the development of one to the detriment of another. That needs to be looked after. Dr. Drake has tried to impress on teachers the fact that what we call mental education is not all that they have to look after—that they must also look after the education of every part of the body: the education of the liver, the lungs, the muscles and of every department of the brain. The brain is not one organ; the motor areas of the brain, the sensory, and all the areas of the brain must be educated to fit them for their function; and the trouble, he says, is that presidents of colleges and principals of schools and educators generally are not acquainted with physiology and hygiene. Dr. Drake has said that no man should go out from a theological seminary to preach the gospel who had not first obtained a diploma in physiology and hygiene. It ought to be compulsory. Every one has been taught physiology in the primary department, and yet in the higher departments it is not studied. It should be taught as thoroughly in schools and colleges as in our medical colleges—in fact, even better. It should be taught more practically, and every physician, Dr. Drake declared, should possess a diploma in physiology and hygiene. Whenever that stage is reached, we will have proper education of our children and we will have healthy children. Educated men have undergone such a strain of examination and hard study that on leaving school with their diplomas they are not qualified to do the work for which they were educated. Students should be taught when to eat, how to eat, what to eat; when to sleep, how long to sleep, when to study and how long to study. Dr. Drake said that he heard a principal of a school say that the greatest enemies that higher education has are the doctors, and he thought it a compliment to the doctors.

Dr. Paul Paquin, Asheville, N. C., said that in North Carolina there is a state law making the school system neutral as to politics. In Asheville, under that principle, there is no friction whatever, and it has been possible to establish a system of medical supervision of all the schools. There are black and white schools there: the colored schools under colored physicians, the white schools under white physicians. On the Asheville School Board there is a physician as trustee, and, besides that, inspectors for every school. The teachers are all taught to take temperatures—to examine children as they come in and to call a physician when there is the least indication of illness. For any illness the child is sent home to the family physician; if not attended to there, he may be attended to by the inspectors. The question of time of study and study at home is also considered. Besides this, an oculist makes it his duty to look after every child's eyes. In North Carolina the work of medical supervision advocated here has been in operation for the last three years, and it is working almost perfectly. This year there has not been a case of typhoid fever, diphtheria or other infectious disease in the schools. People are becoming educated to the needs of sanitary individual health regulation in schools. In Asheville, schools are being built on modern lines, adapted to the needs of the times and within the principles of sanitation advocated in the Section. And all that is done under the supervision of three physicians and a sanitary engineer.

DR. LISTON H. MONTGOMERY, Chicago, said that in Chicago there is a board of education, composed of supposed non-politicians, women, ministers and lawyers, as well as politicians, with occasionally a physician, but it is supposed to be a non-political body. According to the law, each child shall attend school up to the age of 14 years, beginning at 5 or 6 years and attending, perhaps, the kindergarten first, and he is not supposed to be employed by any firm until the age of 14 has been reached, whether the child be a girl or a boy.

DR. RICHARD COLE NEWTON, Montclair, N. J., said that a great deal is being done in all directions in the matter of the physical care of school children, but the medical profession as a body has not shown that absorbing interest in the question that they ought to show and which he thinks they will have to show. We must have medical experts in education. Such questions must be solved as to how much physical exercise is to be allowed, at what age it should begin, and what the dangers are, if any, that may complicate physical exercise in young children. That will be an important part of the duty of the physical expert who shall have charge of this branch of education. Without such experts many of these problems can not be solved. Dr. Newton said that he knows what Dr. Knopf said about the immense interest taken in the public schools by all sorts of societies to be true, but before the problems come to a final solution they must be studied carefully by a special body of experts.. When such a body shall have been established an enormous advance in civilization will have been made.

THE STATE CONTROL OF INLAND WATERS.*

H. M. BRACKEN, M.D.

Secretary and Executive Officer Minnesota State Board of Health.

MINNEAPOLIS.

The desirability of state control over inland waters, I am sure, will be recognized by every careful thinker as an absolute necessity. Of course there are some selfish individuals who wish to use a waterway for their own convenience, urging that streams are Nature's sewers. But even these individuals run to cover when their personal comfort is jeopardized by their neighbors following out this line of argument.

For many years England permitted the pollution of streams, but a time came when such conditions were beyond endurance. It then cost millions of pounds to remedy the evil. The older states in our own country tolerated stream pollution until conditions became unbearable, and then, following in the steps of England, undertook to remedy an evil which never should have been permitted to exist. The newer states seem to be following in the footsteps of the older countries so far as these evils are concerned. In my state, Minnesota, it is by no means uncommon to hear people argue that the proper place for sewage is in streams, and this argument is too often advanced by medical men who should know better. There are lawmakers even in Minnesota, and I presume in other states, who, considering their own selfish interests and the selfish interests of their constituents, use their legislative authority to prevent the passage of laws looking to the protection of streams, lakes, etc., from pollution. These selfish individuals represent a class of people who are interested in the present rather than the future; who care nothing for posterity; who will not stop to consider that a dollar well spent now may save an expenditure of hundreds of dollars later. Unfortunately the world at large is governed by selfishness, and legislators are often no exception to this rule.

If there is no state control of inland waters we have as a result a general pollution of such waters as the population of a district increases. Such pollution may result from the discharge of domestic sewage or of industrial waste, and may become a nuisance or a cause of disease. It is a remarkable fact that a cause of disease among human beings will be tolerated much longer than a nuisance which is offensive or a cause of disease among animals which results in a direct financial loss to their owners. This is demonstrable, for all of us realize that a known infected public water supply may be continued in use indefinitely by a municipality or company. On the other hand, an intolerable stench, which in no sense need be injurious to health, calls forth protests that will result in its suppression regardless of cost. The farmer who thinks that his cattle are suffering as the result of drinking impure water will, by injunction, promptly restrain the offending parties from further endangering the lives of his stock.

It would seem that the short-sighted policy of the past in the older countries, in dealing with stream pollution would be so evident to all concerned as to call forth vigorous efforts on the part of interested parties to pursue a wiser course from this time on. It is not a difficult problem to care for sewage properly. Its discharge without purification into streams or other bodies of water is simply an evidence of shiftlessness.

If there is to be state control of inland waters the question is at once raised as to whom should have charge of such matters. Bearing on this point I wish to quote extensively from an editorial in the *Engineering News*, March 29, 1906, as follows:

> The proposal for a joint metropolitan sewerage commission for New York and New Jersey, made by the New York Bay Pollution Commission, and the conference on the pollution of the Delaware river held by representatives of the states of New Jersey and Pennsylvania, resulting in a proposal for joint action by those two states and by New York to prevent the pollution of the Delaware, suggest a brief consideration of the governmental machinery already existing in the several states to deal with questions of water pollution.
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> New York now has a State Department of Health, a State Water Supply Commission (both of which are permanent), and for two years past there has been in existence the New York Bay Pollution Commission.
>
> New Jersey has a State Board of Health, a State Sewerage Commission, and a Passaic Valley Sewerage Commission, each of which is a permanent body.
>
> Pennsylvania has a State Department of Health and a State Water Supply Commission.
>
> The question naturally arises whether this machinery is not more than adequate to deal with water pollution questions. By saying "more than adequate" we mean to suggest that it might be far better to consolidate some of the existing commissions in the several states rather than to provide a new one, and after such consolidation was effected to refer all matters of interstate pollution to the single strong commission that might be hoped for in each state, thus securing such joint action as might be necessary.
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> The proposal recently made by the New York Bay Pollution Commission does not presuppose the creation of any new body,

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

> of necessity, in New Jersey; but it does contemplate the continuation of a third commission in New York state. Is this necessary or desirable? There may be local conditions in each of the states named requiring the three separate commissions in New York and New Jersey, and the two commissions in Pennsylvania, but on broad general grounds a reduction in number is certainly desirable.
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> In Massachusetts nearly all the matters entrusted to the several commissions noted above have been most successfully handled by the State Board of Health. We think that in the case of New York and New Jersey, at least, it would have been better to have strengthened the state health departments rather than to have created one, at least, of the additional commissions. There were, however, some special reasons for the course pursued. In New Jersey there was some justification for establishing the Passaic Valley Sewerage Commission, on account of the fact that large construction work was necessary in the Passaic valley. It might have been well, however, to have deferred the appointment of a commission for construction work until the problem of final disposal had been more thoroughly worked out. As matters stand, the New Jersey State Sewerage Commission have been costing the people of New Jersey some $20,000 a year or more, and thus far have accomplished comparatively little. A small part of this sum entrusted to a properly organized and equipped state board of health each year, it seems to us, might have yielded far better and more permanent results. There was much to justify the creation of a separate commission for the study of the pollution of New York Bay, but in this case, also, assuming a properly organized and equipped state board of health, it is questionable whether the work might not better have been entrusted to the latter. The state water supply commissions of both New York and Pennsylvania were created in large part to deal with matters not properly pertaining to health departments. The New York commission adjusts conflicting interests between different communities seeking to draw water from the same drainage areas, and to it is also entrusted the matter of seeing that water and land interests are properly protected when a city reaches out into the rural districts for a supply. Thus far the Pennsylvania commission has seemed to do little work except to pass on applications for charters. The New York Water Supply Commission has mapped out a very ambitious program of investigation of both the water supplies and sewerage systems of the entire state. To a large extent this program covers the very field that seems naturally to pertain to the State Board of Health.
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> The New York State Health Department, as shown by its last annual report, is very poorly equipped for its work, owing to limited appropriations. This applies particularly to its investigations of water supply and sewerage questions. It seems fair to ask whether the State Health Department of New York is not being starved to provide funds for the other commissions. We do not suppose that this is actually the case, but the overlapping of work must make it difficult for the several commissions to secure the necessary appropriations. Certain it is that in Massachusetts, where all the sanitary work naturally falling to the State Board of Health has been continuously entrusted to such a board, highly gratifying results have been secured. In several other states where the experiment of splitting up the work has been tried long enough to see how it works, the results have been, in many respects, disappointing.
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> Connecticut, some will remember, launched a state sewerage commission a few years ago, but after doing some good work with a very limited appropriation it came to an untimely end. If the small sum of money appropriated to it had been given to the State Board of Health, it seems very likely that the appropriation might have been continued to the present time, and perhaps increased slightly from year to year.
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> About the same time that Connecticut split up its work of sanitary investigation, Ohio entrusted to its State Board of Health an investigation of the sanitary condition of the waters of the state. This work has increased from year to year, both in amount and efficiency, until Ohio is one of the leading states in the union in its supervision of public water supplies and sewage disposal. Only recently an appropriation of $15,000 has been made for an investigation by the State Board of Health on the actual workings of water and sewage purification plants within the state. Here, as in Massachusetts, concentrating sanitary investigations in the State Board of Health has worked admirably.
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> We are well aware that many troublesome questions are raised by the foregoing discussion, or would be if those who know the facts spoke frankly, but is it not high time that they were raised, and, if possible, settled? The questions center around the competence of certain state boards of health in the past; the degree of confidence with which their work and their personnel has inspired the public; the proper domain of a state board of health; and the persistent tendency of all governments to appoint new commissions and enact new laws instead of making the most of existing commissions and laws.

It is not necessary, I am sure, to apologize for this extensive quotation, for it is an able argument in favor of concentration of work, economy, and the greatest efficiency in matters pertaining to the protection of inland waters. Adopting this as an argument in favor of placing pollution of streams under the control of state boards of health, let us review the situation and note the present condition throughout the United States:

Georgia, under date of April 12, 1907, reports no laws on this subject and apparently no prospect of securing any satisfactory laws bearing on the protection of inland waters in the near future. The secretary of the State Board of Health, reporting this condition of affairs, says: "Of course I am very much opposed to the pollution of our streams in this way."

A report from Florida, dated April 16, 1907, states:

> A bill now pending before the legislature, if it passes (and there seems to be a good prospect of its doing so), will give the State Board of Health ample authority to deal with such matters.

It is to be hoped that this bill passed.

Not only does North Dakota not prevent the pollution of waters, but it actually gives permission so to do. Section 2771 of the Revised Code of 1905 says:

> Any city may empty or discharge its sewage into any river, but when a dam on such river is situated within the corporate limits of any city, the sewage shall be discharged below the dam.

Iowa has no law bearing on the protection of inland waters, but some of her citizens have protected themselves from the pollution of waters in which they were specifically interested by enjoining offenders. At different points in the state, municipalities and others have been compelled to provide sewage purification plants before discharging sewage into certain streams.

A report from Virginia, dated April 15, 1907, says:

> We made a strenuous effort to secure the passage of a bill, during the last legislature, relative to the pollution of the potable waters, but met with defeat.

Michigan, while one of the leading states in general matters pertaining to sanitation, has up to date no important laws bearing on the protection of waters. One of its officials, under date of April 16, 1907, says:

> This is certainly a most important question and its magnitude is impressed on us in a very striking manner when we stop and consider the deaths that result annually through causes directly traceable to polluted water.

The Revised Statutes of Maine, as amended in 1907 (Chapter 129), state:

> Whoever knowingly and wilfully poisons, defiles or in any way corrupts the waters of any well, spring, brook, lake, pond, river or reservoir, used for domestic purposes for man or beast, or knowingly corrupts the sources of any public water supply, or the tributaries of said sources of supply in such manner as to affect the purity of the water so supplied, or

> knowingly defiles such water in any manner, whether the same is frozen or not, or puts the carcass of any dead animal or other offensive material into said waters, or on the ice thereof, shall be punished by a fine not exceeding $1,000, or by imprisonment not exceeding one year.

This, if given its broadest interpretation, would seem to provide ample protection for the waters of Maine from pollution.

In Maryland the law prohibits the discharge of any sort of waste into any stream or other source of water supply, whereby the drinking water of any person living on that stream is fouled or rendered unfit for drinking or domestic consumption, and provides a penalty for the violation of this provision. The construction of the law is such, however, that it does not become operative until after the act of pollution has occurred and its consequences are possible of demonstration.

Many other states are in the same position as Maryland in relation to the necessity of demonstrated pollution before any action can be taken. This is certainly a most unwise and oftentimes expensive condition of affairs. It means that instead of some responsible body giving advice which can be enforced before the construction of sewerage systems or waste disposal plants, individuals or municipalities may spend considerable sums of money on such systems or plants which the state may later condemn at great financial loss to the individual or municipality.

In California the responsibility of protecting the waters of the state is not placed on any board or commission. There are no direct laws bearing on the protection of inland waters, but something has been gained during the last winter looking to the protection of domestic water supplies. An official, reporting on conditions in this state, says:

> I have no sympathy with the idea so often expressed that the streams are the natural sewers. In Nature people do not congregate in vast numbers on water courses or concentrate their filth to pollute them. The streams are our natural water supplies and should be kept clean. There is no doubt in my mind that both the disposal of sewage and the control of water supplies should be governed by some board. Naturally the State Board of Health is the one to be clothed with such authority, and it should be supplied with ample funds for the performance of its duties along these lines. If communities are left to themselves they will dispose of sewage in the easiest way possible, regardless of the well-being of others. My experience leads me to believe that this is a cause of a great deal of sickness. Water supplies are established that are entirely unfit for use, due consideration not having been given to the source from which the water is taken. If such matters were placed under state control I am sure that the expense involved would be repaid many fold in better health and lower death rates.

A report from Colorado, dated April 15, 1907, says:

> The law bearing on the pollution of streams is inadequate to the needs of this state. There is no legal supervision over the inland waters. Denver claims jurisdiction over the watersheds from whence it derives its supply, and this district covers territory to the extent of seventy-five miles. The only protection given is under Section 1376, Mills Annotated Statutes, Vol. 1, page 949, which reads as follows: "If any person or persons shall hereafter throw or discharge into any stream of running water, or into any ditch or flume in this state, any obnoxious substance, such as refuse matter from slaughterhouses, or privy, or slops from eating-houses or saloons, or any fleshy or vegetable matter which is subject to decay in water, such person or persons shall on conviction thereof, be punished by a fine of not less than $100, nor more than $500, for each and every offense so committed." The same volume, page 943, states: "If any person shall obstruct or injure, or cause or procure to be obstructed . . . or shall in anywise pollute or obstruct any water course, lake, pond, marsh, or common sewer, or continue such obstruction or pollution so as to render the same offensive or unwholesome to the county, town, village, or neighborhood thereabout, every person so offending shall on conviction thereof be fined not to exceed $300, and every such nuisance may by order of the district court before whom conviction may take place, be removed and abated by the sheriff of the proper county."

In Indiana there are two distinct laws concerning the pollution of streams, but neither of these prevents the use of streams in the disposal of sewage. An official, speaking of conditions in Indiana, says:

> The discharge of sewage into streams, lakes, etc., is certainly an uncivilized act. Now that sanitary science has demonstrated safe methods for the disposal of sewage, it is almost a crime to use the streams (especially when they are small) as carriers for sewage. In Indiana this question is of the greatest importance, for with the exception of the Ohio and the Wabash rivers, all the streams are small. Four good sized cities, one of which is Indianapolis, discharge their sewage into a creek called White River. The state will be compelled, sooner or later, to take action in regard to this matter. The question is, shall we wait until loss of money, disease and death force us to act? As for state control over public water supplies, there is no doubt but that this will be necessary in the near future. It is frequently shown that municipalities have blundered greatly in securing their water supplies. Money is lost and health and life endangered simply because scientific supervision has not been provided by the state. The public sentiment in Indiana is strongly in favor of the enactment of laws regulating the discharge of sewage, the construction of sewers, and the purification and filtration of public water supplies. The health authorities all over the state, the State Engineering Society, and the State Medical Society, have spoken emphatically in favor of state control.

An official from Kentucky, under date of April 18, 1907, says:

> The subject of the protection of inland waters presents the greatest problem that is before the sanitary authorities of the country at the present time. The magnificent work done by the State Boards of Health of Massachusetts, New York and Pennsylvania should be repeated on a larger scale by the more rapidly growing western states. It is comparatively cheap and easy to prevent the pollution of a stream, and it is enormously expensive to stop such pollution after it has been going on for many years.

An official, under date of April 15, 1907, speaking for Rhode Island, says:

> I believe that the State Board of Health should have complete autocratic control of all water supplies used for drinking purposes, and of all streams that are liable to be polluted with manufacturers' wastes. The installation of any plant for the purpose of obtaining a supply of drinking water and the method in handling the same, also the manner of conducting any industry which is liable to pollute streams, should be under the control of the state board.

An official, reporting for New Hampshire, under date of April 29, 1907, says:

> A few years ago the legislature conferred on the State Board of Health authority to establish rules and regulations for the protection of public water supplies under certain conditions. The board has already prohibited the discharge of sewage into many ponds and lakes that before were unprotected. The attorney-general has rendered a decision to the effect that the board has jurisdiction over other public waters than those from which municipal supplies are taken, and under this decision we have recently protected two of our famous lakes from pollution. These facts are given simply to show that the State Board of Health has authority which is recognized. The board has an indirect authority over the construction of waterworks and sewerage systems, for it may prohibit any municipality or corporation from supplying water for public use if the quality of the water is not satisfactory to the board, or in

> other words, if the source appears to be a dangerous one. The courts are authorized to issue an injunction against the use of such waters on request from the State Board of Health, thus making this law most effective. My personal views are that the discharge of sewage into streams, lakes, etc., should be prohibited, and that the filtration of public water supplies is to be recommended whenever there is danger of sewage pollution.

In MINNESOTA the law provides:

> No sewage or other matters that will impair the healthfulness of water shall be deposited where it will fall or drain into any pond or stream, used as a source of water supply for domestic use. The State Board of Health shall have general charge of all springs, wells, ponds, and streams so used, and shall take all necessary and proper steps to preserve the same from such pollution as may endanger the public health. In case of violation of any of the provisions of this section, the state board may, with or without a hearing, order any person to desist from causing such pollution, and to comply with such direction of the board as it may deem proper and expedient in the premises. Such order shall be served forthwith on the person found to have violated such provisions.—R. L., 1905, Sec. 2147.
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> Every person who shall deposit or cast into any lake, creek, or river, wholly or partly in the state, or who shall deposit on the ice of any such lake, creek, or river, the offal from, or the dead body of any animal, shall be guilty of gross misdemeanor, and punished by a fine of not less than $100, or imprisonment in the county jail for not less than three months, nor more than six months.—Sec. 5007.

This law, so far as it goes, is excellent, but it is on the general plan of locking the door after the horse is stolen. Municipalities and individuals can ignore the advice of the State Board of Health, so far as relates to the pollution of waters, but after the pollution can be demonstrated the State Board of Health is then in position to put such offending parties to considerable expense in correcting their errors.

KANSAS seems to be coming to the front in sanitary matters. An official, under date of April 15, 1907, says:

> Our last legislature passed a law looking to the preservation of the natural waters of this state. This law places the waterworks systems, as well as the sewerage systems, under the control of the State Board of Health. The new law contemplates the prevention of the discharge of untreated sewage into streams, etc., but permits sewerage systems now in operation to continue discharging into streams unless the State Board of Health deems it to the interests of the public health that such be discontinued.

NORTH CAROLINA appears to have good laws relating to the protection of water supplies. In addition it gives the State Board of Health certain authority under Chapter 214, Laws of 1893, as amended. Section 18 provides:

> The said board shall from time to time consult with and advise the boards of directors of all state institutions, the authorities of cities and towns, corporations or firms already having or intending to introduce systems of water supply, drainage or sewerage, as to the most appropriate source of supply, the best practicable method of assuring the purity thereof, or disposing of their drainage or sewage, having regard to the present and prospective needs and interests of other cities, towns, corporations, or firms which may be affected thereby. All such boards of directors, authorities, corporations and firms are hereby required to give notice to said board of their intentions in the premises and to submit for its advice outlines of their proposed plans or schemes in relation to water supply and disposal of sewage, and no contract shall be entered into by any state institution, city or town, for the introduction of a system of water supply or sewage disposal until said advice shall have been received and considered.

VERMONT, under its laws of 1902, provides:

> The State Board of Health shall have the general oversight and care of all waters, streams and ponds used by any cities, towns, villages or public institutions, or by any water or ice companies in this state as sources of water supply, and of all springs, streams and water courses tributary thereto. It shall have power to call for, and when it calls for it shall be provided with maps, plans and documents suitable for such purposes at the expense of such city, town, village, public institution, water or ice company, and shall keep records of all its transactions relative thereto. Said board shall have authority to prohibit any town, city, village, public institution, individual or water or ice company from using water or ice from any given source whenever in its opinion the same is so contaminated, unwholesome and impure that the use thereof endangers the public health. The court of chancery shall have jurisdiction and power, on application thereof by the State Board of Health, to enforce by proper order and decree any order, rule or regulation which said board may make under and by virtue of this section.

In WISCONSIN the law provides (Laws of 1905, Chap. 433, Sec. 3):

> Before any city or village shall institute a water system, or system for water supply for the domestic use of its inhabitants, or a system of sewerage for the disposition of its sewage, such city or village shall submit to the State Board of Health the plans and specifications for such system, and both of the water system and the sewerage system, if a sewerage system exists or is proposed, and the State Board of Health shall examine such plans and specifications for the proposed system and the sanitary and hygienic features thereof; and no such system shall be installed or put in operation until the State Board of Health shall issue its certificate that such proposed system will not be in any respect insanitary or dangerous to the public health.

An official, under date of April 16, 1907, says:

> Wisconsin, like many other states, is confronting a serious proposition concerning her methods in the past of obtaining water supplies for domestic purposes and the disposition of sewage. All of our lake cities have been in the habit of, and are still disposing of sewage into the same body of water from which they obtain their water supply. It is an indisputable fact that the water in all of these cities from time to time is polluted and that serious epidemics of typhoid fever and other bowel troubles result from such pollution. We must either do away with the present method of obtaining the water supply entirely from these great lakes or we must cease emptying the sewage into these bodies of water. Since the passage of the law of 1905 we allow no sewage to go untreated into any of the streams, lakes or rivers of the state. In all instances we require some system of treatment, at least the septic tank, and in some cases filtration in addition. Our conclusions in each particular are based on local conditions. We are strongly urging the necessity of pure water to begin with, rather than the purification of polluted waters.

In CONNECTICUT there is no legal supervision over the construction of waterworks and sewerage systems, although the State Board of Health is frequently called on to advise in these matters and is always ready to do so. An official, under date of April 18, 1907, states:

> As the population grows more dense it becomes more and more necessary to adopt some method of sewage purification. Several cities of the state, such as Waterbury and New Britain, which formerly turned their crude sewage into the rivers nearby, have been compelled to stop the practice because of injunctions brought against them by people living below on the streams. The filtration of drinking water is also constantly becoming more and more of a necessity in this state.

In the DISTRICT OF COLUMBIA the pollution of streams by sewage is forbidden unless such pollution is sanctioned by the commissioners of the district. The right of the commissioners to sanction such pollution is limited (30 Stats. 231, Sec. 13). Applications for permission must be in writing to said commissioners and must be accompanied by detailed plans of the system which it is proposed to construct and maintain, and no permit shall be issued until the commissioners are satisfied that such system can be maintained without nuisance or danger to the public health. Other precautions are taken to protect waters against pollution. While the protection of the waters of the district is directly under the control of the commissioners, the health officer of the district is directly responsible, so far as relates to sanitary consideration. The engineering department has the controlling voice in matters relating to structural features.

Probably the most advanced states at the present time in dealing with the protection of inland waters are Massachusetts, New Jersey, New York, Pennsylvania and Ohio. It is not necessary to spend time in discussing conditions in MASSACHUSETTS. That state has been in the forefront for years. The State Board of Health has general oversight and care of all inland waters and of all streams and ponds used by any city, town or public institution, or by any water or ice company, as sources of water supply, and of all springs, streams and water courses tributary thereto. The board may make rules and regulations to prevent the pollution and to secure the sanitary protection of all such waters as are used as sources of water supply. Such board shall consult with and advise the authorities of cities and towns and persons having, or about to have, systems of water supply, drainage or sewerage as to the most appropriate source of water supply, and the best method of assuring its purity or as to the best method of disposing of their drainage or sewage with reference to the existing and future needs of other cities, towns or persons which may be affected thereby. It shall also consult with and advise persons engaged or intending to engage in any manufacturing or other business whose drainage or sewage may tend to pollute any inland water as to the best method of preventing such pollution, and it may conduct experiments to determine the best methods of the purification or disposal of drainage or sewage. Cities, towns and persons are required to submit to said board for its advice their proposed system of water supply or of the disposal of drainage or sewage, and all petitions to the general court for authority to introduce a system of water supply, drainage or sewerage must be accompanied by a copy of the recommendation and advice of said board.

NEW JERSEY is following closely along the lines pursued in Massachusetts. A law approved March 17, 1899 (P. L. 1899, page 73), prohibits the pollution of waters which may be used for domestic purposes and gives the State Board of Health general supervision, with reference to their purity, of all rivers, brooks, streams, lakes, ponds, wells, springs or other reservoir in this state, the waters of which are, or may be used as, the source or sources of public water supplies for domestic use, together with the waters feeding the same, etc. The same year a bill was passed establishing a State Sewerage Commission (P. L. 1899, p. 536). It is unlawful for any person, corporation or municipality to build any sewer or drain or sewerage system from which it is designed that any sewage or other harmful and deleterious matter, solid or liquid, shall flow into any of the waters of this state so as to pollute or render them impure, except under such conditions as shall be approved by the state sewerage commission. The plans of sewage disposal plants must also be submitted to the state sewerage commission in advance of their being built.

In NEW YORK the State Commissioner of Health has power to take action regarding the pollution of streams, lakes, etc., by sewage, and any changes or alterations in the sewerage systems as they existed prior to 1903 must also be submitted to said commissioner for his approval. Power is also given to make rules for the protection of watersheds when asked to do so by a municipality or by any of its citizens who are interested in any particular supply. Dr. E. H. Porter, state health commissioner, in his report to the legislature, 1906, says:

> It is very probable that during the year 1906 2,000 deaths have occurred of typhoid fever in the state of New York. As the estimated mortality of this disease is about 10 per cent., it needs no expert mathematician to figure out the distress, suffering and grief, the enormous loss—mental, physical and financial—that these thousands of cases of typhoid fever have cost. And yet we know that it is almost entirely a preventable disease. We know it to be, in great part, a water-borne disease. Two hundred and fifty epidemics of typhoid fever have been collected and analyzed in Great Britain, and in every one the pollution of the water supply was the source of the evil.
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> The main pollution of our streams and lakes comes from the sewage of cities and towns, but to this must be added the pollution from drains, cesspools, refuse, manufacturing waste, etc. These conditions are inexcusable and shameful. They have existed for years; they should not exist another day.

The laws of New York (Chap. 661, 1893) provide that the State Board of Health shall make rules and regulations for the protection of water supplies. New York, following the example of Massachusetts, now employs a competent and increasing force of sanitary engineers.

OHIO is far in the lead of all other states west of Pittsburg in matters pertaining to the protection of inland waters. I believe it is the only state of the middle western group that has authority to compel the submittal of all plans for water and sewerage systems for approval by the State Board of Health before their construction. It is one of the leading states in the study of the purification and proper disposal of sewage. The State Board of Health in Ohio, patterning after Massachusetts, is doing excellent work in matters pertaining to the protection of its water supplies. It has in its employ a competent corps of sanitary engineers.

PENNSYLVANIA is the most recent state in the onward march for the protection of inland waters. This state has a typhoid fever record of which it may well be ashamed. The recent epidemic at Butler seems to have inspired the legislature with a desire to improve the sanitary conditions of the state. In 1905 it not only revised its Department of Public Health, but it also passed a law "to preserve the purity of the waters of the state." Section 3 of this law states:

> No municipal corporation, private corporation, company or individual shall construct waterworks for the supply of water to the public within the state, or extend the same without a written permit, to be obtained from the commissioner of health, if, in his judgment, the proposed source of supply appears to be not prejudicial to the public health. The application for such permit must be accompanied by a certified copy of the plans and surveys for such waterworks, or extension thereof, with a description of the source from which it is proposed to derive the supply; and no additional source of supply shall subsequently be used for any such waterworks without a similar permit from the commissioner of health.

Section 5 of the same law also places the construction of sewerage systems under the control of the State Commissioner of Health.

Since Pennsylvania has awakened to its responsibilities it has created an engineering department consisting of one chief engineer, three assistant engineers and eighteen inspectors to look after the sanitary needs of the state as relate to water and sewage.

The subject of pollution of streams was thoroughly discussed at the conference of State and Territorial Boards of Health with Surgeon General Wyman at Washington, May 23, 1906. In response to a roll call of states represented at this conference the condition in the various states is shown as follows:

Colorado—State board has control.
Delaware—State board has control.
District of Columbia—Health department has no control.
Florida—Only advisory powers.
Kansas—Only advisory powers.
Louisiana—No control.
Maine—No control.
Maryland—No control.
Massachusetts—State board has control.
Michigan—No legal control.
Minnesota—State board has control.
Missouri—No control.
Nebraska—No control.
New Jersey—State has control, but only partially under State Board of Health.
New York—State health department has control.
North Carolina—Advisory control only.
North Dakota—No control.
Ohio—State board has control.
Porto Rico—State board has control.
Rhode Island—Has control over water supplies but not over sewage disposal.
Tennessee—No control.
Utah—No control.
Vermont—State board has control.
Virginia—No control.
Washington—No control.
Wisconsin—State board has control.

From the foregoing it is to be noted that states are gradually awakening to their responsibilities in the protection of inland waters, and that almost universally the responsibility of protection is placed on state boards of health or state health commissioners. In certain instances special commissions have been abolished and the work formerly carried on by them placed under the control of state boards of health.

In states not already enumerated the only protection for waters is that given by the law which governs personal and property rights.[1] The Roman law held that rivers belong to a class of things *utilitatis innoxiæ*, and that, of natural right, flowing water is common property, that all rivers that flow perpetually are public and that property in flowing water can not be taken to belong to any one. The English common law held that while land is the subject of private property, flowing water is not. The same principles are the foundation of the American law of pollution. The existence of a remedy in the law for injuries caused by pollution of waters is guaranteed by the fundamental rule that for every injury there is a remedy. The right to an injunction and to damages on account of the discharge by cities and individuals of sewage into streams, thereby polluting them so as to render them unfit for ordinary uses, has been clearly established.

From this review of conditions in various states it will be seen that provisions for the protection of inland waters is nothing new. The question involved at the present time is whether such protection shall be through civil action or criminal prosecution. The general trend seems to be to place the protection of such waters under the control of sanitary authorities, and to anticipate in their protection rather than to wait until pollution has taken place before action is begun.

The old idea that pollution may be permitted up to a certain dilution has reference only to the creation of a nuisance and has no place in efforts to prevent the transmission of water-borne diseases. Another old idea of stream self-purification within a comparatively short distance is no longer tenable.

The protection of inland waters should be under the control of state boards of health in all states, as is now the case in Massachusetts, New York, New Jersey, Pennsylvania and Ohio. This is important both from the economic and the sanitary point of view.

DISCUSSION.

DR. HENRY D. HOLTON, Brattleboro, Vt., said that state boards of health are the proper ones to have charge of the waters of a state. In Vermont five years ago the legislature placed all the streams, lakes and bodies of water under control of the State Board of Health and gave them power to prohibit the pollution of any stream or body of water: the law provides a penalty for the placing of dead animals, or animal substances, not only in the stream and the immediate border of the stream, but in such proximity that it may be washed into or drawn into the stream. It also requires the board to exercise its authority and give its advice to towns or municipalities which are introducing water systems, and advice with regard to their sewerage systems. That law, during the last two years, prohibited, in five different towns, the use of a water supply polluted by sewage. The warning notice to three towns sufficed to make them provide pure water—or to take steps to do so. It takes time, of course. One or two towns had no authority to raise money for the purpose; and the last legislature gave them the power to bond for water purposes. So in two cases an order had to be issued prohibiting the use of the water. If that order shall not have been complied with, Dr. Holton said that the court of chancery will be asked to enjoin the towns; and then any one who uses the water after that is in contempt of court and may be fined accordingly. It seems to be working admirably; and public opinion in the state sustains the board in any action so far taken. Dr. Holton spoke of this as showing that the people are ready for action to correct the pollution. The question comes up, what rights, if any, a community or an individual has acquired in discharge of its sewage for a series of years into some stream or body of water. In Vermont it has been ruled that an individual or a community has no right to perform any act that shall be deleterious to the purity of the water or the public health of the community: that it can not acquire a right by any length of time in the doing of this wrong act in that manner. No case has yet been brought before the courts to prove that; but Dr. Holton has no doubt what the decision will be if any one should have the temerity to do so.

DR. J. H. STOLPER, Krebs, Okla., said that the suit of the State of Missouri against the city of Chicago, for emptying sewage into the Illinois River, has shown that the question of how far pollution will extend is not settled. Courts, as a general rule, are confused when it comes to questions of expert medical testimony.

Strange to say, the question of control of sanitation on railways has received little attention at the hands of the medical profession. For five years different railways have tried to have some system of sanitation, without any support from any board of health; and to-day, as far as Dr. Stolper's knowledge extends, there are only the states of Texas, Kentucky, Wisconsin (and Minnesota is falling in line) with some legal requirements in regard to railway sanitation. He thought that the matter of the spreading of infection by passenger trains should demand the attention of this Section; and he suggested that a symposium on railway sanitation be arranged next year.

COL. WILLIAM C. GORGAS, Ancon, Canal Zone, Panama, said that the water supply at Panama is entirely under the control of the commission, which can pass any law considered necessary with regard to it. The isthmus is a mountainous country, rolling, with very precipitous hills, and mountain streams come down to join the Chagres in every direction. Three or four of these streams have been dammed, so as to give a large supply, with a reservoir containing about 800,-

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[1] Taken from "A Summary of the Laws Relating to Pollution of Waters of Lakes and Streams," by Rome G. Brown, attorney at law, Minneapolis. See also "A Review of the Laws Forbidding Pollution of Inland Waters in the United States," by Edwin B. Goodell, Water Supply and Irrigation Paper No. 103, U. S. Geological Survey.

000.000 gallons, for the city of Panama. There is one nearly as large at Colon, also two or three smaller ones for the little villages along the canal. They seem to give a very good and a very pure supply. The disposal of night soil has been a problem. The Zone now has a population of about 100,000 people, whose sewage is, roughly speaking, disposed of about as follows: That of the city of Panama empties into the Pacific Ocean; of Colon, into a canal that is cut through a little island and eventually gets into the sea; and along most of the towns, spoken of as camps—consisting of frame buildings, more or less temporary—various expedients for sewage disposal have been devised; but four-fifths of these camps have sewerage systems emptying into the little streams contiguous. That was allowed from the fact that the construction had been considered temporary. All these towns will, of course, be abandoned. None of said streams is used as water supply for the population.

DR. C. HAMPSON JONES, Baltimore, said that in Baltimore there had been for a number of years a struggle to maintain the purity of the water supply, which comes principally from the Gunpowder River. The pollution of this stream—to a slight degree at all events—is undoubted. Baltimore, led by the State Board of Health in the person of Dr. Fulton, attempted some years ago to get rid of certain known polluting sources. The judgment of the law and the judgment of the facts being in the hands of interested parties, it invariably resulted in defeat. The board, however, has been able to get rid of a number of nuisances, more by persuasion than by law. It seemed to him that there is nothing left but to place the power absolutely in the State Board of Health, and also to educate the people up to the point of supporting that board of health. If it is left to the question of law, with the power of a few people to turn aside the law in its action, just so long there will be trouble similar to that in Maryland.

DR. G. T. SWARTS, Providence, R. I., said that water may be polluted by waste from factories so as to become a nuisance, even if not used for drinking purposes. A nuisance ranks very high along with the question of health, and appeals very frequently to the populace and to legislatures, perhaps, more powerfully than the question of health. If a state looks out for the pollution of its own supplies or its own waterways, it will often be doing a great benefit to the neighboring state; and there is one of the difficulties that must be contended with—that while one state keeps its waterways uncontaminated, an adjoining state may be polluting its sources in such a way as to contaminate the waters of the other state which has no means of redress. There is where the U. S. Public Health and Marine-Hospital Service or some national board should have jurisdiction so as to prevent pollution.

In Rhode Island it is a difficult matter to obtain laws, owing to the conservative ideas passed down from ancestors; and to ask for the cessation of pollution from the industrial sources is to attack the industries, which, of course, are influential factors. Dr. Swarts said that they have undertaken, therefore, to meet them on their grounds by joining forces with the United States Hydrographic Bureau; and during the past nine months have combined our laboratory and chemist with the chemist of the Hydrographic Bureau to determine the amount of pollution coming from the various industries for the purpose of inducing them, by request and by cooperation, to stop that pollution; and, by taking no aggressive steps in the matter, they have had the cooperation, so far, of almost all of the industries polluting the small streams of Rhode Island. It has developed in many cases that there is a certain amount of recoverable matter from the refuse material which, in the course of a year or two, would be a source of profit to the industry. He thought that, if the Hydrographic Bureau could extend its influence or powers still further, so that other states would take advantage of it, it would be a great benefit. All interested in hygiene should urge their representatives to encourage this work of the Hydrographic Bureau, which is the cessation of the pollution of streams.

DR. WILLIAM H. SANDERS, Montgomery, Ala., said that it is hoped in Alabama to lay, very soon, the foundation for placing the control of the pollution of streams under the authority of the State Board of Health. A necessity for the creation of a national board of health lies in the pollution of streams that flow out of one state into another state or through several states. Of course, one state can only protect its streams within its own borders, and can have no authority whatever over a stream coming out of an adjoining state into it. Recently Dr. Sanders had had occasion to look into the law of nuisances. A legal book of five or six hundred pages has recently appeared which refers to a great many decisions on the pollution of streams; and very uniformly the courts have upheld the principle that no persons, corporations or what not have any right to pollute streams of water. This principle is upheld: That a man who buys property on a stream below a point at which the stream becomes polluted, although the pollution existed before he acquired the property lower down on the stream, is not by that fact prevented from bringing suit in the courts for damages although the nuisance existed at the time he acquired property and built his premises lower down. Dr. Sanders had previously supposed, that this principle would not hold: that if a man with his eyes open acquired property on the stream below the point at which it was polluted, he was estopped from making any complaint, but numerous decisions uphold the principle that health and life are superior to private and material interests.

DR. LISTON H. MONTGOMERY, Chicago, said that he would go a step farther, so as to have such supervision of the inland streams, canals, rivers and lakes, as to prevent the granting of franchises to various corporations—gas and electric light companies, railroads, manufactories, etc.—as they become careless and tend to undo this very important reform by permitting their employés to pollute streams. The Chicago water supply is derived from Lake Michigan, a few miles from the shore, and most of the sewage goes down the drainage canal into the Illinois River, and thence into the Mississippi River. Dr. Montgomery thinks that a national board of health has been already too long delayed; it is the imperative, paramount duty of our government to protect the welfare of the people in public health matters, as our government was instituted to promote the welfare of mankind. It should have the cooperation of all powers, national, state and interstate, throughout the Union.

DR. W. H. DONALDSON, Fairfield, Conn., said that those who live in manufacturing districts desire light on some practical sanitary way of disposing of factory wastes which are now such a large factor in stream pollution. How health authorities can instruct owners of large factories, located on streams, to dispose of their sewage, wash waters, dyestuffs, etc., with the intake and discharge in close proximity, is a problem separate from ordinary sewage disposal.

STREAM POLLUTION AND ITS PREVENTION.*

X. G. GOODNOUGH.
Chief Engineer of the State Board of Health of Massachusetts.
BOSTON.

The various sources of stream pollution are so well known that it is unnecessary to describe them in any considerable detail to an association like this.

The effect of stream pollution, so far as the sanitary questions involved are concerned, may be considered from two points of view: 1, the use of the stream as a source of water supply; and, 2, the influence of its condition on the health and comfort of those living in its neighborhood.

It is not the purpose of this paper to consider the pollution of streams and its prevention from the point of view of their use as sources of public water supply. While a great many cities and towns in this country obtain their water supplies directly from rivers draining populated areas, the danger of the use of such sources is now well understood, and the more progressive communities have already taken steps to guard against the injury to the public health that results from the use of such sources. The use of unpurified river waters for domestic purposes is rapidly passing, and the time is probably not far distant when such use shall have wholly ceased.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

On the other hand, the problem of the prevention of stream pollution from the point of view of the health and comfort of those dwelling along our rivers is one which has as yet received, on the whole, comparatively little attention in this country.

The chief sources of stream pollution are, first, domestic sewage—the wastes from water-closets, bath-tubs, sinks, etc., in dwelling houses and other buildings—and, second, manufacturing wastes—the liquid wastes resulting from processes carried on in manufacturing establishments, prominent among which may be mentioned tanneries, woolen mills, paper mills, and gas works, though there are many others.

All streams which drain populated areas are affected in a greater or less degree by the wastes of human life and industry, the effect of which may be said in general to be proportional to the density of the population within the watershed. This rule is subject to many exceptions, since it makes a great difference whether sewage is discharged into a stream directly or finds its way there only after passing through the soil. Manufacturing wastes also may greatly injure the condition of a stream affected but little by sewage, and such wastes are often the chief cause of trouble in the most seriously polluted streams.

In general, however, the rule is true, and consequently we find the worst trouble from stream pollution in densely populated regions, especially those in which a great amount of manufacturing is carried on. In this country the most serious cases of stream pollution are found in densely populated areas in the manufacturing states.

The literature of this subject is very extensive, especially in England, where the agitation for the prevention of stream pollution began some fifty years ago at a time when conditions there had reached the stage where a commission on the sewerage of towns denounced it as an "evil of national urgency requiring the earliest and most serious attention."

The agitation relative to the prevention of the pollution of streams in England was followed several years later by a similar agitation in this country, induced perhaps in part by the condition of the English streams and the realizing sense of those who had examined the subject that we were traveling rapidly in the same direction, but chiefly by the evidently increasing pollution of our own rivers, especially in Massachusetts and in densely populated watersheds in other eastern states.

An investigation of the condition of the streams of Massachusetts carried on by the State Board of Health in 1876 showed that at that time some of the streams had already become seriously polluted. No control over the streams was exercised by any one, all the waters at that time being left to the ordinary rules of common law, concerning which the board makes the following statement in its report of the year mentioned:

> Any defense against the impurities which so conveniently flow into our waters from the settlements and works on their banks has thus far been merely nominal; that is, the law can be used to prevent a nuisance from continuing to be poured into the river, but it is not used because the process is too slow, cumbersome and expensive.

Cities and towns at that time, as sewerage became necessary, discharged their sewage directly into the nearest stream or other convenient body of water with entire disregard of possible consequences, while manufacturers used the streams as they pleased.

The condition of several of the streams was rapidly becoming intolerable, and the question of dealing with the pollution of streams was taken up by the legislature and committed to a special commission authorized to employ experts, who entered on their work in 1884 and reported to the legislature in 1886.

This commission, after a thorough investigation and a consideration of various plans of controlling the inland waters of the state, recommended the appointment or designation of a commission to have a general oversight and care of the inland waters of the state, with power to advise cities and towns, manufacturers and others as to the disposal of their sewage and wastes, with a view to the protection of the public interests. Their conclusions and recommendations with reference to the duties of this proposed commission were, in part, as follows:

> Let these guardians of inland waters be charged to acquaint themselves with the actual condition of all waters within the state as respects their pollution or purity, and to inform themselves particularly as to the relation which that condition bears to the health and well-being of any part of the people of the commonwealth. Let them do away, as far as possible, with all remediable pollution, and use every means in their power to prevent further vitiation. Let them make it their business to advise and assist cities or towns desiring a supply of water or a system of sewerage. They shall put themselves at the disposal of manufacturers and others using rivers, streams or ponds, or in any way misusing them, to suggest the best means of minimizing the amount of dirt in their effluent, and to experiment on methods of reducing or avoiding pollution. They shall warn the persistent violator of all reasonable regulation in the management of water, of the consequences of his acts. In a word, it shall be their especial function to guard the public interest and the public health in its relation with water, whether pure or defiled with the ultimate hope, which must never be abandoned, that sooner or later ways may be found to redeem and preserve all the waters of the state. We propose to clothe the board with no other power than the power to examine, advise and report, except in cases of violation of the statutes. Such cases, if persisted in after notice, are to be referred to the attorney general for action. Other than this, its decisions must look for their sanction to their own intrinsic sense and soundness. Its last protest against wilful and obstinate defilement will be to the general court. To that tribunal it shall report all the facts, leaving to its supreme discretion the final disposition of such offenders. If such a board be able to commend itself by its conduct to the approval of the great court of public opinion, it will have no difficulty, we think, in materially reducing the disorders and abuses which are threatening to give great trouble in future if not speedily checked. If, however, we err in this expectation, and more drastic measures prove indispensable, the mandate of the state can always be invoked to re-enforce its advice.

The legislature, acting on the advice of the commission, in 1886, passed a law embodying practically these conclusions, and committed its enforcement to the State Board of Health, reorganized for the purpose, and two years later strengthened the law in a considerable degree by providing that all petitions to the legislature for authority to introduce a system of water supply, sewerage or drainage should be accompanied by the advice and recommendation of the State Board of Health thereon.

The same legislature that passed the first law relative to the prevention of the pollution of streams was called on to take action relative to one of the streams of the state, the Blackstone river, which had already become so grossly polluted as to be a public nuisance; and a law was enacted directing the city of Worcester, within four years from the passage of the act, to purify its sewage before discharging it into the river. The four years ended in June, 1890. Five years later—that is, in 1895—the aid of the court was invoked to carry out the law, and an order was made by the court in 1896 directing the further purification of the sewage of the city. Ten years after that decision—or in 1906—the matter has again reached the courts, and a further order is asked for by those who dwell in the valley of the river and suffer from its offensive condition. Thus, after more than twenty years have elapsed since the law directing the removal of Worcester sewage from the Blackstone river was passed by the legislature, the nuisance caused by the pollution of that stream is as bad as ever.

This example of an attempt to effect the purification of a river after it has once become grossly polluted shows how slow the process may be in some cases.

Returning to the report of the commission of 1886, it will be seen that it recommended the granting of advisory rather than mandatory powers to the board that was to have charge of the protection of inland waters. This was especially essential in a state like Massachusetts, where manufacturing from the earliest years had been steadily favored by the law-making power, and the streams and unnavigable waters had been, as the commisson states in its report, substantially dedicated to manufacturing uses. The results, however, have shown the wisdom of this recommendation.

The carrying out of the work was committed to a board composed of physicians, lawyers, engineers and business men who have served without pay.

The board from the beginning examined each application for advice with reference to water supply, sewerage or sewage disposal, or other questions brought to its attention under the act, with the greatest care, with the advice and assistance of the ablest engineers, chemists and biologists obtainable, and who were not authorized to do similar work within the limits of the state. They began at once to make a systematic chemical examination of all of the various rivers at such points as would show most clearly their condition, and collected statistics as to the sources of pollution of each stream, reporting the results from time to time to the legislature.

While all cities, towns and individuals intending to introduce new systems of water supply, drainage or sewerage were required by law to submit their plans for the advice of the State Board of Health, they were not required to follow that advice. It is interesting, under the circumstances, to note that practically from the beginning none cared to let that advice pass unheeded. The advice of the board has operated in effect as an order, and one of its great advantages has been that it preceded any other action, except the preparation of plans.

In the beginning of the enforcement of the law the board found that cities, towns and factories were already discharging sewage and wastes with the greatest freedom into the rivers and other inland waters, and many of the streams of the state had already become seriously polluted.

There is no doubt that a stream or river of considerable size may receive a considerable quantity of sewage without objection if it is not used as a source of water supply, and, in carrying out the law relative to the prevention of stream pollution in Massachusetts, cases were found in which such disposal of sewage or manufacturing waste would not be objectionable, for the time being at least. Under such circumstances the disposal of sewage into streams has been advised in some cases; but such disposal has been carefully guarded by a time limit whereby the use of the stream as a place of sewage disposal might be terminated whenever it should seem necessary or desirable to do so.

Moreover, in all such cases it has been the practice to determine first the best practicable plan of purifying the sewage of the city or town before authorizing its disposal into a stream, in order that the change from the latter method of purification might be made with the least possible trouble and expense. As a further saving in the ultimate cost of sewage disposal works, the board has advised in all new systems of sewers the keeping of the sewage and storm water wholly separate, admitting to the sewers only such wastes as were liable to create offensive conditions when discharged into the streams, and keeping roof water and other surface and ground drainage wholly out of them. The insistence on the separate system of sewers has been of the greatest advantage in all cases where subsequent purification of the sewage has become necessary.

In all the laws affecting the pollution of streams in Massachusetts the legislature has made two notable exceptions, viz., the Connecticut and Merrimack rivers, the largest streams in the state, each of which receives much pollution before entering its limits. They are still, however, capable of receiving and properly disposing of a larger quantity of sewage than they now receive, and will probably continue, for the present at least, to be excluded from laws relating to the pollution of streams. In the case of the other streams, the dividing line between the condition where it is permissible to discharge sewage into the stream and the condition wherein such discharge is likely to be objectionable is, of course, uncertain, and each case has to be judged on its merits.

In general, the discharge of sewage into a stream is unlikely to be objectionable if the flow of the stream during the driest periods amounts to as much as six cubic feet per 1,000 persons in the town to be sewered. Even a smaller dilution may not be objectionable in some cases where the stream is unaffected by other wastes. On the other hand, an allowance must necessarily be made in most cases for the growth of the town and an increase in the quantity of sewage; and it is not usually desirable to allow the discharge of sewage into a stream at all unless the dilution is somewhat greater than the amount indicated. Other conditions also may have a material and perhaps a decisive influence in determining whether the sewage of a given town may be discharged into a stream or not.

The total number of inland towns in Massachusetts having sewerage systems at the present time is 60. Fourteen of these discharge their sewage directly into the Connecticut and Merrimack rivers or into tributaries of these streams at their points of confluence. Of the remaining cities and towns, twenty-five now purify their sewage and discharge only the purified effluent into the streams, while twenty-one continue to discharge their sewage into the streams without purification. Of these twenty-one cities and towns which are now discharging their sewage untreated into inland waters exclusive of the Connecticut and Merrimack rivers, about one-third are doing so under the authority of the advice of the

State Board of Health, which limits the time within which such discharge can continue, and the remaining fourteen represent the number of cities and towns whose systems were in existence previous to the passage of the law relative to the pollution of streams, and whose privilege has not since been modified.

In more recent years, while the advisory policy with reference to the control by the state over its inland waters has been continued, this policy has been materially strengthened by inserting in each new act passed by the legislature authorizing the introduction or modification of systems of water supply, drainage or sewerage, a clause requiring the approval of the plans by the State Board of Health.

As a result of the legislation of 1886 and the subsequent acts strengthening that legislation, the pollution of streams by the sewage of cities and towns has been arrested, and progress has been made in reclaiming from pollution some of the streams which had already become seriously injured at the time the act was passed. There still remain, however, several cases of serious stream pollution in Massachusetts by the sewage of cities and towns, most of which, however, are already in process of removal.

In dealing with the pollution of streams in Massachusetts one of the most serious problems presented has been that of the Neponset river, a stream which has been grossly polluted almost wholly by wastes from manufacturing processes in tanneries, paper mills, woolen mills, gas works, etc. All, or practically all, of these establishments were in existence at the time the laws relating to the pollution of streams were passed; in fact, in many cases, these manufactories had been in operation for many years.

In this case the question of preventing the nuisance caused by the stream was brought to the attention of the legislature, which directed the State Board of Health to investigate the causes and recommend measures for preventing the trouble. The question was complicated by a question of the drainage of extensive marsh lands along the stream, and the whole matter was the subject of consideration by the legislature for five successive years before action was finally taken. The law then passed did not prove strong enough to secure satisfactory results, and after four years of trial a law was finally passed requiring the purification of the manufacturing wastes by all persons discharging such wastes into the stream or any of its tributaries under penalty of a heavy fine for neglect to observe its provisions. Under this act, which was passed last year, manufacturers have quickly taken steps to prevent their wastes from creating further offense in the stream.

It is important, before closing, to call attention to one other and most essential factor in carrying out successfully the work of preventing the further pollution of streams in Massachusetts and recovering the ground which had already been lost there when this work was first undertaken, and that is the provision made by the legislature which authorized the State Board of Health to make experiments on the purification of sewage and manufacturing wastes so that the board might be in a position to advise cities, towns and manufacturers as to the most appropriate and satisfactory methods of disposal or purificaton of such wastes.

Very soon after the passage of the law an experiment station was established by the board at Lawrence, and experiments have been made there continuously for the last twenty years on the purification and disposal of sewage, and of all kinds of manufacturing wastes, beside the work done there in the purification of water and in other investigations in connection with the work of the board on this and similar subjects.

At this experiment station were made the first systematic investigations on the purification of sewage on a practical scale, the results of which have been the basis of the advice of the board in dealing with problems relating to the prevention of the pollution of streams.

The results of these experiments and investigations need not be considered here, further than to state that they have stood the test of many years in the purification of the sewage or other wastes of a large number of cities, towns and manufacturing establishments.

SEWAGE PURIFICATION BY SEPTIC TANK AND CHEMICAL PRECIPITATION.*

GEORGE T. MOORE, Ph. D.
WASHINGTON, D. C.

The obvious impossibility of discussing in any detail either the septic tank or chemical treatment of sewage, in the twenty or thirty minutes allotted, makes it necessary that the subject be treated very generally, depending on the discussion which may follow to bring out special points of interest. Fortunately, the satisfactory account of these two methods of sewage disposal given by Professor Winslow and Mr. Phelps in No. 185 of the Water Supply and Irrigation Papers of the U. S. Geological Survey makes it unnecessary to devote any time either to the theoretical or historical side of the subject, and, therefore, the practical aspect will be the only one touched.

The two extreme views now held in this country regarding sewage disposal may be represented, on the one hand, by those who hold that all water for domestic purposes must be purified and consequently there is no need of wasting time and money on sewage; and, on the other hand, by some authorities who claim it is an absurdity to have to repurify water deliberately polluted, and that the solution of the pure-water problem lies in the most rigid and efficient purification of sewage and other wastes which by any natural means can reach a properly protected water supply. It is evident, without attempting to indicate the difficulties which must attend the proper enforcement of either of these plans alone, that for the present at least the only safe method is to purify both water and sewage whenever practicable, and the discussion in this country in legislative halls, as well as before scientific associations, regarding proper sewage disposal, would seem to indicate that to provide such a double safeguard may not be as impossible as was at once supposed.

It will probably be admitted that the question of sewage disposal is quite distinct from that of water purification both from the standpoint of the public, as well as that of the engineer and biologist. Usually when a community is forced to the sanitary consideration of its sewage problem it is for the benefit of some other town in the vicinity, and the interest can never be such a lively one as that concerned with the procuring of a pure water for local consumption. A town which would not hesitate to spend a million for pure water absolutely refuses to devote one-tenth of that amount for sewage purification. Within the last year a community with which I was associated overwhelmingly voted down the proposition to borrow the $250,000.00 necessary to install an efficient and modern sewage disposal plant. This, too, in the face of threats from the state health officer and several pending suits from individuals through whose property the stream of sewage flowed. It is interesting to note that an analysis of the vote showed that the proposition was defeated not by the property owners and better class of citizens on whom the immediate cost would have fallen, but on the small renter who seemed to have the idea that the expenditure of so much money for sewage disposal would increase his rent and other living expenses.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Thus it would seem that there now exists a necessity for the perfection of methods which, while in themselves not altogether ideal, will afford some relief and to a considerable extent answer the purpose of purifying sewage. For, although there are a few shining examples of cities willing to spend the time and money necessary to find the best, we are not yet at the stage in this country where we can hope to convert the average community to this practice.

Furthermore, the efficient and economical disposition of sewage is vastly more dependent on local conditions than that of the purification of water. We certainly are not now at the place where any single method of treating sewage can be universally recommended, and, even though there might be agreement on the best theoretical means of accomplishing this purpose, the chances are that methods quite distinct must always be used to meet peculiar or even common conditions.

While most authorities on sewage disposal maintain that the problem of purification does not involve the question of a sterile effluent, there can be no doubt that the legal interpretation of what a purified sewage should be has been for the most part opposed to this view. And since, at the present time, the strongest incentive to any community to properly dispose of its sewage is the threatened damage suit of a neighboring town, some attention should be paid to the production of an effluent that will meet the requirements of the law. Certainly to the lay mind any method incapable of insuring an effluent free from disease germs would seem, to that extent at least inefficient.

The septic tank method of treating sewage is generally used in combination with one of several other processes, merely the preliminary breaking down of the organic matter being accomplished in the tank. For purposes of this discussion, however, it will probably be well to dwell more particularly on the results obtained from the septic tank alone, with only a brief reference to the subsequent treatments with which it is used in combination.

A septic tank, as you no doubt know, is simply a suitable receptacle in which raw sewage may be confined for a length of time sufficient to permit the bacteria naturally present to decompose the solid matter, as well as much that is already in solution, or comes into solution as the result of the decomposition. This time varies according to the character and age of the sewage, the temperature, etc., and may be as short as four hours or as long as forty-eight hours. Longer periods of treatment do not seem to have the beneficial effect that might be expected. The tanks may or may not be covered, they may be provided with preliminary grit chambers, and may have various automatic devices to control the flow of the sewage, but the principle involved is the same in all cases, and any condition which will permit the most active growth of the decomposing bacteria is the one most desired.

There are comparatively few places in which the septic tank with no subsequent treatment has been resorted to. Indeed, the septic tank alone can hardly be considered as a means of disposing of sewage, as the effluent will frequently come under a technical definition of sewage as truly as that which flowed into the tank. The physical character of the sewage is usually greatly improved, however, and its discharge directly into a stream is permitted under conditions which would make such a disposition of the raw sewage impossible. The chief function of the septic tank is to reduce the sludge. One properly constructed can generally be counted on to take out over 50 per cent. of the suspended solids, sometimes as high as 75 per cent. There is the greatest variation regarding the retention of the stored solids, and one objection which has been urged against the use of the septic tank has been the frequency with which it has to be cleaned. There seems to be reason for believing, however, that such an objection may not be overcome when the conditions on which the optimum efficiency of a septic tank depends are better understood. Certainly the great difference in tanks which have to be cleaned every few months as compared with those which have run for years without being emptied is not due entirely to the difference in the character of the sewage. There is probably no method which can be depended on to remove such a high percentage of the suspended solids, at such small expense, as the septic tank, particularly in the many localities in this country where neither land nor suitable sand or gravel can be obtained for some of the other processes. On the whole, however, the septic tank method alone is not one to be recommended, although, in the case of very small communities or of institutions, it may be resorted to as a stepping stone to something better. Being cheap and requiring comparatively little attention, it is more apt to be adopted than a more efficient and complete type of sewage disposal. While it is to be hoped that the septic tank alone as a means of treating sewage will not be tolerated ten years hence, we are hardly at the place where we can afford to discourage any effort which must in a short time tend to develop more satisfactory and thorough means of solving a difficult problem.

The most common method of using the septic tank is as a preliminary treatment, the effluent being subsequently passed through some sort of filter or contact bed. It does not come within the scope of my subject to discuss the various methods which have been devised for treating the effluent from the septic tank, but the fact that this is the almost universal practice emphasizes the point that septic tank treatment alone can not be considered as one properly disposing of a sewage.

In England as well as in this country the use of the septic tank, combined with some system which would permit of the action of oxidizing bacteria, has given most excellent results, and the failures seem to be due to mismanagement rather than to any fault in the method. Throughout the middle west, where conditions are not so favorable for intermittent filtration, the septic tank is most successfully combined with a contact bed, and the good results obtained would seem to indicate that the possibilities of this combination are by no means exhausted. The septic tank then may be considered as a most important and in some cases necessary preliminary method of treating sewage, which, in conjunction with a contact bed or filter, is capable under proper management of producing an afiluent which meets the requirements of many communities at the present time. It is not a sterile effluent, however, and it would appear that conditions in this country may in the future require still further treatment before a thoroughly satisfactory effluent is obtained.

One of the oldest methods of attempting to dispose of sewage is by the use of chemicals. In this country possibly 10 per cent. of those cities making an effort to treat their sewage in a sanitary manner use a chemical precipitation method. In Europe, on the other hand, chemicals are widely used, and although newer methods are being experimented with and installed, there are a considerable number of authorities who cling to chemical precipitation as being best suited to meet their special conditions.

While the number of chemical combinations and devices for using them in treating sewage are too numerous to mention, practically the only ones used on a large scale at the present time are those depending on lime, with either sulphate of alumina or sulphate of iron as precipitants. In this country sulphate of iron with lime is used almost exclusively. That a satisfactory effluent can be obtained by properly treating sewage with chemical precipitants has never been denied. By using a sufficient amount of lime and iron sulphate and allowing proper time for sedimentation the resulting effluent is usually all that could be desired. All odors and tastes are removed, and by combining the use of copper sulphate or chlorid of lime the samples taken have been found to be free from colon bacilli and all similar organisms.

The chief and most serious objection to any chemical precipitation method has been the cost. For, in addition to the original cost of the chemicals, the disposal of the resulting sludge adds considerably to the expense of the operation. In some instances the wastes may run as high as fifty tons per million gallons of sewage, although in many cases it is not more than half this amount. While it is true that a very large percentage of the sludge is water, it requires considerable time and money to get the water out, and the "press-cake" is at present of little if any value. When some one devises a profitable use for the sludge from chemical precipitation the chances are that the method will be more widely employed.

Some cities seem to be especially well adapted by natural conditions to use the chemical precipitation method of sewage disposal. Worcester, Mass., is a well-known example of a town having enough sulphate of iron from factory waste in its sewage to need only the addition of lime to form a proper coagulum. Providence, R. I., is another instance of a city using chemicals with satisfactory results, and while here it is the natural situation which makes the system so successful, there are other places in this country so situated which might do well to substitute a similar chemical precipitation plant instead of turning the raw sewage directly into the sea. There are likewise institutions and factories where the waste is of such a character as to practically necessitate a chemical treatment. The expense, of course, is large, and probably no city would be justified in spending such an amount, but the point is there exist special conditions for which chemical precipitation methods should probably always be used. Certainly the method should not be neglected at the present time simply because it is not universally adapted to all conditions in all parts of the country.

All methods of sewage purification may be said at the present time to be more or less in the experimental stage, at least when attempting to adapt them to changed local conditions. Chemical precipitation, in spite of the large amount of work done with it in the past, is being widely tested and experimented with along some new and interesting lines. What the outcome may be no one can say, but that the chemical method of sewage disposal, just as the chemical method of water purification, may not become more popular and be used more generally in those localities where it is applicable is not improbable.

Another use to which chemicals have been more recently put in connection with sewage purification, and which may not be improperly discussed here, is that of a germicide rather than a precipitant. As has been previously said, the necessity of having the effluent from a sewage disposal plant sterile, at least so far as pathogenic organism is concerned, is becoming more and more apparent, and it would seem that such a result could be best and most satisfactorily obtained by the use of certain chemicals.

At present those most frequently employed are either copper sulphate or chlorid of lime, and it would appear from results already obtained that a sterilized effluent can be readily and cheaply obtained by some such means. Of course the application of chemicals as germicides should usually be made after the sewage has been oxidized to a non-putrescible condition by any one of the methods best adapted to the local situation. Experiments have been made with lime, iron sulphate and copper which produced most satisfactory results, but it remains to be seen how general the application of such a method may become. Copper sulphate has likewise been added to sewage before it went on to the filter beds, and a great reduction in coli over the untreated sewage resulted. But it would appear that for many reasons the time to add a germicide is after the sewage is oxidized rather than before.

As was plainly pointed out by Mr. Kellerman and myself in discussing the use of copper as an algicide and germicide for water supplies, and somewhat needlessly reiterated by subsequent workers, the effect of large quantities of organic matter on copper is to throw it out of solution and thus greatly reduce its toxic property. For this reason copper hardly seems to be the germicide best suited for use in a sewage effluent. Experiments with calcium hypochlorite have shown that chlorin is not so rapidly affected by the organic matter, and consequently, in hard waters at least, is much more efficient, as well as cheaper.

Independent results obtained by experimenters in different parts of the country and with different kinds of waters indicate that by using chlorid of lime sufficient to give from one to five parts available chlorin at least 99.9 per cent. of the total bacteria in a sewage effluent can be removed and even a higher percentage of fermenting organisms.

The figures for the use of copper sulphate under similar circumstances are not nearly so good, particularly in the west where hard waters are the rule. Under such circumstances it required from five to ten parts per million to remove from 90 to 95 per cent. of the total bacteria, although in the east with soft waters Phelps was able to obtain a reduction of 94 per cent. total organisms and 98.5 of fermenting forms with one part per million of copper at a mean temperature of 50 degrees. Of course as the temperature lowers the efficiency is reduced, and at 43 degrees it was necessary to use two parts per million to get an efficiency of 97.9 per cent. for the total organisms and 98.8 per cent. for the fermenting forms. In general, it may be safely concluded that chlorid of lime is superior to copper sulphate as a germicide for sewage effluents, both on account of efficiency and cheapness, although under special conditions, with soft water and rather high temperatures, it may be that copper would be more suitable. It is certainly more convenient to use.

To sum up, it would appear then that the septic tank, under ordinary conditions where there are no trade wastes calculated to retard bacterial action, is well suited to remove a considerable percentage of the suspended matter in sewage. It requires a small amount of space, can be cheaply operated, and the difficulty of disposing of the stored matter can probably be readily overcome. There seems to be no reason why careful attention to the time sewage is in the tank, with probably some minor changes in construction, should not enable such a system to run for years without being cleaned. The septic tank should not, however, be considered in itself a complete method of properly disposing of sewage, but should be followed by some process which will expose the effluent to further bacterial action in order that the result be what it should.

Until recently the chemical treatment of sewage, like the chemical treatment of waters, has been decidedly out of vogue in most places in this country. Within the past few years, however, interest has been revived in the method, and further investigations and improvements in treating sewage chemically may result in its being used more extensively than formerly. That it is well adapted to handle certain conditions is recognized; whether it is to have a wider application remains to be seen. If conditions change so that authorities demand a sterile as well as an oxidized effluent from sewage disposal plants it is not unlikely that it will be found that such results can be as cheaply and satisfactorily obtained by combining a germicide with chemical precipitation methods as in other ways which would have to be resorted to. In any case, it would seem that the use of chlorin or copper for sterilizing the effluent from any sewage disposal plant is likely to come into more general use.

As was said in the first place, the problem of sewage disposal is one which calls for the greatest amount of adaptation to local conditions, with no single type suitable to all. Under such circumstances we can not afford to be governed by preconceived ideas or prejudice. Wherever possible actual experiments should be conducted with all feasible methods on a large enough scale to actually determine for a given locality the best means of disposing of its sewage. If this is not possible certainly no system should be adopted until after the most careful and thorough investigation by experts uncommitted to any special type. There have been too many examples in the past of installing or rejecting a septic tank or intermittent filters or chemical treatment simply because they succeeded or failed some place else. Let us realize that the question of sanitary sewage disposal is often much more complicated than that of a pure water supply and not fail to give the matter the consideration which it deserves and demands.

Education in the Country.—The old-time notion to place colleges in the woods was correct, and the present tendency to reverse Nature and graduate a stream of blood city neurasthenics to become educated paupers is a disaster.—*Amer. Med.*

FACTORS IN THE PRODUCTION OF COAGULATION NECROSIS.*

D. H. BERGEY, M.D.
Assistant Professor of Bacteriology, University of Pennsylvania.
PHILADELPHIA.

Coagulation necrosis is usually defined as that form of death of tissue in which the proteid suffers change similar to or identical with coagulation. It is known that this condition can be induced by various chemical substances, as acids, alkalies, and metallic salts; by some of the alkaloids; by vegetable poisons, as ricin and abrin; and by bacterial poisons. In addition to these causes it has been suggested that ferments derived from the body cells may, under certain conditions, produce similar effects as in the case of anemic infarcts of the spleen and kidney.

It seemed probable that additional information could be gained of the factors underlying coagulation necrosis by studying the factors underlying the coagulation of culture media, containing blood serum, through bacterial agencies, as well as by experiments upon animals.

A study of the factors underlying the coagulation of blood serum in the form of the well-known Hiss media through the agency of bacteria has shown that this effect is brought about by the organic acids produced in the fermentation of the carbohydrates in the media and a coagulating enzyme produced by the bacteria. The neutralization of the acid in the cultures by means of calcium carbonate (marble) inhibits the coagulation of the media, indicating that the acid is an important factor in the process.

When bacteria are cultivated in bouillon containing dextrose and afterward the cultures are filtered through a Berkefeld filter, these filtrates when added to sterile Hiss media act in a manner similar to, if not identical with, the living organisms. The filtrates induce typical clotting of the media and in this respect their action differs from the action of dilute acids of equal acidity; the dilute acids inducing merely precipitation of the albuminous constituents of the media. The action of the filtrates is also entirely inhibited on neutralization of the acids contained in them, while boiling inhibits the coagulation but does not inhibit the precipitation of the media.

From these facts it seems evident that the coagulation of the blood serum by living bacteria, or by means of culture filtrates, is induced by the combined action of the organic acids and coagulating enzymes produced by the bacteria. In fact, it was possible, by using the method suggested by Conn, to recover the coagulating enzyme from the culture filtrates and obtain identical results with solutions of these enzymes. The conclusion that I have reached on the basis of these studies is that blood serum is coagulated outside the body through the agency of bacteria by altering the electric charge of the colloids in the serum through the combined action of the organic acids and the coagulating enzymes which they produce.

In order to ascertain the influence of bacteria in producing coagulation necrosis and other alterations of the colloids in the body, two lines of experimentation were pursued: (1) The inoculation of animals with living cultures and the simultaneous administration of weak alkalies in an attempt to neutralize the acids formed by the bacteria through fermentation of the carbohydrates in the body; and (2) the injection of filtrates of cultures of bacteria after they had grown for some time in bouillon containing carbohydrates. These filtrates were employed in their original acid condition as well as after the acidity had been carefully neutralized.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

The first line of experiments, in which dilute alkalies were administered to animals after inoculation with living bacteria capable of producing coagulating and carbohydrate fermenting enzymes, yielded negative results. The animals that received the injections of dilute alkalies always died earlier than the control animals inoculated with the same bacteria.

While it has long since been demonstrated that during various infections the alkalinity of the blood is decreased, these experiments demonstrate that the method employed to overcome this effect is not efficacious. If a more appropriate means of maintaining the normal alkalinity of the blood were available it is probable that it would help to throw light upon this as well as other problems concerning infectious processes.

The second series of experiments yielded more fruitful results. The animals injected with the acid culture filtrates died, while the animals injected with equal quantities of the filtrate after neutralization of the organic acids remained alive. In each of two series of experiments made with such filtrates the neutralized filtrates were without noticeable effect. In these experiments culture filtrates of streptococcus lacticus and bacterium diphtheriæ were employed. These organisms were cultivated in bouillon, containing 1 per cent. of dextrose or some other carbohydrate, for several weeks or a month.

While it is well known that bacteria produce far less toxic solutions when grown in media containing sugar than in sugar-free media, yet the presence of the sugar does not prevent the formation of some toxin.

The fact that neutralization of the acids in the culture filtrates annuled or, at least, reduced their toxic powers materially shows that the acids in these filtrates are important factors in the production of pathologic effects. Since previous studies have shown that the organic acids and the coagulating enzymes produced by bacteria are instrumental in the coagulation of blood serum outside the body it seems probable that coagulation necrosis induced by various bacteria is due to similar causes.

As none of the animals experimented on with the neutralized culture filtrates died, it has not been possible to approach the problem from the histologic standpoint.

I have tested the influence of nearly all of the different pathogenic bacteria as to their powers of fermenting carbohydrates in the Hiss serum media and have found that all possess the property of producing a marked degree of acidity with dextrose media and many of them also coagulate the serum.

It has been demonstrated by others that the power to produce acids from carbohydrates usually runs parallel with the pathogenic influence exerted by the disease-producing bacteria. The results of the experiments with the culture filtrates likewise point to the importance of the power of fermenting carbohydrates to the pathogenic effects produced by the bacteria.

The studies which I have made indicate that (1) the coagulation of blood serum through bacterial agency is induced directly and indirectly by a coagulating and a carbohydrate fermenting enzyme produced by the bacteria; and (2) that the inhibition of the effects of the carbohydrate fermenting enzyme alone, through neutralization of the organic acids produced, will annul or materially reduce the pathogenic effects that would otherwise ensue; and (3) if some safe and certain method can be devised for overcoming this mode of offense by the bacteria we shall possess an additional defensive measure against bacterial action in the body.

THE PATHOLOGY OF MIDDLE-EAR SUPPURATION.*

HENRY OTTRIDGE REIK, M.D.
Associate in Ophthalmology and Otology, Johns Hopkins University.
BALTIMORE.

This topic involves a consideration of the essential nature of the structural and functional changes resulting from pyogenic infection of the middle ear. The limited time allotted for such purpose permits but brief discussion of such alterations and it will be my pleasure to present the varying stages of the disease as nearly as possible in the order in which they occur, considering their progress as concisely as possible.

As a foundation for the correct understanding of conditions underlying the disease, it may not be amiss to refer casually to the anatomic and histologic character of the structures to be dealt with and the provisions Nature has made to prevent or to resist purulent invasion of this organ. In the first place, it must be clearly understood that the middle ear does not mean simply the tympanic cavity. From the clinical point of view, it would probably be proper to accept the statement of Pierce, embodying the idea held by many others, that the middle ear begins at the pharyngeal end of the Eustachian tube and ends only with the most remote pneumatic cell of the temporal bone. Directly connecting channels make it possible for micro-organisms to travel throughout this entire area over the surface of a lining membrane that is histologically similar all the way, and the dependent position of many of these cellular spaces favors the retention of secretions produced as the result of microbic action. Under normal circumstances, the only exposure of the middle ear to the atmosphere is through the tympano-pharyngeal tube, which is opened only intermittently for the admission of air, but, inasmuch as this tube terminates in the nasopharynx, in a region that is more or less constantly inhabited by micro-organisms, it may be said that the middle ear is continually exposed to bacterial assault. In spite of this incessant danger the middle ear enjoys a fair degree of immunity to suppuration.

It may be accepted as proved that the middle ear is normally a sterile cavity. This immunity to infection may be partly due to ability of the mucous membrane to destroy micro-organisms, but is probably more particularly the effect of Nature's providing a mechanical guard against the entrance of germs. The epithelium lining the tympano-pharyngeal tube is of the ciliated variety and the cilia move toward the pharynx, thus obstructing the progress of invading bacteria. Add to this physiologic process the force of an outpouring secretion from the irritated mucous membrane, which naturally seeks exit by this channel, and you have a fairly efficient protective power. Should these sentinels be passed, the germs gaining entrance to the tympanum have still to do battle with the bactericidal properties of the mucous membrane and its secretion. Just how powerful a factor Nature has furnished in this respect is not determined, but reliance is probably placed mainly in the mechanical provisions spoken of. Any injury to the lining membrane of the tube or any disease which impairs the function of the cilia of that membrane favors the attacking foe. Likewise invasion by a host of bacteria, or by especially virulent micro-organisms, may overcome all protective powers and establish a local disease. The propagation and advance of the bacteria may still be checked by the bactericidal action of the vascular membrane, the blood supply throughout the middle ear being, except as regards the ossicles, excellent, and by some further mechanical barriers. An example of the latter is the blocking of the aditus ad antrum, or the obliteration of passage-ways between the cellular spaces, by inflammatory swelling of the mucous membrane. Possibly such changes not infrequently serve to resist the advance of a purulent inflammation.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

It must not be supposed that all infections of the middle ear arise from the direct invasion of the tympanum by bacteria from the nasopharynx; that is, the transmission of disease from the nasopharynx to the ear is not always accomplished by its spreading over directly contiguous tissue. Some of the irritating secretion may be conveyed from the pharynx to the tympanic cavity by forcible inflation of the tympano-pharyngeal tube as the result of violent postnasal douching, Politzeration, or sneezing, and there are two other possible modes of entrance. A perforative injury to the tympanic membrane may afford the means of introducing pyogenic micro-organisms, but this is a rare accident. Hematogenous infection of the ear is a process about which we know very little except that it is possible. Metastatic abscesses may be formed here as naturally as elsewhere, and the vascular conveyance of germs, or their toxins, as a feature of certain systemic diseases, like measles and scarlet fever, is within the realm of probability. In measles the characteristic inflammatory macules have been found on the tympanic mucous membrane coincidently with their appearance in the mouth or nasopharynx, and this could not have been due to extension over the surface. In scarlatina, middle-ear complication is much more frequently a sequel to the exanthem, and as it is analogous to the post-scarlatinal nephritis, suggests the probability of its having a similar mode of origin.

Among the predisposing factors in suppurative otitis media we must consider the effect of exposure to cold. Cold winds blowing on the ear, cold water entering the external canal during the bath, sudden climatic or temperature changes, and various similar agencies are described as playing an active part. In many cases there exists an admitted passive factor in the presence of one of the well-recognized secretory diatheses. With tuberculosis, syphilis or gout as predisposing causes, or with a lowered state of local resistance, any sudden disturbance of the normal vasomotor balance within the tympanum will lead to a secretory form of inflammation of the mucous membrane.

Recognizing the important predisposing influence of acute and chronic inflammations of the nasopharynx, and also the generally accepted view of pathologists, that there can exist a purulent exudative process without the presence of pyogenic bacteria, or at least without the possibility of demonstrating their presence, it is necessary, nevertheless, to remember that such micro-organisms can be found in the secretions of the vast majority of all the patients with suppurative otitis media examined, and it would be well, in consequence of this, to look on every case of purulent otitis as bacterial in origin. Repeated attacks of rhinitis, pharyngitis or tonsillitis, or the existence of abnormal tissue developments in the nose or throat, with their attendant conditions of persistent congestion of the tympano-pharyngeal tube and the tympanum, are favorable to an infection of the middle ear. Just the conditions most conducive to the growth and activity of bacteria are obtained in this way; lowered resistance of the tissue cells and a serous pabulum in a protected chamber that is heated to the proper degree of temperature. There lurk in the throats of all persons one or more varieties of micro-organisms which are capable of doing damage whenever the other conditions requisite to bacterial infections are provided. One of the organisms most frequently discovered in this inactive state is the diplococcus of pneumonia, and it is worthy of note that this particular organism is the one most frequently isolated from the excretions of acute suppurative otitis media.

The micro-organisms that have been found in the pus from cases of suppurative middle-ear disease, and which have been considered as the cause of the condition, are almost innumerable. Most prominent in a list of such bacteria would be the following: *Diplococcus pneumoniæ, Streptococcus pyogenes, Staphylococcus pyogenes* (*albus* and *aureus*), *Bacillus pneumoniæ* (Friedlander), *B. diphtheriæ, B. tuberculosis, B. influenzæ* and *pseudo-influenzæ, B. pyogenes fœtidus* and *B. coli communis*. In acute suppurative cases the pneumococcus is isolated in pure culture much more frequently than any other organism, the streptococcus filling the second place in order of frequency and the staphylococci the third. In chronic otorrhea a pure culture of a single organism is seldom obtained; a mixed infection is the rule and the predominant germ is the staphylococcus. Such organisms as the pneumococcus and the influenza bacillus, which may have occasioned the acute outbreak, soon die out or are displaced by the secondary invasion of more robust microbes.

Whatever the morbific excitant to inflammation may be, there is always a condition of local tissue degeneration, followed by alteration in the circulation and by exudation. The first effect of a localized tissue injury is an active hyperemia of the part, on account of the dilatation of the lumen of its blood vessels, and this particular dilatation may be the result of either stimulation of the vasodilators or paralysis of the vasoconstrictors. With the increase in caliber of the vessels there is a coincident slowing of the blood current and the commencement of a pathologic exudate; as the flow diminishes in speed the solid elements of the blood, in compliance with physical laws, must leave the center of the stream and accumulate at its periphery, that is, along the walls of the blood vessels; and as these vessel walls have at the same time become changed in structure, so as to show an increased permeability, the active corpuscular elements, together with red blood corpuscles and the serous fluid, pass out through the cell interstices. These migratory white blood corpuscles, chiefly the polynuclear forms of leucocytes, the red blood corpuscles, the extravasated serum, and the degenerated and desquamated tissue cells, constitute the inflammatory exudate.

When pus-producing bacteria are at work there are especial and characteristic differences in the manufacture of the exudate from that observed in a simple irritative inflammation. Pus cells accumulate in great numbers, and instead of the deposition of fibrin, there is a tendency to liquefaction of the exudate and of the necrotic tissue, through the solvent action of the pyogenic germs. As the result of chemotaxis the leucocytes leave the blood vessels of the inflamed area to meet the invading bacterial poisons. In the ensuing struggle the leucocyte attempts to engulf and digest the microbe, and restoration to health depends largely on the ability of the host to furnish a sufficient number of these active guardsmen to overcome the invading pathogenic army. Especially virulent micro-organisms, or a too numerous collection of less dangerous ones, may rapidly destroy a mass of white cells, and it is this débris of the battle that constitutes the pus of purulent affections; the tissue cells may also take on the phagocytic action of the leucocytes. Under the microscope this yellowish white exudate is seen to consist of serum, leucocytes, often containing bacteria within their substance, and the degeneration products of dead leucocytes and tissue cells.

With the destruction of the epithelium and superficial portions of the mucous membrane a condition known as ulceration is produced, and this is probably constantly associated with suppurative otitis media; the only exception might be in the few cases of acute inflammation, of very short duration, in which the slight amount of pus that is formed makes its exit through the tympano-pharyngeal tube, or in which the active seat of purulent inflammation is rapidly transferred from the tympanum to the mastoid cells without preceding erosion of the tympanic membrane. The extent of the ulcer must vary considerably, involving in some instances but a small point on the covering of one of the ossicles, or on some part of the lining of the tympanic walls, in other cases extending over a comparatively large area of these tissues. Furthermore, the depth to which this loss of cellular substance or tissue necrosis extends in the tympanum is a matter for particular consideration. At no point is the mucous membrane covering the tympanic walls very thick, and over some portion of the ossicles it is no more than an epithelial coat over a single layer of cells that serves as a periosteum, with an insignificant amount of fibrous substance between them. Some of these thinly-covered spaces, particularly on the incus, are also especially prone to necrosis because of their poor nutrition under normal conditions—due to a limited blood supply. When deprived of the protection of its periosteal coat the bone readily succumbs to the destroyer, and necrosis of the ossicles is a common feature of prolonged suppurative tympanic inflammation.

More frequent still is the ulceration or erosion of the membrana vibrans. This portion of the external wall of the tympanum is the weakest of all and the only one that can give way before the pressure of an accumulating exudate. With the formation of any considerable amount of pus within the tympanum the intratympanic pressure on this membrane gradually increases, and as it becomes greater than the external air pressure a bulging outward of some portion of the membrane follows. Diminution of the pressure through the escape of excretions by way of the tympano-pharyngeal tube is sometimes possible, but is generally prevented by the blocking of this channel incident to swelling of its lining mucous membrane. In consequence of decreased viability of that portion of the membrane subjected to the greatest pressure from within, rendering it more liable to ulcerative perforation, spontaneous rupture of the weakened area takes place, and through this perforation the pus exudes into the external auditory canal.

With the occurrence of spontaneous perforation of the membrane, or the establishment of drainage by incision of that structure, the inflammation usually subsides, the purulent secretions flow away as rapidly as they are formed, the patient rallies sufficient forces to destroy the bacteria, and a process of repair begins. In many cases, however, this desirable result does not follow. Owing to a debilitated system, to anatomic conditions favoring the retention of purulent secretions, or to virulence of the attacking micro-organism, the suppuration continues and a chronic otorrhea is the result. A long-continued process of this sort destroys the mucous membrane and may cause necrosis of the ossicles or the bony walls of the tympanum and its communicating cavities.

Could a suppurative inflammation of the middle ear always be confined to the mucous membrane lining the tympanum, or even to the involvement of the ossicles, the disease would have no mortality and would be of interest prognostically only from the point of estimating the possible impairment of function of the sound-transmitting apparatus of the organ of hearing. Surrounded as the tympanum is, however, by organs and structures more important to life, the problem, when an inflammation breaks through the tympanic bounds, becomes a far more serious one than that concerned in the effect it may have on the hearing power. When suppurative otitis media starts on a destructive tour it may invade the mastoid process and, by an extension in one of several directions, produce mastoiditis, lateral sinus thrombosis, extradural abscess, meningitis, or cervical, cerebral or cerebellar abscess. It may perforate the internal wall of the tympanum and set up a purulent labyrinthitis, with the possibility of extension to the cerebral cavity through the internal auditory canal; it may erode the bony sheath of the facial nerve and cause paralysis of the muscles supplied by that nerve; or, through the medium of the lymphatic or venous channels, it may cause a systemic infection.

The regenerative processes observed in suppurative otitis media are extremely interesting. Wherever suppuration has taken place there is a loss of substance, and a more extensive process of repair is required to produce healing and to fill up the wound. The great destruction of tissue in the severe and chronic cases usually implies the impossibility of reparation. Small perforations of the tympanic membrane may become entirely healed; indeed, an entire new membrane may be formed, but such replacement is always by tissue which is histologically different from that destroyed, these new membranes being constructed mainly from outgrowths of the dermoid and mucous coats. Partially destroyed ossicles are never again made whole and the necrotic spots in the tympanic walls are rarely filled up by new osseous tissue. In the new-formed tissue that closes a perforation of the tympanic membrane and in the unabsorbed fibrous deposits on this membrane, calcareous concretions often appear from the deposit therein of lime salts.

As the result of Nature's effort to supply new structures to replace those removed by suppuration two serious complications of otitis media are possible: Granulation tissue, springing from some ulcerative point, may readily assume the nature of a polypoid growth, and these polyps when exuberant, by pressure on neighboring structures, or by favoring the retention of unhealthy excretions, add to the seriousness and chronicity of the original disease. The second complication referred to is the occurrence of cholesteatomatous accumulations. Wandering epithelial cells, or the hyperplasia of cells from the dermal layer of the membrane, at the margin of perforation, or from ulcerative areas in the lining of the tympanum, lead to the development of cholesteatoma through the excessive growth of these misplaced cells. Occasionally they accrete into a tumor-like mass, producing increased damage by erosion of the surrounding tissue.

DISCUSSION.

Dr. J. F. Barnhill, Indianapolis, said that he was glad that Dr. Reik takes the position that we should regard the middle ear as a series of cavities rather than as one cavity, namely, the tympanum, which latter has so long been described as synonymous with the term middle ear. At present when we speak of the middle ear the profession understands that we mean only the little cavity in which the ossicles are found. In order that a better understanding of the causation, pathology and treatment of aural affections may be obtained, it becomes necessary that the true significance of the term "middle ear" should become better understood. It seems to him, therefore, that the Eustachian tube, tympanic cavity, mastoid antrum and mastoid cells should all be considered as integral parts of the middle ear. He thinks that, in middle ear inflammation, the chief predisposing cause lies in the nasopharynx, and very often in the adenoid hypertrophy so frequent in children. It is his very positive belief that fully 75 per cent. of all the early inflammatory aural affections begin with the above factor as a predisposing cause. In addition to this, are the various diatheses which lower the individual resistance. He thinks that the chief exciting cause is the pathologic bacteria nearly always present in the nasopharynx, which often find their way from the latter cavity into the middle ear. As to the method by which these germs reach the middle ear, there may be some difference of opinion. Dr. Reik states that they may migrate from the throat to the ear of their own accord, and that they may also be driven into the tympanic cavity by various fluids used as nasal washes, or by blowing the nose. Dr. Barnhill believes this latter method of germ entrance into the middle ear has not been accentuated as it should be; he believes that blowing the partly occluded nose has very much to do with the beginning of many of the acute forms of middle-ear inflammation. The truth of this statement can be readily understood if it is remembered that in the largest percentage, perhaps, of all cases in which middle ear inflammation arises, there is a certain amount of stoppage of the nose or nasopharynx, and that therefore a powerful blast of the nose in the effort to clear it will undoubtedly drive great numbers of bacteria into this system of cavities which we have called the middle ear. It is the duty, in his opinion, of those who have charge of cases of measles, scarlet fever or other affection in which the nose and nasopharynx are involved, to warn the individual against frequent and forcible efforts at blowing the nose.

Dr. Barnhill does not agree with the essayist's opinion that closure of the Eustachian tube by swelling may prove a means of blocking the entrance of bacteria to these aural cavities, and that such swelling is therefore the means of avoiding serious results from the entrance of bacteria. Dr. Barnhill has always taken the opposite view, that the blocking of the Eustachian tube by swelling, after the germs have been forcibly blown from the nose into the tympanum, is one of the most certain reasons for the establishment and persistence of the inflammatory state in the middle ear. This is known to be true largely by analogy. For example, the cavities of the head, or of the body anywhere, are usually free from severe inflammation so long as they have open and ample drainage. Take the urinary bladder, for instance; so long as it is drained well through the urethra, there is no inflammation, but should it become even partially blocked by an enlarged prostate, cystitis and sometimes suppuration arise. Should the antrum of Highmore become blocked by an enlarged turbinate, bacterial retention and inflammation immediately follow; and similarly it may be reasoned by analogy that when the Eustachian orifice or any part of the Eustachian tube is occluded, or any portion of the mastoid cells is blocked and therefore badly drained, the inevitable result is retention of bacteria and secretion, and subsequent inflammation. Dr. Barnhill expressed the opinion that Dr. Reik did not dwell as much as he should on the anatomic structure of the attic. Several authors have pointed out, and Dr. Dench has particularly done so in all his writings on this subject, that the attic contains the folds of the middle ear, and it is these that are capable of the greatest swelling. Dr. Barnhill believes the pressure due to the immensely swollen mucous membrane which forms these folds—a frequent occurrence in the attic as a result of an inflammatory state of the middle ear, is as much responsible for the serious ulceration and necrosis which often take place in the tympanic structures, as are the bacteria themselves. The same may be said of other parts of the ear, but the statement is particularly true of those parts containing much connective tissue, as in the upper part of the middle ear.

Dr. Frank Allport, Chicago, expressed the opinion that perhaps we do not pay as much attention to the leucocyte count as we should. His attention was called to the matter more particularly by a very interesting article by Dr. McKernon of New York on the leucocyte count in acute inflammations of the middle ear and also of the mastoid. Dr. Allport thinks that we ought to grasp clearly at least the salient and significant points in regard to the leucocyte count because, while of course we can not depend on it absolutely to indicate just what is going on and what our attitude should be with regard to treatment or operation, notwithstanding it is a valuable guide post for us, provided we understand what the normal count should be, and what the variations signify. For instance, a normal leucocyte count amounts to about 8,000 by measurement. This, of course, varies, some authors regarding 6,500 as the normal count, and from that all the way up to 9,000. It must not be forgotten that the leucocyte count varies under ordinary conditions. After eating, the leucocyte count is, of course, higher than under ordinary circumstances. The higher the leucocyte count the more it indicates two points, inflammation and body resistance. Then the differential count should not be forgotten with special reference to the polymorphonuclear cells as regards their percentage. Again, authorities differ with regard to the normal percentage of the polymorphonuclear cells; some claim that about 60 per cent. is a fairly normal average and others that 65 or 70 per cent. would more clearly and closely indicate the normal percentage. However this may be, of course the higher the polymorphonuclear percentage the more the presence of sepsis and pus is indicated. For instance, as pointed out by McKernon, a high general leucocyte count will indicate a high degree of inflammation with good body resistance. If the leucocyte count ran up to 25,000 or 30,000 or more, it would indicate a reasonably high degree of inflammation with good resistance. If the polymorphonuclear count runs up also to a high percentage, to 75, 80 or 95 per cent., or even more, it indicates the presence of sepsis and pus. In other words, a high general leucocyte count with a high percentage polymorphonuclear count would indicate good resistance with a good deal of sepsis and pus, and a high polymorphonuclear count with a low degree general leucocyte count would indicate a high degree of sepsis and pus with a low degree of resistance; and a low general leucocyte count with low polymorphonuclear count would indicate that the patient was not in bad condition, or at least was improving. Of course, these features one can not depend on; they are simply guide posts that help to a diagnosis and a line of treatment.

Treatment by the Unfit.—The placing of one's body and mind in the hands of a man ignorant of what is already known of their structure and physiology is exactly comparable to asking the butcher to give a legal opinion, or the furnace man to prepare the architectural plans for a new house. Where good property and good money are concerned, people are not such fools as to run risks.—*Montreal Medical Journal.*

Special Article

FOURTH OF JULY INJURIES AND TETANUS.

For the fifth consecutive year The Journal publishes statistics regarding injuries received during the celebration of the Fourth of July, with particular reference to tetanus resulting from these injuries. There were 73 tetanus cases this year, or 16 less than in 1906, 31 less than in 1905, 32 less than in 1904 and 342 less than in 1903. There has been a constant decrease since we began to publish these statistics. It is interesting, if not significant, to note the corresponding decrease in the number of injuries due to blank cartridges (see Table 5).

In the preparation of these statistics the same methods have been employed as heretofore in order that any comparisons may be drawn fairly. The list of tetanus cases is as follows:

TABLE 1.

Name.	Age.	Cause of Wound.	Site of Wound.	Duration in days.	Result.
		ARIZONA.			
Daun	40	Gunshot.	Leg.	12	D.
		CALIFORNIA.			
Birmess	26	Gunshot.	....	10	D.
		CONNECTICUT.			
Jordan	12	Blank cartridge.	Hand.	..	..
Zachariesen	11	Blank cartridge.	Hand.	14	D.
Parshall	25	Blank cartridge.	Finger.	16	D.
Terney	..	Blank cartridge.	Hand.	7	D.
		DELAWARE.			
Myers, R.	11	Firecracker.	Hand.	9	D.
		GEORGIA.			
Hulsey	13	Blank cartridge.	Hand.	12	D.
		ILLINOIS.			
Driver	15	Blank cartridge.	Hand.	10	D.
Margworth	8	Blank cartridge.	Hand.	10	D.
Mason	14	Blank cartridge.	Hand.	8	D.
Pietron	25	Gunshot.	Hand.	9	D.
Williams	14	Blank cartridge.	Hand.	10	D.
Langneld	15	Gunshot.	Hand.	9	D.
Mehringer	12	Blank cartridge.	Hand.	7	D.
Hotchkiss	12	Blank cartridge.	Hand.	8	D.
Davis	10	Fireworks.	Hand.	9	D.
Faulkner	13	Blank cartridge.	Hand.	11	D.
Poor	12	Blank cartridge.	Hand.	11	D.
Gant	10	Blank cartridge.	Hand.	15	D.
		INDIANA.			
Flowers	12	Blank cartridge.	Hand.	6	D.
Hurtsell	11	Firecracker.	....	7	D.
		IOWA.			
Morrison	13	Blank cartridge.	Hand.	17	D.
Fritz	9	Blank cartridge.	Mouth.	12	D.
Woodmansee	21	Cannon.	Hand.	9	D.
Kaschewski	12	Blank cartridge.	Hand.	12	D.
		KANSAS.			
Ryan	10	Firecracker.	Leg.	10	D.
Swetlick	16	Cannon.	....	9	D.
		MASSACHUSETTS.			
Moran	18	Cannon.	Hip.	12	D.
Johnson	..	Cannon.	Arm.	14	D.
		MICHIGAN.			
Haru	Adult	Blank cartridge.	Hand.	..	..
Beck	9	Firecracker.	Hand.	12	D.
Kowalski	..	Blank cartridge.	Hand.	6	D.
Summers	14	Blank cartridge.	Hand.	5	D.
		MINNESOTA.			
Johnson	16	Blank cartridge.	Hand.	6	D.
Janda	12	Blank cartridge.	Finger.	..	..
		MISSOURI.			
Pavalat	12	Blank cartridge.	Hand.	..	..
		MONTANA.			
Dunleavy	16	Blank cartridge.	Hand.	6	D.
		NEW JERSEY.			
Driece	17	Powder.	Face.	..	..
Shryver	45	Giant cracker.	Hand.	14	D.
Griffin	12	Blank cartridge.	Hand.	..	..
Burke	15	Cannon.	Hand.	13	D.
Pilewski	29	Blank cartridge.	Hand.	30	R.
Marino	14	Blank cartridge.	Hand.	7	D.
Calloway	29	Blank cartridge.	Face.	13	D.
Meyer, L.	11	Blank cartridge.	Hand.	9	D.
		NEW YORK.			
Abbey	11	Blank cartridge.	....	9	D.
Baumelster	..	Giant cracker.	Thumb.	..	..
Wilder	13	Blank cartridge.	Hand.	9	D.
Moran	16	Cannon.	Hip.	12	D.
		OHIO.			
Picone	11	Blank cartridge.	Hand.	6	D.
Moses	Adult	Giant cracker.	Hand.	..	..
Davis	65	Giant cracker.	Hand.	13	D.
Justice	13	Blank cartridge.	Hand.	7	D.
Maus	18	Blank cartridge.	Hand.	8	D.
Sonnenberg	..	Blank cartridge.	Hand.	12	D.
		OREGON.			
Sauer	15	Blank cartridge.	Hand.	8	D.
		PENNSYLVANIA.			
Frost	11	Blank cartridge.	....	9	D.
Burkhardt	45	Blank cartridge.	Leg.	6	D.
Mintzner	41	Blank cartridge.	Hand.	9	D.
Wilde	22	Blank cartridge.	Hand.	24	D.
Martin	21	Blank cartridge.	Hand.	8	D.
Matthews	6	Powder.	Foot.	30	R.
Shonk	13	Blank cartridge.	Hand.	8	D.
		TEXAS.			
Quick	12	Blank cartridge.	Hand.	..	..
Amman	28	Blank cartridge.	....	..	D.
		VERMONT.			
Towne	19	Blank cartridge.	Hand.	10	D.
Campbell	17	Blank cartridge.	Hand.	11	D.
		WASHINGTON.			
Hemphill	13	Blank cartridge.	Hand.	7	D.
Michaelson	12	Blank cartridge.	Hand.	9	D.
		WISCONSIN.			
Witt	13	Blank cartridge.	Hand.	7	D.
Burke	10	Blank cartridge.	Hand.	9	D.
Popp	11	Blank cartridge.	Hand.	11	D.

Tetanus cases occurred in 23 different states, or in two less than last year, but in the same number of states as in 1905. Tetanus occurred in 21 states in 1904 and in 30 states in 1903. Illinois had the largest number this year, 12 cases being reported. New Jersey comes next, with 8 cases, Pennsylvania comes third with 7 cases and Ohio fourth with 6 cases. Nine states have more cases this year than last, and six states have the same number as last year. Connecticut had 4 this year where it had none last year, and Pennsylvania had 2 more cases than in 1906. Table 2 gives a comparison of the number of cases in each state for the five years.

TABLE 2.

	1903.	1904.	1905.	1906.	1907.
Alabama	..	..	1	..	..
Arizona	..	..	..	..	1
California	2	4	4	3	1
Colorado	4	..	1	..	..
Connecticut	3	..	3	..	4
Delaware	..	..	1	1	1
District of Columbia	1	..	..	...	..
Florida	..	..	..	..	..
Georgia	..	..	..	..	1
Idaho	1	..	..	..	..
Illinois	49	15	20	16	12
Indiana	11	6	3	8	2
Indian Territory	1	..	..	..	..
Iowa	14	2	3	4	4
Kansas	11	1	..	..	2
Kentucky	4	2	..	1	..
Louisiana	..	..	..	..	..
Maine	2	4	1	1	..
Maryland	1	..	1	1	..
Massachusetts	16	5	7	3	2
Michigan	29	7	9	4	4
Minnesota	15	2	2	2	2
Missouri	29	1	3	3	1
Montana	2	1	1	..	1
Nebraska	4	3	3	1	..
New Hampshire	2	..	..	1	..
New Jersey	8	9	3	10	8
New York	36	9	6	8	4
North Dakota	..	..	..	..	..
Ohio	67	9	5	7	6
Oklahoma	..	..	1	1	..
Oregon	2	..	..	1	1
Pennsylvania	82	17	12	5	7
Rhode Island	3	..	..	1	..
South Carolina	..	..	..	..	..
South Dakota	..	..	..	..	..
Tennessee	..	..	..	..	..
Texas	..	..	..	..	2
Utah	..	1	1	..	..
Vermont	3	2	..	2	2
Washington	2	1	..	..	2
West Virginia	3	..	..	2	..
Wisconsin	10	4	13	2	3
Wyoming	..	..	..	1	..
Total	415	105	104	89	73
No states having cases	30	21	23	25	23

Blank cartridges are still responsible for the great majority of cases, 52, or 71 per cent. of all cases this

TABLE 5.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES.

State.	Deaths.			Injuries.						Total Persons Dead or Injured.	Causes of Tetanus Cases.		Causes of All Cases Aside from Tetanus Cases.				
	From Tetanus.	From Other Causes.	Total.	Loss of Sight.	Loss of One Eye.	Loss of Legs, Arms or Hands.	Loss of Fingers, One or More.	Other Injuries.	Total Non-fatal Injuries.		Blank Cartridge.	All Other Causes.	Blank Cartridge.	Fire Crackers.	Cannon.	Firearms.	Powder and Fireworks.
Alabama	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	1
Arizona	1	..	1	..	..	..	..	1	1	2	..	1	..	..	..	..	1
Arkansas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
California	1	3	4	..	3	..	11	103	117	121	..	1	4	46	8	6	56
Colorado	..	..	..	..	..	3	..	22	25	25	..	..	3	5	3	4	10
Connecticut	3	3	6	..	1	1	5	50	57	63	4	..	8	26	6	5	14
Delaware	1	..	1	..	..	..	..	15	15	16	..	1	..	9	1	..	5
District of Columbia	..	..	..	..	..	..	1	11	12	12	..	..	..	10	..	1	1
Florida	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	1	..	1	..	..	..	..	1	1	2	1	..	..	..	..	..	1
Idaho	..	1	1	..	..	..	..	3	3	4	..	..	..	..	..	..	4
Illinois	12	17	29	..	11	4	28	396	439	468	9	3	75	176	28	52	125
Indiana	2	5	7	2	3	4	10	157	176	183	1	1	13	75	19	14	60
Indian Territory	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Iowa	4	5	9	1	3	2	12	204	222	231	3	1	15	102	7	4	99
Kansas	2	2	4	1	..	1	1	57	60	64	..	2	10	28	5	3	16
Kentucky	..	..	..	..	..	..	2	16	18	18	..	..	5	4	1	4	4
Louisiana	..	..	..	..	..	..	..	8	8	8	..	..	2	1	..	3	2
Maine	..	2	2	..	1	..	1	7	9	11	..	..	2	6	..	3	..
Maryland	..	1	1	..	1	2	1	18	22	23	..	..	2	10	1	1	9
Massachusetts	2	3	5	..	4	1	9	149	163	168	..	2	16	54	11	6	79
Michigan	3	3	6	2	7	5	13	130	157	163	3	1	3	75	15	10	56
Minnesota	1	..	1	..	3	3	3	85	94	95	2	..	4	57	1	10	21
Mississippi	..	2	2	..	..	..	..	..	..	2	..	..	..	..	..	..	2
Missouri	..	5	5	..	3	2	14	275	294	299	1	..	84	83	5	30	96
Montana	1	..	1	..	1	..	1	3	5	6	1	..	..	3	..	..	2
Nebraska	..	..	..	1	2	..	2	53	58	58	..	..	3	19	1	7	28
Nevada	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	1
New Hampshire	..	..	..	..	..	..	3	10	13	13	..	..	..	5	..	2	6
New Jersey	5	1	6	..	6	6	24	360	396	402	5	3	69	135	38	46	106
New Mexico	..	1	1	..	..	..	2	3	5	6	..	..	..	2	1	3	..
New York	3	21	24	..	6	10	34	678	728	752	2	2	152	172	39	172	213
North Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
North Dakota	..	1	1	1	..	1	..	5	7	8	..	..	..	7	..	..	1
Ohio	5	6	11	2	7	5	23	327	364	375	4	2	35	140	31	35	128
Oklahoma	..	..	..	..	..	..	..	11	11	11	..	..	4	6	..	..	1
Oregon	1	2	3	..	..	..	..	2	2	5	1	..	..	2	..	1	1
Pennsylvania	6	13	19	2	5	4	17	444	472	491	6	1	19	129	17	53	266
Rhode Island	..	..	..	..	..	..	2	37	39	39	..	..	5	13	3	6	12
South Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
South Dakota	..	1	1	..	..	..	..	7	7	8	..	..	1	3	..	4	..
Tennessee	..	..	..	..	1	..	1	4	4	..	..	..	..	..	..	2	2
Texas	1	..	1	..	..	..	..	6	6	7	2	..	..	..	1	1	3
Utah	..	..	..	..	..	..	3	27	30	30	..	..	7	9	3	5	6
Vermont	2	..	2	..	..	..	..	16	16	18	2	..	3	8	1	1	3
Virginia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Washington	2	4	6	..	..	1	2	14	17	23	2	..	3	13	..	2	3
West Virginia	..	..	..	..	2	1	4	20	27	27	..	..	1	15	5	..	6
Wisconsin	3	..	3	..	5	1	8	133	147	150	3	..	6	41	16	6	78
Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1907 totals	62	102	164	12	75	57	237	3868	4249	4413	52	21	554	1489	267	502	1528
1906 totals	75	83	158	22	72	56	227	4931	5308	5466	54	35	925	1690	408	532	1822
1905 totals	87	95	182	25	106	80	221	4562	4994	5176	65	39	744	1775	474	404	1675
1904 totals	91	92	183	19	61	61	208	3637	3986	4169	74	25	931	1268	503	406	1056
1903 totals	406	60	466	10	75	54	174	3670	3983	4449	363	29	1309	1152	397	236	731

TABLE 6.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING FIVE YEARS.

	1903	1904	1905	1906	1907
Alabama	2	7	1	2	1
Arizona	1	..	4	5	2
Arkansas	..	..	3	4	..
California	100	138	142	96	121
Colorado	39	44	26	23	25
Connecticut	162	133	132	169	63
Delaware	1	5	14	8	16
District of Columbia	2	10	24	5	12
Florida	1	2	2	..	..
Georgia	..	..	..	4	2
Idaho	4	4	3	3	4
Illinois	366	423	542	598	468
Indian Territory	1	..	..	2	183
Indiana	160	211	217	250	..
Iowa	168	137	328	255	231
Kansas	63	88	56	61	64
Kentucky	30	72	17	21	18
Louisiana	..	2	3	7	8
Maine	31	32	29	15	11
Maryland	21	22	13	10	23
Massachusetts	637	193	467	329	168
Michigan	144	157	288	193	163
Minnesota	157	102	174	95	95
Mississippi	..	..	..	2	2
Missouri	147	84	218	325	299
Montana	5	17	40	3	6
Nebraska	46	63	43	47	58
Nevada	..	1	2	..	1
New Hampshire	37	23	9	29	13
New Jersey	228	204	350	398	402
New Mexico	..	4	5	1	6
New York	522	519	566	681	752
North Carolina	..	..	1	1	..
North Dakota	10	8	29	11	8
Ohio	443	327	329	490	375
Oklahoma	..	3	7	12	11
Oregon	16	13	9	11	5
Pennsylvania	533	744	721	969	491
Rhode Island	64	30	11	21	39
South Carolina	..	..	..	1	..
South Dakota	4	10	15	5	8
Tennessee	4	1	5	6	4
Texas	2	2	4	11	7
Utah	23	22	25	18	30
Vermont	45	14	10	14	18
Virginia	..	11	5	8	..
Washington	21	25	15	25	23
West Virginia	19	16	34	64	27
Wisconsin	190	215	230	155	150
Wyoming	1	2	8	3	..

year being due to that cause, as compared with 60 per cent. last year. Giant crackers caused only 8 cases this year, compared with 17 last year, and toy cannon caused 6 cases this year where they only caused 1 case last year. Table 3 gives a comparison of the causes of tetanus cases for the five years.

TABLE 3.—Causes of Tetanus Cases.

	Blank cartridge.	Giant cracker.	Cannon.	Firearms.	Powder, etc.	Total.
1903...	363	17	5	3	27	415
1904...	74	18	5	1	7	105
1905...	65	17	4	5	13	104
1906...	54	17	1	7	10	89
1907...	52	8	6	4	3	73

Besides the cases of lockjaw due directly to Fourth of July injuries, an unusually large number of other cases were reported this year, these being due to penetrating wounds from nails or splinters and to crushing injuries. There were 94 such cases reported this year as compared with 60 last year and 32 in 1905. Notwithstanding the increase in the number of these cases, the number from Fourth of July injuries has decreased. This would seem to indicate that Fourth of July injuries may have been better attended to than other injuries. The next thought would naturally be that all penetrating wounds, regardless of their cause, should have like treatment.

Besides the deaths due to tetanus, there were 102 persons who lost their lives this year because of the present idiotic method of celebrating the Fourth of July. The total number of deaths this year, therefore, including tetanus, was 164, or 6 more than last year. The annual slaughter still continues, although tetanus is becoming a less potent factor. Of the 102 deaths aside from tetanus, gunshot wounds caused 20, giant crackers caused 13, and 13 deaths were due to explosions of powder, torpedoes and dynamite. Ten deaths were due to falls or runaways caused by firecrackers. One person was drowned because a "practical joker" threw a giant cracker into a boat crowded with young people. The extremity of tolerance is reached, however, when we know that 31 persons were burned to death, the majority of these being young girls and children, whose dresses so easily catch fire. One hundred and sixty-four lives were sacrificed, therefore, in the celebration of our Nations independence!

As heretofore, all accidents not directly due to the discharge or handling of fireworks or other means of noise production on or about the Fourth of July have been omitted. Accidents which occurred in regular occupations and gunshot wounds received in brawls have likewise been omitted.

The following table shows a comparison of the causes of death other than from tetanus for the past three years:

TABLE 4.—Causes of Deaths Not Due to Tetanus.

Year.	Gunshot.	Fire from fireworks.	Powder, torpedoes, etc.	Giant crackers.	Cannon.	Runaways and falls.	Other causes.	Total.
1905	37	23	6	5	7	4	13	95
1906	38	18	18	3	3	2	1	83
1907	20	31	13	13	3	10	12	102

In Table 5 will be found a summary of all injuries, including tetanus, as well as of all causes. The arrangement is by states, as heretofore, so that comparisons may be made. Beneath the totals at the bottom of the table the totals for the four previous years have been inserted for comparison. Table 6 is arranged to show a more ready comparison by states of the total accidents and deaths for the five years.

New York takes the lead this year with 752 casualties. Pennsylvania taking second place with 491. Illinois had 468 and New Jersey had 402. Altogether there were 4,413 accidents this year as compared with 5,466 last year, a decrease of 1,053.

There were 4,249 non-fatal injuries, a decrease of 1,059 below last year, when the total was 5,308. Only 12 persons were completely blinded this year, or 10 less than last year; 75 people lost one eye this year, or 3 more than last year, but 31 less than in 1905; 57 lost an arm or a hand this year, or one more than last year, and 237 persons lost one or more fingers this year, this being 10 more than last year.

The principal cause of the most mutilating wounds is by far the giant cracker. This destructive means of celebration, along with the toy pistol, should be condemned. This year 1,489 injuries, including 13 deaths and 8 cases of lockjaw, were due to the giant cracker. Firearms rank second in causing mutilating wounds, being responsible for 502 injuries and 24 deaths, including 4 cases of tetanus. Blank cartridge wounds, as a rule, are not mutilating, but for that very reason are the more dangerous, since they are more often neglected. In a certain medium-sized city, men and boys were seen to shoot deliberately at each other on the street at close range. Such reckless use of the blank cartridge pistol is appalling to one who realizes the danger lurking in the slight wounds caused by them.

If the injuries caused by firearms, by the giant cracker and by the blank cartridge pistols were limited to the individuals who use them, there would seem less reason to complain. But a large percentage of the sufferers are people who prefer other means of celebration. On the Fourth of July no crowd of people is safe from the senseless "joker" with his giant cracker. No person walking on the street is safe from the stray bullet from the revolver of some irresponsible hoodlum. A considerable number of injuries resulting in several cases of tetanus and in a few deaths were inflicted by others on persons who were engaged in more enlightened methods of enjoying their holiday.

The total results of our last "jolly celebration" of Independence Day were 164 killed and 4,249 injured, many of these being maimed for life!—Is this method of celebration really worth while?

Hygiene of the Napkin.—Dr. Szekely, in the *Klinisch-Therapeutische Wochschr.*, says that in the sanatorium at Stadtwald the question of the transmission of tuberculosis by napkins and the means for its prevention have been the subject of an investigation by Dr. E. Huhs, the resident physician. Examination of the linen closet in which the napkins had been kept for years showed absence of tubercle bacilli, but a culture from the inside of napkin rings revealed the presence of a virulent bacilli. The most suitable envelope for napkins is the folded linen recommended by Kirchener, which is dipped in a disinfectant solution before it is sent to the wash. In the sanatorium at Stadtwald each patient after eating places his folded napkin in a linen case, which is placed in its proper ring. The ring and holder bear the number of the bed which the patient occupies. Each week the used napkins with their cases are placed in a disinfectant solution by which complete freedom from germs is secured. The disinfection is followed by ordinary laundering. In this way both the esthetic and hygienic requirements are fully met.

Clinical Notes

PHYSICIANS' ACCOUNTS AND RECORDS.

G. W. MOOREHOUSE, M.D.
CLEVELAND, OHIO.

That all physicians should, and that relatively few physicians do, keep clinical records of their cases is a statement that needs only to be made to be accepted. Of those who have no records, some seem perfectly satisfied with what they can remember, but many recognize that the absence of clinical memoranda is a deplorable fact, and are groping for some system adapted to their needs.

By many, cards are thought to afford the ultimate solution of the problem, and either cards or books serve very well for office records; when wanted away from the office, however, they are rarely at hand. In family practice, after an extended trial, they proved so ill-adapted to my personal needs that the suggestions here given were worked out, adopting freely whatever appealed to me in other systems.

The whole system depends on a clinical blank which combines a record of charges, credits and clinical notes, one sheet being used for each visit. By the necessity of making a change in order to keep up one's professional accounts it was thought that a distinct stimulus would be afforded to the keeping of clinical memoranda as well, and testimony to the correctness of this supposition has been afforded by their use, the most satisfactory results being secured when the records are made at the time of the visit.

The necessary supplies for the system, including a card ledger, are as follows:

1. Cards, 10 by 15 cm., ledger rulings.
2. Guides. Four sets of A to Z guides.
3. Folders. Sheets of tough but not especially stiff or bulky paper, 19 by 15 cm. in size, ruled on one side, first line 1 cm. from top of sheet, other lines about 6 to 7 mm. apart, one-fourth inch or a little more according to individual habits in writing. This sheet is to be folded to 10 by 15 cm., with rulings inside so that the bottom of the sheet reaches the top line. Both sides may be ruled if desired. One such sheet is needed for each individual patient.
4. Prescription blanks in pads of 50; if made to order they should be of the same size as the clinical blanks; they should not be larger.
5. Clinical blanks in pads of 50, size 9 by 15 cm. One of these is used for each service or payment.
6. One cover to hold one pad, each, of prescription and clinical blanks.

The heading of the clinical blank is reproduced below:

NAME .... DATE..................
House. Office. Med. Exam. Oper. Dress. Obst. Cons. Vacc. Night.
CHARGE .... PAYMENT...............
Patient's Residence ....
Charge to ....
Residence ....

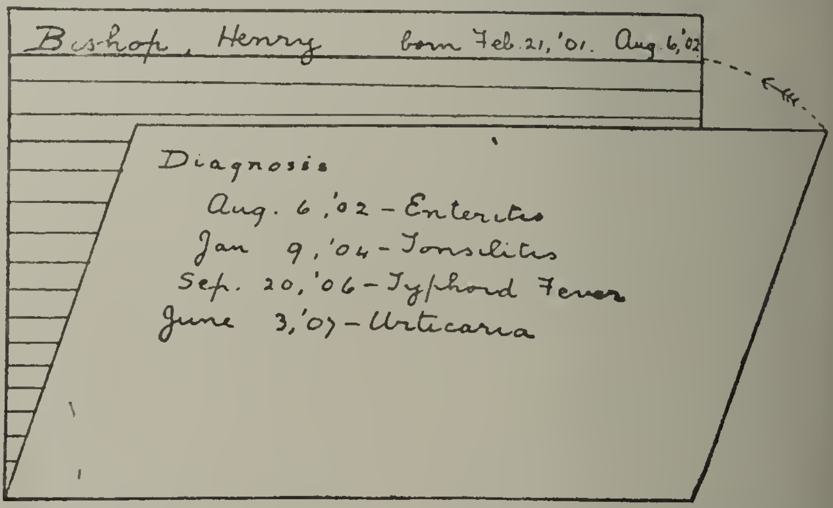
CLINICAL NOTES AND TREATMENT.

Hour .... T......... P......... R..........

[*Here follow thirteen blank lines.*]

Since the great difficulty in private records has never been in providing for extensive notes, but, on the contrary, in getting any notes at all, I will first indicate the slightest use that can be made of the blank and the labor this involves. The first three lines of the blank must be used. On the first line the name of the patient is entered and the date; on the second a check mark through, or a circle around, the appropriate word or words, indicates the character of the service; on the third the charge to be made is entered, and the payment, if cash has been received. Credit on account without service at the time is similarly indicated by entry of name, date and amount received. The patient's residence, the one against whom the charge is to be made and his residence need rarely be indicated on these blanks, though it seemed necessary to assign a definite space to them.

The further value of the blank consists in the opportunity it affords to record symptoms, physical signs and treatment. I realize that not every one can compel himself to keep up clinical records, but the ready opportunity which these blanks constantly present to one should stimulate such records to the utmost. In the further use of the clinical blank the symptoms of the patient and the physical signs he presents having been entered, the treatment is indicated briefly but completely. Following this outline the patient's treatment is laid down (a) by advice as to regimen, etc., (b) by medicines dispensed and (c) by prescriptions written. It is not infrequently suggested that a record of treatment be preserved in the form of carbon copies of prescriptions. This is not here advised, for two reasons: Prescriptions, even to one who dispenses no medicine, constitute only a part of the treatment, and carbons are not easy to manage, getting lost and misplaced, soiling paper and hands.



Bishop, Henry born Feb. 21, '01. Aug 6,'02

Diagnosis
Aug. 6,'02 – Enteritis
Jan 9,'04 – Tonsilitis
Sep. 20,'06 – Typhoid Fever
June 3,'07 – Urticaria

Prepared for work one has one pad of clinical blanks and one of prescription blanks in a single cover. The clinical blanks are not removed from the pad, one after another being used to record successive services rendered. A rubber band indicating the next blank to be used is a convenience.

Whether the card ledger is used or not a size corresponding to that of standard cards should be chosen for the sake of economy. One standard size is that suggested here, 10 by 15 cm. Another standard size is 4 by 6 inches. This card is a trifle larger than the former and either is about as large as can be conveniently carried. Other standard sizes are 7.5 by 12.5 and 3 by 5 inches, but clinical blanks and prescription blanks to correspond to these seem too small unless for the use of people writing a very small hand.

When it is desirable to post, take all filled pads that have been laid aside and tear out the blanks. Tear out, also, from the pad in current use to the proper date.

Arrange the slips by name to correspond to the alphabetical arrangement of the ledger cards. This will make the posting much more expeditious. If any record is desired of total income, total charges, etc., before posting is the best time to make it.

Now post to ledger cards or by whatever method is used, including or not, as desired, any cash business that may have been done. There is a certain amount of work not cash to which it may not be necessary to give a ledger card, the slip or slips corresponding to this work may be placed in the folder as in filing case histories, and kept among the ledger cards until paid.

Once posted, the clinical blanks for services rendered are filed as case histories. Those showing only a record of payment on account I have thought it best to preserve as well. So far they have been kept together in a folder in chronologic order with the ledger cards.

The folder with the name of the individual, written on the top line, and containing whatever clinical blanks have accumulated, constitute what is known as the vertical system of filing. It, however, may well be used for an additional purpose, and that is as a means of recording the general medical history of the individual; name, age, social state, occupation, family history, habits, and previous history, leaving to the clinical blanks the record of special illnesses under one's charge. It seems desirable to reserve the first page of the folder (from the standpoint of its use as a vertical folder, the outside) for diagnosis and dates. This space has no other use unless for extended notes on the general history of the individual requiring more than the ruled space on the inner side of the folder.

As in the card ledger there are open and closed accounts requiring for convenience two sets of guides, so in histories two sets will be required, one for current histories and the other for those which may be considered either permanently or temporarily closed. It is inevitable that many of the folders will become overfilled in time. This may be regulated by removing the slips to an envelope of the same size as the cards, or to another folder inscribed with the name of the patient, and filing them among the closed histories. So far as possible the slips removed from the primary folder should include the records of one or more complete illnesses after the entry of their dates and diagnoses on the primary folder. In chronic cases this may often be impossible. The storage envelopes or folders should have written on them the name, diagnosis and dates included. With a system of cross-references it would be perfectly possible to have for storage purposes a diagnosis index rather than an alphabetical index.

Without the considerable outlay for furniture, demanded by some systems advertised to physicians, any one who can reach, personally or by letter, a dealer in office supplies and a printer equipped to turn out satisfactory prescription blanks may secure the necessary supplies, with or without any modification of the details. These will be the ledger cards and guides from the dealer in office supplies, from stock if standard sizes have been selected; the folders, made to order by your printer or ordered by the dealer from the makers of cards—since accuracy in size is of some importance the latter might be more satisfactory; the prescription blanks, those supplied by your druggist or made to order by the printer; the clinical blanks and cover made to order by your printer.

Probably the most convenient place to keep these records is the drawer of the office desk. With partitions to accommodate the length of the guides, trays are unnecessary. If the use of this drawer is impossible a special case of drawers will be necessary, and these are kept in great variety by the dealer in office supplies. Past notes may be consulted or carried to the bedside as a card might be, but, since it is impossible to insure that a physician doing other than an office practice will have with him at all times a complete record of every case. I have done what seemed, if theoretically second best, actually the most satisfactory thing in providing for to-day's notes.

AN ADDITION TO OUR METHODS OF DETERMINING THE OUTLINES OF THE STOMACH.

MILTON K. MEYERS, M.D.
Voluntary Associate, Pepper Clinical Laboratory.
PHILADELPHIA.

This method has reference to the determining the outlines of the stomach after the stomach tube has been passed and the viscus has been inflated with air by means of a rubber bulb. At present two procedures for determining the outlines by percussion are in use, namely, by simple percussion and by auscultatory percussion. That the former is inexact is proved by the fact that the second has been in subsequent use; at times it is difficult to determine whether a tympanitic note is due to the inflated stomach or to a distended colon. As objections to auscultatory percussion, or the ausculting with a stethoscope of the note elicited by percussion, is the fact that the note varies in intensity according to the distance from the stethoscope the organ is percussed, and that there is a boundary zone, in some cases quite wide, of uncertain tympany.

In the method about to be described the stomach is distended to a moderate tenseness with air, and the air confined by exerting compression on the rubber tube near the mouth of the patient. It is better that the tube be compressed by the fingers of the patient or of a reliable third person, but in cases in which the patient is unintelligent and no third person is at hand the doctor may himself compress the tube as indicated.

The viscus is now percussed indirectly, or, if the physician be holding the tube with one hand, directly. It will be noticed that any vibration communicated to the free walls of the stomach will be transmitted to the compressing fingers through the medium of the tube, and that when any other organ is percussed this transmission is absent.

Percussion and auscultatory percussion may, of course, be used as checks to confirm the accuracy of this observation. According to the method described, however, the line of demarcation between stomach and intestines may be determined with definiteness. Any percussion-stroke over a moderately distended colon is not transmitted, and if a colon be so distended that its walls become tense, with the possibility of transmission, such a fact is apparent on inspection of the abdomen alone. I have used this method in a limited number of cases and have found it accurate and reliable.

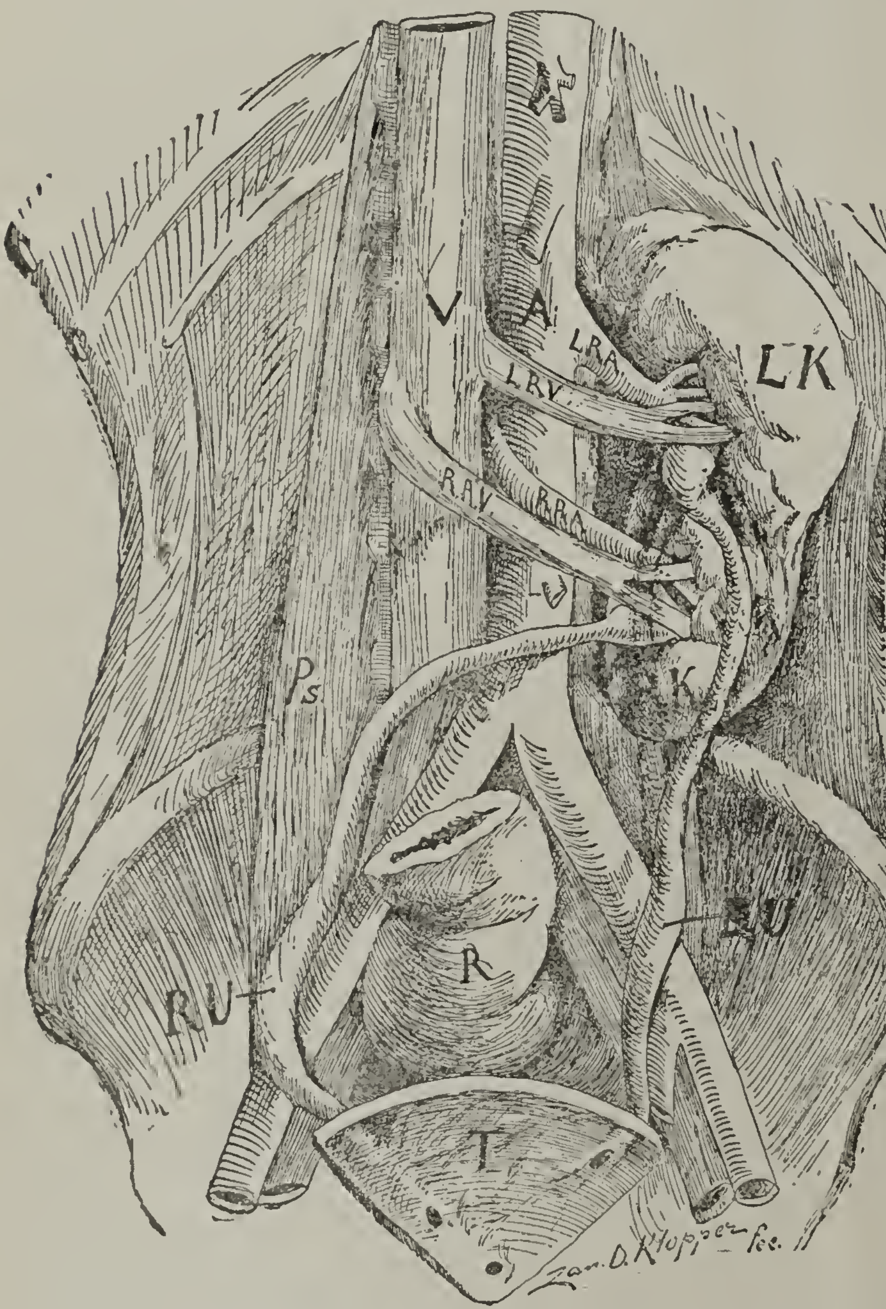
2134 North Eighteenth Street.

Cave Dwellers.—The modern civilized man is almost as really a cave dweller as was the cave man of prehistoric times. He shuts himself away in an air-proof, water-proof, light-proof house and wonders why he gets puny and sickly, wizened and consumptive.—*Good Health*

CONGENITAL TRANSPOSITION OF KIDNEY.

PAUL GRONNERUD, M.D.
Associate Professor of Anatomy and Operative Surgery, Chicago Policlinic.
CHICAGO.

By presenting this illustration of renal abnormality found by Dr. Charles H. Parkes, demonstrator in the Department of Operative Surgery and Anatomy at the Chicago Policlinic Laboratory, I wish to call attention to the uncertainties, even after accurate ureteral catheterization (unless *x*-ray pictures are taken with catheter *in situ* or a double exploratory incision) in surgical procedures on the kidneys. A study of this illustration, which is remarkably accurate, will show the clinical possibilities.



V, vena cava,; A, abdominal aorta; LK, left kidney; RK, right kidney; LU, left ureter; RU, right ureter; R, rectum; T, trigon of bladder; Ps, psoas muscle; LRA, left renal artery; LRV, left renal vein; RRV, right renal vein; RRA, right renal artery.

Due to some congenital misarrangement, the right kidney is transposed to the left side. The blood vessels to this kidney, however, arise as though it were properly placed, from the normal level and side of the aorta and vena cava. The ureter enters the bladder normally at the right side of the trigon after crossing the posterior abdominal wall at the level of the fifth vertebra.

The left kidney is normally located, except that, if the generally accepted facts of the regional anatomy of the kidney placing two-thirds of the kidney above the twelfth rib are accurate, this kidney is too low. It will be noticed that the ureteral meatus in the trigon from this kidney is considerably higher than that of the right side, which condition is probably due to traction. The kidney mass on the left side showed one common fatty capsule. The fibrous capsule is also one continuous covering for both kidneys with a depression around the circumference of the mass indicating the upper limit of the right and the lower limit of the left kidney. The parenchyma is fused by fibrous connective tissue rather than being continuous in structure. The mass showed two distinct pelves with the vessels relatively distributed, as shown by illustration.

PRIMARY TYPHLITIS SIMULATING APPENDICEAL ABSCESS AND ILEOCECAL TUBERCULOSIS.

ERNST ZIMMERMAN, M.D.
Attending Gynecologist to Blessing Hospital.
QUINCY, ILL.

The following case is deemed worthy of a detailed report on account of the paucity of the literature regarding primary typhlitis and the consequent difficulties in diagnosis which it presents, and on account of the unusual complications in the present case. None of the works on appendicitis or on diseases of the intestines or the general works on surgery give any adequate account of this trouble. Hemmeter gives only two sources of ileocecal tumor not due to primary appendicitis, i. e., cecal tuberculosis and carcinoma of the cecum. Eisendrath in his recent work on "Surgical Diagnosis" adds a third, ileocecal actinomycosis. Dr. Clarence A. McWilliams, in a paper read before the New York Surgical Society, Feb. 27, 1907,[1] under the title "Primary Typhlitis Without Appendicitis," gives the history of a case very similar to mine in which he assumed that the cecal tumor was either tubercular or carcinomatous, and resected it. Pathologic examination showed simple inflammation and infiltration affecting all the intestinal layers adjacent to the cecum, the inflammation proceeding from within the cecum. My case is as follows:

History.—Mrs. N. S., aged 30, gave no history of previous illness except the usual diseases of childhood. She menstruated first at the age of 13 years, and then regularly up to date excepting when pregnant, the flow lasting usually four or five days. She had had three children, her labors being normal; no miscarriages. Youngest child 4 months old. She menstruated again in May, 1907, for the first time since the birth of last child, the flow lasting about thirty-six hours and being unaccompanied with pain. In January, 1907, she woke one night with severe pain in the right iliac region. This grew better in an hour or so, but her right side had since been more or less tender. I first saw the patient May 19, 1907, and learned that aside from tenderness in her right side she had been perfectly well up to the evening of May 16, when she began vomiting and developed a severe pain in the epigastrium, some fever and diarrhea. The condition continued except that the pain gradually localized itself in the right iliac fossa.

Examination.—This showed heart, lungs and pelvic organs to be normal. The area over the region of the appendix was very sensitive, but nothing further could be found out that day on account of rigid abdominal muscles. Her temperature at this time was 102.5 F. and pulse 100. She was removed to Blessing Hospital the following day and all food withheld. Her temperature this day was 99.8 F. and pulse 84, but her right side was just as sensitive and her bowel movements as frequent. May 21 a distinct mass could be made out by both vaginal and abdominal examination in the right iliac fossa, the temperature then being at noon 100.2 F. and at 8 p. m. 99.8 F. May 22 temperature was 100.2 F., pulse 80 at 8 p. m., and the tumor was somewhat larger. May 23 temperature was 101 F. at 4 p. m. and 101.8 at 8 p. m., and the mass was more sensitive, and suspecting appendiceal abscess, she was ordered prepared for operation the next morning. May 24, before the operation, her temperature was 101 F., pulse 98, and the mass was as large as a large sized orange.

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[1] Anns. of Surgery, 1907.

Operation.—Ether anesthesia was used and the incision was made over the center of the mass which corresponded to the outer border of the right rectus muscles, a little lower down than midway between the anterior spine of the ilium and the umbilicus. On retracting the edges of the incision the greater omentum came into view covering the cecum and ileum, and the ileum, omentum and cecum were firmly united by adhesions. The ascending colon was also firmly adherent to the parietal peritoneum. The appendix was situated to the outer side of, and adherent to, the cecum, and was congested, thickened and distended. The appendix was ligated, removed and the stump buried by a purse-string suture. The walls of the cecum and the lower six or eight inches of the ileum were inflamed and very much thickened, the walls of the cecum averaging about three-fourths of an inch in thickness. The ileum in that region was matted down by adhesions, but no attempt was made at their separation. The extensive adhesions, the absence of pus, the very great thickening of the cecum and ileum made it probable that the tumor was an ileocecal tuberculosis.

Postoperative History.—After the operation the condition was good and she made an uneventful recovery as far as the appendectomy was concerned. The temperature never rose above 99.5 F. after the operation, and in a course of three days was normal. The stitches were removed on the ninth day, the wound having healed by first intention. Her bowels moved freely on May 28 and then once a day until June 7. June 8 she was removed to her home, and on the way there in the ambulance developed colic and vomiting. On the evening of June 8 I found her with the abdomen somewhat distended and bowels undergoing very active and visible peristaltic movements. She complained of the attacks of colic, but no pain in abdomen during the intervals of intestinal peristalsis. She vomited at that time a small quantity of mucus stained with bile. She had no bowel movement June 7 and none June 8, and was passing no flatus. I withheld all food and drink and gave hypodermically morphin sulphate, ¼ gr. and ordered enemata of soap-suds and glycerin. A diagnosis of intestinal occlusion was made at this time, but I was under the impression that it was due to the thickened walls of the ileum and cecum. I advised a return to the hospital next day, but could not get the patient's consent. On June 9, 10 and 11 the patient's condition remained practically the same, i. e., she vomited mucus and bile at frequent intervals, there was active peristalsis of the intestines without abdominal tenderness or any passage of flatus or feces. She was somewhat weaker, however. her pulse became more rapid and her temperature was subnormal. During the night of June 11 the vomitus became fecal in character and the patient consented to be removed to the hospital on the morning of June 12, and was operated on during the afternoon of that day.

Second Operation.—An incision was made somewhat above and to the outer side of the scar of the first and a few adhesions easily separated, were found under this between the parietal and visceral peritoneum. The greatly thickened condition of the walls of the ileum and cecum had disappeared and they seemed about normal. The ileum at its junction with the cecum was simply matted down by adhesions, and these were separated as well as possible. Since they were so dense and numerous that it was impossible to cover in the raw surfaces, it was thought advisable to join the ileum, where it was free from adhesions, to the lower part of the ascending colon by a lateral anastomosis. The ascending colon being bound down tightly, it could not be brought up into the abdominal wound and the Murphy button was preferable to any other method of making an intestinal anastomosis.

Subsequent History.—The patient was somewhat collapsed when removed from the operating room, but rallied promptly and her condition was good next morning. She had a thin, yellow bowel movement and expelled some flatus fifteen hours after the operation, but had no further vomiting. From this time until she was discharged from the hospital, three weeks later, she made an uneventful recovery, having no fever, no abdominal pain and regular bowel movements. At the present writing (July 20) she is at home doing her own housework and has two bowel movements daily, but no pain or discomfort anywhere. The button has not yet been passed, but a recent skiagraph shows that it is a harmless tenant of the cecum.

I was assisted by Dr. E. B. Montgomery of this city in both of these operations and in the preparation of this report.

MILK MODIFICATION PRESCRIPTION BLANK.

G. W. PUTNAM, M.D.
AURORA, ILL.

I am suggesting to those who use the percentage system of milk modification for infant feeding a prescription blank which, I think, will make the work less tedious and more accurate than it otherwise would be. These blanks should be filled out by the physician for a definite time, subject to his change if the formula used is not giving satisfaction. He should have the mother or nurse return the prescription when a new one is issued, that he may keep a record of the progress in feeding. On the back of the blank are printed the directions, informing the mother or nurse as to the method of preparing the different food units mentioned in the blank. It will be necessary to explain to the mother or nurse the technic of preparing and keeping the modified milk and the care of the utensils used, but, after these facts have been thoroughly impressed on the mother or nurse, the milk modification blanks will convey all the information needed. These blanks will be printed by any printer at a moderate cost. They should be made into the form of blocks or prescription books of a handy pocket size.

Milk Modification for Infant Feeding. Dr. John Doe.
From .... 190.. to .... 190..
Baby ....
— Per cent. Milk...........ounces.
— Per cent. Milk...........ounces.
Peptonize Milk for.........minutes.
Milk Sugar ....tablespoonfuls.
Lime Water ....ounces.
Barley Water ....ounces.
Oatmeal Water ....ounces.
Whey ....ounces.
Orange Juice ....ounces.
Meat Juice ....ounces.
Albumin Water ....ounces.
Water enough to make.....ounces.
Number of Feedings.........
Interval of Feedings........hours.
Dr. ....

DIRECTIONS.

Percentage Milk is obtained from bottled milk delivered by milkmen. 20 per cent. milk is the upper 6 ounces, 10 per cent. the upper one-third, 7 per cent. the upper one-half, 4 per cent. all of the bottle.

Milk Sugar is obtained at the drug-store.

Lime Water is a saturated solution of unslaked lime which has been cleared by straining. The lime and water should stand twelve hours before straining.

Oatmeal Water—Boil two tablespoonfuls of oatmeal flour to the quart of water for thirty minutes, keeping the quantity of water up to a quart, and strain through muslin.

Barley Water same as oatmeal water, using barley flour.

Whey—Add one junket tablet to a pint of milk, stir and strain off the whey.

Albumin Water—White of one egg to two ounces of water.

Meat Juice—Squeeze the juice from partially broiled beefsteak.

Peptonized Milk—Add one powder to four ounces of water and one pint of milk, heat to 98 F. as long as directed, then bring it to a boil, cool and place it in the ice box.

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[*For other information see second page following reading matter.*]

SATURDAY, AUGUST 24, 1907.

THE ANNUAL FOURTH OF JULY SLAUGHTER.

In this issue we publish our fifth annual compilation of the results of the "celebration" of Independence Day, and while they can not be considered as in any sense a flattering tribute to our national intelligence, yet there is much satisfaction for us in the returns on tetanus mortality. When The Journal first collected statistics on this subject, in 1903, the startling number of deaths for that year was 466, and of these 406 were due to tetanus; we also found reason for believing that this number was not greatly in excess of the results of the years immediately preceding it. On the publication of these figures a general alarm was sounded throughout the country and definite methods were adopted for a more sane method of celebration, with results that were at once apparent, for the next year the number of cases of tetanus was but 105. This improvement has steadily continued, so that in 1905 there were 104 cases, in 1906 but 89, and this year the lowest number yet recorded, 73, was reached.

There can be no doubt that this decrease in tetanus is due entirely to two causes, one being a popular understanding of the grave danger that lies in blank cartridge and in other Fourth-of-July wounds, and the other is the more thorough surgical treatment of these wounds by the practicing physicians and the frequent prophylactic use of antitoxin. Assuredly, the decrease in tetanus is not due to lack of opportunity for infection, for the number of wounds received in celebrating has each year been fully as great or greater than in 1903, when there were 415 cases of tetanus. Furthermore, there has been no natural decrease in tetanus, for we are receiving more reports of tetanus from wounds not obtained in celebration than ever before. It is remarkable that while the tetanus mortality has dropped from 406 to 62, the mortality from other causes has risen from 60 to 102; if there had not been some radical change in the handling of the minor injuries of the Fourth the tetanus cases would probably have risen likewise, or at the best, the number would have remained stationary.

It would seem from these statistics that the medical profession has learned its lesson and done its part, but that the public does not care enough about the matter to insist on its own protection. Every municipality has laws prohibiting the use of firearms and large cannon crackers, but in compliance with popular sentiment they remain unenforced. Here and there some active body of citizens or some alert public official has insisted on the enforcement of the statutes, with the result of securing safety and comparative peace for the community but more frequently the laws have been honored solely in the breach.

We must class this public indifference with those other manifestations of the cheapness of human life in our country, which permits us to shock the civilized world with our frightful figures of fatalities in railroad wrecks and in industrial accidents, not to mention our peaceful submission to universally endemic typhoid, hydrophobia and other preventable diseases. Possibly these things are the results of overestimation of the importance of "personal liberty" and fear of governmental parternalism inherent in us; we leave that question to the sociologist, while we maintain that the attitude of every medical society and of every medical man should be that of active insistence that every law passed for the preservation and improvement of health must be enforced. There remains a great deal that can be done by local medical societies in this regard, and that much can be done for the improvement of the conditions on the Fourth is shown by what has been accomplished in some communities.

SANITATION AND POPULATION.

While there is frequent emphasis of the large saving of life in the last half century as the result of the development of sanitary science and the enactment and enforcement of sanitary regulations of all kinds, especially in large cities, there is an impression in many minds that not so much has been accomplished in this way for the increase of the actual living populations of civilized countries as might reasonably be expected from the claims made by enthusiastic advocates of modern scientific sanitation. The only way, of course, that the actual improvement in the situation as regards the influence of the lower death rate produced by state and city hygiene is the collation of statistics of present day populations. It is generally recognized that the birth rate in civilized countries has fallen, very decidedly as a rule, rather than increased in the last half century, and, therefore, that any increase in population must be due to a lower death rate consequent on sanitary improvements. The figures for Europe are not a little startling in this regard. We have taken millions of people from Europe during the last half century, other European millions have gone to other parts of the globe, yet the population of this geographical grand division has increased from about 250,000,000 at the middle of the nineteenth century to about 400,000,000 at the beginning of the twentieth century.

This means that on a falling birth rate and in spite of immigration and the ravages of at least two important wars—that between Austria and Germany in 1866 and between France and Germany in 1870—the population of Europe has nearly doubled in less than two generations. Some of the details of this increase are interesting. During this period the population of Ireland has been halved in spite of a high birth rate. This, of course, is due to emigration. The increase in the population of France has been very slight because there has been an extreme reduction in the birth rate. A French family that has more than two children, in the cities especially, is so remarkable as to attract attention. In most families there is but one child. A suggestive picture of the situation is to be found in the pointed answer made in one of the French comic papers not long since: "Are you sure that she was married twice?" "Oh, yes, why she has two children!" The decrease in the population of France continues in spite of various governmental modes of encouragement of the birth rate and in spite of the laxest kind of laws with regard to illegitimacy.

The two countries at the extreme ends of Europe which differ most in education, in political status, in civilization, in freedom and in nearly every other national quality that can be thought of—England and Russia—agree in this that their numbers have actually doubled in the somewhat less than two generations of the last half century. The causes are not the same in the two countries, but, on the contrary, are the opposite poles among the factors which bring about increase of population. Russia has a very high birth rate and England has a smaller death rate than any other country in Europe. The German population has increased wonderfully during this period, and yet not to the extent which would ordinarily be expected from our traditions of German domesticity. The authority for these figures is Professor Sombart of Berlin, who is quoted in the *American Review of Reviews* for August, so that there can be no doubt that the German figures must be considered not only as unprejudiced, but as absolutely accurate for Germany at least. What now constitutes the German Empire contained approximately 25,000,000 of inhabitants about the beginning of the nineteenth century. When the empire was formed after the war with France in 1871 the population of the imperial territory was about 40,000,000. In 1905, according to the official figures, the population in round numbers was 60,000,000. In the last generation Germany has added one-half to its total population. It is the appalling contrast of these population statistics which has led to the strenuous efforts on the part of France to abate the national misfortune which appears to be impending in the falling birth rate, and of late actual decrease in population, while her rival across the Rhine grows so fast.

Some of the statistics with regard to the racial elements in the population are likely to be of special interest to America because we have millions of various European races among our population as the result of recent immigration. The Teutonic peoples have about held their own in their proportionate number in European population during the past century. The Latins have lost the preponderance which was theirs a century ago, and now the Slav represents the most important factor in the population. The reversal of statistics in this matter is very striking. Professor Sombart says: "If Europe a hundred years ago was preponderatingly—that is, almost three-fourths—Germanic-Latin, it is today preponderatingly—likewise three-fourths—Germanic-Slavic." It is no wonder the German professor asks the very pertinent question: "And a hundred years hence what?"

Among the Slav nations there is a favorite expression: "The past of Europe belonged to the Latins, the present of Europe belongs to the Teuton, but the future of Europe belongs to the Slav." The figures that we have quoted would seem to emphasize this rather strikingly. Among our own population it is evident that the same factors will work out the same conclusions. Our sanitary regulations have reduced the death rate markedly. Education and other factors have reduced the birth rate among native Americans, and among those from western Europe generally. The birth rate among our Slav and other immigrants from eastern Europe has not yet been thus affected. The future of our population, then, is likely to resemble that of Europe to a great extent. It seems worth while to face opportunely the problems involved in this consideration and to realize what the outcome of present conditions is likely to be. Physicians almost more than any others in the population are interested in the reflections which naturally arise from the thought of our satisfyingly low death rate but rather disquieting decrease of birth rate.

THE RELATIVE PREVALENCE OF SPECIAL DISEASES AMONG PORTO RICAN AND FILIPINO NATIVE TROOPS.

It is not perhaps generally realized that the United States maintains in the tropical countries under her control forces, large or small, of native troops. The efficiency of these troops compared with white troops serving under the same conditions and their relative liability to special diseases becomes a matter of considerable interest.

The Porto Rican regiment, of which the enlisted men are all natives, but the officers mostly American, was organized in February, 1901, and has served entirely in its own country. Since May, 1904, no American troops proper have served in Porto Rico, so that the comparisons with white troops refer to those serving in the Philippine Islands. For disease the admission and constantly non-effective rates of the Porto Ricans are slightly better than for white troops in the tropics, but their death and discharge rates are higher. Typhoid fever was very rare until 1906, when an outbreak occurred with nine cases and two deaths. Malaria, while steadily increasing in prevalence, has always shown a lower rate than for white troops; the rate for dysentery is less than a tenth of that among white soldiers in the Philippine Islands. Tuberculosis and alcoholism are much less frequent among the Porto Ricans, while acute articular rheumatism and all forms of venereal diseases give far higher rates than for the white troops.

Comparing Porto Rican troops with Filipino native soldiers, the former have much higher rates for filariasis, influenza, venereal diseases and articular rheumatism, while the latter show a far greater prevalence of beriberi, dhobie itch, dengue, tropical ulcer, malaria and dysentery. Beriberi, which has not been reported among the Porto Rican troops, causes a large non-effective and death rate among the Filipinos.

Comparing Filipino troops with white American troops serving in the same locality, we find, as is to be expected, that the admission, discharge and non-effective rates for the former are considerably lower than for the latter. This is explained by the fact that the Filipinos are serving at home under conditions natural to them, but inimical to the white race; nevertheless, the death rate is considerably higher among the Filipinos. This is largely accounted for by the undue prevalence of tuberculosis, cholera and beriberi among the latter.

The Americans suffer more from venereal diseases and alcoholism, the latter condition being very rare among the Filipinos, from dysentery and diarrhea, from dengue, rheumatism and typhoid fever, while the Filipinos are especially liable to malaria, beriberi, bronchitis and pneumonia.

STAPHYLOMYCOSIS.

As has been observed, septicemia and pyemia have now become medical rather than surgical diseases. It might further be added that the advent of bacteriology, and especially the use of blood cultures, has led to the division of septicopyemia into subvarieties according to the etiology. The most important of these subdivisions are streptococcus sepsis, or, as some prefer to call it, streptococcemia, and staphylococcus infection or staphylomycosis. A good deal of attention has been given in this country to blood culture work, and some writers, Libman, for example, have published the results of extensive observation. The various causal factors and the common sites of infection in streptococcus sepsis have been pretty well exploited, but the same is not true of the staphylococcus infections.

Under the caption, "Staphylomycosis," Otten[1] has recently given an extensive résumé of the medical aspect of staphylococcus sepsis, based on fifty-five cases observed in the clinic of Lenhartz. The origin of the sepsis demonstrates in a very forcible way the fact that the most serious general infection may originate from the most trivial local focus. We were prepared to expect that in diabetics and other debilitated individuals infection from trivial injuries would be reported, but that serious sepsis frequently originates in individuals in ordinary health from boils, paronychiæ and superficial skin wounds, is rather a surprise. Otten's figures show that in over 5 per cent. of all patients with staphylomycosis the infection originated from a boil or carbuncle, a panaritium, or a slight wound of the skin. Infections from the mucous membranes, and especially from the urinary tract and the puerperal uterus, were next in importance, and, finally, osteomyelitis appears as a fairly frequent source. The variety of staphylococcus present seems to make no difference in either the extent or the severity of the lesions. It has commonly been held that *Staphylococcus aureus* is more virulent than *Staphylococcus albus*, but this is not borne out by the experience in the Hamburg clinic. About 80 per cent. of the patients succumbed to the infection, a distressing number when we consider the indifference with which the commonest sources of infection in this class of cases are regarded.

The localization of the metastases in staphylomycosis varies considerably in different patients. There may be a single metastasis in the form of an abscess of the liver, brain or perirenal tissues, or there may be multiple small foci of pus. A striking fact brought out by Otten's inquiry is the frequency with which endocarditis is associated with staphylococcus infections, especially those which originate in the urinary tract. In 25 per cent. of the patients observed by Otten endocarditis developed. Most commonly the mitral valve or the mitral and aortic valves were the ones involved. Occasionally the tricuspid or pulmonary valves were implicated. This is a striking contrast to the frequency of endocarditis as an association of streptococcus infection, in which it occurs in only a trifle over 4 per cent. of the patients.

A depressing fact which studies like this often bring to mind is the futility, up to the present, of our efforts to combat most acute bacterial infections. In a few instances, active surgical intervention and the evacuation of local collections of pus leads to prompt recovery. In many others, it seems as if we could but sit by with folded hands and watch the patient die. Bacterial vaccination has not yet been properly tested in this class of cases; perhaps something is to be hoped from it. Otten's study demonstrates the great value of the systematic examination of cultures from the blood, spinal fluid, urine and pus in reaching a diagnosis. In some instances, an accurate diagnosis is undoubtedly life saving, for it leads to a more careful search for metastatic abscesses, and the search is often successful.

STREET ACCIDENTS.

It is well known that in our large cities many physicians are in the habit of ignoring the gathering of excited individuals on the street corner, which tells of the presence of a victim of some accident or sudden illness, with about the same degree of assiduity that a debtor might display in overlooking the presence of some passing creditor. The explanation which one often hears for the assumption of this attitude sounds reasonable enough on the face of it: "I have no instruments, no medicine with me, and if I had them I should probably not have time to make use of them. The ambulance will be here in a few minutes and the patient will be taken to the hospital, which is surely the best place for him. By pushing in I shall be able to accomplish nothing and shall just add one to the crowd which is already too large." And so the patient is left to the tender mercies of innumerable would-be good Samaritans, who, in lieu of oil and wine, administer generous doses of whisky, souse the patient with water, and enthusiastically order each other about.

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[1] Deutsch. Arch. f. klin. Med., July 10, 1907.

While the physician's conjecture as to the probability of his being of any material assistance is undoubtedly correct in the majority of instances, it occasionally happens that prompt action might be the means of saving life. An improvised tourniquet or digital pressure intelligently applied in case of a dangerous hemorrhage, or the immediate application of artificial respiration to a victim of electric shock or drowning might be the occasion of saving a life which would be sacrificed if no treatment were instituted until the arrival of the ambulance. An interval of ten to twenty minutes not infrequently occurs before it is possible for an ambulance to reach the scene of accident. It is, therefore, the duty of a physician to at least ascertain what the trouble is and whether his services are required.

If life is not threatened the physician can often do much to render the patient more comfortable until further assistance arrives. The very fact that some one is present who recognizes the condition and knows what should be done is often of inestimable comfort to the injured one. The authoritative voice of the physician can at least stop the senseless and often harmful efforts of the volunteer helpers. In case of syncope any constricting clothes can be loosened, and even the epileptic, who creates such a sensation among the onlookers by his dramatic performance, will surely appreciate a little care exercised in saving his tongue another vicious laceration. The passing physician will nearly always prove to be of some assistance, and by volunteering he may save himself the reproach of allowing the death of some individual when it was within his power to prevent it.

ONE WAY TO CHECK FOURTH OF JULY CASUALTIES.

One way to make a sane Fourth of July seems to have been demonstrated in Council Bluffs, where the chief of police utilized the principle of setting a rogue to catch a rogue very cleverly and with the best results. He began some years ago making arrests during several days preceding the Fourth, and let the offenders off on condition that they should serve as special police to prevent others violating the ordinances. The plan worked so well that he has continued it, and this year, the day before the Fourth, he swore in as special police, and furnished with stars, twenty-five boys and girls representing some of the best families in the place, with the result, it is said, of giving the town the safest and sanest Fourth it has ever enjoyed. Whether such a plan would work as well in very large towns may perhaps be questioned, but it appears that it might be an excellent thing in many smaller cities and in the small towns and villages that furnish so many of the casualties of the Fourth. Any arrangement that reduces traumatisms and mortality is well worth trying again, and this Council Bluffs idea seems at once directly preventive and educationally useful.

SUICIDE AS RELATED TO INSANITY.

The act of self-destruction, in civilized countries, is a transgression of the law, and, as such, is not to be countenanced. Whether or not it is ever justifiable is a question that can only be decided in the individual case after a thorough consideration of all of the attendant circumstances. The natural tendency in all healthy human beings, and in fact in all animals, is toward self-preservation, sometimes even at the expense of others. Occasionally some powerful impelling motive, such as a highly developed sense of duty, may lead to the sacrifice of the individual to preserve the welfare of others. Under ordinary circumstances, inducement for self-destruction is wanting. Conditions, however, do arise at times in which a person reaches the conclusion that death is preferable to life, and the question may fairly be asked whether a decision as to sanity or insanity can be based on the answer. Death, usually inflicted by the state, in some instances delegated to the individual, is the legal penalty for some offences. Not a few instances are on record in which a person has given up his life to save the lives of others. Such an act is usually not out of the domain of sanity. In this connection, the question of motive must always be considered. On the other hand, it will not be denied that, in most instances, attempts at suicide represent the working of a diseased mind. Under these circumstances there is a want of apprehension as to the proper relation of things, a reasoning with false premises. As the result of a logical consideration of this subject Dr. T. Claye Shaw[1] holds that the instinct of self-preservation is so modified by man's place in Nature and by his mental development that the actual necessity or advisability of self-destruction at times takes the place of the primary instinct and may become a secondary or developed instinct in itself, and that, therefore, suicide, which is itself not a legitimate act, may yet be the result of a sound mental process. He would reserve the term suicide for the person who deliberately comes to the conclusion to kill himself as the best solution of an *impasse,* while considering those persons in whom disease leads to a fatal termination as the victims of an attack of insanity of destructive nature. He expresses the axiomatic conclusion that the instinct of health is conservative, but subject to the deliberate will, which may extinguish it or invert it, while the instinct of disease is destructive, and the means for its final accomplishment lie in the reaction between the false individual and his surroundings.

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[1] Lancet, April 20, 1907, p. 1067.

AN EDDYITE FOR PROFIT.

It is one of the common occurrences in the average physician's life work, especially if that work is being done in a city, to have as a patient some individual who makes it a point to sneer at physicians and to belittle medical practice. Poor old Dowie, who has now gone to his reward and whose "church" and its commercial appendages are, like their creator, now in process of dissolution, was most bitter in his denunciation of physicians—in public—so bitter, in fact, that his deluded followers would have died, and in many cases did die, rather than call in a physician. But he, the high priest of his cult, did not hesitate to call in a physician—in private—when he became ill. From Boston comes the news that Joseph Armstrong, a prominent Christian Scientist, manager of the *Christian Science Journal* and publisher of all the Christian Science literature, was needed to give a deposition in the case now pending against Mrs. Eddy. When sought Armstrong could not be found, not having appeared at his office for many days. Investigation revealed the fact that he was suffering from an attack of pleurisy, and was under the care of regular physicians. "When the devil was sick, the devil a monk would be; when the devil was well, the devil a monk was he." So the Dowieites, the Eddyites and numerous other "ites" who when well and pain-free profess a distrust in, and an abhorrence of, physicians and the profession of medicine, when ill and racked with pain find the medical man a very handy person to have around.

Medical News

CALIFORNIA.

Examination.—A competitive examination for surgeons of the emergency hospitals of San Francisco, will be held August 31.

Physician Exonerated.—Dr. Carlotta R. Deckelman, Monterey, alleged to have been connected with the death of Mrs. Catherine Webster, who died under suspicious circumstances July 31, was exonerated by the grand jury August 8.

Ill and Injured.—Dr. Andrew W. Morton, San Francisco, chief surgeon of the Santa Fé System, was thrown from a stage near Dyerville, August 3, and fractured his nose and two ribs.——Dr. Irvin N. Frasse, Los Angeles, who has been seriously ill, is reported to be convalescent.——Dr. Albert S. Adler is reported to be critically ill at his home in San Francisco.

Personal.—Dr. J. Underwood Hall has been appointed a member of the board of health of San José, vice Dr. M. V. Mulcahy, resigned.——Dr. Frederick W. Browning, Haywards, has been appointed health officer, vice Dr. J. P. Tormey, deceased.——Dr. J. W. Pollard, Los Angeles, has gone to Chicago and New York for postgraduate work.——Dr. Edward F. Holbrook, San José, has been appointed assistant surgeon of the new hospital division of the Southern Pacific System.——Dr. Charles W. Mills, Arcata, has returned from Europe.

Bubonic Plague.—Five cases of bubonic plague, four of which have resulted fatally, are reported to have occurred in San Francisco during the week ended August 17. The patients were, with one exception, of the poorer class of foreigners. Active measures were at once taken by the local, state and federal authorities, and the spread of the disease is not feared. In the case of one patient, a sailor from a coastwise steamer, the steamer was ordered into quarantine with its passengers. The shacks inhabited by the other patients were fumigated and sealed.

DISTRICT OF COLUMBIA.

Personal.—Dr. George M. Kober sailed from Baltimore for Bremen, August 14.——Dr. Charles G. McCallion, believing that he was taking jamaica ginger, swallowed a quantity of formaldehyd August 11 and is seriously ill at the Emergency Hospital.

Examination for Medical Positions.—The examination to fill vacancies as fire and police surgeons; colored medical inspectors of schools; physicians to the poor, and resident physicians at the Washington Asylum Hospital, called for August 16 by the United States Civil Service Commission, has been postponed until September 16.

ILLINOIS.

Smallpox at Winslow.—Owing to the large number of cases of smallpox at Winslow, and the failure of the authorities adequately to enforce the quarantine regulations, the secretary of the State Board of Health has directed Dr. C. E. Crawford, Rockford, inspector of the board, to see that quarantine is maintained.

Traction System Hospital Association.—The McKinley Interurban Traction System has announced the appointment of the following surgeons: Chief Surgeon, Dr. Stephen C. Glidden, Danville; Dr. Charles F. Hough, Champaign; Dr. Jephtha D. Knott, Monticello; Dr. George S. Edmonson, Clinton; Frank M. Ewing, Lincoln; Tyler, Meriweather, Decatur; Fred M. Wilbur, Riverton; George N. Kreider, Springfield; Eliot R. Motley, Jr., Virden; James S. Collins, Carlinville; Joseph Pogue, Edwardsville; J. W. Scott, Granite City, and Carl E. Black, Jacksonville.

Personal.—Dr. Samuel A. Graham, chief of staff of the Eastern Illinois Hospital for the Insane, Hospital, has resigned and will enter practice at his home in Clinton.——Dr. Robert B. Hough, who has been assistant physician at the Asylum for Feeble-Minded Children, Lincoln, has gone to Elgin as first assistant physician in the Illinois Northern Hospital for the Insane.——Dr. James W. Pettit, Ottawa, has been appointed delegate from Illinois to the International Congress on Tuberculosis, to be held in Washington in 1908.——Dr. Arthur E. Prince, Springfield, has purchased property in Bloomington at a cost of $35,000, on which he will erect a building for a sanatorium.

Chicago.

Personal.—Dr. Joseph B. De Lee has returned from Europe.——Dr. Joseph R. Waldmeyer was attacked by a delirious patient August 18, and received a number of scalp wounds and a fracture of the left arm.——Dr. A. L. Derdiger has resumed practice, having returned from postgraduate work in the East.

Contagious Diseases.—Of the 176 cases of contagious diseases reported during the last week, 43 each were of scarlet fever and diphtheria; 37 of tuberculosis; 22 of typhoid; 18 of whooping-cough, and 11 of measles. As compared with the preceding week this is a reduction of 17 in scarlet fever and 5 in measles, while the cases of typhoid were exactly doubled.

Typhoid Fever.—The department of health has issued a warning against typhoid fever, as during the first 16 days of August 33 cases were reported and 31 deaths. This is the highest death rate from the disease since 1903. Typhoid may be expected during the remainder of August and all of September. On the conservative estimate that there are 10 cases in the city for every death reported, there are more than 300 cases.

Chicago's Health.—The total deaths from all causes for the week ended August 17 was 670, 24 more than for the preceding week and 139 more than for the corresponding week of 1906. The respective annual death rates being 16.58, 15.98 and 13.52 per 1,000. Acute intestinal diseases caused 197 deaths; consumption, 57; heart diseases, 44; pneumonia, 41; violence (including suicide), 40, and nephritis, 38. Of the contagious diseases, typhoid fever caused 18 deaths; whooping-cough, 11; scarlet fever, 8; diphtheria, 3, and measles, 2.

KENTUCKY.

Personal.—Dr. Dickran H. Erkiletian, Casky, was elected president of the Society of Free Armenians at the election held in Athens, Greece, July 10.

State Medical Examiners' Meeting.—The Kentucky State Medical Examiners' Association will hold its third annual meeting in Louisville in October in connection with the meeting of the state medical society. Three of the papers are to be presented by medical directors of local insurance companies. All life, casualty and pension examiners in the state are eligible to membership.

Wretched Conditions in Charitable Institutions.—The committee appointed at the request of Mayor Bingham from the

Jefferson County Medical Society, composed of Drs. Sidney J. Meyers, William Bailey and Cuthbert Thompson, to investigate and report on the condition of the eleemosynary institutions of the city, made its first report on the condition of the Louisville City Hospital. As a result of this report the mayor has requested the resignation of Mr. J. C. Vogt, the superintendent, and has signified his intention of appointing Dr. Jewett Menefee to succeed him. About a year ago Dr. Menefee brought charges against the management of the City Hospital; these were investigated by the board of public safety and none of the charges sustained. The report as rendered by the investigation committee bears out practically all of the charges as made by Dr. Menefee. The report shows a deplorable state of affairs at the hospital. The detention ward receives cases of contagious diseases, delirium tremens and persons of unsound mind. This ward is particularly unsanitary, with filthy bath tubs and mattresses, one room having neither light nor air. The wards are overcrowded, the mattresses are filthy and wet; the surgical dressing rooms dirty; there is a scarcity of linens; soiled dressings kept in open cans in the surgical wards several days before removal; no overhead light is provided for in the operating room; the sterilizers are antiquated; dirty ice boxes in the kitchen contain ants, spiders and cobwebs, and the milk cans are uncovered and the milk is unfit for human consumption. There is defective plumbing throughout the hospital; the ventilator shaft is out of use and fans broken; there is an insufficiency of ward helpers; soiled dishes are washed and kept in the ward; no knives or forks supplied to patients; all food except soup is supplied on one plate, etc. The nursing staff is inadequate, and the laundry is unable to meet the wants of the hospital. Tubercular patients are kept in the same ward as those with pneumonia and typhoid fever. This committee will be continued in service, and it has been requested to make monthly reports and suggestions as to the conduct of the hospital to the mayor and board of safety.

MARYLAND.

Baltimore.

Personal.—Dr. J. B. Schwatka is in Denver.——Dr. Edward N. Brush sailed for Europe August 17. He will be a delegate of the United States government to the International Congress of Psychiatry, Neurology, Psychology and Care of the Insane, in Amsterdam, September 2, other delegates to which were mentioned last week.

Changes in Infirmary Staff.—On September 1 the following changes will be made in the staff of the Union Protestant Infirmary. Dr. Lewis Smead will resign and enter private practice in Toledo; Dr. J. R. Carr will succeed him. Dr. Peregrine Wroth will be first assistant physician; Dr. John Caulk, second assistant physician, and Drs. Richard P. Bell and Merle T. Adkins, resident physicians.

MASSACHUSETTS.

Tetanus Placed on List.—The Massachusetts State Board of Health has placed tetanus on the list of reportable diseases.

Gift to Hospital.—Charles H. Morgan and George L. Newton have each given $40,000 to the trustees of the Worcester Memorial Hospital for the erection of new wards at that institution.

Personal.—Dr. and Mrs. Robert W. Lovett, Boston, are in Paris.——Dr. William M. Conant, Boston, fell from an electric car recently and sustained a severe scalp wound.——Drs. Henry R. Stedman, Brookline, and George T. Tuttle, Boston, have been called as experts in the Mary G. Baker Eddy investigation.

MICHIGAN.

Communicable Diseases.—Several cases of typhoid fever are reported from Glenwood, Cass County.——Several cases of smallpox are reported in the vicinity of Woodhull, and quarantine has been established.

Itinerant Medicine Vender Fined.—"Dr." J. F. Bosworth, who was arrested at Battle Creek charged with practicing medicine without a license, on information filed by the Calhoun County Medical Society, pleaded guilty July 30, and is said to have been fined $100.

Personal.—Dr. A. B. Gregory, Ann Arbor, has been appointed assistant to the chair of otolaryngology at the University of Michigan.——Dr. J. M. Peebles, Battle Creek, has returned from a trip around the world.——Dr. Harvey S. Chapman received several scalp wounds from a barbed wire fence while driving east of Pontiac, August 4.——Dr. Robert Wells, Ann Arbor, has been appointed assistant physician at the State Hospital, Traverse City.——Dr. Sair C. Moore, Cadillac, fractured three ribs in a runaway accident, August 3.——Dr. Emile C. Houle, Kearsarge, has resigned as assistant physician at the Wolverine Mine and will accept a similar position at Douglas, Ariz.

MISSOURI.

Unlawful Practitioner Fined.—Judge Taylor, St. Louis, on August 2 is said to have fined Mrs. Bessie Whittle $100 on the charge of unlawfully acting as a physician.

Hospital Plans Accepted.—The plans for the $35,000 addition to the Ensworth Central Medical College and Hospital, have been accepted by the board of trustees. It is expected that the addition will be completed by December 1. The new building will add 30 rooms to the hospital and will provide a new operating room and several laboratories.

Personal.—Dr. Ambrose W. Teel, Kahoka, has been elected professor of physiology in the Keokuk Medical College.——Dr. G. Wilse Robinson, Kansas City, superintendent of State Hospital No. 3, Nevada, assumed charge August 1.——Dr. Virgil Loeb, Columbia, has returned from Europe.——Dr. Charles R. Woodson, St. Joseph, has organized a company to establish and conduct a large sanitarium south of St. Joseph.

State Sanatorium.—The Missouri State Sanatorium for Incipient Pulmonary Tuberculosis, Mount Vernon, was formally opened August 1. Patients unable to pay are required to make affidavit to the county clerk, and after investigation as to correctness, are sent to the sanatorium in the order in which their names appear on the waiting list. Patients able to pay make application to the sanatorium direct, and when vacancies occur, the person whose name is first on the list is referred to the nearest examining physician, who reports the result of his examination to the chief physician, Dr. O. H. Brown, at the sanatorium. A second villa is now under construction, which will be ready for occupancy about January 1. The third building, the medical wing of the administration group, will be ready for use early next year.

NEVADA.

Personal.—Dr. Charles E. Mooser, Reno, suffered severe contusions from the overturning of his automobile recently.——Dr. M. Rollin Wallker has been appointed health officer of Reno, vice Dr. John L. Robinson, resigned.

Hospital Notes.—The Miners' Union Hospital, Goldfield, was opened July 16 with Dr. A. E. Wheeler as surgeon in charge. The building is a semi-fireproof structure, 70 by 70 feet, with accommodation for 60 patients, and has cost $45,000.——A new hospital is soon to be opened in Goldfield by Dr. Paul F. Cope.

NEW YORK.

Anthrax in Orange County.—Anthrax has broken out in several dairies in Orange County, and the state veterinarian, Dr. Devine, has ordered all exposed cattle isolated. Great efforts are being made to stamp out the disease.

Harbor Pollution.—Edward Hatch, Jr., chairman of the pollution committee of the Merchants' Association of New York City, has complained to Governor Hughes that all the boroughs of Greater New York are polluting this harbor illegally, and that other cities of the state are also guilty.

Insufficient Help in State Institutions.—The management of the state institutions is having great difficulty in the effort to keep a sufficient number of attendants and helpers. The thirteen state hospitals are now short over 500 employés, the reason given being that outdoor employment offers greater attractions and because of the higher wages paid in the country.

Personal.—Dr. Henry B. Hopkins, Buffalo, has been appointed one of the commissioners to examine into the mental condition of Mary Baker G. Eddy.——Dr. Lacey B. Darling, health officer of Palmyra, has resigned, and Dr. William J. Hennessy has been named as his successor.——Dr. Russell E. Blaisdell, Poughkeepsie, has been appointed physician at the Hudson River State Hospital, Poughkeepsie.

New York City.

Hospitals Censured.—The coroner's jury found the following verdict at a recent inquest: "We censure the Manhattan State Hospital and Bellevue Hospital for failure to give the deceased proper treatment while in their care, and recommend that the Manhattan State Hospital increase the number of their attendants and adopt a system of reports to show the exact status of every patient at all times, making it possible for the authorities to ascertain at any time who is in charge of a patient."

Contagious Diseases.—There were reported to the sanitary bureau for the week ended August 10, 398 cases of tuberculosis, with 148 deaths; 221 cases of measles, with 20 deaths; 211 cases of diphtheria, with 22 deaths; 117 cases of scarlet fever, with 6 deaths; 82 cases of typhoid fever, with 18 deaths; 39 cases of whooping-cough, with 17 deaths; 7 cases of cerebrospinal meningitis, with 14 deaths; 14 cases of varicella, and one case of smallpox, a total of 1,090 cases and 245 deaths.

Personal.—Dr. Francis H. Markoe is seriously ill and little hope is entertained of his recovery.——The coroner's jury decided that Dr. James E. Russell, who was found dead on July 21, was "garroted" by persons unknown.——Dr. and Mrs. Aspinwall Judd, Dr. and Mrs. Charles C. Reid arrived from Europe August 15, and Dr. Clarence A. McWilliams, July 15.——Drs. D. Bryson Delavan, M. S. Gregory and Edward N. Brush sailed for Europe August 17.——Dr. John S. Billings, director of the New York Public Library, has gone to Europe, where he expects to visit all the principal hospitals, and will apply the result of his observations of the equipment of the new Harvard Medical School Hospital, Boston, which will be built under his supervision.

OHIO.

Barbers Fined.—The health officer of Cleveland, on account of the prevalence of barber's itch in that city, has had several barbers arrested because they do not follow the letter of the law as regards cleanliness. Three were fined $5 and costs; two received suspended sentences, and the others asked to have their cases continued.

Infectious Diseases.—During the 21 weeks ended July 27 infectious diseases were reported from 113 localities as follows: Measles 5.074 cases, with 51 deaths; diphtheria, 924 cases, with 103 deaths; typhoid fever, 844 cases, with 122 deaths; scarlet fever, 835 cases, with 80 deaths; whooping-cough, 497 cases, with 25 deaths; smallpox, 92 cases, with no deaths.

Personal.—Dr. H. Edwin Heistand, Kenton, was seriously injured in an automobile accident recently.——Dr. James D. McAfee has resigned as a member of the board of health of Cleveland.——Dr. Robert Carothers has been appointed junior orthopedic surgeon to the Cincinnati City Hospital.——Dr. Frank A. Stickney, Kilbourne, is making a good recovery after the amputation of his leg in Columbus.——Dr. George F. Zinninger, Canton, who was operated on for appendicitis recently, is making a good recovery.——Dr. Walter J. Smith, Reily, is reported to be seriously ill with septicemia due to an operation wound.——Dr. Albert E. Griffin, Columbus, suffered amputation of the finger at the Grant Hospital recently.——Dr. Joseph J. Dunn, house physician at St. Alexis Hospital, Cleveland, was operated on for appendicitis August 13.——Dr. Parker F. Southwick, Sandusky, has been elected coroner of Erie County.——Dr. Jesse O. Glass, Springfield, has returned from Europe.——Dr. Ruth Bernheim, Cincinnati, has gone to Europe.——Dr. Charles C. Mandeville, Galion, fell recently while boarding a street car and fractured his leg at the ankle.——Dr. Elwood E. Arnold, Columbus, physician at the state penitentiary, has resigned to accept a position with the Pennsylvania System.

PENNSYLVANIA.

Personal.—Dr. George N. Mealy, New Wilmington, received serious injuries recently by the falling of a tree.——Dr. Mary M. Wolfe, of the State Asylum for the Insane, Norristown, sailed for Europe August 17.

Hospital Contract Awarded.—The contract for the erection of five buildings and dormitories for the State Hospital for Epileptics at Spring City, was awarded August 13. The cost of the construction of the buildings is $251,504.

Cocain Sellers Fined.—J. J. Naser and G. F. Smith, druggists of Washington, are said to have pleaded guilty before the grand jury of having sold cocain to habitual users of the drug and filling prescriptions which were not genuine, and to have been fined $100 each.

Infantile Paralysis Epidemic.—It is reported that an epidemic of infantile paralysis has broken out in Ridgway. The disease has been raging for three weeks and the malady is not limited to children, but several adults have been attacked. There are at present nearly 200 cases of the malady in this city and the death rate has been very high. The disease is in a violent form, and the persons afflicted, as a rule, range in age from 5 to 13 years. It is reported that thus far three out of every four have succumbed. Typhoid fever is also raging in Ridgway.

Philadelphia.

Bequests.—By the will of the late Annie Potss the West Philadelphia Hospital for Women and the Home for Incurables receive $300 each; the Home of the Merciful Savior for Crippled Children, $200.——A provisional bequest of one-third of an estate valued at $30.000 to the Presbyterian Hospital is contained in the will of the late Elizabeth McElroy.——The will of the late Martha A. Stewart bequeaths $4,800 to the Rush Hospital for Consumptives.

Personal.—Dr. Mazyck P. Ravenel, delegate of the United States at the International Congress of Hygiene and Demography, and recently elected professor of bacteriology at the University of Wisconsin, sailed for Europe August 11.——Dr. Mary P. S. Rupert, anesthetist of the Woman's Hospital, sailed for Europe August 3.——Dr. S. Weir Mitchell is spending the summer at Bar Harbor, Maine.——Drs. Lawrence F. Flick, Joseph Walsh and Daniel J. McCarthy will sail for Europe August 29 to attend the International Conference on Tuberculosis in Vienna.

Health Report.—The total number of deaths reported for the week ended August 17 was 502. This is a decrease of 35 from the preceding week and a decrease of 37 from the corresponding week of last year. The principal causes of death were: Typhoid fever, 10; pertussis, 8; diphtheria, 6; meningitis, 2; consumption, 54; cancer, 19; apoplexy, 20; heart disease, 40; acute respiratory disease, 20; enteritis, 99; appendicitis, 6; Bright's disease, 34; congenital debility, 21; premature birth, 12; suicide, 3; accidents, 16, and marasmus, 16. There were 152 cases of contagious disease reported, with 19 deaths, as compared with 131 cases and 19 deaths reported in the preceding week.

TENNESSEE.

Free Dispensary.—The Memphis Free City Dispensary was reopened August 5 under the charge of Dr. G. W. Cunningham.

Tuberculosis Hospital.—A hospital for consumptives is to be built at the state penitentiary, where there are said to be at present 45 patients afflicted with the disease.

Typhoid in Nashville.—During the week ended July 27, 104 cases of typhoid, with 4 deaths, were reported in Nashville. The water suppply of the city, which is supposed to be at fault, is being investigated.

Personal.—A desperate attempt was made to kill Dr. L. Frank Sory, Adams, August 5. Dr. Sory is a member of the Tobacco Growers' Association, and it is supposed that the assault was made by individuals opposed to that organization.——Dr. W. H. Pistole, Memphis, has been appointed professor of materia medica and therapeutics in the College of Physicians and Surgeons of that city.——Dr. E. A. Barber, Graysville, has been appointed assistant surgeon of the Mexican Central Railroad, with headquarters at Guaymas, Mexico.——Dr. Edward T. West, National Soldiers' Home, has been appointed governor and surgeon of the Battle Mountain Sanatorium, Hot Springs, S. D.

TEXAS.

Investigators Contract Dengue.—Passed Assistant Surgeons Joseph Goldberger and George McCoy, attached to the Hygienic Laboratory of the Public Health and Marine-Hospital Service, who, on the outbreak of dengue at Brownsville, were detailed by the surgeon general to make a thorough investigation of the nature of the disease, soon after establishing an efficient working laboratory and beginning work contracted dengue, and on this account the investigation is temporarily interrupted.

New Medical Board.—The governor has announced the appointment of the State Board of Medical Examiners, as follows: Drs. James D. Osborne, Cleburne; Edwin P. Becton, Greenville; William B. Collins, Lovelady; Garland B. Foscue, Waco, and John J. Dial, Sulphur Springs, of the regular school; Drs. John D. Mitchell, Fort Worth, and Thomas J. Crowe, Dallas, of the homeopathic school; Drs. Marquis E. Daniel, Honey Grove, and J. P. Rice, Fredericksburg, of the eclectic school; Dr. Radford O. Braswell, Mineral Wells, of the physio-medical school, and R. W. Collins, El Paso, an osteopath.

To Prevent the Spread of Tuberculosis.—The rules of the State Board of Health to govern the sanitation of tuberculosis contain the following clauses:

> Tubercular victims are not allowed employment in any public building, in any school, church or bakeshop or slaughter house. Burlap is prohibited for a floor covering; passengers on trains are not allowed to wash their teeth over wash basins and careless handling of ice to be used in water coolers is made an offense.
>
> Floors of public buildings must be swept every day after being sprinkled with sawdust wet with formaldehyd. Boarding house, hotel and restaurant ice boxes must be scoured and treated with acid once a week.
>
> In jails a prisoner must have 3,000 cubic feet of air an hour, walls must be whitewashed every month and painted every six months.

Personal.—Drs. Oscar M. Marchman and Miles J. Duncan have been appointed members of the Dallas board of health.——Dr. J. R. Nichols, first assistant physician at the Northern Texas Insane Asylum, Dallas, has resigned.——Dr. Pierce M. Knykendall, Moody, sustained a fifth cerebral hemorrhage, August 1.——Dr. D. E. Cloud, Austin, has been appointed third assistant physician at the Southwestern Insane Asylum, San Antonio, vice Dr. Bruce Allison, resigned.——Dr. Benjamin F. Gibson, Midway, physician at the state penitentiary, Huntsville, has resigned.——Dr. Alfred E. Thayer, professor of pathology in the University of Texas, has resigned and will move to Asheville, N. C.——Drs. William Olive and Lewis E. Pearce, Houston, sustained painful contusions as the result of a runaway accident, August 11.

VIRGINIA.

Society Meeting.—The Augusta County Medical Society held its regular quarterly meeting August 14 at Staunton. The attention of the society was drawn to the presence of illegal practitioners in the city and county, and a committee composed of Drs. Charles W. Rodgers, Staunton; Thomas M. Parkins, Staunton, and Walter F. Hartman, Swoope, was appointed to bring this matter to the attention of the attorneys of the commonwealth. The following officers were elected: President, Dr. Samuel H. Burton, Parnassus; vice-presidents, Drs. Clarence T. Lewis, Staunton; R. Sumpter Griffith, Basic City, and John F. Armentrout, Staunton; secretary, Dr. Achilles L. Tynes, Fishersville; treasurer, Dr. Thomas M. Parkins, Staunton (re-elected), and censor, Dr. Walter F. Hartman, Swoope.

Personal.—Dr. Albert W. Freeman has been appointed to succeed Dr. E. Guy Hopkins, city bacteriologist of Richmond, resigned.——Dr. Littleberry S. Foster, superintendent of the Norfolk Protestant Hospital, has resigned, to take effect August 15.——Dr. Edward H. Claud, Norfolk, who was operated on for appendicitis a few days ago, is reported to be convalescent.——Dr. William S. Drewry, Petersburg, has been elected president of the Virginia Home and Industrial School for Girls.——Dr. Ralph W. Browne, Roanoke, recently operated on for appendicitis in Richmond, is reported to be convalescent.——Dr. Edward A. Waugh, Lynchburg, is at present in Los Angeles.

GENERAL.

Sixth International Dermatologic Congress.—The Sixth International Dermatologic Congress will be held at the Academy of Medicine, New York City, Sept. 9-14, 1907. An address of welcome on behalf of the United States will be delivered by Surgeon-General Rixey of the United States Navy; an address for the American universities will be delivered by Prof. Ira Remsen of Johns Hopkins University; and an address for the medical profession of the United States by Dr. Joseph D. Bryant, President of the American Medical Association. Papers will be read by some of the most famous European dermatologists, including Prof. R. Campana, Rome, Italy; Dr. Z. Falcao, Lisbon, Portugal; Dr. Vinetta-Bellaserra, Barcelona, Spain; Dr. L. Brocq, Paris; Dr. Unna, Hamburg, Germany; Dr. M. Oppenheimer, Vienna; Prof. E. Kromayer, Berlin; Prof. E. Hoffmann, Berlin; Dr. A. Buschke, Berlin; Drs. Hallopeau and Gastou, Paris; Prof. S. Ehrmann, Vienna, and numerous others. Papers are also on the program by the leading dermatologists of this country. Further details may be obtained from the secretary-general, Dr. John A. Fordyce, 80 West Fortieth Street, New York City.

CANADA.

Resignations.—Dr. W. A. Wilkins, professor of histology in McGill University, Montreal, has resigned.——Dr. Norman E. McKay has resigned as professor of surgery in Halifax Medical College and has been succeeded by Dr. Edward V. Hogan.

Canadian Medical Association.—The fortieth annual meeting of this association will be held in Montreal, September 11 to 14, under the presidency of Dr. Alexander McPhedran, Toronto. Dr. Davy Rolleston, London, Eng., will deliver the address in medicine; Dr. Ingersoll Olmsted, Hamilton, the address in surgery, and Dr. J. George Adami, Montreal, the address in pathology. In the medical section there is to be a discussion on cerebrospinal meningitis, and in the surgical section a discussion on hypertrophy of the prostate. There is to be a new section this year for pathologic workers, for which a number of scientific papers have been promised.

British Columbia Medical Association.—The eighth annual meeting of the British Columbia Medical Association was held in Victoria on August 1 and 2, under the presidency of Dr. Roderick L. Fraser, Victoria. An important discussion took place on the subject of "patent" and proprietary medicines, and the following resolution was adopted and ordered to be transmitted to the Canadian Medical Association:

> Whereas, It is morally incumbent on every medical man to prevent the public against disease and sickness as far as possible, and
>
> Whereas, The so-called patent medicine is sold without restriction throughout this Province, thereby constituting a menace to the public health, and
>
> Whereas, Proprietary medicines, the composition of which are not known, are prescribed by regular physicians to a certain extent, therefore, be it
>
> *Resolved*, That the British Columbia Medical Association place itself on record as being in favor of the enactment of suitable laws for the protection of the public against patent medicines, and
>
> *Resolved*, That it appoint a committee whose duty it shall be to institute such measures or support them if introduced by the legislators, and
>
> *Resolved*, That it strongly disapproves of the unscientific and possibly dangerous practice of prescribing the secret proprietary medicines, and
>
> *Resolved*, That the British Columbia Medical Council be requested to communicate with all physicians of the province, drawing their attention to the undesirability of prescribing these secret proprietary medicines. The treatment of advanced cases of consumption was also discussed and a resolution passed calling on the government to insist that all hospitals receiving government aid be compelled to provide for a limited number of such cases.

The teaching of public health in the schools was also brought up and a committee appointed to make suggestions whereby the present text-book in use in the public schools which in the opinion of the association is unsatisfactory, should be improved. The following officers were elected for the ensuing year: President, Dr. John M. Pearson, Vancouver; vice-president, Dr. Douglas Corson, Fernie; treasurer, Dr. James D. Helmcken, Victoria, and secretary, Dr. R. Eden Walker, New Westminster (re-elected).

FOREIGN.

International Congress Postponed.—The Fifth International Gynecologic Congress, which has already been postponed once, and which was to have been held in St. Petersburg, has again been put off, the *British Medical Journal* says: "On account of numerous expressions as to the inopportuneness of a congress in Russia."

Premiums for Temperance.—The directors of the iron and steel works of Röchling (Völklingen a. Saar), make the following announcement: "We have concluded that even for furnace work those laborers are more valuable who use no alcohol at all. Therefore, we have decided to distribute premiums to those laborers who are members of a Good Templars' lodge for more than one year, in the following manner: Such laborers as have been members for a year will receive a premium of 10 marks per quarter; those who have belonged to the lodge for two years will receive 15 marks per quarter, and for every succeeding year of membership in the lodge the premium will be increased 5 marks per quarter."

Hospital Appointments in South Africa.—According to the *South African Medical Record*, the staff of the Johannesburg Hospital is vigorously opposing a ruling of the governing board that the board at any time may appoint outside practitioners directly to the senior medical and surgical posts of the hospital. It is claimed that this rule would not be exercised ordinarily, but would be held in reserve in case of any European celebrity who might happen to settle in Johannesburg, and whose services would be lost to the institution if he had to pass through the drudgery of out-patient work. In commenting on the situation, the London *Lancet* remarks that it is in sympathy with the junior members of the staff. It is unfair, the *Lancet* declares, that those who have borne the burden and the heat of the day should be ousted from the clinical reward of their labors by the chance advent of some "European celebrity" who is unwilling to follow in their industrious footsteps.

LONDON LETTER.

(From Our Regular Correspondent.)

London, Aug. 8, 1907.

Trachoma in London.

Trachoma is prevalent in the East End of London. The great hospital in Whitechapel is largely used by those aliens, who are not allowed entrance into America, but who are unable to get back to their own country. It seems likely that trachoma will continue to spread in the East End of London under present conditions, and its prevalence is a convincing object lesson on the laxity of British laws in regard to the ingress of foreigners.

Award of Baly Gold Medal.

Prof. Ernest H. Starling, M.D., F.R.C.P., F.R.S. Jodrell, professor of physiology at University College London, has been awarded the Baly gold medal of the Royal College of

Physicians of London. The medal is given every alternate year to the physiologist who has most greatly distinguished himself in his special branch of science during the preceding two years. Professor Starling has made many important investigations, including explanations of the manner in which the pancreatic secretion containing the ferment trypsin is formed.

The New York Optometry Bill.

Much surprise has been expressed in medical circles in Great Britain at the passage of the bill in New York state, which confers on opticians the right to practice a "specialty of medicine," the same bill further providing for the institution of an examining board of opticians.

International Housing Congress.

An international congress on this subject has been held in London recently. Mr. John Burns, president of the Local Government Board, in speaking of the overcrowding of cities, said that London is making progress. It is not true of London to-day, as Charles Dickens said of London sixty years ago, that "the very crutches on which the ruins are propped are decaying," or that the poor of London live in "brick boxes with slate lids." At present in London 1 in 7 of the population lives at the rate of two in a room. In Manchester it is 1 in 6, in Edinburgh 1 in 3, and in Glasgow 1 in 2. The population per house in England, where people live in cottages, is 5; in London it is 8; in New York, where people live in tenements, it is 20; in Paris, where they live in flats, 26; in Berlin, where they live in barrack dwellings, there are 46 per house. In New York there are 350,000 dark rooms, and 2,300,000 persons live in 82,000 tenement houses.

International Congress of School Hygiene.

The second congress was held at the University of London, August 5. The address of welcome was made by the Earl of Crewe. In his presidential address, Sir Lauder Brunton said that one of the most important subjects is medical inspection of school children, and that it is really the keystone of medical education. He emphasized the importance for weak anemic children of plenty of fresh air and sunshine, and praised work of the London County Council in opening the open-air school at Abbey Wood, where weakly children can have the fresh air, rest and abundant food necessary to restore them to health and strength. He also spoke of the separate schools, which are now being established for crippled children, and for those who are mentally defective. He urged the necessity for physical training of all children, and stated that much could be done for cripples by this means. He said that the system of cramming children is greatly to be reprobated, and that the body requires quite as much careful attention as the mind. He stated that one of the most difficult and yet one of the most important questions of school hygiene is how to combine educational with physical training, so that both may be productive of benefit and not of injury to the child.

Contribution to King Edward's Hospital Fund.

The Bank of England has received from Mr. Andrew Carnegie the sum of £100,000 ($500,000) for King Edward's Hospital Fund. The gift is made unconditionally, and Mr. Carnegie expressed the desire that it should be used as seems best, adding "The more strenuously for reform the better."

Public Health Laboratories for Medical Women.

The Middlesex Hospital has opened well-equipped laboratories which will be devoted entirely to the training of medical women in public health work and providing them with facilities for research work in bacteriology. Public health is eminently a subject for which medical women are suitable, as in the practice of it they have to encounter none of the prejudices and suffer from none of the inabilities which interfere with them in the practice of medicine. There is a large field of usefulness for them in certain branches of the public health service, in the medical inspection of factories and schools, and in the administration of the recently passed Midwives Act. Many posts of this kind are already well filled by specially trained medical women, and in the near future the number will certainly be much increased. Research work in bacteriology, involving as it does a tedious attention to detail and a technic of extreme delicacy, is also a work for which women are well adapted. The laboratories are now open for work under the charge of Mr. A. G. R. Foulterton, the director of the bacteriologic and public health department of the Middlesex Hospital, with Miss Hilda Whittingham, M.B., as assistant. To some extent the laboratories will be self-supporting from the first, but financial assistance from the public is asked to meet the possibility of a deficit in the future and to enable scholarships in bacteriology to be offered for women only.

Hygiene in Swimming Baths.

Sir Clement Cooke of the London County Council, has introduced a very sensible motion for ensuring greater cleanliness in swimming baths. He proposes, following the example of German baths, that all persons, irrespective of age or sex, be required before entering a public swimming bath to wash their hands and feet; and that for this purpose sufficient appliances and accommodation be provided. Any one who has seen a public swimming bath after a few hundreds of persons have used it, will appreciate the object in view. It is true that at present the bath attendant has power to compel any person with usually dirty feet to wash them, but it is impossible for the attendants to examine the feet of all the bathers.

VIENNA LETTER.

(From Our Regular Correspondent.)

Vienna, Aug. 8, 1907.

Serum-Producing Horses.

There are at present at the Vienna Serotherapeutic Institute forty-seven horses used in the production of the various therapeutic sera. Most of the animals are those that have formerly served in the artillery service, and are not full-blooded stock. Full-blooded animals do not easily respond to the loss of blood entailed in this work. The animals when purchased are between 6 and 8 years old, and many of them have been in the institute from ten to fifteen (one even twenty-three) years, and are still capable of giving a serum of high potency. They are, of course, kept scrupulously clean and are given an ample amount of food and exercise. Of the horses at present in the stables, twenty-six are immunized against diphtheria, two against streptococci derived from many sources and three horses each against cholera, typhoid fever, tetanus, scarlet fever and cerebrospinal meningitis (pneumococci and meningococci). Two horses have been specially immunized against puerperal fever with cocci obtained from the patients in three different cases, and the serum from these animals has been used with gratifying success at the clinic of Professor Chrobak. The institute supplies not only the clinics, but has the serum for sale to physicians. The horses must be capable of being bled of six liters (1½ gallons) of blood every two months, and in the second year the same amount is withdrawn every four or five weeks. The recuperative power of the organism is thus put to severe test.

Mine Sanitation.

The last coal mine disaster demonstrated that a number of lives could have been saved if means were provided to prevent the inhalation of irrespirable gases. The state mines in Bohemia are equipped each with a safety chamber supposed to be gas and explosion proof, and each contains a number of breathing appliances. This device has been recommended, by the commission appointed to inquire into the subject, as the best means at present available for providing safety for the miners. Electricity is recommended as the best illuminant in the place of the old Davy lamp. Proper ventilation has to be strictly and scrupulously attended to, and large exhausters have to be placed so as to produce a constant current of air toward the opening of the shaft.

Sanatoria for Tuberculosis and Their Location.

Although experimental evidence has proved that sanatoria and hospitals for the tuberculous are in no sense a menace to the public if such institutions have their own grounds and sanitary arrangements, property owners in many cities are insisting that no such institutions shall be erected within a shorter distance from inhabited areas than six miles. This movement is especially strong in the so-called health resorts and watering places, where a diminution in the number of yearly visitors is feared. Local authorities propose, as a compromise, to fix the distance at about four miles, and to select the site of the sanatorium so as to prevent contamination of air or water.

Medical Fees.

One of the higher courts of Austria recently rendered a decision in a case brought by a physician to recover his fees. The physician had attended half a year previously the wife of a wealthy merchant and had called in a consultant; he sued for both his own fee and that of the consultant. Judgment was rendered for the plaintiff, and the judge remarked that strictly speaking payment of the fee was due the moment medical attendance ceased. As regards the fee for the consultant, the patient is liable for its payment, even if he was not asked beforehand, as soon as he submits to examination by the consultant.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Rational Treatment of Disease.

The scientific treatment of disease must always take into consideration the etiology, the physiologic disturbances that are taking place, the pathology of the disease, and the severity of the symptoms. The aim of the treatment, then, is to prevent, if possible, further action of the etiologic cause, to remove that cause if it can be removed, and to combat the cause with its antidote or specific opponent if there is such. The next object of treatment is to remove immediately or gradually, if it can be removed, the pathologic conditions caused by the disease, and while doing this the normal physiology of the system should not be interfered with lest by too active treatment aimed in a shotgun manner at the pathology, the normal ability of the system to combat disease be interfered with. The aim should be never to obstruct Nature's protective ability by giving strong drugs in such amounts as to obstruct physiologic and antitoxic processes.

The last object of treatment, although an important one, is and always must be to ameliorate, or to remove if possible, the conditions that interfere with the process of repair, that interfere with the nutrition of the body, that interfere with the sleep and comfort of the patient, and that if allowed to persist, would create complications which would intensify the seriousness of the primary disease.

Any one who decries with the approbious term of "symptomatic treatment" the necessary modification of objectionable symptoms of disease is one who has not practiced medicine at the bedside except as a consultant, or in public institutions.

Stricture of the Urethra.

Dr. Alfred C. Wood, Philadelphia, in the *Penn. Med. Jour.*, July, 1907, sums up the treatment of this condition, which is so often mismanaged, as follows:

"The problem in the treatment of urethral stricture, therefore, is the removal by stretching and absorption of the deposit of fibrous tissue. The secondary results, chronic catarrh, ulceration, etc., will disappear spontaneously if the former is accomplished. On the exterior of the body similar deposits would be treated by massage, passive movements, etc. This principle can be applied to strictures only by the introduction of instruments to dilate the contracted part of the canal; and, just as skillful massage is the most effective means of treating external fibrous deposits, so is proper dilatation the most efficient means of treating strictures. This can not be stated too forcibly. It should be an invariable rule never to cut a stricture if it can be dilated. It is a matter of universal clinical experience that traumatic strictures do not, as a rule, respond to dilatation. These must, therefore, be cut. Let it be understood, however, that cutting never cures a stricture; in fact, it adds a fresh trauma and additional cicatricial tissue which would result speedily in a greater contraction than before unless careful and systematic after-treatment is followed out.

"Congenital stenosis of the meatus, and strictures of this region, if small enough to interfere with treatment, must be cut; they never yield to dilatation.

"Strictures of the pendulous urethra, if recent and soft, may yield to dilatation, and this method of treatment should always be given a fair trial, but if old and fibrous, will usually require cutting. Otis' dilating urethrotome has been the most satisfactory instrument for this purpose, in my hands. One may cut to the desired caliber with much precision. Do not do more than is necessary. Cut a little, introduce the bulb, and if the obstruction is not relieved, cut again. Albarran recommends four slight incisions at different points in the circumference.

"Strictures of the pendulous urethra possess an astonishing tendency to recontraction, so that the greatest perseverance is required after operation to maintain the proper caliber.

"Strictures from the penoscrotal angle to the bulbomembranous junction, unless traumatic, if passable, never need cutting.

"If it is possible to pass a whalebone filiform it will almost invariably be found that by gentle persistent efforts dilatation may be carried to the normal caliber. In the cases that will admit a filiform only, the instrument should be securely tied and allowed to remain in. This results in twenty-four hours in sufficient dilatation to permit of the introduction of a second or even a third filiform. These are in like manner retained, and in the course of one or two days all but one may be removed, and a Gouley tunneled catheter may be passed over this and allowed to remain, the filiform being withdrawn. After a few days a sufficient dilatation may be obtained to begin the gradual dilatation by steel bougies; or if not, a larger Gouley may be introduced. During all this time the patient must be given urinary antiseptics, and irrigation of the urethral canal should be practiced.

"As soon as a caliber of fifteen or thereabouts has been reached, gradual dilatation may be begun in the usual way. The frequency of the treatment and the size of the instrument to be used depend on the conditions present. Sufficient time should be allowed between each treatment to permit the reaction caused by the stretching to fully subside. If the stricture is soft and yielding, the instrument may be rapidly increased in size. On the other hand, if the deposit is very fibrous and resistant, the same numbers may properly be used at two or three successive treatments. It is very undesirable to increase the numbers too rapidly, as this results in laceration with the formation of new deposit and adds to the probability of contraction in the future. For this reason, I disapprove of the rapid dilatation, or divulsing, as it is called. While this method appears to yield brilliant results at the time, it is not entirely free from danger, and my experience has been that such patients are much more apt to return in future years for a recurrence of the stricture than those who have undergone the gradual method of treatment over a longer period.

"A patient who has been treated for stricture must be impressed with the fact that it may return in spite of the very best treatment, and hence he should visit his physician from time to time for an examination, or for the introduction of a bougie, in order to detect the earliest stages of any recurrence. If this is not done, the condition may become so pronounced as to require a prolonged and systematic treatment, as in the first case."

Paresthesia.

Dr. John V. Shoemaker, Philadelphia, in the *Medical Bulletin*, June, 1907, recommends the following prescriptions to ameliorate the nervous disturbances of the skin that sometimes occur in patients suffering from neurasthenia:

℞.	gm.		
Arseni trioxidi	|03		gr. ½
Ferri lactatis	2		gr. xxx
Zinci valeratis	1	or	
Asafœtidæ	1		
Extracti sumbul	1		āā gr. xx

M. et fac capsulas 20. Sig.: A capsule three times a day, after meals and at bedtime.

The capsule at bedtime had best be taken with some light food, as milk, crackers and water, some simple fruit, or a cup of one of the simple convalescent foods, as malted milk. These patients are generally sleepless and some simple food, especially if taken warm, aids them in getting to sleep. Also the above capsule (and it is true of most drugs in pill, capsule or tablet), should not be taken on an empty stomach, even with water.

As a local application Shoemaker recommends the following:

℞.	gm. or c.c.		
Magnesii carbonatis	2|		ʒss
Creosoti	2|		flʒss
Glycerini	30|	or	fl℥i
Liquoris calcis	100|		fl℥iii
Aquæ hamamelidis	ad 200|		ad fl℥vi

M. Sig.: Shake well, and apply to the irritated skin.

An Antiseptic Gargle.

Dr. Charles E. Souther, Cincinnati, recommends the following prescription "as an efficient gargle, especially in syphilitic sore throat and as a prophylactic for those who are nursing patients with diphtheria:"

℞.	gm. or c.c.		
Hydrargyri chloridi corrosive	|10		gr. ii
Alcoholis	30|	or	fl℥i
Glycerini	30|		fl℥i
Aquæ destilatæ	ad 500|		ad fl℥xvi

M. Sig.: Use as a gargle every three or four hours.

For Diarrhea in Children.

℞.	gm. or c.c.		
Benzosulphinidi	|01		gr. 1/6
Olei menthæ piperitæ	|03	or	gr. 1/2
Alcoholis q. s. ad solutionem	|		q. s.
Adde olei ricini	ad 25|		flʒvi

M. Sig.: One or two teaspoonfuls, according to age.

Follow this with:

℞.	gm. or c.c.		
Bismuthi subgallatis	5|00	or	gr. lxxv

Fac chartulas 20. Sig.: One powder every two hours.

The following combinations are recommended by Daniel E. Hughes, M.D.:

℞.	gm. or c.c.		
Pulveris ipecacuanhæ	|15		gr. ii
Pulveris rhei	|10	or	gr. iss
Sodii bicarbonatis	|25		gr. iv
Sacchari	1|		gr. xv

M. et fac chartulas 4. Sig.: One powder every four hours.

Follow with this:

℞.	gm. or c.c.		
Bismuthi subnitratis	8|	or	ʒii
Phenylis salicylatis	2|		ʒss

M. et fac chartulas 20. Sig.: One powder every two hours.

Or this, if there is pain:

℞.	c.c.		
Tincturæ opii deodorati	5|		flʒi
Spiritus chloroformi	10|	or	flʒii
Acidi sulphurici diluti	25|		flʒv
Vini pepsini (N. F.)	ad 100|		fl℥iii

M. et sig.: One teaspoonful, in water, every three hours.

If there is vomiting use the following:

℞.	gm.		
Hydrargyri chloridi mitis	|05		gr. i
Sodii bicarbonatis	1|	or	gr. xv
Sacchari	1|		gr. xv

M. et fac chartulas 8. Sig.: One powder, given dry on the tongue, every hour till vomiting is controlled.

Cardiac Dilatations.—C. R. Sowder, Indianapolis, in the *Central States Medical Monitor*, in an article on cardiac dilatations gives the following essentials of treatment: First, absolute rest in bed is needed for a time, followed by a life free from worry or excitement, and with moderate exercise, and good easily digested, nourishing food. Strict attention must be given to the eliminative organs. Second, the drugs used are digitalis, for the heart, and strychnin and iron for the anemia. If possible, of course, the cause of the dilatation must be removed.

Pharmacology

PROBILIN.

Report on Probilin by the Council on Pharmacy and Chemistry —With Comments.

The following report has been submitted to the Council on Pharmacy and Chemistry by a subcommittee to whom Probilin was assigned (Pilulæ Probilinæ. Dr. W. Bauermeister, Goedecke & Co., Leipzig, Germany. Schering & Glatz, New York, sole agents for the United States):

> *To the Council on Pharmacy and Chemistry*:—Probilin pills are said to be made according to a formula published by Dr. W. Bauermeister in *Therapeutische Monatschrift*, May, 1904. In a circular published by the American agents, Schering & Glatz, the statement is made that each pill contains 1½ grains of salicylic acid and acid sodium oleate. The circular accompanying each package of Probilin reads as follows: "They are a combination of salicylic acid with acid sodium oleate to which sufficient phenolphthalein and menthol have been added to stimulate the gastrointestinal tract mildly and to insure tolerance."
>
> A more complete formula appeared in an article by Reynold Webb Wilcox, M.D., LL.D., of New York, in The Journal of the American Medical Association, Aug. 4, 1906. Inasmuch as this article was reprinted, in a garbled form, and circulated by Schering & Glatz, and as they indicate, both in the body of the article and in the footnote, that the preparation referred to by Dr. Wilcox was Probilin, one is naturally justified in assuming that the detailed formula as published by Dr. Wilcox is the formula claimed by the manufacturers of the product or, at least, by their American agents. This formula is as follows:
>
> | | |
> |---|---|
> | Acid sodium oleate | 1½ grains. |
> | Acid salicylic | 1½ grains. |
> | Phenolphthalein | 1 grain. |
> | Menthol | ¼ grain. |
>
> Mix and make into one pill.
>
> The active ingredients in the above formula would make a pill that would weigh approximately 275 mg. or 4¼ grains, without the addition of any excipients, dusting powder or moisture. But on weighing a number of Probilin pills, taken from an original package purchased in the open market, they were found to weigh approximately only 210 mg. each. While each of the four active constituents mentioned in the formula is soluble in alcohol, it was found that when Probilin pills were extracted with alcohol only 150 mg. per pill would dissolve. As this indicated a shortage of nearly 50 per cent. and demonstrated that the published formula was not correct, your committee deemed it of interest to the profession to determine the true composition of these pills. Accordingly, Probilin pills were submitted to a chemist, who makes the following report, further emphasizing the falsity of the published formula:
>
> As per yours of December 22, we have made an analysis of Probilin pills bought in the open market by ourselves, and find the approximate composition of each pill to be as follows:
>
> | | |
> |---|---|
> | Phenolphthalein | .008 gram. |
> | Sodium salicylate | .010 gram. |
> | Sodium oleate and free oleic acid | .100 gram. |
> | Menthol | .010 gram. |
> | Moisture | .006 gram. |
> | Dusting powder | .065 gram. |
>
> The dusting powder seems to have been made up of lycopodium, licorice and charcoal.
>
> The results given, while approximate, are as close, we believe, as it is possible to make an analysis of this nature.
>
> The average weight per pill is 3 1/16 grains; the heaviest of the dozen pills weighed was 3 3/16 grains, and the lightest 2 7/8 grains. The bottle contained seventy pills.
>
> It is of course impossible to tell in a mixture of this kind whether the salicylic acid is positively free or positively combined. The fact is that the alkali present is sufficient approximately to neutralize the acids found. While the pill is normally acid in reaction, the total acidity would correspond only to 1/6 of a grain of salicylic acid, so that it will be seen that, even if the entire acidity were attributed to salicylic acid, it is not sufficient to account for the presence of the amount claimed in the formula, without reference to the claim that it also contains an acid sodium oleate. Since free salicylic acid reacts with sodium oleate to form sodium salicylate and free oleic acid, we feel justified in concluding that the pill contains sodium salicylate, sodium oleate and a small amount of free oleic

> acid. You will note that the total amount of material claimed in the formula of the circular is 4¼ grains of active constituents in each pill. You will note that the average weight of each pill, as found by us, is 3 1/16 grains; this includes one grain of the dusting powder, which was actually separated and weighed, and identified as to its general nature. If, therefore, this one grain is deducted from the 3 1/16 grains it will leave 2 1/16 grains for the active principles of the pill. From this also should be deducted the 1/8 of a grain of moisture, leaving less than 2 grains of medicinal ingredients, instead of 4½ grains, as stated in the formula.

This analysis was confirmed in all essential points by another chemist.

It is evident that Probilin, as at present marketed in this country, does not comply with Rules 1, 4, 5 and 8 of the Council. It is, therefore, recommended that Probilin be refused recognition. It is further recommended that this report be published in The Journal of the American Medical Association.

The report was adopted by the Council.

W. A. Puckner, Secretary.

COMMENTS.

The above report is not creditable either to the manufacturer of this product or to the American agents, nor is it particularly gratifying to American physicians or pharmacists. Probilin seems to be an excellent example of a certain class of "made in Germany" nostrums, to which physicians have given altogether too liberal an endorsement, principally, perhaps, because it is not always easy to differentiate between the good and the bad products, which are advertised as having the endorsement of German scientists. The principal point in the above report is so simple that even a child could understand it. The active ingredients, according to the formula circulated by the American agents amount to 275 mg. or 4¼ grains per pill. The pill, as found on the market, weighs only 210 mg., of which only 150 mg. are active constituents. It is evident, therefore, that the pill can not contain what the formula calls for. In other words, if the formula for Probilin pills as given by Wilcox and published by Schering & Glatz is correct, the pills would weigh much more than they do weigh.

It is rather disconcerting to our pride as American physicians to note that this nostrum is evidently made especially for the American market, since careful research through German text-books, lists of new remedies, price lists of German wholesale druggists, etc., fails to reveal any evidence that this preparation is used and recognized in the land of its origin. One naturally asks: Are German physicians too careful to be decoyed into the use of pills, which have an actual weight of only three-fourths the amount of the active ingredients indicated by the published formula?

Another fact is worthy of mention. The American agents for Probilin lay great emphasis on the fact that these pills are difficult to prepare. This is unquestionably true, for if the formula as circulated by them is followed it is not only difficult but impossible to dispense them, since a soft, pasty mass would result, from which it would be impossible to make pills without the addition of other substances. It is, however, a simple matter to make pills having the composition of the Probilin pills as they are sold by Schering & Glatz. Neither will there be any difficulty in making the pills if the substances as recommended in German journals, only garbled accounts of which have been published in this country, are directed to be used. In this respect Probilin resembles Campho-Phenique, which was discussed in The Journal not long ago (April 20, 1907, p. 1365). In both instances an endeavor to compound the preparation from the formula furnished resulted in failure to produce anything like the product advertised.

In conclusion, there is another very important fact which Probilin illustrates. A physician, relying on false formulas furnished by proprietary medicine companies, is often led to false conclusions regarding the dosage and effectiveness of certain drugs. In prescribing Probilin he is led to believe that he is administering one grain of phenolphthalein to each pill, when, according to the analyses, he is giving only one-eighth of a grain. If, now, he desires to prescribe phenolphthalein in some other form, he naturally follows the experience (?) which he thinks he has gained from its use in Probilin. He, therefore, orders phenolphthalein in doses based on the amount which he thinks he gave before, and thus gives eight times as much as he really had been giving in the form of Probilin. This is not only a hindrance to scientific progress, which is always based on truth, but it may lead to serious if not fatal injury. Aside, therefore, from the question of honesty or dishonesty on the part of the manufacturers, is the positively harmful influence on rational progress in medicine that results from deceptive and misleading statements regarding the quantities contained in various preparations.

The Active Principle of Ergot.

A chemical and physiologic study of ergot has been carried out at the Wellcome Physiologic Research Laboratories by George Barker and H. H. Dale (*Bio-Chemical Journal*, 1907, ii, 240), which promises that the long search for the active principle of ergot may soon come to a successful end. Among the conclusions reached by these investigators are that the alkaloid ergotoxin represents the chief active constituent of ergot and that "clavin," recently exploited in Europe as a definite chemical body possessing the specific oxytocic action of ergot, but free from toxic effects, is a mixture of leucin and aspartic acid and is pharmacologically inert.

Since ergotoxin is insoluble in water the various aqueous extracts of ergot, ergotin, etc., as found on the market can contain but little of this alkaloid. As these aqueous extracts possess more marked pressor effect than can be accounted for by the small amount of ergotoxin present it is possible that ergot may contain a second stimulating principle. Barger and Dale conclude that of the physiologic effects described as characteristic of ergot, the alkaloid ergotoxin produces in very small dosage: (a) The effects ascribed by Kobert to sphacelinic acid, and by Jacobi to sphacelotoxin, viz.: Ataxia, dyspnea, salivation, gastrointestinal irritation, and gangrene. (b) The stimulant effect on plain muscular organs—in particular the arteries and the uterus—and the subsequent selective sympathetic motor paralysis given by many ergot preparations (Dale).

Ergotoxin ($C_{35}H_{41}O_6N_5$) is the hydrate of the crystalline alkaloid ergotinin (Tanret), $C_{35}H_{39}O_5N_5$. Ergotoxin is itself amorphous, but yields crystalline salts, and further differs from ergotinin in being very soluble in alcohol. Its most important difference, however, is its intense physiologic activity, ergotinin being but slightly, if at all, active when pure. Either alkaloid can readily be transformed into the other by chemical means.

In conclusion these investigators give their conception of the relation of the ergot alkaloids, ergotinin and its hydrate ergotoxin, to the various so-called "active principles" obtained by other experimenters from ergot. They conclude as follows: The ecbolin and ergotin of Wenzell is a mixture of alkaloids containing cholin. The amorphous ergotinin of Tanret is an impure mixture of ergotinin and ergotoxin. The picrosclerotin of Dragendorff is ergotinin, possibly mixed with ergotoxin. The sclerocrystallin of Podwyssotski is ergotinin. Kobert's sphacelinic acid is an inactive resin with adherent alkaloid. The cornutin of Kobert is an alkaloidal resin, probably containing some ergotoxin, and also some other active substance, which may be a decomposition product of ergotoxin. The cornutin of Keller is an impure mixture of ergotinin with ergotoxin. Jacobj's chrysotoxin is an inactive yellow coloring matter with a small proportion of adherent alkaloid. The secalintoxin of Jacobj is a mixture of ergotinin and ergotoxin, while Jacobj's sphacelotoxin is impure ergotoxin. Hydroergotinin, recently isolated by Kraft, is identical with ergotoxin.

Obesity Cures.

In prosecuting its work on the composition of certain secret remedies, the *British Medical Journal* (July 6 and 20) takes up the obesity cures. The advertisements of these remedies are more moderate in their claims than some other nostrum literature, for the reason that corpulence is so objective a fact that it will not do to make claims which would be speedily proved false. Still, some remarkable statements are made, such as that a reduction can be noticed within twenty-four hours varying from 8 ounces to 3 pounds. The constituents of such mixtures usually are extract of bladder wrack (*Fucus vesiculosus*) and citric acid. In some the mixture of non-official, and even non-medicinal substances, with not well-defined chemical characteristics, renders an exact determination of the composition impossible. Antipon and Russel's Anticorpulent Preparation were found to contain nearly 40 grains of citric acid to the ounce. Absorbit Reducing Paste consisted approximately of purified ox bile, 5 per cent.; beeswax, 22 per cent.; lard, 44 per cent.; oil, 29 per cent.; with a small amount of carmin and a trace of perfume. J. Z. Obesity tablets contained sulphur, ginger, sugar and acacia. Hughes and Hughes XL Reducing Pills were found to have approximately the following composition in each pill:

Potassium iodid	0.15	grain.
Iron phosphate	0.35	grain.
Powdered ginger	0.2	grain.
Powdered liquorice	0.1	grain.
Extract of fucus vesiculosus	2.2	grains.

Hughes and Hughes Reducing Lotion, which is to be applied locally to the part where fat has accumulated, consisted of about 0.08 per cent. of an undetermined resinous substance, together with the following other ingredients:

Potassium iodid	9.7	grains.
Potassium bromid	13.5	grains.
Potassium chlorid	6.9	grains.
Glycerin	105.	minims.
Water to 1 fluid ounce.		

As usual, the prices at which these remedies are sold are from 50 to 100 times the estimated cost of the ingredients.

Correspondence

The Bactericidal Value of Some Widely Adverstised Antiseptics.

Philadelphia, Aug. 2, 1907.

To the Editor:—I am much interested in the investigations of Drs. Verhoeff and Ellis, reported in The Journal, June 26, in Messrs. Parke, Davis & Co.'s reply thereto, and in what may be called your defense of the former in The Journal, July 27, 1907, and it appears to me that Drs. Verhoeff and Ellis have permitted themselves to infuse an unwarranted element into their experiments, which entirely justifies the conclusion of Messrs. Parke, Davis & Co., that their "method of testing was faulty, and not at all comparable to the practical use of antiseptics."

Under all circumstances, experimental conditions should be made to approximate as near as possible the natural state under which the subject to be experimented on is to act; but in spite of this fundamental principle they inject an artificial condition into their experiments which neither they nor any one else have shown to exist in the natural state so far as my knowledge goes. What proof have they to assume that the antiseptics which they employed, on being introduced into the body, encounter an overwhelming quantity of serum? None, so far as it appears. What use is it, then, to take the fighting strength out of antiseptics by saturating them with hydrocele fluid, or serum albumin, which we know vitiates their action, before they are submitted to experiment? Why strangle their action at the very outset, and then draw the false deduction that they are practically inert and worthless? What would you think if any one would seriously propose to you the saturation, or even the mixing of peroxid of hydrogen with hydrocele fluid before applying it to a septic condition? I think I know your answer exactly.

I hope it is needless to assure you that the "vested interests" to which you refer, are of no concern to me, but I am mightily concerned whether our knowledge of, and faith in, our invaluable antiseptics which have been acquired by many years of patient toil, labor and money, should be despoiled by experiments which are faulty from their very inception?

After all is said and done, the question remains, whether germicides, antiseptics, antiferments, antizymotics, etc., produce their beneficial influence solely through the virtue of their germ-destroying property, or whether their fundamental action does not consist in depressing increased molecular or cell activity, which is incited by micro-organisms and other agencies; and whether they do not hold this fundamental property in common with antipyretics, febrifuges, etc. For a serious study of this whole field of therapeutics, forces the conviction that the action of these two groups of agents are closely affiliated in every particular, that antiseptics are in great part antipyretics, and that antipyretics are in great part antiseptics; and that, finally, the germ-destroying power of both groups, while a valuable index as to the degree of their antiseptic or antipyretic activity, but no evidence whatever that this is their therapeutic function when administered in disease, may be merely an incidental manifestation of their power to interfere with, and inhibit all forms of cell activity. and hence, to make a long story short, the fact that an agent which does not destroy germs within the body, is no proof that it is devoid of antiseptic properties. Thomas J. Mays.

Commercialism and Food and Drug Adulteration.

New York, Aug. 15, 1907.

To the Editor:—I am glad Dr. Bryant spoke in no uncertain terms regarding our need of honest drugs, in his presidential address before the American Medical Association at its recent meeting in Atlantic City. For the last four or five months, as American correspondent of several medical journals published in Spain, Mexico, Central and South America, I have been telling the same thing to the physicians and druggists of Spanish-America, and also warning them about the loophole in the new Food and Drugs Act, now in force here in the United States since Jan. 1, 1907, by which: (*a*) "Food products intended for export may contain added substances not permitted in foods intended for interstate commerce, when the addition of such substances does not conflict with the laws of the country to which the food products are to be exported, and when such substances are added in accordance with the directions of the foreign purchaser or his agent;" (*b*) "the exporter is not required to furnish evidence that goods have been prepared or packed in compliance with the laws of the foreign country to which said goods are intended to be shipped;" (*c*) "food products for export under this regulation shall be kept separate and labeled to indicate that they are for export;" and (*d*) "if the products are not exported they shall not be allowed to enter interstate commerce." These are the provisions of Regulation 31, concerning the preparation of food products for export. In consequence of this authoritative permission, all the impure food products, chemicals, drugs and pharmaceutical preparations not allowed for interstate commerce here in these United States of North America, are now being unjustly unloaded in the Spanish-speaking countries not having laws to prevent it. As a matter of curiosity, it would be instructive to compare that regulation with Regulation 32, concerning the requirements of food products and drugs when they are to be imported into these United States.

A. M. Fernandez de Ybarra, M.D.

The Parabolic Reflector for Illumination of Test Types.

South Haven, Mich., Aug. 7, 1907.

To the Editor:—I take exception to the article with the above title in The Journal, Aug. 3, 1907, page 383. It is evident that Dr. Frank has left out of consideration the direct rays of light. On page 384, from Figure 2, the following distances in feet are obtained:

AD 3.25	AC 2.50	DF 2.31
FC 2.43	FA 3.99	FB 3.14

The direct illumination is approximately in the following proportion: $(3.99)^2$ at C, $(3.14)^2$ at B, and $(2.43)^2$ at A. The direct illumination covers an angle of about 37.5 degrees and the indirect an angle of 225 degrees or six times the direct.

Supposing the mirror to be nearly perfect, with little light lost by absorption, we get the following illuminating values:

At B, $6+1=7$. At A, $6+\frac{(2.43)^2}{(3.14)^2}=6.6$. At C, $6+\frac{(3.99)^2}{(3.14)^2}=7.62$.

This gives an excess of light at C over A of more than 15 per cent. If Dr. Frank will place an additional reflector below the test type at the corresponding angle he will have an illumination that is within 1 per cent. of accuracy.

Ben Webster.

Sanguinaria in Eczema.

Royersford, Pa., Aug. 8, 1907.

To the Editor:—For a number of years I have been using in my practice local applications of fluid extract of sanguinaria (Fluidextractum Sanguinariæ, U. S. P.) in the treatment of obstinate cases of eczema. It has given successful and gratifying results, especially in the squamous and papular varieties of eczema. It is well sometimes, in order to facilitate treatment, to puncture the papules with some sharp instrument.

In cases of eczema secondary to varicose ulcers of the leg, "salt rheum," this remedy has been especially beneficial. It is applied boldly, freely and persistently by repeated paintings of the part or by means of cloths, gauze, etc., saturated with the solution, which may be used in varying strengths.

The only literature which I have seen on this use of sanguinaria is in the U. S. Dispensatory, twelfth edition, where, under sanguinaria, it is stated that an infusion with vinegar has been found useful in obstinate cases of cutaneous diseases. A somewhat similar note appears in the subsequent editions.

I shall be pleased to learn of the experience, if any, of other physicians with this preparation in the treatment of eczema.

J. D. Graber, M.D.

Jeweler's Eyeglass in Office Examination and Treatment.

Honolulu, T. H., July 23, 1907.

To the Editor:—I take the liberty of bringing to the notice of the profession a little aid which I have found of great service, the jeweler's eyeglass or loupe. One very readily acquires the ability to hold it in place, unconsciously, and I have found it of great value in epilation, searching for and removing foreign bodies from the cornea, etc. I have several glasses, but perhaps use a four-inch most often. It is surprising how often it will be of assistance about the office. The other eye being free, one can readily pick up instruments without disturbing the glass, and at the same time can have both hands free for the work in hand.

W. L. Moore.

Pollantin in Hay Fever.

Louisville, Ky., Aug. 2, 1907.

To the Editor:—I do not wish to stand in the position of exploiting new remedies, but the rather unfavorable comments on the new remedy "pollantin" in Dr. Curtis' paper in The Journal July 13 prompts me to say a few words in regard to my experience with it. The first pollantin I used was obtained from Dr. Dunbar direct, the year before it was placed on the market. The case I used it on was a particularly intractable one of some twenty years' standing, accompanied with severe asthmatic seizures.

The case is one of unusual interest and I desire to report it. The following is a record made three years ago: F. H., aged 60, mulatto, a widow, with no children, had no venereal, drug or alcoholic history. Her father died at the age of 76 years, of senility. Her mother is living, about 85 years old, suffers from occasional attacks of asthma during the winter, and has chronic bronchitis, but no hay fever. The patient is of spare build, fairly well developed, no bad habits, a hard-working, industrious servant. She had always enjoyed fairly good health up till 19 years ago when, as she says, she caught the hay fever and asthma by washing the soiled linen of a man who suffered from the disease. Certain it is that she has suffered ever since from a very severe and intractable form of this trouble. The attacks begin each year about August 15, in a typical manner, There is itching and burning of the nose and eyes, with excessive secretion, which renders the skin very red and sore. Asthmatic attacks are precipitated by heavy or cloudy weather or by eating after 3 p. m. Usually, after four or five days, she is compelled to take to bed and to remain from eight to sixteen weeks; for the disease persists till frost and it takes several weeks for the patient to gain strength sufficient to go to work. On three occasions she has had a complicating pneumonia that nearly proved fatal. I had seen this case for a number of years and had it in charge for the last five. Almost every form of treatment had been employed without avail. For the rest of the year the patient has no trouble and enjoys fairly good health. On examination of the upper air passages before the attack, no local signs can be discovered. The nasal passages are fairly spacious, though the turbinates are hypertrophied. Two years ago, by the following plan of treatment, I was enabled partially to control the disease. General tonic treatment commenced one month before the attacks. Local treatment: First, drop 1-5000 adrenalin solution in nose; second, douche chambers with warm saline solution; third, aboline ℥i, camphor, menthol, eucalyptol, āā gr. v. That season the patient was in bed only four weeks, the best she had done in eighteen years. For the asthmatic attacks, stramonium was chiefly employed. The next summer, on reading an abstract of Prof. Dunbar's work at the Hygienic Institute at Hamburg, I wrote him for serum sufficient for a case and information as to where it could be purchased in this country. The serum arrived about August 10, an odorless, pale yellow, impalpable powder, to be snuffed into nose and painted over conjunctiva as occasion demanded. Treatment was commenced August 12, three times a day, in conjunction with the local treatment of the year before. This controlled not only the symptoms of the hay fever but also the tendency to asthmatic seizures. Thus, for the first time in nineteen years, the patient passed through the month of August able to be up and at work. A mild attack of asthma, lasting four days, occurred September 1, and this was the only time lost during the whole season. Whatever may be the general efficacy of this remedy it certainly controlled the disease in this particular case and I desired to report it, first, on account of its long duration and severity; second, apparent history of contagion; third, absence of any other local disease; fourth, previous unavailing treatment by other methods and absolute control of the disease by the pollen antitoxin.

The only addition I have made to this treatment is the hypodermatic injection of suprarenalin for the relief of asthma that occasionally comes on during the season. This always controls the attacks, and as much as 15 minims of the 1-1,000 solution have been injected at one time without ill effects. The patient now regards the hay fever season with comparative little fear and during the last four years has not spent over two weeks in bed on account of it. My experience in this case gave me a very favorable impression of the new remedy and I have used it in many cases since and always with uniform satisfaction.

The point which I want to urge, however, and which in my opinion is essential to success, is the shrinking of the tissues with suprarenalin preliminary to insufflation of the pollantin. One of the earliest symptoms of the disease is a turgesence of the turbinated bodies, particularly the inferior turbinates which effectually block up the nose. Under these conditions if pollantin is used it will be without benefit, for the swollen condition of the turbinals will prevent the entrance of the powder beyond the vestibule. If the turbinals are first reduced, however, with a dilute solution of suprarenalin and the nose cleansed of its accumulated secretion, the powder can then be insufflated to the farthest recesses of the nasal chambers. It can not be urged that these cases were benefited by the suprarenalin preparations alone because the relief was always greater when pollantin was used in conjunction.

I do not regard it as a specific in the same sense that diphtheria antitoxin is considered. It does not constitute in my mind a single plan of treatment, but in conjunction with other remedies intelligently used it enables one to make these patients comfortable even during the height of the season.

Gaylord C. Hall.

Medical Fees.—We spend about $5,000 on our medical education before we are entitled to practice, give five or six good years of our life to the study to qualify us, have to buy expensive books and instruments, and even after all this, to keep pace with the advance of science, must go periodically to the centers of medical education and continually be expending money. Surely a return in proportion is rightly expected.—*Western Canada Medical Journal.*

Miscellany

British Association for the Advancement of Science—The Alcohol Question.—This association met at Leicester, July 31. The address to the physiologic section was delivered by its president, Dr. Augustus D. Waller, who discussed the action of anesthetics. He referred to the attempts to determine the exact dosage of chloroform, and stated that he believes that in future death from chloroform will be considered an avoidable accident and that the frequency of such deaths will be diminished by a wider knowledge of the physiology of anesthesia. Dr. Waller described an apparatus by which a standard mixture of air and chloroform can be administered.

In the discussion, Dr. Frederick W. Hewitt said that it is impossible to apply the method of exact percentages to the administration of chloroform and that in many cases it is also impossible to instruct students wholly in that method. Individuality, he said, enters largely into the matter in practice; certain patients require a higher percentage of chloroform than others.

In the same section, Dr. A. R. Cushny, of the University of London, read a paper on the "Physiologic and Therapeutic Uses of Alcohol," in which he asserted that alcohol at times might increase the desire for food and encourage its digestion, but when moderation is departed from the whole digestive apparatus is disorganized. This paper was received with much interest and was discussed by a large number of prominent medical men.

Dr. Waller said that there are many kinds of alcohol and that their effect on the tissues differs, and described experiments to prove his statement.

Dr. Rivers pointed out that there are two problems: First, the determination of the effect, immediate or remote, after a single dose of alcohol; second, whether or not the continuous taking of alcohol as a habit has any effect on the ability to do muscular work. He related some experiments and urged the necessity for more research work along this line. He also said that on the mental side there is danger of the appearance of disturbing psychologic factors.

Dr. Dixon directed attention to the classification of alcohol as a poison, based on the results of experiments with protoplasmic tissue, and declared that he could similarly prove that distilled water, beef tea and caffein are poisons.

Sir Victor Horsley said that the scientific examination of alcohol should be an accurate determination of its so-called stimulating effects, and asked if such really exist, how soon the paralyzing and narcotic stage begins. He declared that Dr. Dixon's results can not be accepted until it is proved that the alcohol perfused through the tissues is used up. He said further that the well-known effect of alcohol in increasing the diastolic relaxation of the walls of the heart can not be regarded either as a stimulation effect or as an advantage to the circulation. He referred to the finding of the physical deterioration committee, appointed by the House of Commons, that the first great evil socially is defective housing, and that the second is alcohol, and said that for patriotic reasons abstinence should be the aim and practice of all men. The majority take alcohol for its pleasurable effects, and the only results are inefficiency, disease, poverty, crime and vice.

Mr. C. J. Bond exhibited a series of diagrammatic curves showing the diminished consumption of alcohol since 1845 and how it is intimately connected with the nation's commercial prosperity. He also referred to its effects on the number of inmates in asylums.

Dr. Reid Hunt, Washington, D. C., described a series of experiments on young guinea-pigs to which small doses of a few cubic centimeters of 5 to 10 per cent. alcohol solution were given in their daily food. Four generations (over a period of two years) grew just as quickly, reached maturity as soon, and were just as fertile as those to which no alcohol was given. There was never a symptom of intoxication, no loss of weight, and no pathologic changes. The comparison, he said, was analogous to human beings who are moderate drinkers. He said that no one seems to have discussed deeply the question of the increased tolerance for alcohol in the bodies of animals and men who had become accustomed to its presence. An increased power is produced on the part of the body to oxidize alcohol. In comparing sugar and alcohol, he stated that while sugar increases resistance to poison, alcohol lessens it. Most probably, he said, the continued use of alcohol produces physiologic changes in the body, sometimes for good and sometimes for evil.

Principles of Opsonic Theory.—The following chart is the one to which reference was made in the article by Sir Almroth E. Wright, in The Journal, Aug. 10. 1907, page 484. This chart was not received with the manuscript or in time to appear with the publication of the paper.

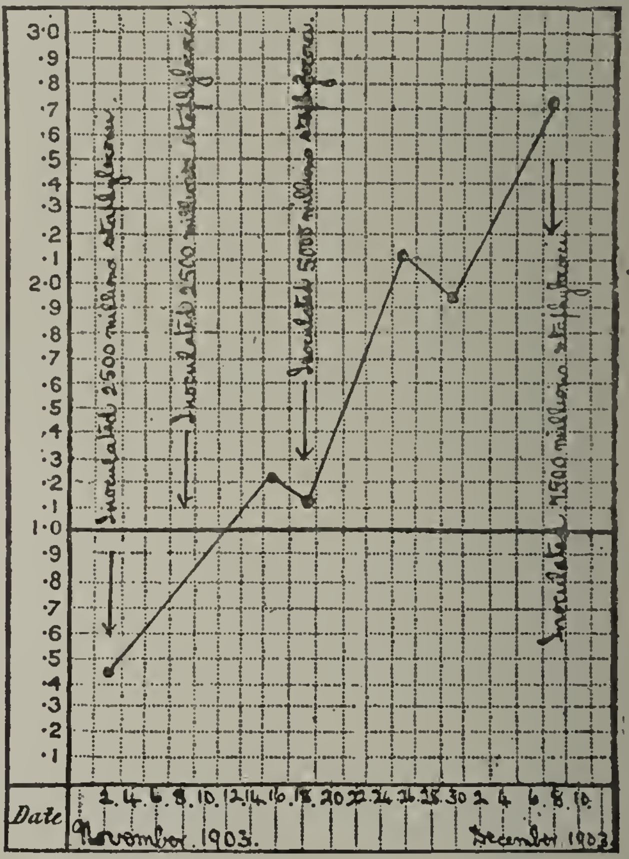

Fig. 1.—Immunization chart showing a typical illustration of the achievement of successful immunization.

Relations of the Trifacial Nerve to Nasal Disease.—C. N. Cox (*Long Island Medical Journal*, July), calls attention to the fact that irritation of one branch of this nerve can create disease at the seat of distribution of another branch of the same nerve. Many cases of trifacial neuralgia may owe their origin, he declares, to suppuration of the accessory sinuses, although there may be extensive suppuration without any pain whatever. If, however, pus be found coming from any accessory sinus, in a patient suffering from trifacial neuralgia, in whom other causes are not manifest, the evidence is presumptive of the sinusal origin of the disease. No operation on the trifacial should be undertaken until disease of the accessory sinuses has been definitely excluded.

Book Notices

Lateral Curvature of the Spine and Round Shoulders. By Robert W. Lovett, M.D., Boston. Associate Surgeon to the Children's Hospital, Boston. Illustrated. Cloth. Pp. 185. Price, $1.75 net. Philadelphia: P. Blakiston's Son & Co., 1907.

Lovett's monograph on lateral curvature is in every way worthy of the attention of general practitioners, as well as of orthopedic specialists. Lovett treats the subjects comprehensively, without giving unnecessary space to the consideration of minutiæ of interest solely to specialists. The first chapter is devoted to the anatomy of the vertebral column and the thorax, which is presented in an interesting form, with a number of special cuts and tabulations. The movements of the spine, illustrated with photographs of the living model, as well as of the cadaver, showing the torso in various positions, are then considered. The mechanism of scoliosis, with cuts showing the results of experimental curvatures produced on animals, and the description and symptoms and pathology of the condition are described, as is also the examination and methods of making records. Etiology and the influence of school conditions, frequency of occurrence, diagnosis, prognosis and treatment are successively considered, each chapter being freely illustrated.

Poisons: Their Effects and Detection. By Alexander W. Blyth, M.R.C.S., etc., and Meredith W. Blyth, B.A. (Cantab.), etc. Fourth Edition. Thoroughly Revised. Illustrated. Cloth. Pp. 772. Price, $7.50 net. London: Charles Griffin & Co. New York: D. Van Nostrand Co., 1906.

This work has been expanded in some parts and condensed in others, obsolete processes being left out and the more modern and exact methods introduced. The history of poisoning is given in an interesting introductory chapter and this is followed by Part II, which gives the general considerations of definition, classification, and modes of search. The rest of the work is devoted to the consideration of the specific poisons. The treatment is thorough, the symptoms and considerations which are of importance for the practitioner being given with especial fulness. A large amount of space is given to the poisons of animal origin such as ptomains, adnephrin, disease toxins, etc. An account of food poisoning is introduced and in other respects the book is brought fully up to date.

Atmokausis und Zestokausis Die Behandlung Mit Hochgespanntem Wasserdamf in der Gynaekologie. By Dr. Ludwig Pincus. Frauenarzt in Danzig. Zweite Verbesserte Auflage, Mit 33 Textfiguren und Tafeln. Paper. Pp. 371. Wiesbaden: Verlag Von J. F. Bergmann. 1906.

The devotion of a volume of 370 pages to a process comparatively little known in this country should attract the attention of American gynecologists. In this second edition the author has made several changes in the direction of improving the work. The general part has suffered very little change, but in the special part some chapters such as that on gonorrheal endometritis have been omitted, while others have been rewritten. The book has now the character of a text-book and it should prove a useful guide to an important therapeutic procedure.

Anesthetics, Their Uses and Administration, by D. W. Buxton, M.D., B.S., Member of the Royal College of Physicians. Fourth Edition. Cloth. Pp. 415. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co., 1907.

Dr. Buxton's authoritative manual has been revised and much of it rewritten. Special forms of apparatus for the dosimetric administration of chloroform are described in detail, and the subjects of general anesthesia by ethyl chlorid and anesthesia by spinal injection are fully considered.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Prosecution of Quack Doctors.

The *Ohio State Medical Journal* (August 15) gives an interesting account of how advertising quacks are put out of business in Clark County, Ohio. Announcing himself as Professor Ellsmere, the world's greatest clairvoyant, palmist and healer, an individual recently began advertising in the newspapers of Springfield, Ohio. The legislative committee of the Clark County Medical Society promptly called on him and informed him he must leave Clark County or he would be prosecuted for illegal practice of medicine. By the next day the professor had departed in search of a field not having a county society with an alert legislative committee.

Old Insurance Fees Restored.

The Union Central, the Equitable and the Fidelity mutual life insurance companies have recently advanced their medical examination fees to $5. Three weeks ago we noted the fact that the Mutual Life Insurance Company of New York had done likewise. We hope soon to be able to record the fact that all the standard companies have restored their medical examination fees.

Queries and Minor Notes

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

DIAGNOSIS IN DIARRHEA OF OBSCURE CAUSE.

Rutledge, Tenn., Aug. 8, 1907.

To the Editor:—Please state in The Journal the best treatment for the following condition: Man, aged 31; weight, ten years ago, 170 pounds; has had for the last nine years a constant diarrhea, which seems to appear periodically every three days, with, at times between, no movement at all unless from a purgative. Up to the first appearance of the malady, he was in good health, a very hearty eater, and never had had typhoid or flux. He says that the condition started up just after being sick with la grippe. Green fruits of any kind are not digested. He has a cough which appears every morning on getting up and continues until after breakfast, then subsides. There is no history of tuberculosis. Very often he vomits his breakfast. He eats dinner and supper with great heartiness and retains them. He sleeps well. T. D. Cloyd, M.D.

Answer: A complete diagnosis of the case should first be made by examination of stomach contents after a test meal and by careful macroscopic and microscopic examination of the feces during the period of diarrhea, and also after administering the test diet of Schmidt. The fermentation test of Schmidt may throw some light on the nature of the changes which produce the diarrhea. An opinion may be formed by taking the reaction of the feces and observing their odor. If the reaction is acid and the odor sour, but not putrid, we may assume that there is fermentation of carbohydrates with production of fatty acids; on the other hand, if the reaction is alkaline and the odor putrid, decomposition of blood, mucus, or albuminous food residues has taken place and the irritating products are probably the cause of the diarrhea. The feces should be tested for occult blood, meat having been excluded from the diet for two days. If mucus be found in the passages, colitis may be assumed to be present, and if blood or pus is present, ulceration has probably occurred. The seat of the colitis or ulceration must be determined by physical examination and a consideration of the symptoms. If the mucus or pus is voided separately from the feces proper, the seat of the disease is probably in the lower part of the bowel, and in any case digital and ocular examination of the rectum should not be omitted. The case may be one of fragmentary constipation described by Boas. The treatment should be determined largely by the results of the examinations. If intestinal putrefaction is shown by the reaction and fermentation tests a diet containing little proteids and a larger amount of carbohydrates should be prescribed. Meat should be temporarily excluded from the diet and milk should be used freely or exclusively. All irritating substances should be excluded from the diet and if practicable a considerable amount of fat should be taken to render the feces bulky and slippery. The details of the dietetic treatment and the medicines appropriate to the condition can only be determined after a careful diagnosis has been made. It is unwise to prescribe drugs in such a case until we know what is the matter.

CUSHING'S METHOD OF USING LOCAL ANESTHESIA IN HERNIOTOMY.

Niagara, Ky., Aug. 9, 1907.

To the Editor:—In The Journal, July 20, Dr. James F. Mitchell, in an article on "Local Anesthesia in General Surgery," refers to Cushing's method of herniotomy. Please publish the technic of this procedure in The Journal. R. H. Moss.

Answer.—In the *Annals of Surgery*, vol. xxxi, p. 1, is an article by Dr. Harvey Cushing of Baltimore on "The Employment of Local Anesthesia in the Radical Cure of Certain Cases of Hernia, with a Note on the Nervous Anatomy of the Inguinal Region." Dr. Cushing's is not a new method of performing herniotomy, but a new method of rendering the inguinal region anesthetic for the performance of any variety of hernia operation when the administration of a general anesthetic for any reason does not seem advisable. In this article, the sensory nerves of the region are carefully studied; the peripheral areas of distribution mapped out and the course of the trunks and branches illustrated and described. The idea is to anesthetize the line of incision through the skin by injecting Schleich's solution, cut down on the nerve trunks and cocainize them, after which the operation may then be completed without pain. The steps of the operation as described by the author are condensed as follows:

It has been the custom to administer hypodermically 1/10 or 1/8 of a grain of morphin three-quarters of an hour before and to repeat this shortly before the operation. The skin in the line of the proposed incision is infiltrated with Schleich's cocain solution, and the incision may be immediately made through the linear wheal thus produced.

It is unnecessary and useless to attempt to anesthetize the paniculus. If, however, throughout its whole length this incision is carried down to the aponeurosis unanesthetized fibers of the iliohypogastric will be encountered in the superficial fat at the lower angle, together with one or two large veins, division of which is painful, so that anesthetization of the panniculus layer is here necessary, or else, as has been done on several occasions, the incision only at the upper angle may be carried down to the aponeurosis, which is then opened in the line of fibers from the external ring and the iliohypogastric and inguinal nerves immediately cocainized with a 1 per cent. solution as they lie under it. After this procedure the lower angle of the incision may be painlessly carried down to the external ring and the remaining intercolumnar fibers of the aponeurotic insertion divided. Under ordinary circumstances there is no further need of the anesthetic, as we are working in an area freed from all sensation.

The combined ilioinguinal and genital nerve which has been cocainized at the outer limit of its exposure, is now reflected to one side or the other, care being taken not to divide it, since this leads apparently to a more or less permanent paralysis of the cremaster, which is to be avoided. The remainder of the operation, the exposure of the sac and cord after a longitudinal division of the infudibuliform fascia, the amputation of the sac at its neck, and closure of the peritoneal opening, the excision of the fundus of the sac, division of the cord and castration, if deemed advisable, may now be done practically without pain. The closure of the parietes by any of the more commonly employed methods may now be painlessly accomplished.

It occasionally happens during the operation, whether from slight ability on the patient's part to endure discomfort or from the accidental division of some sensory fibers, that what inhibition toward pain he at first may have possessed becomes exhausted and recourse must be had to a general anesthetic.

Under these circumstances it has been found that a few inhalations of chloroform—not enough, however, to make the patient lose consciousness—are sufficient to tide him over the most difficult parts of the operation.

The method of anesthesia which is employed may justly be spoken of, therefore, as a morphin-cocain-chloroform combination, the first and last drugs being merely adjuvants of the local anesthetic, which in many cases suffices alone.

COMPOSITION OF GONOCOCCIDE.

Chicago, Aug. 1, 1907.

To the Editor:—Can you give me any information about the composition of the preparation known as "Gonococcide," sold by Cox Chemical Co., Chicago? The circular accompanying the package gives the following formula:

C_8H_8BrNO monobromacetanilid; $C_{10}H_{14}N_2C_7HO_3$ eudermol; $CaSo_32H_2O$ gypsum and selenite, $CaSo_4$ anhydrite; H_2O aqua and myrrh.

Note.—In combining calcium coral with sulphuric acid, calcium occurs as gypsum, selenite and anhydrite.

The literature of eudermol limits the usefulness of that drug to skin diseases. W. H.

Answer.—Gypsum, selenite and anhydrite are the names applied to different forms of calcium sulphate. Gypsum and selenite are chemically identical, being calcium sulphate and containing two molecules of water crystalization, $CaSO_4 + 2H_2O$, but differing in crystaline form. Anhydrite is also calcium sulphate, but contains no water of crystallzation. The inclusion of three different forms of the same substance should be sufficient to demonstrate the "fakiness" of the formula. The first substance named, monobromacetanilid, has been used as an antiseptic under the trade names antisepsin and asepsin. It is practically insoluble in water, and hence but little of it can be contained in the preparation. Eudermol is a name given to nicotin salicylate and its use externally has been recommended in scabies, chronic eczema, and other skin diseases. This being practically the only medicinal constituent given in the formula, its determination in gonococcide was taken up in the Association laboratory. Tests, however, failed to show the presence of this or any other alkaloid. While the addition of iodin to a 0.1 per cent. nicotin salicylate solution produces an abundant precipitate, the addition of iodin to a specimen of gonococcide produced no reaction whatever. Further comment on the formula seems to be unnecessary.

HOW FAR X-RAY PICTURES MAY AID IN TREATMENT OF MULTIPLE FRACTURES OF FEMUR.

Detroit, Aug. 6, 1907.

To the Editor:—*X*-ray shadows may be useful in two ways: (*a*) By giving us some detailed knowledge of the degree of damage—comminution, laceration and complication—incident to the broken femur, which may not have been determined by inspection, touch and manipulation; (*b*) They may intrench us more securely before a jury. But is the knowledge thus obtained of more value in the treatment of the case than that obtained by a strict estimate by touch and manipulation of the resistance of the broken and torn tissues to the restraining devices—splint, etc.? There is a manifest tendency in some quarters to employ the Roentgen pictures as a routine practice in these fractures and I would like to have some one tell the readers of The Journal what he thinks the rule should be. H. C. Wyman.

PRESCRIBING OF PHOSPHORUS.

Hamburg, Ark., Aug. 12, 190.7

To the Editor:—Will you please criticise the following prescription and answer under Queries and Minor Notes whether or not the prescription is entirely safe and compatible?

℞. Quininæ hydrochloratis	ʒi
Nucis vomicæ	flʒvi
Spiritus phosphori (N. F.)	flʒiv
Elixir aromatici q. s. *ad*	fl℥viii

M. Sig.: One teaspoonful in water three times a day.

W. S. Norman.

Answer: The prescription which you submit makes a fairly satisfactory preparation. The only objection to be made is the inclusion of spirits of phosphorus. The tendency of phosphorus to go into combination is so marked that the free phosphorus contained in the mixture will react with constituents of the same to form a compound of phosphorus. If your purpose is to give phosphorus it would be preferable to give it alone—as, for instance, the phosphorus pill of the U. S. Pharmacopeia.

SOME RECOVER FROM HAY FEVER.

Marceline, Mo., Aug. 12, 1907.

To the Editor:—Are there any records of recovery from hay fever in patients who have had the disease several years? Of course many patients move to a different climate and escape the attacks, but I have never known a patient to recover in this state.

Ola Putman.

Answer.—Our correspondent is right in viewing hay fever as a most stubborn disease, annually recurring and generally resisting treatment. Change of climate may result in prompt cure. But there are some patients who, without change of climate, with merely the ordinary local and symptomatic treatment, gradually outgrow their susceptibility and apparently acquire an immunity; they are able to live in the same place, amid the same surroundings, and are still free from the recurring attacks. The experience of many physicians who have had the opportunity of treating a large number of cases of hay fever will bear out this statement.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the week ending Aug. 17, 1907:

Cowper, Harold D., asst.-surgeon, granted one month's leave of absence with permission to apply for two month's extension.

Keefer, Frank R., surgeon to accompany Ninth Infantry from Presidio of Monterey, Cal., with troops in field.

Ives, Francis J., surgeon, to accompany Ninth Infantry from Presidio of San Francisco to Fort Sam Houston, Tex.

Bartiett, C. J., asst.-surgeon, left Cuba en route to the United States on thirty days' leave of absence.

Nichols, Henry J., asst.-surgeon, is detailed as a member of board of medical officers for studying tropical diseases as they exist in the Philippine Islands, vice Craig, Charles F., asst.-surgeon U. S. Army, hereby relieved.

Vose, William E., asst.-surgeon, relieved from duty in the Philippine Islands, to sail from Manila, P. I., about Oct. 15, 1907, for San Francisco, and on arrival report by telegraph to the Adjutant General of the Army for further orders.

Bauister, William B., surgeon, detailed member of the examining board at Manila, P. I., for the examination of such officers of the medical department as may be ordered before it to determine their fitness for promotion or advancement, vice Captain Thomas S. Bratton, asst.-surgeon, U. S. Army, hereby relieved.

Field, Peter C., asst.-surgeon, ordered to accompany Troops F and G, Fourth Cavalry, from San Francisco to Fort Snelling, Minn., and then to proceed to and take station at Fort Wayne, Mich.

Kirkpatrick, Thomas J., asst.-surgeon, granted one month and eleven days' sick leave of absence. Relieved from treatment at the Army General Hospital, Washington Barracks, D. C., to take effect on the expiration of the sick leave of absence, and will proceed to join his proper station.

Byrne, Charles B., asst.-surgeon general, ordered to report in person to commanding general, Department of the East, Governor's Island, N. Y., for duty as chief surgeon of that department.

Davis, William B., deputy surgeon general, relieved from duty as chief surgeon, Department of the East, and ordered to report in person to the commanding general, Department of the Missouri, Omaha, for duty as chief surgeon of that department.

Banister, John M., deputy surgeon general, relieved from temporary duty as chief surgeon, Department of the Missouri, Omaha, and to return to station, Fort Riley, Kan.

Davis, William B., deputy surgeon general, Richard, Charles, surgeon, appointed members of an army retiring board to meet at Governor's Island, New York.

Krebs, Lloyd Le R., asst.-surgeon, granted leave of absence for one month, effective Sept. 1, 1907.

Halloran, Paul S., asst.-surgeon, granted one month and fifteen days' leave of absence.

Chamberlain, George E., contract surgeon, ordered from South Newbury, Vt., to Fort Walla Walla, Wash., for duty.

Barney, Fred M., contract surgeon, granted leave of absence for one month.

Phelan, Henry du R., contract surgeon, left transport *Crook* and arrived at Fort Baker, Cal., for duty.

Hutson, T. Ogier, contract surgeon, ordered from Fort Moultrie, S. C., to the Army and Navy General Hospital, Hot Springs, Ark., for treatment

Hammond. William G., detail surgeon, ordered to visit in succession Whipple Barracks, Ariz., Fort Huachuca, Ariz., Fort Apache, Ariz., and Fort Wingate, N. M., for professional duty.

McAlister, John A., dental surgeon, ordered from Fort Wayne, Mich., to Fort Brady, Mich., for duty.

Navy Changes.

List of Changes in the Medical Corps, U. S. Navy, for the week ending Aug. 17, 1907:

Hough, E. P. W., acting asst.-surgeon, ordered to naval hospital, Annapolis, Md.

Stuart, A., P. A. surgeon, detached from command of the naval hospital, Sitka Alaska, and ordered home to await orders.

Grieve, C. C., P. A. surgeon, detached from the navy yard, Portsmouth, N. H., August 31, and ordered to command the naval hospital, Sitka, Alaska.

Owens, W. D., asst.-surgeon, ordered to the navy-yard, Portsmouth, N. H., and to additional duty on the *Southery*, August 21.

Taylor, E. C., P. A. surgeon, detached from duty at the navy recruiting station, Memphis, Tenn., and ordered home to wait orders.

Zalesky, W. J., P. A. surgeon, ordered to the navy recruiting station, Memphis, Tenn.

Biello, J. A., ordered to the naval hospital, Philadelphia.

McMahon, J., pharmacist, detached from duty at the navy-yard, New York, N. Y., and ordered to the naval hospital, Norfolk, Va.

Lung, G. A., surgeon, detached from the *Kentucky* and ordered home to wait orders.

Alfred, A. R., surgeon, detached from duty at the navy recruiting station, Pittsburg, Pa., and ordered to the *Wolverine*.

Stoops, R. E., asst.-surgeon, ordered to the navy recruiting station, Pittsburg, Pa.

Grunwell, A. G., surgeon, detached from the *Wolverine* and ordered to the *Kentucky*.

Melhorn, K. C., acting asst.-surgeon, ordered to the naval hospital, Norfolk, Va.

Blakeman, R. S., P. A. surgeon, discharged from treatment at the naval hospital, Norfolk, Va.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Aug. 14, 1907:

Geddings, H. D., asst.-surgeon general, directed to proceed to Ellis Island, N. Y., for special temporary duty, on completion of which to rejoin his station in Washington, D. C.

Cofer, L. E., P. A. surgeon, granted leave of absence for one month.

Grubbs, S. B., P. A. surgeon, granted leave of absence for one day, Aug. 11, 1907.

Francis, Edward, P. A. surgeon, directed to proceed to Mobile, Ala., for special temporary duty, on completion of which to rejoin his station at Mobile quarantine station.

Collins, G. L., asst.-surgeon, granted leave of absence for one day, Aug. 16, 1907.

Olsen, E. T., asst.-surgeon, granted leave of absence for one month and twenty-eight days, from Aug. 18, 1907.

Miller, W. W., asst.-surgeon, relieved from duty at Ellis Island, N. Y., and directed to report at the Bureau in Washington for temporary assignment in the Hygienic Laboratory.

Gibson, L. P., acting asst.-surgeon, granted leave of absence for eight days, from Aug. 8. 1907.

Gustetter, A. L., acting asst.-surgeon, granted leave of absence for thirty days from Sept. 1, 1907.

Hunter, S. B., acting asst.-surgeon, granted leave of absence for six days, from Aug. 7, 1907.

McGinnis, R. H., acting asst.-surgeon, granted leave of absence for thirty days from Sept. 1, 1907.

Nute, A. J., acting asst.-surgeon, granted leave of absence for twenty days, from Aug. 20, 1907.

Rodman. John C., acting asst.-surgeon, granted leave of absence for three days, from Aug. 8, 1907.

Safford, M. V., acting asst.-surgeon, granted leave of absence for four days, from July 15, 1907, on account of sickness.

Safford, M. V., acting asst.-surgeon, granted leave of absence for four days, from Aug. 8, 1907, under Paragraph 210, Service Regulations.

Simonson, G. T., acting asst.-surgeon, granted leave of absence for ten days, from Aug. 5, 1907.

Walkley, W. S., acting asst.-surgeon, granted leave of absence for six days, from Aug. 18, 1907.

PROMOTIONS.

Stimson, A. M., Rucker, W. C., and Ward, W. K., asst.-surgeons, commissioned as P. A. surgeons, to rank as such from July 27, 1907.

Trask, J. W., asst.-surgeon, commissioned as P. A. surgeon, to rank as such from Aug. 16, 1907.

APPOINTMENTS.

Drs. Charles W. Chapin, Edward R. Marshall, Raymond B. Scofield, and Emil Krulish, commissioned (recess) as asst.-surgeons in the Public Health and Marine-Hospital Service, Aug. 8, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 16, 1907:

SMALLPOX—UNITED STATES.

California: Los Angeles, July 20-27, 1 case.

Indiana: Elkhart, July 27-Aug. 3, 1 case; Indianapolis, July 26-Aug. 4, 2 cases.

Louisiana: Shreveport, July 27-Aug. 3, 3 cases.

Missouri: St. Joseph, July 27-Aug. 3, 1 case.

New Jersey: Newark, July 27-Aug. 3, 3 cases.

New York: New York, July 20-27, 1 case, 1 death.

Wisconsin: Milwaukee, July 27-Aug. 3, 2 cases.

SMALLPOX—FOREIGN.

Africa: East London, June 29-July 6, 1 case (imported).

Argentina: Rosario, May 1-31, 19 deaths.

Austria: Vienna, July 13-20, 1 case, 1 death.

Canada: Halifax, July 27-Aug. 3, 3 cases.

China: Manchuria, June 29-July 6, 2 cases.

Ecuador: Guayaquil, July 6-20, 2 deaths.

France: Paris, July 13-20, 15 cases, 2 deaths.

Greece: Piraeus, July 20-27, 1 case.

India: Calcutta, June 22-29, 2 cases.

Italy: July 11-18, 14 cases.

Java: Batavia, June 22-29, 3 cases.

Mexico: Aguas Calientes, July 27-Aug. 3, 2 deaths.

Portugal: Lisbon, July 13-20, 6 cases.

Russia: Moscow, June 29-July 20, 11 cases, 4 deaths; Riga, July 13-27, 4 cases.

Siberia: Vladivostock, June 4-14, 2 cases.

Turkey: Bagdad, June 22-29, present: Bassorah, June 29-July 6, present; Constantinople, July 14-21, 2 deaths.

YELLOW FEVER.

Cuba: Alacranes, Aug. 9, 1 case; Cienfuegos, Aug. 3-14, 14 cases, 1 death (9 cases among American troops); San Nicolas, Aug. 8, 1 case.

CHOLERA.

India: Calcutta, June 22-29, 68 deaths; Kashmir, June 22-29, 840 cases, 723 deaths.

Straits Settlements: Singapore, June 8-15, 2 deaths.

PLAGUE—UNITED STATES.

California: San Francisco, Aug. 12-14, 3 cases, 1 death.

PLAGUE—FOREIGN.

Australia: Brisbane, May 26-June 8, 3 cases, 1 death; Ipswich, May 23, 1 case, 1 death; Sydney, May 25-June 1, 1 death.

China: Amoy, June 22-29, 1 case, 1 death.

India: Calcutta, June 22-29, 28 deaths.

Peru: Callao, June 27, 2 cases, 1 death; Chiclayo, June 27, 6 cases, 3 deaths; Mollendo, June 27, 4 cases: Paita, June 27, 3 cases, 2 deaths; Trujillo, June 27, 22 cases, 5 deaths.

Russia: Odessa, July 14, 1 case, 1 death.

Marriages

William Rightman, M.D., to Miss Toba Fagin, both of Chicago, August 6.

Henry Harrison, M.D., to Miss Frances L. Tripp, both of Detroit, Mich., August 6.

George Albert Gardner, M.D., to Miss Charlotte Thayer, both of Chicago, August 14.

Rosco C. Waterbury, M.D., Kinderhook, N. Y., to Miss Ada Wild, of Albany, N. Y., August 6.

Arthur H. Cooper, M.D., Superior, Wyo., to Miss Nettie Ansell of Washakie, Wyo., recently.

Roy Bishop Canfield, M.D., Ann Arbor, Mich., to Miss Lelia M. Harlow of Boulder, Colo., August 6.

John J. Moren, M.D., Louisville, Ky., to Mrs. Ferda Zorn Norton of Vineyard Haven, Mass., recently.

Henry Paine Stevens, M.D., Cambridge, Mass., to Miss Emma Frye of Lewiston, Maine, August 7.

James Owen Callahan, M.D., to Miss Stella May Hardin, both of Muskogee, I. T., at Arcadia, La., August 6.

Deaths

Henry E. Cushing, M.D. Chicago Medical College, 1884; a member of the American Medical Association; a practitioner of Champaign County, Ill., for 23 years; division surgeon to the Illinois Central Railroad; a man universally esteemed and respected; a practitioner standing for high ideals, uncompromising and unswerving in his attitude toward quackery and irregularities in practice, died at his home in Champaign, Ill., August 11, from pleuro-pneumonia, after an illness of five days, aged 52. At a special meeting of the Champaign County Medical Society, held August 11, resolutions of sorrow and sympathy were unanimously adopted.

Donald Macrae, M.D., L.R.C.P., Edinburgh, 1861; a member of the American Medical Association; once president of the Iowa State Medical Society; president of the Council Bluffs (Iowa) Medical Society; vice-president of the surgical section of the Eleventh International Medical Congress; formerly president of the Missouri Valley Medical Society; professor of railway and clinical surgery in the University of Nebraska College of Medicine, Omaha; a member of the staff of the Council Bluffs General Hospital, and one of the leading surgeons of Iowa, died at his home in Council Bluffs, August 14.

Sorden McClure, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1899; a member of the Medical Society of the State of Pennsylvania and Philadelphia County Medical Society; assistant surgeon of the First Infantry, N. G. Pa.; a member of the staff of the Presbyterian and Wills Eye Hospitals, Philadelphia; a specialist in diseases of the eye, ear, nose and throat; died from diphtheria in the Municipal Hospital, Philadelphia, August 7, after an illness of four days, aged 29.

David Riley Corbin, M.D. Vanderbilt University, Medical Department, Nashville, Tenn., 1899; a member of the American Medical Association; formerly president of the Stoddard County (Mo.) Medical Society; a member of the Southeast Missouri Medical Association; councilor for the Twenty-third district of the Missouri State Medical Association; a physician of Stoddard County, died at his home in Bloomfield, Mo., August 10, aged 32.

Ellis P. Townsend, M.D. Jefferson Medical College, Philadelphia, 1863; formerly a practitioner of Beverley and Camden, N. J., and at one time editor of a medical journal; for 18 years a practitioner of Billings, Mont.; died at his home in that city, July 30, from the effects of amputation of the feet, due to exposure last winter, while answering a call near Lame Deer, Mont., where he was employed as government physician, aged 72.

Joseph Graham, M.D. Jefferson Medical College, Philadelphia, 1859; a member of the Medical Society of the State of North Carolina and the Mecklenburg County Medical Society; a Confederate veteran; one of the oldest and most eminent practitioners of Charlotte, N. C.; died at the home of his son in that city, from malignant disease, after an illness of several months, aged 70.

Philip Hurt Strausz, M.D. Bellevue Hospital Medical College, New York City, 1885; of Toledo, Ohio; for one term state health officer of Florida, where he served during the epidemic of yellow fever in 1888; some-time vice-president of the Lucas County (Ohio) Medical Society; died at the Toledo Hospital, August 9, 10 days after an operation for gastric ulcer, aged 46.

Alexander C. MacLean, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1877; a member of the Utah State Medical Association and Salt Lake County Medical Society; one of the most prominent practitioners of Salt Lake City, died in a sanitarium in Salt Lake City, after a prolonged illness, August 3, aged 52.

Barnabas W. Day, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1862; for many years a practitioner of Los Angeles and of late years a dentist in that city; died suddenly from cerebral hemorrhage at the Santa Fé Railway station, Los Angeles, August 3, aged 74.

Jesse O. Walker, M.D. Vanderbilt University, Medical Department, Nashville, Tenn., 1888; a member of the Medical Society of the State of North Carolina and Cabarrus County Medical Society; of Concord, N. C., died at the home of his father, in Asheboro, N. C., from neurasthenia, after an illness of three days, aged 40.

Henry Sanford Hickman (Examination, Okla.) 1893; for more than half a century a practitioner of medicine; assistant surgeon of the Second Illinois Volunteer Cavalry during the Civil War; thereafter a practitioner of Newman, Ill., until 1893, when he moved to Oklahoma; died at his home in Lacey, July 18, aged 72.

Matthew A. Graff, M.D. Western Pennsylvania Medical College, Pittsburg, 1901; of Sewickley, Pa.; a member of the American Medical Association, who was attacked by appendicitis August 1, and was removed to Mercy Hospital, Pittsburg, for operation, died in that institution, August 15, from heart disease, aged 31.

William H. Link, M.D. Medical College of Ohio, Medical Department, University of Cincinnati, 1884; a member of the Indiana State and Marion County medical societies; clinical professor of obstetrics in the State College of Physicians and Surgeons, Indianapolis; died at his home in that city, August 10, aged 56.

Lucien Banks, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1867; formerly a member of the legislature from Juniata County; a prominent citizen and practitioner of Mifflintown, died at the home of his nephew in that city, August 3, from disease of the stomach, aged 66.

A. Austin Tayman, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1865; a practitioner of Lebanon, Mo., for more than a quarter of a century, and surgeon in the Army during the Civil War, died in the Frisco Hospital, Springfield, Mo., August 5, aged 70.

Joseph W. Brooks, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1884; for several years inspector of the health bureau, and a member of the staff of the coroner of Philadelphia County; died from uremia at his home in Philadelphia, August 5, aged 51.

Charles Laight, M.D. College of Physicians and Surgeons in the City of New York, 1868; an ophthalmologist of Keene Valley, N. Y., who for the last few years had spent his summers in the Adirondack Mountains and his winters in Rome, Italy, died in that city, April 1, aged 61.

William M. Cole, M.D. University Medical College of Kansas City, Mo., 1903; a member of the Missouri State Medical Association and Pettis County Medical Society; a city physician of Sedalia, Mo., died at his home, from tuberculosis, August 9, after a lingering illness, aged 30.

James Brien, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1872; twice mayor of Essex, Ont., and a member of parliament from South Essex in 1887; died at his home in Essex, August 10, after a long illness.

Elam S. Ramsey, M.D. University of Louisville (Ky.) Medical Department, 1870; for more than 20 years a practitioner of Kansas City, Kan., and surgeon for the Metropolitan Street Railway Company, died suddenly at his home in Kansas City, from heart disease, August 10, aged 60.

James D. Davis, M.D. Jefferson Medical College, Philadelphia, 1880; a member of the Kentucky State and Mason County medical societies; of Maysville, Ky.; died suddenly, August 11, in an automobile, while en route from Maysville to Blue Lick Springs, aged 45.

Elijah D. Buckner, M.D. Hahnemann Medical College and Hospital, Chicago, 1885; president of the National Society for the Prevention of Cruelty to Animals; died at his home in Osceola, Neb., August 6, from disease of the stomach, of long standing, aged 64.

Calvin Hostetler, M.D. Sioux City (Iowa) College of Medicine, 1898; a member of the American Medical Association, and a prominent physician of Marcus, Iowa, died at his home in that city, August 4, after an invalidism of several months, aged 39.

John K. Pemberton, M.D. Medical Department of Washington University, St. Louis, 1867; for 36 years a practitioner in Calloway County, Mo.; died at the home of his son, in Krebs, I. T., after an illness of several months, August 2, aged 62.

Joseph S. Deziel, M.D. Laval University, Medical Department, Quebec, 1893; a member of the American Medical Association and a prominent practitioner of Barre, Vt., died at his home in that city, July 31, from angina pectoris, aged 41.

George W. Gilfillan (Years of Practice, Iowa) 1886; for many years a practitioner of Milton, Iowa, died at his home in Mount Pleasant, Iowa, August 2, after a prolonged illness, from arteriosclerosis, aged 72.

Louis William Exum, M.D. Leonard College of Medicine, Medical Department Shaw University, Raleigh, N. C., 1893; died at Bluefield, W. Va., recently, from typhoid fever, after a short illness, aged 44.

George Lacke, M.D. University of Berlin, Germany, 1848; for 50 years a practitioner of Warrick County, Ind., died at his home in Newburgh, August 4, from cerebral hemorrhage, aged 82.

John William Bryant, M.D. University Medical College of Kansas City, Mo., 1886; of Shamrock, Mo.; died July 27, at the home of his sister, in Webb City, Mo., from typhoid fever, aged 52.

Jesse Patton, M.D. Northwestern University Woman's Medical College, Chicago, 1898; of Aberdeen, S. D.; formerly a practitioner of Georgetown, Colo.; died in Aberdeen, August 9, aged 38.

W. T. Machesney, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1874; formerly of Salina, Iowa, died at his home in Bagley, Iowa, August 5, from heart disease, aged 56.

Eben A. Wood, M.D. Albany (N. Y.) Medical College, 1875; of Syracuse, N. Y.; died at the Hospital of the Good Shepherd in that city, August 12, after an illness of six weeks, aged 54.

John M. Hunter, M.D. Kentucky School of Medicine, Louisville, 1884; of Rockhill, S. C., died at Johns Hopkins Hospital, Baltimore, June 9, after an illness of seven weeks, aged 67.

Otto Paul Mueller, M.D. Barnes Medical College, St. Louis, 1904; of Pima, Ariz., died at Cluffs' Ranch, Ariz., from tuberculosis, July 27, after an illness of several years, aged 28.

Omer H. Allard, M.D. University of the Victoria College, Coburg, Ont., 1883; a practitioner of Burlington, Vt., died at the Fanny Allen Hospital, April 15, after a short illness.

Freeman Thompson, M.D. Cleveland Medical College, Medical Department Western Reserve College, 1859; died from paralysis at his home in Baldwin, Kan., recently, aged 81.

William Claxton, M.D. Faculty of Medicine of Queen's University and Royal College of Physicians and Surgeons, Kingston, Ont., 1874; of Verona, Ont., died May 29.

James F. Runyan, M.D. Physio-Medical Institute, Cincinnati, 1867; died at his home in Alexandria, Ind., August 9, after an illness of a year and a half, aged 67.

Wayman Hartford Graham, M.D. Hospital College of Medicine, Louisville, Ky., 1895; of Campti, La., died from tuberculosis, at Shreveport, La., July 24, aged 32.

James Wayne McGaughey, M.D. Hospital College of Medicine, Louisville, 1898; of Luther, Okla., died at Guthrie, Okla., August 4, from kidney disease, aged 33.

Daniel McIntosh Johnson, M.D. Halifax (N. S.) Medical College, 1878; died at his home in Tatamagouche, N. S., March 12, after a short illness, aged 40.

Alexander Daniel McGillvary, M.D. Bellevue Hospital Medical College, New York City, 1863; died at his home in Sidney, N. S., May 30, aged 65.

Edwin Brumfield (Years of Practice, Mich.), 1900; a veteran of the Civil War, died at his home in Jackson, Mich., August 4, aged 71.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Massachusetts Board of Registration in Medicine, State House, Boston, September 10-12. Secretary, Dr. Edwin B. Harvey, 159 State House, Boston.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, September 17-19. Secretary, Dr. Louis A. Thomas, Des Moines.

Reciprocity in North Carolina.—At a meeting of the North Carolina State Board of Medical Examiners, held June 11, 1907, the following rules were adopted in regard to reciprocity which was provided for by an amendment to the practice act passed at the last session of the legislature: 1. The applicant must have a diploma from a medical college requiring a three years' course of study for such degree. 2. He must have a license from a state board of examiners requiring the same per cent. as this state, which is 80. 3. He must present a sworn affidavit from two practicing physicians as to his professional standing in his community. 4. The burden of proof shall rest on the applicant. 5. He shall attend the meeting of the board at the time of application and make application in person. 6. He shall pay a fee of $10 for his license.

McGill Has a Five-Year Course.—As we have previously noted, McGill University Medical Faculty will require hereafter that five years' work must be taken before graduation from that institution. According to the *Montreal Medical Journal*, April, 1907, the fifth year is to be devoted entirely to hospital work. This hospital work will give the student the opportunity to apply the knowledge already received and gradually to assume the responsibility of depending on his own knowledge and observations which he would otherwise be compelled to assume abruptly. The hospital experience will enable the graduates to enter on their lifework with greater confidence than heretofore. This advance will doubtless cause a falling off in the number of students for a time, but the increased excellence of the training should cause a return to the usual number. This important advancement in medical standards has already been advocated by the American Medical Association in the "Ideal Standard" adopted in Portland in 1905.

Iowa March Report.—Dr. Louis A. Thomas, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, March 19-21, 1907. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. Two candidates were examined, one of whom passed and the other failed. The candidate who passed, a graduate of Creighton Medical College, 1903, received a grade of 81 per cent., and the candidate who failed, a graduate of the University Medical College, Kansas City, 1902, received a grade of 70 per cent.

Iowa April and July Reciprocity Reports.—Dr. Louis A. Thomas, secretary of the Iowa State Board of Medical Examiners, sends us the following reports of reciprocal licenses issued at the meetings held by that board April 11 and July 18, 1907:

APRIL REPORT.

College.	Year Grad.	Reciprocity with.
Rush Med. College	(1903), (1905) (1906)	Illinois
American Medical Miss. Coll.	(1903)	Illinois
N.-W. Univ. Med. School (1903) Kansas;	(1905) (1906)	Illinois
Baltimore Medical College	(1903)	Illinois
University Med. Coll., Kansas City	(1897)	Missouri
Barnes Medical College	(1906)	Illinois

JULY REPORT.

College.	Year Grad.	Reciprocity with.
Rush Medical College	(1902) (1906)	Illinois
College of P. and S., Chicago,	(1904) (1905) (2, 1906)	Illinois
Dearborn Medical College	(1906)	Illinois
Northwestern Univ. Med. School	(1906)	Illinois
St. Louis Coll. of P. and S.	(1907)	Missouri
St. Louis University	(1905)	Missouri
Ensworth Central Medical College	(2, 1907)	Missouri
Creighton Medical College	(1906)	Nebraska
University of Nebraska	(1905)	Nebraska

Indiana May Report.—Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, May 28-30, 1907. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 133, of whom 122 passed, including 5 osteopaths, and 11 failed. Eight reciprocal licenses were issued. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Rush Med. Coll.	(1903) 89.4; (1906) 89.3; (1907)	93.4
Hahnemann Medical College	(1907)	87.8
American Coll. of M. and S., Chicago	(1905) 76.4; (1906)	86.
Northwestern Univ.	(1903) 87.6; (1904) 90.1; (1906)	87.1
College of P. and S., Chicago	(1897) 92.8; (1903)	88.6
Indiana Medical College	(1906) 75.2, 82.6; (1907)	75.3, 75.5, 75.8, 78, 78.2, 79.5, 80.3, 80.9, 81.3, 81.6, 82.4, 82.5, 82.6, 82.8, 83.2, 83.4, 84.2, 85, 85.2, 85.5, 85.7, 86, 86.4, 87, 87.1, 87.4, 87.5, 87.6, 87.6, 87.7, 87.7, 87.7, 88.1, 88.1, 88.5, 88.8, 88.8, 88.9, 88.9, 89.1, 89.1, 89.3, 89.3, 89.5, 89.6, 89.9, 90.1, 90.1, 90.2, 90.3, 90.3, 90.3, 90.5, 90.8, 90.8, 91, 91.1, 91.3, 92, 92.1, 93.2, 93.8, 94.4.
State Coll. of P. and S., Indianapolis	(1907)	83.1, 85.4, 86.2, 86.2, 87, 87.2, 88, 88.3, 88.6, 88.8, 89.8, 89.8, 90, 90.7, 91.8, 92.4, 92.6, 92.9, 93.3, 93.7, 93.9, 94.2, 94.4.
Physio-Med. Coll. of Indiana	(1907)	83.9, 87.6, 87.9, 88.3, 90.5, 90.8
Eclectic Medical College of Indiana	(1905)	87.5
Louisville Medical Coll.	(1894) 87.1; (1905)	85.6
Kentucky School of Medicine	(1906)	82.
College of P. and S., Baltimore	(1907)	92.2
Harvard Medical School	(1901)	87.
St. Louis University	(1906)	89.6
Kansas City Hahnemann Med. Coll	(1907)	83.2
Miami Medical College	(1902)	88.4
Eclectic Medical Institute, Cincinnati	(1907)	83.5, 89.9
Medico-Chirurgical College, Philadelphia	(1895)	81.6

FAILED.

College.	Year Grad.	Per Cent.
Illinois Medical College	(1906)	63.7
Rush Medical College	(1894)	62.1
Indiana Medical Coll	(1906) 51.4, 65.4: 1907)	69, 69.9
Eclectic Med. Coll. of Indiana	(1906) 62.3; (1907)	71.5
Medical College of Indiana	(1904)	57.4
Hospital College of Medicine, Louisville	(1906)	67.1
Eclectic Med. Institute, Cincinnati	(1906)	62.8

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Columbia University, Washington, D. C.	(1898)	Dist. Colum.
University of Iowa	(1897)	Iowa
Harvard Medical School	(1897)	Vermont
University of Michigan	(1903)	Missouri
Medical College of Ohio	(1896)	Ohio
Eclectic Med. Institute, Cincinnati	(1906)	Ohio
Jefferson Medical College	(1878)	Michigan
Meharry Medical College	(1894)	Kentucky

Mississippi May Report.—Dr. J. F. Hunter, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, May 14-15, 1907. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 235, of whom 71 passed, including 43 non-graduates, and 164 failed, including 90 non-graduates. The following colleges were represented:

PASSED.

College.	Year Grad.	Total Num. Ex.
Atlanta College of P. and S.	(1907)	1
Louisville Medical College	(1905)	1
Tulane University of Louisiana	(1, 1906); (4, 1907)	5
Saginaw Valley Medical College	(1902)	1
Mississippi Medical College	(1907)	6
Barnes Medical College	(1, 1903); (1, 1907)	2
Memphis Hosp. Med. Coll.	(1, 1899), (1, 1906), (5, 1907)	7
University of Nashville	(1, 1906), (2, 1907)	3
College of P. and S., Memphis	(1907)	2

FAILED.

Medical College of Alabama	(1907)	2
Atlanta College of P. and S.	(1903)	1
Louisville Medical College	(1906)	1
Hospital College of Medicine, Louisville	(1906)	2
Kentucky University	(1904)	1
Harvey Medical College	(1905)	1
Tulane University of Louisiana	(1, 1904); (3, 1907)	4
Flint Med. Coll.	(1, 1903); (1, 1904); (1, 1905); (4, 1907)	7
Baltimore University	(1904)	1
University of Mississippi	(1900)	1
Mississippi Medical College	(1907)	11
St. Louis College of P. and S.	(1896)	1
Washington University, St. Louis	(1904)	1
Leonard Medical School	(1907)	1
Memphis Hospital Medical College	(2, 1903); (2, 1905); (1, 1906); (13, 1907)	18
University of Nashville	(1, 1902); (1, 1906); (4, 1907)	6
University of Tennessee	(1901)	1
College of P. and S., Memphis	(1907)	2
University of the South	(1906)	1
Knoxville Medical College	(1906)	1
Chattanooga Medical College	(1905)	1
Meharry Medical College	(1, 1903); (3, 1906); (4, 1907)	8
Gate City Medical College	(1906)	1

Connecticut Homeopathic July Report.—Dr. E. C. M. Hall, secretary of the Homeopathic Examining Board of Connecticut, reports the written examination held at New Haven, July 9, 1907. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Boston University	(1907)	89.
New York Homeo. Medical College	(1906)	89.

Connecticut July Report.—Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written examination held at New Haven, July 9-10, 1907. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 34, of whom 29 passed and 5 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Yale Med. School	(1904) 88.4; (1905) 84.7; (1906) 82.5; (1907)	77.1, 79.4, 79.5, 79.7, 81.9, 81.9, 81.9, 82.4, 83.4, 83.9, 86, 86.9, 89.
College of P. and S., Baltimore	(1907)	82.
Maryland Medical College	(1906) 81.4; (1907)	77.3
University of Maryland	(1907)	82.1
Harvard Medical School	(1905)	79.9
Tufts College Medical School	(1905)	77.2
Coll. of P. & S., N. Y.	(1893) 78.2; (1895) 80.9; (1905)	78.1
Long Island Coll. Hospital	(1907)	79.7
Jefferson Medical College	(1905) 83.1; (1906)	77.
University and Bellevue Hosp. Med. Coll	(1907)	82.8

FAILED.

University of Maryland	(1907)	73.2
Baltimore Medical College	(1907)	73.1
Maryland Medical College	(1907)	61.8
College of P. and S., Boston	(1906)	54.2
University of Messina, Italy	(1905)	20.3

Missouri July Report.—Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports the written examination held at Mexico, July 9-11, 1907. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 21, of whom 9 passed and 12 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Northwestern Univ. Med. School	(1904)	82
Rush Medical College	(1906)	80
University of Louisville	(1907)	78
University Med. Coll., Kansas City	(1907)	76
Washington University, St. Louis	(1907)	75
Barnes Medical College	(1907)	75
St. Louis University	(1906) 77; (1907)	82
University College of Med., Richmond	(1895)	75

FAILED.

American Coll. of Med. and Surg., Chicago	(1907)	72
St. Louis Coll. of P. and S.,	(1906) 60; (1907) 66, 66,	73
American Med. Coll., St. Louis	(1907) 71,	72
Washington University, St. Louis	(1907)	70
University Med. Coll., Kansas City	(1907) 70,	72
Barnes Medical College	(1907) 60,	72

Colorado July Report.—Dr. S. D. Van Meter, secretary of the Colorado State Board of Medical Examiners, reports the written and oral examination held at Denver, July 2, 1907. The number of subjects examined in was 8; total number of questions asked, 80; per centage required to pass, 70. Eighty-seven candidates were licensed at this examination, 32 of whom passed the examination and 46 were registered on presentation of satisfactory credentials. Final action regarding those who failed will not be taken until the October meeting of the board. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Denver and Gross Coll. of Medicine	(1907)	71.5, 72.1, 77.4, 78, 79, 79.3, 79.6, 82.5, 82.8, 83.1.
Colorado School of Medicine	(1907)	72.8, 73.6, 75.8, 76, 77.2, 77.8, 78, 78.3, 78.5, 78.7, 80.1, 84.1.
Denver Homeo. Med. College	(1907)	73.7, 76.3, 76.3, 77.5, 78.1
Rush Medical College	(1906)	74.2
Northwestern Univ. Med. School	(1907)	78.1, 81.1
Indiana Medical College	(1907)	77.7
St. Louis University	(1907)	77.

REGISTERED ON CREDENTIALS.

Columbian University, Washington	(1900)
Birmingham Medical College	(1898)
College of P. and S., Chicago	(1902)
Northwestern University	(1886), (1893), (1894), (1900)
Rush Medical College	(1896), (1901), (1907)
Dunham Medical College	(1902)
Illinois Medical College	(1897)
Hahnemann Medical College, Chicago	(1888), (1890)
American Med. Miss. Coll	(1906)
Medical College of Indiana	(1884)
Keokuk Medical College	(1891)
University of Iowa	(1894), (1905)
University of Louisville	(1887)
Kentucky School of Medicine	(1892)
University of Maryland	(1902)
Maryland Medical College	(1904)
Baltimore University	(1898)
Boston University	(1885)
University of Michigan	(1878)
Missouri Medical College	(1886)
St. Louis University	(1906)
Barnes Medical College	(1906)
St. Louis College of P. and S.	(1903)
Central Medical College	(1898)
Ensworth Medical College	(1904)
Washington University, St. Louis	(1906)
Medical College of Ohio	(1880), (1887)
Cleveland Homeopathic Med. Coll	(1884), (1893)
American Eclectic Med. Coll., Cincinnati*	(1887)
Miami Medical College	(1906)
Ohio Medical University	(1904)
Jefferson Medical College	(1871), (1905)
University of Pennsylvania	(1890)
Hahnemann Medical Coll., Philadelphia	(1886)
Vanderbilt University	(1893)
University of Tennessee	(1891)

*This college became extinct in 1896.

Society Proceedings

COMING MEETINGS.

Ohio State Medical Association, Cedar Point, August 28.
Medical Society of the Missouri Valley, Council Bluffs, Iowa. Sept. 5.
Washington State Medical Association, Seattle, September 10-12.
Colorado State Medical Society, Glenwood Springs, Sept. 17-19.
Amer. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 17-19.
American Electro-Therapeutic Assn., Boston, Sept. 17-19.
Medical Society of the State of Pennsylvania, Reading, Sept. 23-26.
Southern Medical Association, Birmingham, Ala., Sept. 24-26.
Amer. Acad. of Ophthal. and Oto-Laryng., Louisville, Sept. 26-28.
American Public Health Assn., Atlantic City, Sept. 30-Oct. 4.
Medical Assn. of District of Columbia, Washington, Oct. 1.
American Roentgen Ray Society, Cincinnati, Oct. 2-4.
Idaho State Medical Society, Boise, Oct. 3-4.
Delaware State Medical Society, Wilmington, Oct. 8.
Nevada State Medical Society, Reno, Oct. 8-9.
Mississippi Valley Medical Association, Columbus, O., Oct. 8-10.
Vermont State Medical Society, St. Johnsbury, Oct. 10-11.

OREGON STATE MEDICAL ASSOCIATION.

Thirty-third Annual Session, held at Seaside, July 12-13, 1907.

The President, Dr. E. B. Pickel, Medford, in the Chair.

Officers Elected.

The following officers were elected to serve during the ensuing year: President, Dr. R. C. Coffey, Portland; vice-presidents, Dr. N. Moliter, LaGrande; Dr. M. Rosenburg, Prineville; Dr. A. C. Seeley, Roseburg; secretary, Dr. William House, Portland; treasurer, Dr. Edna Timms, Portland; councilors, Dr. C. J. Smith, Pendleton, and Dr. E. J. Labbe, Portland; delegate to the American Medical Association, Dr. Andrew C. Smith, Portland; alternate, Dr. W. T. Williamson, Portland.

Secretary L. H. Hamilton reported that the association is composed of nine component societies, with a membership of 356.

Chronic Amebic Dysentery, a Surgical Disease.

Dr. John Milton Holt, U. S. P. H. and M.-H. S., Astoria, said that after the dysentery had continued one year, with lesions above the sigmoid, and resistent to colonic irrigations, and the patient in as good a condition as would be required for appendectomy, the condition is a surgical disease. Water is the principal source of infection, but Chinese use human excreta over vegetables in the gardens. The Pacific Coast receives the majority of those returning from the Philippines, and there is no law prohibiting the dangerous practices of the Orientals. He operates by the R. F. Weir method, and flushes the colon with medicated solutions.

Dr. K. A. J. Mackenzie, Portland, believed Dr. Holt too conservative in waiting a whole year before operating, and stated that in view of the dangers of perforation, six months should be set as the period of operation.

Dr. A. E. Rockey, Portland, has improved on the Weir method, by sewing the cecum to the abdominal peritoneum and wrapping the appendix around a gauze roll, then waiting for a few weeks for the appendix to slough, and form a line of demarcation near the stump. Then he cuts the dead tissue away, leaving a small stump of appendix, with a well secured opening.

Stokes-Adams Disease; Heart Block.

Dr. William House, Portland, considered arteriosclerosis from syphilis or alcoholism or injury to the upper part of the cord, as the immediate causative factor. He reported a case of syncopal seizures, eight or ten a day, with a pulse of 28, pupillary inequality and exaggerated left patellar reflex, which he diagnosed as being caused by basilar aneurism.

Dr. R. L. Gillespie, Portland, saw this case and diagnosed it as one of brain pressure, but had not located it.

Opsonic Index in Tuberculosis.

Dr. W. R. M. Kellogg, Seattle, recorded observations with charts in 23 cases of localized tuberculosis. Index determined 205 times at intervals of ten days, and when indicated, a vaccination of 1/3000 to 1/8000 mg. tuberculin, T.R., was given. In 178 cases parallel counts of the phagocytic index were compared with the opsonic index. There was an average difference of .025 between them. He reported several cases where marked improvement had taken place, but caseous glands, he said, will persist.

Dr. E. J. Labbe, Portland, reported a case of healed pulmonary lesions, in which there developed ulceration of the intestines. Improvement was noted after three vaccinations of T.R.

Dr. J. A. Fulton, Astoria, said that for twenty-five years before the word opsonin was known, Dr. August Kinney of Astoria had been studying the treatment of tuberculosis with serum. He had learned to reduce the strength of the serum and lengthen the intervals.

Diphtheria Antitoxin in Hay Fever and Asthma.

Dr. J. A. Reuter, The Dalles, has used antitoxin in 60 cases of these diseases in repeated doses of 2,000 to 3,000 units. Forty-one patients were cured. Fifteen cases were caused by diseases of the heart, kidneys or liver, or were due to tuberculosis. These patients were not benefited, and four more were only temporarily relieved.

Dr. C. J. Smith, Pendleton, used the antitoxin in several cases, and believed that 60 per cent. of asthmatics can be benefited, failures being due to badly selected cases, where emphysema has occurred, or destructive inroads have been made in the lung tissue.

Dr. R. L. Gillespie, Portland, had used the treatment in two cases, with good results.

Dr. E. A. Pierce, Portland, applied it in 12 cases, and almost uniformly met more or less success. He thought most relief was gained in neurotic cases with anemia.

Dr. K. A. J. Mackenzie, Portland, believed the serum has a soothing effect on the mucous membrane of the bronchial tubes, and that in diphtheria the curative action is not spent alone on the blood, but that the mucous membrane of the throat receives a localized influence.

Surgical Treatment of Goiter.

Dr. Andrew C. Smith, Portland, thought that this field of surgery is shunned, yet it is one which gives eminent satisfaction. He has done 17 thyroidectomies, and all but four were done under local anesthesia, preceding it with a hypodermic injection of morphin and atropin, and marking the line of incision with carbolic acid, tracing again with alcohol. He is careful to throw the anesthetic completely across the line of incision. This prevents the engorgement caused by general anesthesia, avoids asphyxia, and permits the patient to phonate at the request of the operator.

Abdominal Diagnosis as Tested by Operation.

Dr. J. N. Hall, Denver, insisted that an abdominal case not doing well, or not too far advanced, should be subjected to an exploratory operation. He reported 312 cases, in which the diagnosis was substantially correct in 244. Several cases showed mistaken diagnosis, yet operation was necessary.

Dr. R. C. Coffey, Portland, said that internist and surgeon should work together in such cases, and thus reduce the danger to the minimum.

Dr. A. C. Smith said that it is often impossible to make a pathologic diagnosis before incision, and we must go in prepared to do whatever presents. These are surgical cases and they must be given surgical treatment.

Far Advanced Cases of Cancer of Large Bowel.

Dr. R. C. Coffey, Portland, in 14 months treated 13 cases, only six of which were seen early enough to render radical operation justifiable. He did mostly enteroanastomosis. Far advanced obstructive cancer, not extensive, should be removed. Extensive growths producing obstruction should be excised, in selected cases; others may be relieved by entero- or colocolostomy. Extensive growths with no obstruction but cachexia demand such operations as will add to the comfort of the patient.

Sanatorium Treatment of Tuberculosis in the Northwest.

Dr. E. A. Pierce, Portland, said that of 90 cases treated for an average of 70 days, 9 were apparently cured, 33 improved and 26 unimproved. Humidity of the atmosphere keeps the air practically dust-free, and more improvement is made during the coldest, rainiest weather than in the hot months. The cloudy skies are restful, and this climate is as well adapted as any other to recovery.

Dr. J. N. Hall, Denver, remarked on the freedom from dust on the railroads of western Oregon.

Dr. Kellogg, Seattle, thought the Oregon climate restful to a weak heart, relieving tension of the nerves.

Dr. Kuykendall, Roseburg, thought the time not yet ripe to draw conclusions as to the percentage of recoveries.

Epidemic Cerebrospinal Meningitis in Oregon.

Dr. C. H. Wheeler, Portland, gave the number of deaths as 61 during May and June, 1907, the disease being most virulent in May, when 35 died. The youngest victim was 3 years of age and the oldest 65. Temperature was subnormal, or elevated 1 to 1½ degree; pulse slow until death was near, then increasing as high as 106. Neither rigidity of the neck nor Kernig's sign were always present. Hemorrhagic spots were small and indicated gravity. He believes the germ is disseminated through the atmosphere, and that overcrowding and breathing vitiated air conduces to the acquirement of the disease. Cold, dry and cloudy days are favorable to its spread, while bright sunlight, or alternate rain and sunlight, arrest its course.

Resolutions.

Dr. F. W. Vandyke, Grant's Pass, presented correspondence held with the New York Mutual Life Insurance Company, whose agents assured Dr. Vandyke that satisfactory men were easily secured in Portland as insurance examiners. He asked for an expression of the regard with which the reduction of fee to $3 was held by the society. He said that no doctor in his county would make an examination for less than $5. He was informed that last year the society passed a resolution to make no examinations for less than $5, but that some were doing it, and had not been reminded by the society. Dr. Vandyke moved that the society reaffirm its action of last year and instruct the board of councilors to enforce the resolution. This motion was carried.

Dr. K. A. J. Mackenzie introduced a resolution asking the appointment of a committee to investigate the Chinese vegetable gardens, and report on the use of human excreta for enriching, as described in Dr. Holt's paper. The resolution was adopted.

The Examination of a Patient, with the View of Giving Medical Opinion.

Dr. George F. Wilson, Portland, reported several cases of hysteric paralysis and contractures, and of malingering where damages were brought against companies, and were granted by the court. Begin examination at the top of the head, and proceed downward, interrogating the position and character of each organ, and how it is functionating, looking out for anomalies of the anatomy.

Dr. Willis, Seattle, said the points of the paper might be summed up as an avoidance of prejudice, and thoroughness of examination, and the habit doctors have of disagreeing does much to bring the profession into disrepute.

Dr. A. W. Moore, Portland, said the popular idea is that the company's physician must be prejudiced. The insurance companies have figured out and hold an estimate of how much loss they will meet each year through these dishonest doctors, the family physician and the company doctor. There should, by all means, be a commission on examination appointed by the court.

Dr. W. T. Williamson said a doctor may be honest but ignorant. One must know the tests and take time to use them. A doctor who has not taken time to examine his patient thoroughly is not fit to go on the stand. A broad-minded physician will try to be fair and unbiased and give testimony only as a scientific physician.

Mountain or Spotted Fever in Idaho and Eastern Oregon.

Dr. William O. Spencer, Huntington, described the disease as being very fatal in the Bitter Root Valley of Montana, and appearing with a lesser mortality in the northwestern states, being limited to certain localities, occurring in the spring and summer months. The cause is the bite of the wood tick, which introduces parasites into the blood, which are described as ovoid intracorpuscular bodies showing ameboid movements.

Ulcer of Stomach.

Dr. K. A. J. Mackenzie, Portland, reported 40 cases of hematemesis from ulcer of the duodenum or stomach without a death. The best treatment is lavage with water at a temperature of 120 to 130 F.

Medical Education.

The committee on medical education reported efforts made along the lines laid down by the American Medical Association, and recommended that lectures be delivered in schools, conventions and other places, and articles be written for the public press by physicians, as advised by the American Medical Association. The report was adopted.

Reciprocity.

Dr. R. L. Gillespie, Portland, presented a resolution asking that a committee be appointed to confer with the state boards of the states adjoining Oregon, with a view to establishing laws of reciprocity. The resolution was referred to the committee on public policy and legislation.

Transactions.

The House of Delegates voted to publish the transactions of the association in book form, for the benefit of absent members, who pay yearly dues yet are prevented from attending the conventions.

OREGON STATE HEALTH ASSOCIATION.

Second Annual Meeting, held at Seaside, July 12, 1907.

Officers Elected.

Officers elected were: President, Dr. E. P. Geary, Portland; vice-president, Dr. Esther C. Pohl, Portland; secretary-treasurer, Dr. Fred Ziegler, Portland.

Dr. E. P. Geary read a paper on "Some Problems in Public Health."

Dr. J. M. Holt, Astoria, said these questions are of interest to the marine service as well as to the Army. He considered the Texas quarantine against tuberculosis as extreme, and feared it would not sustain the pressure that would be brought to rescind it. The trouble with quarantines is that the law usually allows diseased persons to go out of the state, but allows no one to come in. The U. S. P. H. and M.-H. S. is doing good work examining all immigrants, but the public press is usually pretty bitter when immigrants have to be returned.

Dr. E. A. Pierce, Portland, thought that the hardest work a state board has to do is to get the county health officers and the county judges to work with the board. When this is accomplished we can succeed in getting the doctors in the outlying districts to do better work in sanitation.

Dr. C. H. Wheeler complained that doctors do not always report contagious disease, and considerable infection is kept about in that way. He has attempted school inspection, but with 23,000 children, and no one regularly delegated to the work, it was an impossibility.

Dr. Pierce suggested that the superintendent of public instruction be requested or required to put courses in sanitation in the teachers' institutes.

Medicolegal

Powers Relative to Enforcement of Vaccination Law and Probable Cause for Commencing Prosecution.

The Supreme Court of North Carolina says, in the case of Morgan vs. Stewart, that the statute law of that state provides, in substance (Revisal of 1905, Section 4451), that on the appearance of smallpox in a neighborhood the authorities of any city or town or the sanitary committee of any county may make such regulations and provisions for the vaccination of its inhabitants, and impose such penalties, as they may deem necessary to protect the public health. And Section 3455 provides that, "If any person shall violate any of the rules and regulations of the sanitary authorities of any county in regard to vaccination, he shall be guilty of a misdemeanor, and fined, not exceeding fifty dollars, or imprisoned, not exceeding thirty days."

The court finds no precise form in which the resolutions of a county sanitary board should be couched, nor any specific or stated order of proceedings where such matters are to be considered or determined. It sees no reason why an order of the sanitary committee of a county in which there were a number of cases of smallpox should not be upheld as a valid exercise of the authority conferred on them by the statute, when the order provided that "any person or persons within a radius of three miles of any schoolhouse who willfully refuses to be vaccinated or to allow any one in his charge to be vaccinated shall be guilty of a misdemeanor," and that the county superintendent of health should proceed to enforce compulsory vaccination to such an extent as he might consider necessary. They could not declare the prohibited act a misdemeanor because its status had already been so fixed by public law, but their resolution could still be received and construed as a regulation requiring parties within the prescribed territory to submit to vaccination; and the statute makes the refusal a misdemeanor within the jurisdiction of a justice of the peace. Legislation of this character has been upheld by well-considered decisions in this and other jurisdictions. Hutchins vs. Durham, 137 N. C. 68; State vs. Hay, 126 N. C. 999; Morris vs. Columbus, 102 Ga. 792.

It is also well established that the legislature may confer on local boards, certainly those clothed with governmental functions, the power to make reasonable regulations to protect the public health and to fix and establish facts or conditions on which a statute makes its own action depend. State vs. Railroad, 141 N. C. 852; 8 Cyc. 830; Freund on Police Power, Section 34. And while these local regulations are required to be reasonable, and are, to some extent, subject to judicial control, both as to the existence of an apprehended danger and the reasonableness of the relief (Freund on Police Power), this court has held (State vs. Hay) that, "where a statute of this kind has been passed and the conditions established which call it into operation, it thus becomes a law binding on each and all alike, and it is optional to no one's private judgment whether to render compliance or not. If there are exceptional cases, where, owing to the peculiar state of the health or system, vaccination would be dangerous, that would be a matter of defense, the burden of which would be on the defendant."

In this case the defendant, as county superintendent of health in the county where such order was passed, having heard that there were several cases of smallpox near the plaintiff's school, one within a half mile, and in sight, called at the schoolhouse, explained the conditions and the law, as he understood it, and requested that he be allowed to vaccinate the plaintiff and his scholars, which request was refused. Having referred the matter to the secretary of the state medical board at Raleigh, and having been advised that the teacher was indictable and should be proceeded against, and, furthermore, having been shown a letter from the attorney general of the state to the superintendent of public instruction, in which the attorney general advised that regulations similar to those of the county in question could be lawfully enforced, the defendant county superintendent of health instituted a prosecution on which the plaintiff in this case was tried and acquitted. Then the plaintiff instituted this action for malicious prosecution, and got judgment. But the Supreme Court reverses that judgment, saying that it seems clear to it that in no aspect of the testimony, as the same was presented, had there been a want of probable cause shown, and the court below should have dismissed the case as on judgment of non-suit. Probable cause, in cases of this kind, has been properly defined as the existence of such facts and circumstances, known to him at the time, as would induce a reasonable man to commence a prosecution.

Peculiar Religious Beliefs and Sanity.

The Supreme Court of Iowa says, in the will case of Henderson vs. Jackson, that the allegation of undue influence on which the contestants relied was simply this, that the testatrix, four years after the death of her husband, felt herself bound by his request and by her promise made him in his lifetime so that she made a will disposing of her property in a different manner than she would have done had the alleged influence not existed. But this fell very far short of the undue influence which in law is held to invalidate a will. Just what was meant by the allegation of her fear that she might "suffer the displeasure of her husband in the future" was not clear, unless it might be interpreted as a belief on her part that she would meet her husband in the world to come, and that her failure to show deference to his wishes here would tend to mar the pleasure of their communion there. But who may assume to say that such an article of faith is the product of a diseased mind, or that a person who acts on it is the subject of undue influence?

If a devout person, being about to prepare his will, makes it the subject of prayer, and believing that he has received divine help in planning the distribution of his estate, proceeds to act accordingly, would any court sustain a verdict which finds in this part alone a ground for invalidating such will? There are many persons whose soundness of mind and business sagacity none can doubt, who believe in the possibility of communication with disembodied spirits, and habitually take counsel from such sources with reference to their conduct in life. Is such a person incapable of making a valid will, and should his will be set aside as the product of an insane delusion, or as having been executed under undue influence, simply because he believes his act to have the approval of the inhabitants of the spirit land? The court thinks not.

Few men live who have not some desire, hope, or belief with reference to a life to come and the continued conscious existence in some form of their departed friends, and such faith has always been and doubtless will always remain a potent factor in the lives and conduct of nearly every member of our race. The particular form of faith which one espouses may seem to another unreasonable, or unphilosophical or even ridiculous, but it is not for the legislature nor for the courts to judge between them, or brand the adherents of any particular belief as lunatics or incompetents.

It is true that if there be other circumstances fairly tending to show unsoundness of mind, or the exercise of undue control of one mind by another, all these peculiarities of life and conduct, religious or otherwise, will properly be a matter of inquiry, and may in some instances furnish legitimate support to a verdict or judgment against the validity of a will. But standing alone, the court thinks no case can be found in which it has been held that such peculiarities of the testator are sufficient to impeach his testamentary capacity or to establish a charge of undue influence. For instance, it is held that a belief in witchcraft or in the visits of ghosts does not invalidate a will. Nor is it sufficient to show that the testator's imagination was generally controlled by his belief in witches, devils and evil spirits which tormented him. Or that the testator was a firm believer in the transmigration of the souls of men after death into inferior animals, and that, influenced by such belief, left his property for a society for the prevention of cruelty to animals. Or that his ordinary conduct was more or less influenced by spiritual beliefs and manifestations. In Brown vs. Ward, 53 Md. 376, the testatrix consulted the spirit of her deceased brother, and in drawing her will agreed in accordance with instructions believed by her to have been so received, and it was held not sufficient to defeat the will so made. Belief in future rewards and punishments is not a test of soundness of mind. The belief by a testatrix that the spirit of her deceased husband is present with her is not an insane delusion which affects the validity of her will.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

August 10.

1 *Plain Truths About Syphilis. L. D. Bulkley, New York.
2 Differentiation of Black Pigment Found in Liver, Spleen and Kidneys from Foreign Deposits. F. Gaertner, Pittsburg, Pa.
3 Etiology and Treatment of Prostatic Concretions. J. M. Thompson, Boston.
4 *Ophthalmia of the Newborn. J. C. Edgar, New York.
5 *Sterility in the Male. F. R. Hagner and H. G. Fuller, Washington, D. C.

1. Plain Truths About Syphilis.—Bulkley states that syphilis is a much more prevalent disease than is generally supposed, and is not infrequent in good society in the city and country. He emphasizes the facts that it is not necessarily a venereal disease, and that innocently acquired syphilis is of common occurrence. He asserts that in its earlier stages too much care can not be exercised in order to prevent the infection of others, innocently or otherwise.

4.—This article is almost the same as that which appeared in The Journal, Aug. 3, 1907, page 411.

5. Sterility in the Male.—For the treatment of this condition Hagner and Fuller employ an operation for closure of the globus minor, by making an anastomosis between the globus major and the vas deferens, which was devised by Martin of Philadelphia.

New York Medical Journal.

August 10.

6 *The Urine in Pregnancy. J. C. Edgar, New York.
7 *Cerebral Localization of Aphasia. C. L. Dana, New York.
8 *Angioneurotic Edema. S. Loving, Columbus, Ohio.
9 *Hysteria. A. Gordon, Philadelphia.
10 Physiology and Pharmacology of the Ureter. D. R. Lucas, New York.
11 *Case of Addison's Disease in Child. D. Felberbaum and E. Fruchthandler, New York.
12 *An Unpleasant Experience with Ethyl Chlorid. J. T. Rugh, Philadelphia.
13 Mercuric Values in Treatment of Syphilis. W. F. Bernart, Chicago.

6. Urine of Pregnancy.—According to Edgar, the normal pregnancy urine must not be persistently small in quantity; the urea output must not be persistently low; it should not contain albumin, casts or excessive quantities of indican. Moreover, the total nitrogen should be presented by proper proportions of the nitrogen compounds. A number of cases are cited to illustrate the significance of any deviation from the points mentioned, and the treatment required.

7.—Abstracted in The Journal, May 18, 1907, page 1712.

8. **Angioneurotic Edema.**—Loving reviews the clinical history of this affection, and reports five cases.

9. **Hysteria.**—Gordon discusses the nature of hysteria, its medicolegal relation and the diagnostic significance of its motor, sensory and psychic manifestations.

11. **Addison's Disease.**—The authors report a case of Addison's disease, occurring in a little girl, 12 years of age. There was absence of some of the classical symptoms—the severe gastric disturbances, marked asthenia, and attacks of syncope—but the mode of termination proved the diagnosis of Addison's disease to be correct. A necropsy was not permitted. The authors also present an analytical study of 24 cases that have been reported in the literature. They draw attention to the fact that together with tuberculosis of the adrenals, the mesenteric lymph nodes are often found diseased. They deem this finding of significance in pointing out the source of infection through the intestines. Furthermore, death usually occurs under convulsions, as in their own case.

12. **Ethyl Chlorid Anesthesia.**—Rugh reports an unpleasant experience with ethyl chlorid. For obvious reasons this anesthetic was preferred to others, but the choice almost cost the patient his life. When surgical anesthesia was obtained there were clonic spasms of the legs and arms; respiration ceased, and the muscles of the jaws and neck were set in clonic spasm; cyanosis was marked; the eyes were fixed and staring, but the pupils remained contracted. The most vigorous attempts to restore respiration were successful after there had been an actual suspension of respiration for about three minutes.

Boston Medical and Surgical Journal.

August 8.

14 *Comparative Tests for Occult Blood in Gastric Contents and Feces. J. W. Dewis, Boston.
15 *Fermentation Specific Gravity Method of Estimating Sugar in Diabetic Urine. H. A. Christian, Boston.
16 Treatment of Fever Cases in Public Service. C. A. Drew, State Farm, Mass.
17 *Arteriovenous Anastomosis. J. C. Hubbard, Boston.
18 *Glottic Spasm of Nasal Origin in Adults. F. A. Conlon, Lawrence, Mass.

14. **Tests for Occult Blood.**—Dewis made an extensive research into the comparative value of the various tests employed for the detection of occult blood in the gastric contents and feces. He says that the benzidin test is by far the most delicate and also the most practical; a positive benzidin and a positive guaiac test must be considered as even more trustworthy than a positive benzidin test alone, and guaiac is a safer test than benzidin for stools when meat has not been excluded from the diet.

15. **Estimating Sugar in Diabetic Urine.**—Christian reviews briefly his results in testing diabetic urine for sugar by means of Fehling's method, the polariscopic method, and the fermentation specific gravity method. He thinks the last named is the simplest for the general practitioner because it requires no laboratory, and needs only a bit of yeast from the kitchen, and the urinometer or specific gravity bulb, which every physician has. Furthermore, it is a sufficiently accurate method for making a quantitative estimation of glucose in the urine to enable the practitioner to treat scientifically his cases of diabetes mellitus.

17. **Arteriovenous Anastomosis.**—Hubbard reports two cases, in which an arteriovenous anastomosis was made. For the history of one of these cases, previously published, see The Journal, Nov. 17, 1906, page 1683. The second case was that of a woman of 60 years, with senile gangrene of the foot and of a portion of the leg. The arteries were atheromatous. The femoral artery was invaginated into the femoral vein in Scarpa's triangle, and the distal end of the artery and the proximal end of the vein were ligated. There was no shock and no change in the appearance of the leg. The vein pulsated after the controlling clamps were removed. Ten days later it was necessary to amputate above the knee for the gangrene, which had been present before the operation. The anastomosis was cut down on and removed. The artery was found filled with a loose, easily detached clot. This case was, therefore, a distinct failure. Hubbard suggests that clot formation may be prevented by smearing vaselin or some other substance onto the cut end of the invaginated artery, or to cut the outer layers of the artery a quarter of an inch or so back of the intima, and thus leave a greater length of intima as a cuff, the back of which could be covered with vaselin, so that when invaginated into the vein it might stick to the venous wall and cover over the cut end of the outer portion of the artery.

18. **Glottic Spasm in Adults.**—Conlon reviews the clinical histories of 15 cases that have been reported in the literature and adds one personal case. The patient, female, aged 43, suffered from attacks of glottic spasm about two years, but did not seek relief until she had five or six attacks during 24 hours. Conlon cocainized and removed the anterior end of the middle turbinate, which cured the patient.

The Lancet-Clinic, Cincinnati.

August 10.

19 Typhoid Perforation with Operation. J. E. Greiwe, Cincinnati.
20 Multilocular Ovarian Cyst. A. H. Barkley, Lexington, Ky.
21 Hay Fever. E. S. McKee, Cincinnati.

Surgery, Gynecology and Obstetrics, Chicago.

July.

22 *The Teaching of Surgery. D. P. Allen, Cleveland, Ohio.
23 *Acquired Diverticulitis of Large Intestine. W. J. Mayo, L. B. Wilson and H. Z. Giffin, Rochester, Minn.
24 Continuous Passive Hyperemia in Delayed Union of Fractures. J. B. Roberts, Philadelphia.
25 *Aneurismal Varix. G. T. Vaughan, Washington, D. C.
26 *Rhinoplasty by Means of One of the Fingers. J. M. T. Finney, Baltimore, Md.
27 *Treatment of Posterior Capsule of Gland in Thyroidectomy. C. H. Mayo, Rochester, Minn.
28 *Case of Non-parasitic Cyst of Spleen. T. W. Huntington, San Francisco, Cal.
29 *End Results in Operation for Carcinoma of Breast. A. Vander Veer, Albany, N. Y.
30 Results of Operations for Carcinoma of Breast at Massachusetts General Hospital from 1894 to 1904. R. B. Greenough, C. C. Simmons and J. D. Barney, Boston.
31 *End Results in Operations for Carcinoma of Breast. A. F. Jonas, Omaha, Neb.
32 *End Results Following Operations for Carcinoma of Breast. W. Meyer, New York.
33 *End Results Following Operation for Carcinoma of Breast. F. S. Dennis, New York.
34 *Resection of Sound Femur in Gigantism and Asymmetry. R. W. Johnson, Baltimore.
35 *Brain Surgery. S. H. Weeks, Portland, Me.
36 *Diverticulum Ilei as Cause of Complete Intestinal Obstruction. F. H. Gerrish, Portland, Me.
37 *Prostatectomy. A. MacLaren, St. Paul, Minn.
38 *Congenital Dislocation of Hips. O. H. Allis, Philadelphia.
39 *Surgical Treatment of Cancer of Neck. G. Crile, Cleveland, Ohio.
40 *Desirability of Early Operations on the Nerves in Ischemic Paralysis. L. Freeman, Denver, Colo.
41 *Prolapse of Umbilical Cord. H. M. Stowe, Chicago.
42 Induction of Labor at Term. J. B. De Lee, Chicago.

22.—Abstracted in The Journal, June 1, 1907, page 1885.

23, 25, 27.—Abstracted in The Journal, June 8, 1907, page 1983.

26.—Abstracted in The Journal, June 1, 1907, page 1886.

28. **Cyst of Spleen.**—Huntington reports a case in which the symptoms strongly suggested a pancreatic cyst, although the early history of the case is more suggestive of splenic involvement. Over two gallons of dark-colored fluid were withdrawn from the cyst. The cyst wall was removed, and the operation was completed by excising the distal portion of the enormous cyst, puckering the cut margins with a purse-string suture, and finally marsupializing the remaining portion of the sac to secure external drainage. The subsequent history of the case was one of rapid and uninterrupted recovery.

29.—Abstracted in The Journal, June 22, 1907, page 2150.

31. **Cancer of Breast.**—Jonas' operative experience comprises 211 primary operations for cancer of the breast; 30 operations for local recurrences in his own cases, and 14 cases done primarily by other operators, totalling in all 255 cases. Out of this number there were 6 deaths, 2 from sepsis, 1 during a secondary operation, when a vein was punctured, admitting a large quantity of air, 1 due to an overdose of chloral, self-administered, and 1 from secondary hemorrhage on the thirteenth day. [The cause of death in the sixth case is not mentioned.—Ed.] Among 177 cases of primary operation that could be traced after three years there were 38 recurrences in one year, and 34 during the second year, leaving 105 cases without recurrence at the end of three years. All the recurring cases

finally ended fatally. All the operations were done in the radical way, and in a number of instances portions of one or several ribs were removed whenever there was the slightest indication of the neoplasm having approached the rib.

32.—Abstracted in The Journal, June 22, 1907, page 2149.

33. **Cancer of Breast.**—The study of the end results, after many years, of 50 selected cases, has shown Dennis the following important clinical facts: 1. Cancer of the breast is sometimes permanently cured, or at least 25 years have elapsed with no evidence of a return. 2. Patients may go as long as 18 years and yet finally have a return in some other organ. 3. In the cases in which no return has been observed, the operation was performed, almost without exception, within six months from the incipiency of the disease, thus showing the great importance of early operation. 4. The more radical the operation within reasonable limits, the better the prognosis. 5. In some cases, in which the outlook was most unfavorable, as manifested by extensive ulceration, hemorrhage and widespread axillary involvement, the end results have been entirely satisfactory.

34.—Abstracted in The Journal, June 1, 1907, page 1886.

35.—Abstracted in The Journal, June 15, 1907, page 2069.

36.—Abstracted in The Journal, June 8, 1907, page 1984.

37. **Prostatectomy.**—MacLaren favors the perineal route for removing the prostate.

38.—Abstracted in The Journal, June 8, 1907, page 1983.

39. **Carcinoma of Neck.**—Crile considers that the chances for final cure following operations for cancer of the neck compare favorably with those of cancer of the breast. He has done 150 operations on 135 patients. The immediate use of the Roentgen ray applied on the naked wound is considered useful, and the creation of a granulation tissue barrier across the base of the neck to protect the mediastinum from invasion is advised, and its efficacy emphasized.

40.—Abstracted in The Journal, June 15, 1907, page 2069.

41. **Prolapsus Funis.**—Stowe describes his method of relieving this condition, and reviews briefly 51 cases. He also reports 3 cases in which normal salt solution was injected into the uterine cavity to take the place of the liquor amnii.

American Journal of Obstetrics, New York.

August.

43 Conservative Ovarian Surgery. C. R. Hyde, Brooklyn.
44 *Cases of Puerperal Eclampsia. H. G. Partridge, Providence, R. I.
45 *Polycystic Lutein Degeneration of Ovaries. S. Wiener, New York.
46 Hyoscine Anesthesia in Obstetrics. G. F. Butler, Wilmette, Ill.
47 Sins of Omission and Sins of Commission in Gynecology. G. H. Balleray, Paterson, N. J.
48 Labor in Contracted Pelves. K. C. McIlwrath, Toronto.
49 Treatment of Puerperal Infection. G. H. Noble, Atlanta, Ga.
50 *Malformation of Uterus. J. Milligan, Jacksonville, Ill.
51 *Menstrual Arthritis. J. D. Morgan, Washington, D. C.
52 Imperforate Vagina and Absence of Anus. E. T. Hargrave, Norfolk, Va.

44. **Puerperal Eclampsia.**—Partridge reports 37 cases of puerperal eclampsia that occurred in 883 labors, or one case to each 23.8 cases. Twenty-five patients, or 67.5 per cent., were primipara, and 12, or 32.4 per cent., were multipara. The average was 27.2 years. Of the 37 mothers, 12 died, a mortality of 32.1 per cent. Of the 34 children, living *in utero* at entrance to hospital, 14 died, a mortality of 41.1 per cent. Three were macerated when delivered. In 19 cases, or 51.3 per cent., the convulsions ceased with delivery. In 4 cases they seemed to increase in severity. In the 12 fatal cases the average number of convulsions was 12. In the 25 non-fatal cases the average number was 4.6. Nearly every patient was delivered manually, as soon as possible after entrance.

45. **Polycystic Lutein Degeneration of Ovaries.**—Wiener discusses this degeneration of the ovaries, which thus far has always been a concomitant of hydatid mole and chorioepithelioma.

50. **Malformation of Uterus.**—The two cases reported by Milligan are one of uterus didelphys and one of bicornute uterus. In the latter case the division began at the internal os.

51. **Menstrual Arthritis.**—Morgan reports 4 cases of arthritis in which the joint lesion seemed to be strongly associated or dependent on the menstrual function. Two of these cases are referred to as cases of precocious menstruation, as one patient began menstruating when 11 years and 9 months old, and the other at 12 years and 5 months. The other two patients were aged respectively 18 and 25 years. In one of the cases, for five months periodically, these pains in the joints returned at the menstrual period, and were best governed by putting the patient to bed the day before the expected menses, encouraging the menstrual flow, and sometimes administering salicylates. With all of these patients, although they have improved greatly, and go for months without arthritic pain at the menses, Morgan has noticed that a scanty menstruation or the avoidance of going to bed the first day or two of the menstrual flow, will often bring about fever, pain and swelling of the joints.

Annals of Surgery, Philadelphia.

August.

53 *Avulsion of Spine of Tibia. J. H. Pringle, Glasgow, Scotland.
54 *Osteogenesis Imperfecta and Idiopathic Fragilitas Ossium. C. C. Simmons, Boston.
55 *Traumatic Epithelial Cysts. L. Buerger, New York.
56 Radiographic Findings of Syphilis of Bones. M. W. Ware, New York.
57 *Correction of Certain Forms of Saddle Nose. L. Freeman, Denver, Colo.
58 *Intussusception. J. D. Rushmore, Brooklyn.
59 *Operation in Two Stages for Relief of Ileus of Jejunum. E. F. Robinson, Kansas City, Mo.
60 *Cyst of Urachus. T. L. MacDonald, Washington, D. C.
61 Chronic Cystic Ureteritis. B. Stow, New York.
62 *Operation for Hypospadias. R. H. Russell, Melbourne, Australia.
63 A Male Pseudo-Hermaphrodite. J. S. Stone, Boston.
64 New Retractor to be Used in Suprapubic Cystotomy. G. Walker, Baltimore.
65 *Multiple Fractures. A. P. C. Ashhurst, Philadelphia.
66 Fractures of Head and Neck of Radius. T. T. Thomas, Philadelphia.
67 *Isolated Fracture of Great Trochanter. G. E. Armstrong, Montreal.
68 Postoperative Treatment. J. H. Gibbon, Philadelphia.

53. **Avulsion of Spine of Tibia.**—Pringle adds one case of this kind to three thus far recorded in the literature. The patient received a severe blow on the outer aspect of the left knee joint. The knee became swollen from effusion into the joint cavity. The injury was thought to be a rupture of the internal lateral ligament. On opening the knee joint it was seen that the anterior crucial ligament still attached to its bone insertion had been torn off the tibia, carrying the spine with it. With a little trouble this was sutured and the wound closed. The man made a good recovery, and the knee troubles him only a little, at times, when coming down stairs.

54. **Osteogenesis Imperfecta.**—Simmons reports two cases, one in a girl 3 years of age, and the other in an infant of 10 months. This second patient died of a chronic bronchitis. A careful study was made of both cases, in the first by means of the radiograph, and in the second at the autopsy, and the findings are recorded in full.

55. **Traumatic Epithelial Cysts.**—Three instances of traumatic epithelial cysts are recorded by Buerger. In the first case the cyst was situated on the palmar surface of the last phalanx of the left index finger. It was easily removed by grasping its protruding portion with the forceps and pulling it out of its bed in the tissues. The unusual feature observed in this case was the fact that the cyst was nowhere covered by normal epidermis, and was lying partly without and partly within the tissues. In the second case the cyst was located as in the first case. At its most prominent part it presented a tiny opening, through which a white granular substance could be expressed. The tumor was excised, and was found to be filled with white granular cheesy material. In the third case, one of chronic mastitis, the cyst was situated under the skin of the breast near the axillary fold; it was incised, and was found to be filled with thick mucoid pus. The wall of the abscess was composed of squamous epithelial cells ranged in a manner closely resembling the epithelium of the skin.

57. **Correction of Saddle Nose.**—A new method of operating has been devised by Freeman. A short incision is made across the root of the nose between the eyes. Through this the skin is undermined along the bridge to the tip, and also well down the sides, if the skin requires much stretching. After the pocket beneath the skin has been prepared, the concavity of

the nose will necessitate the insertion of the plate at such an angle that its end will catch in the tissues, thus preventing it from sliding into position. In order to obviate this Freeman perforates the tip of the nose with the point of a large darning needle. The needle is then reversed and its blunt end pushed upward subcutaneously, until it passes out through the incision. On top of this needle, as a guide, the plate is easily slid into place. The wound is closed with a subcuticular suture or a little cotton and collodion. There is said to be no tendency to gaping, and only an insignificant scar results.

58. **Intussusception.**—Rushmore reviews the incidence and clinical history of intussusception, which, he says, is another name for internal strangulated hernia, as observed by him in 227 cases. Of this number, 14 cases occurred in the small intestine, 17 in the large intestine, and the remainder combined. He emphasizes the fact that treatment ought to be surgical and practiced within the first 12 hours, like the treatment of any other form of strangulated hernia. Laparotomy and manual reduction offer the patient the best chance of recovery.

59. **Ileus of Jejunum.**—Robinson reports a case, which illustrates the difficulty of determining, even at operation, the exact cause of obstruction, and demonstrates the wisdom of immediate drainage of the bowel, with secondary resection in critical cases of acute ileus in which the integrity of the intestine is questionable.

60. **Cyst of Urachus.**—MacDonald's patient was 40 years of age, and gave a history of a slowly growing abdominal tumor, beginning in the region of the bladder and growing upward, with the gradual onset of pressure symptoms, especially difficult respiration, pain and impaired digestion. The sac was situated in front of the peritoneum, but was surrounded by very firm adhesions. These were broken up with great difficulty, and the cyst removed. In the wall of the cyst were a number of nodules which proved to be papillomata. An interesting feature in the case was the failure of the peritoneum to absorb a large amount of normal salt solution with which the abdominal cavity had been filled. On the seventh day after the operation the patient presented symptoms of sepsis. The lower end of the wound was opened, allowing the escape of quarts of the salt solution, which had become purulent, and which presented the colon bacillus characteristics. Drainage and irrigation was continued for a week, after which the wound closed, and convalescence and return to health were satisfactory.

62. **Operation for Hypospadias.**—Russell describes a modification of his original method of operation, for the treatment of hypospadias. This method consists of two operations. At the first operation the penis is released and straightened and the glandular portion of the urethra is formed, and lined with preputial skin. At the second operation the perineal and penile portions of the urethra are formed and closed, so as to complete the channel from the perineal opening to the glandular urethra. For this operation suprapubic drainage is employed. A year or more, he states, should be permitted to elapse between the two operations.

65. **Multiple Fractures.**—Ashhurst presents an analysis of 240 cases, and reports 6 cases of multiple fractures of the upper extremity.

67. **Fracture of Great Trochanter.**—Armstrong reports the case of a man who sustained an injury of the right thigh, just behind the great trochanter, which resulted in a fracture of this process. The fracture was diagnosed by the Roentgen ray, clinical evidence practically being absent, except for limitation in motion of the leg.

Albany Medical Annals.

August.

69 Physicians as Men of Letters. A. S. M. Chisholm, Bennington, Vt.
70 Therapeutic Value of Roentgen Ray. A. Holding, Albany, N. Y.
71 *Primary Carcinoma of Uvula. C. F. Theisen, Albany.
72 *Brace for Treatment of Flat or Weakened Conditions of Feet. J. M. Berry, Troy, N. Y.

71. **Primary Carcinoma of Uvula.**—Theisen's patient was 52 years old. Symptoms incident to a growth in the throat had been felt for three months. On examination the uvula was seen to be transformed into a somewhat nodular, firm tumor. The growth had not quite extended to the soft palate, nor was there any induration of the surrounding tissue. No enlarged glands could be felt anywhere in the neck. The growth was removed, including a small portion of the soft palate. Fourteen months after the operation there was not the slightest indication of a recurrence. A microscopic examination of the tumor disclosed a carcinoma.

72. **Brace for Treating Flat Foot.**—Berry has modified his original brace for treating flat or weak foot. After the foot is oiled with vaselin, an outline of the brace, including both the arch-supporting portion and the base piece, is drawn on the foot with a dermatographic pencil and a plaster mold made of the arch of the foot, including the heel. In making the mold the leg is flexed at the knee and the foot rests on a support with its internal surface upward. The foot rests in a shallow, open, rectangular box, one long side of which has been removed. The ball of the foot rests against the long side of the box and the bottom of the heel is held about an inch from the side of the box. The back of the heel, however, rests against one end of the box. The space between the foot and the side of the box is filled with plaster cream, and the plaster cream is spread up over the foot to include the arch and heel. The dermatographic pencil outline of the brace transfers to the mold. The mold is coated with vaselin; the dematographic outline freshened and a plaster casting made. The dermatographic outline again transfers and following this outline a drawing of the brace is made on the cast. By making use of the dermatographic pencil outline as above described no mistake can be made by either the surgeon or instrument maker as to the proper position on the cast over which to fit a brace. The arch is cut out higher or shaped up as desired and the cast sent to the instrument maker. The instrument maker constructs a brace fitting the cast and following the outline drawn on it. Both the arch-supporting portion and the base piece are made of galvanized steel; the weight and strength of the steel depending on the weight of the individual for whom the brace is made.

Denver Medical Times.

August.

73 *Double Inguinal Hernia. J. Boice, Denver, Colo.
74 Impacted Tooth in Maxillary Sinus. T. E. Carmody, Denver, Colo.
75 Reflexes and Anesthetics. C. G. Parsons, Denver.
76 *Venesection in Pneumonia. V. Thompson, Englewood, Colo.
77 Double Infection—Scarlet Fever and Measles. T. S. Fantz, Denver.
78 Diarrheal Disorders. R. J. Smith, Schenectady, N. Y.
79 Laboratory Diagnosis for Practitioner. J. C. Todd, Denver.

73. **Double Inguinal Hernia.**—In the case reported by Boice the sac on one side contained omentum, and that on the other contained the ascending colon, cecum and appendix, with a small portion of the ileum. The operation proved successful.

76. **Venesection in Pneumonia.**—In a typical case of lobar pneumonia Thompson opened the median basilic vein and allowed the patient to bleed until he complained of faintness. The effect was immediately noticeable on the pulse and general condition of the patient. On the third day after the initial chill the temperature dropped to 100 F.; on the fourth day the patient got out of bed, and on the eighth day he drove six miles to the doctor's office and was discharged.

Utah Medical Journal, Denver, Colo.

August.

80 *Need of Earlier Diagnosis. J. N. Hall, Denver.
81 Case of Lipoma of Spinal Cord. E. F. Root, Salt Lake City.

80.—This article also appeared in the *Medical Record*, Aug. 3, 1907.

The Northwestern Lancet, Minneapolis.

July 1.

82 Public Care and Treatment of Insane. O. Copp, Boston, Mass.
83 Artificial Congestive Hyperemia, after Professor Bier. H. A. H. Bouman, Minneapolis.
84 Clinical Symptoms and Diagnosis of Diphtheria. E. K. Green, Minneapolis.
85 Fractures. A. E. Hedback, Minneapolis.
86 Pneumodiplococcic Infection of a Clean Wound. J. H. Beaty, St. Cloud.

July 15.

87 President's Address of South Dakota State Med. Assn. E. T. Ramsey, Clark, S. D.
88 Diagnosis and Treatment of Gastric Ulcer. J. W. Bell, Minneapolis

August 1.

89 Infection of Uterus. G. C. Barton, Minneapolis.
90 Hospitals for Acute and Removable Insane. A. M. Barrett, Ann Arbor, Mich.
91 What Should the Practitioner Read? C. E. McCauley, Aberdeen, S. D.
92 *Cretinism or Infantile Myxedema. W. Edwards, Bowdle, S. D.
93 Medical Expert Witness. T. L. Hatch, Owatonna, Minn.
94 *Rupture of Liver with Recovery. W. H. Aurand, Minneapolis.
95 *Double Congenital Anterior Subluxation of Knees. E. S. Geist, Minneapolis.

92. **Cretinism.**—Edwards reports the case of a girl, a cretin, 8 years old, who showed great improvement in her physical condition after ten months of irregular thyroid treatment. During the first four months of treatment the patient grew four inches. She did not, however, make any very great progress intellectually.

94. **Rupture of Liver.**—Aurand reports the case of a man who sustained a rupture of the liver following a severe fall on the abdomen. Three days after the injury the abdomen had become so distended with fluid that a laparotomy was done. The abdomen was full of dark blood, and a band of adhesions was found around the cecum, which caused a total obstruction of the bowel, which set in after the injury. The rupture in the liver was large enough to contain the hand of the operator. The abdomen was washed out with normal saline solution, after the adhesions were removed, and the wound was closed without drainage. In spite of a localized suppurative peritonitis the patient eventually recovered.

95. **Double Congenital Anterior Subluxation of the Knees.**—In the case reported by Geist, an infant, 10 months old, there was present at birth hyperextension with total impossibility of flexion at the knees, and extreme pes equinus. When the patient was first seen, the knees were held in an extended position and could be flexed only slightly, without causing pain. A certain degree of hyperextension could be produced passively. There was little range of active motion. Geist believes that the cause of the condition in this case was the abnormal position of the fetus *in utero*, together with the increase of intra-abdominal pressure. So far nothing has been done to correct the deformity.

The Military Surgeon, Carlisle, Pa.

July.

96 Training of Medical Officer of State Forces Best to Qualify Him for Local Service and for Mobilization with National Troops. J. E. Pilcher, Carlisle, Pa.
97 French Impressions of the Surgery of the Russo-Japanese War. C. S. Butler, Mass. Volunteer Militia.
98 Work of Army Board for Study of Tropical Diseases in the Philippines. P. M. Ashburn and C. F. Craig, U. S. Army.
99 Epidemic of Cerebrospinal Meningitis at the U. S. Naval Training Station at Newport, R. I. N. J. Blackwood, U. S. Navy, and others.
100 Treatment and Prevention of Surgical Shock. J. L. Medina, Nicaragua.
101 Case of Traumatic Displacement of Right Kidney with Rupture of Right Lower Lobe of Liver. M. W. Houghton, U. S. P. H. and M.-H. S.

August.

102 Splenic Abscess as Complication of Grave Malarial Infection. W. H. Bell, U. S. Navy.
103 Wounds of Colon Treated without Operation. P. R. Egan, U. S. Army.
104 Epidemic of Cerebrospinal Meningitis Occurring at U. S. Naval Training Station at Newport, R. I. N. J. Blackwood, M. S. Guest, J. H. Iden and J. L. Neilson, U. S. Navy.
105 *Use of Amyl Nitrite for Control of Hemorrhage in Bullet Wounds of Lung. E. A. Sweet, U. S. P. H. and M.-H. S.
106 Mexican Model of Military Medicine Chest. A. Ross, Mexican Army.
107 Infantile Scorbutus. W. P. Chamberlain, U. S. Army.
108 Service of Michigan National Guard in Mobilization at Fort Benjamin Harrison. J. F. Henkel, Mich. N. G.
109 Tropical Diseases in Philippines. P. M. Ashburn and C. F. Craig, U. S. Army.

105. **Amyl Nitrite to Control Pulmonary Hemorrhage.**—Sweet records excellent results following the use of amyl nitrite in cases of hemorrhage following bullet wounds of the lungs. Use is made of the 5-minim pearls. The administration is the same as in cases of asthma or angina pectoris. When it is desired to maintain the effect, Sweet administers nitroglycerin and sodium nitrite in small and oft-repeated doses.

American Medicine, Philadelphia.

July.

110 Relation of Incorrect and Correct Refraction to Systemic Diseases. G. M. Gould, Philadelphia.
111 *Transvesical Operation for Relief of Prostatism in the Aged. C. E. Bowers, Wichita, Kan.
112 Inflammation of Air Passages within Lung. W. H. Birchmore, Brooklyn.
113 Formation of Fat Globule of Milk. H. B. Wood, Philadelphia.
114 *Lorenz Operation for Bloodless Reduction of Congenital Hip Dislocation. W. G. Stern, Cleveland, O.
115 Scirrhus Cancer Simulating Hypertrophic Stenosis of Pylorus. F. H. Murdoch, Pittsburg, Pa.

111. **Transvesical Operation for Prostatism.**—In twelve consecutive cases of senile prostatism, in which an operation was done by Bowers, there was relief of prostatic symptoms, ability to empty the bladder by urethra without pain, and the termination of the cystitis, without mortality or sequels. Bowers emphasizes first, that prostatism is due to other causes than hypertrophy of the prostate gland; second, that the transvesical operation for prostatism has attained a sufficient degree of perfection to be recommended to this class of pitiable sufferers, with the assurance of a cure if availed of before the inflammatory process has reached the kidney and arrested its functional activity; third, that these patients should not be submitted to catheterism in the future as they have in the past, until it is hopeless to interfere surgically.

114. **Lorenz Operation in Congenital Hip Dislocation.**—Stern commends very highly the Lorenz operation for the bloodless reduction of congenital hip dislocation. He has made use of the method in 12 cases, with 6 anatomic cures, 1 perfect functional result, 3 good functional results, and transposition with good function, and 1 failure.

Wisconsin Medical Journal, Milwaukee.

July.

116 Psychotherapy. F. C. Studley, Milwaukee.
117 *Prolapse of Umbilical Cord. J. H. Sure, Milwaukee.
118 Professional Fellowship. F. W. Epley, New Richmond, Wis.
119 Breech Presentation. G. A. Hipke, Milwaukee.

117. **Prolapse of Umbilical Cord.**—Sure reports four cases with a fetal mortality of 50 per cent. None of the mothers died. They were all multipara, and in each case previous labors had been normal. Sure presents a very complete review of the literature on this subject, and recommends the following method of procedure in individual cases: In absence of signs of compression, transverse presentation or incomplete dilatation, wait for sufficient dilatation, and when considered sufficient, turn and extract immediately. If compression occurs during this period, turn, replace the cord, bring down one foot and do not extract until dilatation is complete. The reposition should be done after the version. When the breech is brought over the inlet, replace the cord and engage the breech thus blocking its way. Reposition as the operation of election is useless, for the prolapse will recur.

Interstate Medical Journal, St. Louis.

August.

120 A Medical Career and the Intellectual Life. C. A. Wood, Chicago.
121 *Statistical Study of Relation between Height of Longitudinal Arch and Functions of Foot. P. Hoffmann, St. Louis.
122 Two Cases of Infection with a Gas-Forming Bacillus; Recovery. R. C. Loving, U. S. Army.

121. **Relation Between Height of Longitudinal Arch and Functions of Foot.**—While examining the feet of primitive peoples the great variety of impression records obtained from feet that were functionally normal led Hoffmann to study statistically the question of relation between the height of the longitudinal arch and the usefulness of the foot. His findings are contained in the following summary: 1. There is no one type of arch that is normal. 2. Contrary to common opinion and teaching, the height and shape of the longitudinal arch are of no value in estimating the strength or usefulness of the foot. 3. Normal feet present high, medium and low arches in nearly the same proportions as do feet with weakened arches. 4. Weakness of the longitudinal arch rarely results in its depression, and flat foot as a pathologic entity is not common. 5. The impression records of the longitudinal arch, commonly made by surgeons, are of no value in the diagnosis of arch strain or weakness, so-called flat foot, whose symptoms are dependent on a weakened arch and not on its lowness except in so far as this lowness is a transition from an original higher condition with concomitant change in the relationship of the tarsal bones, which transition occurs by far less often than is generally believed.

Journal Missouri State Medical Association, St. Louis.

August.

123 *Surgical Treatment of Enlarged Prostate. C. E. Fulton, Springfield, Mo.
124 *Prostatectomy. C. F. Roberts, Kansas City, Mo.
125 Forms of Scabies as Seen in Private Practice. W. Frick, Kansas City, Mo.
126 The Medical Profession and the Law. B. B. Cahoon, Sr., Fredericktown, Mo.
127 Mastoiditis with Pyuria and Intermittent Heart Beat. J. S. Wever, Kansas City, Mo.

123. **Surgery of Prostate.**—Fulton emphasizes the advantage of prostatectomy over what he terms the slipshod habit of providing the prostatic with a catheter to be used by himself at his own pleasure.

124. **Id.**—Roberts commends the perineal route as being vastly superior to the suprapubic, because the former provides a natural drainage.

American Quarterly of Roentgenology, Pittsburg.

No. 3.

128 Standardization of Radiations. C. E. S. Phillips, London, England.
129 *Estimation of Roentgen Dosage. H. G. Piffard, New York.
130 *New Direct Reading Roentgen Ray Meter. G. C. Johnson, Pittsburg, Pa.
131 Résumé of Radiometric Dosage of Roentgen Therapy. M. K. Kassabian, Philadelphia.
132 Advantages of Use of Roentgen Ray Filters in Radiotherapeutics. R. Morton, London.
133 *Changes Produced in Kidneys by Roentgen Irradiation. A. S. Warthin, Ann Arbor, Mich.
134 *The Roentgen Ray in Diseases of Blood and Blood-Forming Organs. H. K. Pancoast, Philadelphia.
135 Present Status of Roentgen Therapy. G. H. Stover, Denver, Colo.

129, 130.—Abstracted in THE JOURNAL, Sept. 15, 1906, page 888.

133, 134.—Abstracted in THE JOURNAL, Sept. 15, 1906, page 889.

West Virginia Medical Journal, Wheeling.

July.

136 President's Address, West Virginia State Med. Assn. W. W. Golden, Elkins, W. Va.
137 Ten Years' Experience in Obstetrics. C. B. Williams, Philippi, W. Va.
138 Amebic Dysentery in Sailors at Port of New York. J. A. Nydegger, U. S. P. H. and M.-H. S.

Iowa Medical Journal, Des Moines.

July.

139 Medical Jurisprudence. A. P. Olsen, Leon, Iowa.

Maryland Medical Journal Baltimore.

July.

140 The Logical Basis of Neurasthenia. A. K. Bond, Baltimore, Md.
141 Dislocation of a Cartilage Ring of Trachea Causing Loss of Voice. S. B. Muncaster, Washington, D. C.

Journal of the Michigan State Medical Society, Detroit.

July.

142 *Methods of Diagnosis. J. B. Herrick, Chicago.
143 *Use of Bacterial Vaccines in Surgery. W. H. Hutchings, Detroit.
144 Therapeutic Bacterial Inoculation With and Without the Opsonic Index as a Guide. A. P. Ohlmacher, Detroit.
145 Examination of the Insane. J. F. Canavan, Traverse City.
146 Résumé of Some Accomplishments of the Michigan State Board for 1906. B. D. Harison, Detroit.
147 Examination of Patients Suffering from Stomach Disorders. H. Van den Berg, Grand Rapids.
148 *Empyema. R. Y. Ferguson, Pontiac.

142.—Abstracted in THE JOURNAL, July 6, 1907, page 71.

143.—Abstracted in THE JOURNAL, July 13, 1907, page 178.

148.—Abstracted in THE JOURNAL, April 13, 1907, page 1292.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

July 27.

1 Outbreak of Epidemic Cerebrospinal Meningitis. W. Robertson.
2 *Ocular Symptoms in Cerebrospinal Meningitis. A. J. Ballantyne.
3 Infective Cyclitis in Relation to Penetrating Wounds of Eyeball. P. Dunn.
4 Medicine in Ancient Greece. G. Lorimer.
5 *Abnormal Fat Assimilation Associated with Diseases of Intestine. O. T. Williams.
6 *Etiology and Pathologic Histology of Beriberi. R. T. Hewlett and W. E. Korté.
7 *Arthritis and Erythema Nodosum. J. O. Symes.
8 *Interstitial Pancreatitis in Relation to Sprue. A. W. M. Robson.
9 *Hypertrophic Cirrhosis of Liver in Infant. H. S. Willson.
10 *Poisoning by Bromoform. M. Benson.
11 Cases Treated by Bacterial Vaccines. M. L. B. Rodd.

2. **Ocular Symptoms in Cerebrospinal Meningitis.**—Ballantyne investigated the condition of the eyes in 73 cases of cerebrospinal meningitis, including patients in all stages of the disease. Eye symptoms of any kind were absent only in four cases, two of these patients being convalescent. Abnormalities of the palpebral fissures were noted in 17 cases; retraction of the eyelids in 15 cases; acute catarrhal conjunctivitis in 13 cases; corneal ulcer in one case; inequality of the pupils in 18 cases; strabismus in 15 cases. Ballantyne says that, perhaps, the most striking feature was the great variations in the symptoms in the same patient from day to day, and even in the course of a single examination. No evidence of iritis, cyclitis or chorioiditis was found in any of the cases. Among other symptoms noted were blepharospasm, changes in the pupil reflexes, optic neuritis, conjunctival hemorrhages, and faulty muscle action. As to the bearing of these symptoms on prognosis, Ballantyne expresses the opinion that retraction of the eyelids, corneal complications, absence of the pupil reflexes, true nystagmus, lid winking, combined with jerky movements of the eyes, and optic neuritis are among the symptoms of graver significance.

5. **Abnormal Fat Assimilation.**—The observations recorded by Williams tend to show that there are conditions in the intestines, in which certain soaps or other insoluble compounds of fatty acids are not absorbed by the intestinal mucous membrane, and that with the presence of these conditions, certain diseases of the alimentary tract are related. The analyses given show that true intestinal sand, appendix concretions, and some bodies formed in the intestine are largely formed of fats and soaps. Williams believes that the constitution of these bodies and their relation to each other in chemical constitution throws much light on the etiology of appendicitis and mucous colitis, and possibly on the underlying factors in certain diseases acompanied by colic.

6. **Beriberi.**—Hewlett and De Korté suggest that beriberi is a protozoan infection, that the infecting agent is eliminated in the urine, and that the urine is the source of infection.

7. **Arthritis and Erythema Nodosum.**—Symes says that in a large proportion of cases of erythema nodosum it is difficult to recognize any rheumatic taint, and that even when arthritis is present, it may differ very remarkably from that found in acute rheumatic fever. His experience has been that the signs or a history of chorea, endocarditis or arthritis, are not found in more than 10 per cent. of all cases of erythema nodosum.

8. **Pancreatitis and Sprue.**—Robson thinks that it is highly probable that some of the cases diagnosed as sprue owe their origin to inflammatory disturbance of the pancreas, and that in other cases the pancreatic disease forms an important complication requiring treatment.

9. **Cirrhosis of Liver.**—Willson records a case of congenital syphilitic cirrhosis of the liver, which proved fatal to a child three months old. He believes that the changes in the liver probably commenced during intrauterine life. The liver is said to have been of enormous size, but unfortunately was not weighed.

10. **Bromoform Poisoning.**—In the case reported by Benson, the bromoform was administered to a child ill with whooping-cough. The maximum dose was one minim. The author fails to mention the number of doses given, but cautions against the use of the drug.

The Lancet, London.

July 27.

12 Plague. W. J. R. Simpson.
13 General Surgical Anesthesia. F. W. Hewitt.
14 *Carriage of Infection by Flies. R. M. Buchanan.
15 *New Microscopic Diagnostic Method and Simple Methods for Staining Liquid Blood. R. Ross, J. E. Slavin-Moore and C. E. Walker.
16 *Case of Cerebrospinal Meningitis. C. Rundle, J. C. Mottram, R. S. Williams. J. Orr. A. E. Williams.
17 Study of Conditions Producing Anomalous Reaction in Testing Urine for Sugar with Fehling's Solution. (To be continued.) F. W. Pavy.

18 Cerebral Meningitis During Pregnancy. J. D. Williamson.
19 Treatment of Trypanosomiasis. A. Nierenstein.
20 *Cerebral Hyperemia as Factor in Therapeutic Action of Lumbar Puncture. F. C. Eve.

14. **Carriage of Infection by Flies.**—Buchanan records experiments in demonstration of the part which the common house fly and the blue-bottle fly are capable of playing as agents in carrying and spreading infection. The diseases which were made the subject of experiments were typhoid, swine fever, staphylococcal abscess, pulmonary tuberculosis and anthrax. The experiments showed that flies alighting on any substance containing pathogenic germs are capable of carrying away these organisms in large numbers on their feet and of depositing them in gradually diminishing numbers on surface after surface with which they come in contact. They further demonstrate the necessity of the exercise of stringent measures to prevent the access of flies to all sources of infection and to protect food of all kinds against flies alighting on it.

15. **New Microscopic Diagnostic Method.**—The authors of this communication, Ross, Moore and Walker, again call attention to certain strings of granules called by them chromolinin granulations, which can be found by means of appropriate staining in some of the red corpuscles in health and disease. They infer that an excessive percentage of corpuscles with the granulation is indicative of the discharge of the red corpuscles into the blood stream at an earlier stage in their development than usual, due probably to processes of blood construction and regeneration. In health these granulations occur in about 1 per cent. of the corpuscles. In a case of tropical abscess of the liver they were found in 6.6 per cent.; in a case of chronic malarial anemia in 11.5 per cent., while in ankylostomiasis, kala azar and rats with trypanosomes and spirochetes, they were detected very frequently. The stain used is a polychrome saturated solution of methylene blue, in 0.5 per cent. salt solution.

16. **Cerebrospinal Meningitis.**—Rundle, Mottram and Williams report a case of cerebrospinal meningitis from which the specific organism was isolated, and the patient treated successfully with a vaccine made from cultures of the germ in sterile normal saline solution.

20. **Cerebral Hyperemia and Lumbar Puncture.**—Eve considers it justifiable to try lumbar puncture in a variety of acute or subacute cerebral affections, which have resisted other treatment or are tending to become chronic. He states, however, that it should not be tried until other remedies have failed.

Journal of Tropical Medicine and Hygiene, London.

July 15.

21 Plague. W. J. Simpson.
22 Psycho-physical Aspects of Climate. F. Pearse.

International Medical Journal of Australasia, Melbourne.

June 20.

23 *The Cecum and Vermiform Appendix. R. J. A. Berry.
24 *Acute Appendicitis in Childhood. F. H. Cole.
25 *Gastrectomy for Carcinoma of the Stomach. G. A. Syme.
26 *Case of Podalgia. F. Bird and J. Smith.
27 Classification of Disease and Causes of Death. G. H. Knibbs.

23. **Cecum and Vermiform Appendix.**—Berry discusses the embryology and anatomy of these two structures as they are understood at the present time.

24. **Acute Appendicitis in Childhood.**—Cole discusses the clinical history of acute appendicitis in children. He says that aperients are to be avoided even though constipation exists after improper feeding, and that every case should be deemed surgical ,with a view to operation, immediate or deferred. Waiting, he says, is permissible only for the purpose of securing an improved condition of the patient. Operation should be done within twenty-four hours, if the diagnosis is absolute, and should be done in every case after one attack.

25. **Gastrectomy for Carcinoma of the Stomach.**—Syme is satisfied that if cases of cancer of the stomach came to operation early the recurrence would be delayed. He believes that as much as possible of the stomach should be removed, even beyond the Hartmann-Mikulicz line. He reports five cases.

26. **Podalgia.**—Bird and Smith report four cases of podalgia, in which they refer the pain to spicular osseous prolongations from the hinder end of the os calcis which were present in each case. All other causes for the affection could be ruled out. The symptoms were the same in all the cases: Pain in the heel of slow onset and of gradually increasing severity, referred to the hinder end of the os calcis, with severer paroxysms radiating to the rest of the foot. The spikes of bone were removed through a small lateral incision, parallel to the border of the sole and carried down to the calcaneal tuberosity. The patients remained in bed for a few days and then resumed their ordinary duties.

Clinical Journal, London.

July 3.

28 Injuries to Superficies of the Eye. N. B. Harman.

Presse Médicale, Paris.

29 (XV, Nos. 41-43, pp. 329-352.) *Sero-reaction in Syphilis. (Séro-réaction de la syphilis.) C. Levaditi.
30 *Puncture Better than Scarification for Revaccination. (Piqure ou grattage?) Saint-Yves Ménard.
31 Appendicular Dyspepsia. (Dyspepsie app.) J. Foucaud and L. Salignat.
32 Case of Perforation of Epigastric Artery in Abdominal Paracentesis. (Perforation de l'art. epigastrique.) C. Lian.
33 *Palliative Surgical Treatment of Cancer of Cervix. (Castration ovarienne; ligature des hypogastriques; curage du col.) F. Jayle.
34 *Congenital. Cardiovascular Affections in Inherited Syphilis. (Affections cardiovasc. cong. héré.-syph.) L. Landouzy and Laederich.

29. **Sero-Reaction of Syphilis.**—Levaditi reviews what has been accomplished with the hemolytic blood test and its history, adding that the method is too complicated for general use and that efforts should be directed now toward simplification of the technic.

30. **Puncture or Scarification in Revaccination.**—Ménard advocates a prick or pricks rather than scratches in revaccinations. Inflammatory phenomena are too liable to accompany the scarification, as the vaccinal reaction is needlessly intense and extensive in this case. When the vaccine is just pricked in, the reaction is reduced to the minimum and complications are avoided.

33. **Palliative Treatment of Cancer of the Uterine Cervix.**—Jayle points out that in women who are still menstruating a cancer generally runs a more rapid course. For this reason he advises removal of both ovaries. In addition, to reduce the flow of blood to the neoplasm he applies a double ligature to both of the hypogastric arteries, leaving a space of about 1 cm. between the ligatures. All this is easily done when the abdomen is opened and the growth found inoperable. If the surface of the growth indicates it, he curettes away the epitheliomatous vegetations and cauterizes with the actual cautery.

34.—See summary in The Journal, July 6, 1907, page 91.

Revue de Chirurgie, Paris.

35 (XXVII, No. 5, pp. 713-896.) *Persistent Priapism. (Priapisme prolongé.) F. Terrier and C. Dujarier.
36 *Ruptures of Lung without Fracture of Ribs. (Ruptures du poumon sans fractures de côte.) A. Schwartz and P. Dreyfus.
37 *Perineal Extirpation of Cancers of Anus and Rectum. (Extirpation périnéale.) X. Delore and A. Chalier.
38 *Treatment of Glandular Cysts of Pancreas. (Kystes gland. du pancréas.) P. Hardouin.

35. **Persistent Priapism.**—Terrier and Dujarier give the details of a case of idiopathic persistent priapism and summarize 48 cases of this condition found in the literature. In 16 of the 48 cases the condition was referable to leukemia; in 2 to a fall on the perineum or kick from a horse, and in 20 no cause could be discovered. The postmortem findings in 4 cases and the findings during operations in 10 others are reviewed. Good results were obtained in 3 out of the 10 cases treated by incision of one or both corpora cavernosa. Unfortunately, conditions in the parts favor infection. In 2 cases the colon bacillus was found in the blood at the first incision. In the case described there was suppuration, and part of the right corpus cavernosum was thrown off in an eschar, after which healing proceeded rapidly, with no recurrence of the priapism.

36. **Ruptures of Lung Without Fracture of Ribs.**—Schwarz and Dreyfus report a case in which a young teamster was run over by his wagon, the wheel passing over the chest from the left side. No trace of fracture could be discovered, but the patient complained of intense pain in his chest, and there

was considerable cyanosis and blood-stained expectoration. A large subcutaneous emphysema developed soon after the accident, starting at the base of the neck, with hemo-pneumothorax. Autopsy two days later revealed numerous small tears in the lungs without any considerable hemorrhage. Twenty-nine cases of similar contusion of the lung without fracture of ribs are on record. The elasticity of the chest walls in youth explains the absence of fractures, but the costal cartilages may be dislocated as was noticed in the case reported. The prognosis is always grave, although recoveries have been observed. Death occurs from asphyxia or hemorrhage or from infectious complications. Pneumonia is favored by the accumulation of blood and even after healing a place of lesser resistance is left, predisposing to tuberculosis. Emphysema, starting in the neck, is an important differentiating sign. Treatment is symptomatic, puncture or pleurotomy should be avoided if possible as liable to be followed by infection. In one case on record, the pleura was opened after resection of the fifth rib, but no rupture was found. A large stiff drain was left in the wound, the outer end being inserted in a soft depressible tube. The air emerged through the drain during expiration, but did not enter during inspiration, as the outer tube collapsed. This patient recovered. The authors state that no attempt should be made to suture the wound in the lung unless to arrest fulminating hemorrhage. Under other circumstances repose and one or more punctures will suffice. Richter sutured the lung in his case, but the patient died in two days.

37. **Removal Through Perineum of Cancers of Rectum and Anus.**—Delore and Chalier relate the particulars of 19 cases in which they performed this operation. All but 5 of the patients were women, and all but one were over 50. The patient lies on his back, the hips projecting beyond the edge of the table. The thighs are held by assistants, flexed on the pelvis in such a way that the anus protrudes and points upward. It is sutured together and an incision is made encircling the anus, with a lengthwise median extension below and above, the latter incision extending to the coccyx. The coccyx is resected at its base and the entire rectum, with its sheath and ganglia, is extirpated in a single piece. The resection of the coccyx facilitates the detachment of the rectum, which is commenced at the back, and thus better insight over the conditions is obtained. One of the patients thus operated on eight years ago is still in good health, and another, who succumbed to intercurrent tuberculosis a year and a half after the operation, showed no signs of recurrence. One patient operated on four years ago is in good health to date, and is free from incontinence. Two patients succumbed soon after the operation, one to acute peritonitis when all seemed to be doing well, and another in collapse after a comparatively simple operation. The ultimate outcome is not known in five cases, but in none of the others has there been recurrence. The details of the various cases are given, with a summary in tabulated form for comparison.

38. **Treatment of Glandular Cysts of the Pancreas.**—Hardouin diagnosed a fluid tumor behind the stomach, probably in the pancreas or lower part of the liver. Through a median laparotomy the tumor was punctured and two liters of a turbid, greenish-brown fluid were evacuated. The cyst was then incised and sponged dry, but it could not be removed, as it was adherent to the stomach and adjacent structures. An incision, 15 cm. long, was then made in the lumbar region, and two large drains were introduced into the cyst, after which the abdominal wound was sutured. The lumbar fistula healed completely in three months, and the patient, a farmer of 48, has been in good health since. There was a history of contusion a few months before the tumor was first noticed, and traumatism was also mentioned in 17 out of 94 cases on record. The fluid obtained from the cyst was evidently of pancreatic origin. Lumbar drainage should be the rule, Hardouin thinks, in all cases of pancreatic cysts, for obvious reasons. He appends the bibliography for the last six years.

Dermatologische Zeitschrift, Berlin.

39 (XIV, No. 2, pp. 67-130.) Relations of Pale Spirochete to Skin Pigment in Syphilitic Efflorescences. (Beziehungen der Sp. pall. zum Hautpigment.) B. Lipschütz.
40 Spirochetal Affections. (Spirochaetenerkrankungen.) G. Scherber.
41 Histology of Verrucous Lichen Ruber. (Lichen rub. verr.) M. E. Polano.
42 (No. 3, pp. 131-196.) *How to Make Colored Wax Casts. (Farbige Wachsabdrucke.) G. T. Photinos.
43 Five Cases of Paraurethral Suppuration in Women. (Paraurethrale Eiterung.) O. O. Fellner.
44 (No. 4, pp. 197-262.) *New Infection of Persons with Inherited Syphilis and Reinfection in General. (Neuinfektion Hereditärsyphilitiker und Reinfektion.) C. Stern.
45 Three Cases of Psoriasis in Infants. (Psor. vulg. bei Säuglingen.) A. Friederichs.
46 (No. 5, pp. 263-328.) A Vacciniform Skin Eruption. (Hydroa vacc.—Bazin.) M. Wolters.

42. **Wax Casts of Dermatologic Specimens.**—Photinos took a course of training in making casts under Lassar's modeler, and has since been making a collection which now amounts to 150 casts. The modeler at the Saint-Louis Hospital in Paris keeps the composition of his wax a secret, but at Berlin a mixture of wax, ceresin and paraffin is used. Photinos expatiates on the invaluable assistance of a collection of such casts for the practitioner and specialist, and then gives minute directions how to make the wax casts and paint them.

44. **New Infection of Persons with Inherited and Acquired Syphilis.**—Stern's patient was a man of 28 who had a primary syphilitic sore with numerous pale spirochetes, differing in no respect from an ordinary primary infection with syphilis; and yet the man presented the unmistakable signs of inherited syphilis or syphilis acquired in early infancy, with tertiary phenomena. This makes the ninth case on record, Stern remarks, in which persons with syphilis in infancy, either inherited or acquired during the first weeks of life, acquired a fresh infection in early adult life. He summarizes 80 cases of reinfection in cases of acquired syphilis, and draws the conclusion that the reinfection in many instances is conclusive testimony to the complete cure of the primary infection. He emphasizes the necessity for teaching patients this, so that those who have had syphilis in the past may guard against contracting it anew instead of considering themselves immune. His experience also indicates that a strong, resistant organism may pass through syphilis with the organs comparatively intact and escape the dreaded consequences. The pessimistic idea that a person once infected is always infected and immune to future infection should be combated, he declares, for numerous and obvious reasons.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

47 (XXXIII, No. 24, pp. 953-992.) *Malingering and Its Detection in Internal Medicine. (Krankheitssimulation und dissimulation und ihre Entlarvung in der inneren Medizin.) Rumpf.
48 *Detection of Simulation in Mental Affections. (Entlarvung von Simulation bei Geisteskranken.) M. Köppen.
49 *Detection of Malingering in Industrial Accident Surgery. (Simulation und ihre Entlarvung in der Unfallchirurgie.) G. Ledderhose.
50 *Detection of Malingering in Eye Affections. (Augenleiden.) Groenouw.
51 *Detection of Malingering in Ear Affections. (Ohrkrankheiten.) Stenger.
52 *Malingering Among Soldiers. (Simulation beim Militär.) Schill.

47 to 52. **Malingering.**—The German legislation for compulsory insurance against old age, industrial accidents and sicknes has led to simulation of various affections by the insured in many instances or to malingering in other ways to obtain the sick benefit or indemnity. This number of the *Deutsche med. Wochenschrift* is almost entirely devoted to the subject, treated from the standpoint of various specialties.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

53 (LXXXVII, Nos. 1-3, pp. 1-32 312.) *Treatment of Injuries of Radial Nerve. (Verletzungen des N. radialis.) Borchard.
54 Hydro-pyo-nephroses and Renal Calculi. (Beiträge zur Nierenchirurgie.) H. Doering.
55 Traumatic Ruptures of Liver with Expulsion Later of Large Sequesters of Liver Substance. (Leberrupturen.) J. Fertig.
56 Pathology of Alveolar Echinococcus. (Alveolarechinococcus.) A. Jenckel.
57 Exposure of Central Part of Middle Cranial Fossa and Hypophysis. (Freilegung der Schädelgrube, etc.) W. Braun.
58 Appendicitis and Icterus. (App. und Ikt.) G. Aldehoff.
59 Ileus with Appendicitis. (Ileus bei App.) H. Haeckel.
60 Meckel's Diverticulum as Cause of Ileus. (Meckelsches Div. als Ursache des Darmverschlusses.) A. Jäckh.
61 Spontaneous Gangrene of Finger Tips of Left Hand. (Spon.-Gang. an einzelnen Fingerkuppen.) Evers.
62 Tumors of Scrotum. (Haemo-Lymphangioma cavernosum partim cystoides scroti.) W. Rosenberger.

63 Bilateral Lacerated Fracture of Tubercle of Tibia. (Rissfraktur der Tub. tibiæ.) F. Linkenheld.
64 *Surgery in Naval Warfare. (Seekriegschir.) Matthiolus.
65 *Operative Treatment of Gastric Cancer. (Chir. des Magencarcinoms.) O. Creite.

53. **Injuries of Radial Nerve.**—The ultimate outcome of operative treatment was a complete cure in the three cases reported. Great care was taken to remove all proliferation of bone, sharp edges of bone and cicatricial tissue in the soft parts, and to ensure perfect healing of the wound with the nerve adjusted between muscular tissue in such a way that further injury would be avoided. Borchard asserts that direct union of the severed stumps is preferable to all plastic operations, and that it is advisable to resect the bone if necessary to obtain direct union. It is generally impossible to stretch the nerve to bridge a gap of more than 2 or 3 cm., although von Bergmann accomplished it with a defect of 7 cm. by extreme flexion of the wrist. Primary suture is more promising than later operations if asepsis can be secured. The earlier the operation the better the ultimate functional outcome. In 12 cases Borchard sutured the severed nerve in 2; in 3 cases mobilization of the nerve from adhesions proved sufficient; in 3 others cicatricial tissue had to be excised and the nerve imbedded in muscle tissue; in another case the dislocated head of the radius had to be resected, and in another a nerve-grafting operation was required to bridge a gap of 11 or 12 cm. The after-treatment is extremely important, regenerative processes should be stimulated by massage and baths which also prevent contraction of the muscles and stiffness of the joints. This should be supplemented by electricity to hasten restoration of conductibility.

64. **Surgery in Naval Engagements.**—Matthiolus discusses the experiences on the battleships during the Russo-Japanese war and says that they teach that the ship surgeon should thoroughly instruct the crew in the principles of first aid to the wounded, so that they could take better care of themselves and others in case of injury. One of the Russian commanders was lying wounded on the deck, but said that it was unnecessary to call the surgeon as he had already bound up his wound with his handkerchief. He also mentions that the ordinary first aid package is not sufficient, as the injuries from shells are generally multiple. It is best to postpone all operations as much as possible, he says, until the wounded can be transferred to a hospital ship.

65. **Results of Operative Treatment of Gastric Cancer.**—Creite reviews the experiences at Braun's clinic at Göttingen with 241 cases of cancer of the stomach. An operation was undertaken in all but 30. The stomach was resected in 50 cases and in 2 bilateral metastasis in the ovaries was observed later. Seven of these patients are still in good health; 19 died during or soon after the operation, and 24 died later. In 4 cases death occurred from heart failure soon after the operation; these patients were between 56 and 65 years of age, but four others over 60 bore the operation exceptionally well. Postoperative pneumonia was the cause of death in 4 cases, and 7 patients succumbed to suppurative peritonitis. The sutures held well in all but one of this latter group of cases. About 48 per cent. of the patients died within a year; 33 per cent. within two, and 19 per cent. within three years. One patient is still in good health more than fourteen years after the gastrectomy. This patient, a woman of 49, had noticed pains in the stomach and loss of appetite for six months, and at about the fourth month discovered a lump in the stomach region. There was no vomiting, but much emaciation. The stomach was much dilated and a hard knobby tumor could be palpated in the vicinity of the umbilicus. There was no free lactic acid. The operation revealed a freely movable tumor in the pylorus, which was resected and the stomach sutured to the duodenum after resection of 17 and 5 cm. The patient has since been in perfect health, eats everything, and attends to her household duties.

Münchener medizinische Wochenschrift.

66 (LIV, No. 22, pp. 1065-1112.) *Resemblances Between Sleeping Sickness and Progressive Paralysis. (Schlafkrankheit und prog. Par.) W. Spielmeyer.
67 *Roentgen Research on Stomach. (Verwendung der R.-Strahlen zur Diagnose der Magenkrankheiten, etc.) F. M. Groedel III.
68 Interpretation of Percussion Findings in Pleurisy with Effusion. (Perkussion bei exsudativer Pleuritis.) E. Bachmann.
69 Technic of Bacteriologic "Typhoid Bile Tube" Test. (Blutanreicherung vermittels der "Typhusgalleröhre.") H. Kayser.
70 Simplified Fehling Test for Sugar in Urine. (Harnuntersuchungen in der Praxis.) K. Grube.
71 Lead Poisoning from Bullets After Firearm Wounds. (Bleivergiftung durch Geschosse.) E. Braatz.
72 *Phimosis as Cause of Internal Affections in Boys. (Phimose.) Witzenhausen.
73 New Device for Fastening and Compressing in Roentgen Work. (Roentgenographie.) Kaestle (Munich).
74 Instrumentarium for Public Vaccinator. (Instrumentarium für den öffentlichen Impfarzt.) A. Groth (Ib.).
75 Spool Tampon Case. (Tamponbüchse.) O. Scheven.
76 Historical Sketch of Scopolamin. (Bilsenkrautextrakt als Narkoticum.) G. Klein.

66. **Resemblance Between Sleeping Sickness and Progressive Paralysis.**—Spielmeyer presents evidence to show the close analogy between the pathologic anatomy of sleeping sickness and progressive paralysis. This and other points of resemblance are explained by the comparative research on trypanosome and spirochete affections. Schaudinn was able to discover forms showing transitions between trypanosomes and spirochetes, demonstrating the family connection between them. Pathologic anatomy and clinical experience are confirming these results of purely biologic research, and the reverse is also true, that biologic research is throwing new light on the clinic and on pathology.

67. **Roentgen Examination of Shape, Size and Location of Stomach.**—Groedel gives a dozen illustrations of the normal and pathologic stomach examined with the Roentgen rays after ingestion of Rieder's bismuth test meal, that is, gruel, spinach, hash or the like, to which a suspension of 40 or 50 gm. of bismuth has been added and the whole mixture diluted with water or milk to a total of 400 gm.

72. **Clinical Importance of Phimosis.**—Witzenhausen reports four cases to sustain his assertion that phimosis is an important cause of internal affections in boys. Greater attention should be paid to it, as it is liable to induce severe intestinal troubles, especially obstinate constipation and its consequences. The injurious effects of the intestinal trouble may leave an indelible impress on the organism and interfere with normal development even long after the phimosis has been corrected. In one case the child had been under medical care for a long time, but the physician had overlooked or disregarded the phimosis; all disturbances vanished at once after its correction.

Grèce Médicel, Syra, Greece.

77 (IX, Nos. 1-4, pp. 1-8.) *Pathogenesis of Bilious Hemoglobinuric Fever. (Fièvre bilieuse hémoglobinurique.) S. J. Kanellis.
78 *How Quinin Induces Hemoglobinuria. (Hémoglobinurie.) T. Anastasiadès.
79 Influence of Acute Malaria in Inducing Essential Manifestations in Liver, Kidneys, Blood and Capillaries. (Influence du paludisme aigu.) C. Kassiopoulos.
80 *Meningitis due to Malarial Infection. (Méningites par suite de paludisme.) G. C. Pitaoulis.
81 (Nos. 5-7, pp. 9-16.) *Id. Z. G. Lellos.
82 *Treatment of Pneumonia During Malarial Cachexia. (Pneumonie, etc.) S. Theophanidis.
83 *Rachitis. (Rachitisme.) P. N. Divaris.
84 *Cerebrospinal Fluid in the Insane. (Liquide céphalorachidien chez les aliénés.) G. Zilanakis.

77. **Pathogenesis of Bilious Hemoglobinuric Fever.**—Kanellis gives a historical sketch of the subject and then states his own impressions. He believes that any cause producing destruction of the red corpuscles is followed by a reaction on the part of the organism. If the amount of hemoglobin liberated by the hemolysis is not very large, it is entirely arrested in the liver and transformed into bile pigment. In that case urobilinuria may be observed. In case of a larger amount of free hemoglobin, the liver transforms it into a larger quantity of bile pigments, and some pass into the blood, entailing icterus, and urobilinuria and choluria will then be observed. When the amount of free hemoglobin is excessive, the liver is unable to work it all up into bile pigments, and some of it passes through the organ and is eliminated unmodified in the urine, and hemoglobinuria results. The overworked liver and spleen become congested and enlarged, while the relics of the red corpuscles are eliminated through the kidneys causing albuminuria. These three forms of the reaction of the organism to hemolysis are all observed, he states, in malarial infection, likewise transitional and blended forms.

78. **How Quinin Induces Hemoglobinuria.**—Anastasiadès has become convinced that quinin may act locally on the sensibility of the mucous lining of the stomach. Apparently by vasomotor reflex action it affects some nerve center presiding over the production of hemoglobin, and hemoglobinuria results. He thinks that this might be prevented by giving some drug to soothe the stomach nerves and thus to inhibit reflex action. A sedative given with the quinin may ward off all danger from this source, he states, and prevent hemoglobinuria. The latter is rare when quinin is injected subcutaneously, and even in these rare cases the action of the quinin is due to the same mechanism, as it acts on the gastric mucosa by exosmosis.

80 and 81. **Meningitis of Malarial Origin.**—Lellos and others relate a number of instances of severe meningitis due apparently to malarial infection and promptly cured by quinin. They urge quinin treatment in all cases of meningitis in which malarial infection can be surmised.

82. **Pneumonia During Malarial Cachexia.**—Theophanidis relates a number of instances from his experience to illustrate the necessity for quinin treatment during pneumonia occurring in a person debilitated by malarial infection. The pneumonia should be treated as usual, but quinin should be given regularly, as, without it, the malaria reinforces the pneumonic invasion. When the malarial debility is extreme there is little hope for the patient in intercurrent pneumonia, but with moderate malarial debility, appropriately treated with quinin, he was able to save two-thirds of his patients.

83. **Rachitis.**—Divaris thinks that rachitis can be avoided by breast feeding. He states that the affection is unknown in Japan, because Japanese women nurse their children.

84. **Cerebrospinal Fluid in the Insane.**—Zilanakis examined the fluid in 107 insane patients, making 160 examinations. He found that lymphocytosis in the cerebrospinal fluid is one of the earliest and most constant signs of general paralysis. It was pronounced in all but 3 out of 53 patients with general paralysis. In these exceptions the affection was in an advanced stage in 2 and in an arrested, incipient phase in the other. The lymphocytosis was always most pronounced in the acute and progressive stages and the large mononuclears were also most abundant in these phases of the paralysis, while the polynuclears were comparatively few or absent altogether. The proportion of albumin in the fluid was always found high in general paralysis, seldom below 1 gm. to the liter, and only once above 3 gm. The increase in the proportion of albumin seems to be progressive and to parallel the course of the paralysis, even after the lymphocytosis has commenced to decline as the affection becomes more and more chronic. In one case the fluid was yellow. Progressive doses of opium are liable to increase the number of leucocytes found in the fluid, sometimes inducing actual lymphocytosis. The findings were constantly negative in the cases of dementia, arteriosclerosis and other affections in the insane. Even a slight tendency to lymphocytosis was observed only in the rarest cases, and never in arteriosclerosis. The alcoholic patients displayed the largest proportion of albumin in the cerebrospinal fluid outside of the cases of general paralysis, but it never reached 1 gm. to the liter. His experience indicates that the epileptiform attacks of general paralysis are favorably influenced by lumbar puncture.

Nordiskt Medicinskt Arkiv, Stockholm.

85 (XXXIX, Internal Medicine, No. 4.) *Diet in Kidney Affections. (Diatetik der Nierenkrankheiten.) K. Hanssen.
86 *Smallpox in Antiquity. (La variole laus l'Ancien Testament et dans le papyrus Ebers.) B. Ebbell.

85. **Diet in Kidney Affections.**—Hanssen tabulates the findings in regard to the metabolism of a number of persons on different diets. They show that the amount of solids eliminated in the urine is as large on a strict milk diet as on a meat diet. The demands on the kidneys are thus as high on a milk diet as when meat is ingested. Fats and carbohydrates, on the contrary, made far less demands on the kidneys, the latter less than the fats. He confirms the reliability of the "variability test" to determine the functional capacity of the kidneys (described in The Journal, Feb. 16, 1907, page 654). His conclusions are that a predominant or exclusive diet of carbohydrates with a little fat is indicated in all cases in which the functional capacity of the kidneys is reduced to or below the limits of normal sufficiency. Milk and meat, providing the same amount of calories, cause elimination through the kidneys of about the same amount of molecules, while materially smaller amounts of solid elements are eliminated through the kidneys on a diet of carbohydrates with a little fat. He regards a maximal specific gravity of 1.014 or 1.015 under the "variability test" of the urine as an indication that the limits of sufficiency of the kidneys have been reached, and that meat and milk should be restricted. If the specific gravity does not rise higher than 1.013 or 1.014, or there are signs of retention, then meat and milk should be entirely or almost entirely supppressed. In case of uremia nothing should be allowed but gruels with milk sugar. This takes the place of milk in regard to diuretic action.

86. **Smallpox in the Old Testament and in the Ebers Papyrus.**—Ebbell practiced a number of years in Madagascar and was astonished to find the nomenclature of diseases so extensive and well defined in the native language. He remarks that this has also been the experience of others among various peoples of the same stage of civilization or lack of it, and he argues that the same probably applies to the peoples of antiquity. They had undoubtedly a correct idea of various diseases, although unable to describe them correctly. The names bestowed on various diseases designated special, well-defined affections. He reviews the pathology of the Old Testament and of the Ebers papyrus, presenting arguments to prove that the sixth plague in Egypt and Job's affliction were both smallpox. All Job's complaints might apply to smallpox, as also all the other references to *"schechin."* The Ebers papyrus, he says, also presents evidence that smallpox was known in Egypt at least 2,000 B. C.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

DISEASES OF THE INTESTINES AND PERITONEUM. By Prof. Dr. Hermann Nothnagel, Late Professor of Special Pathology and Therapy, University of Vienna. Edited, With Additions, by H. D. Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital. Second Edition. Thoroughly Revised. Authorized Translation from the German under the Editorial Supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Cloth. Pp. 1059. Price, $5.00 net. Philadelphia: W. B. Saunders Company, 1907.

MORRIS'S HUMAN ANATOMY. A Complete Systematic Treatise by English and American Authors. Edited by Henry Morris, M.A., and M.B., Lond., F.R.C.S. Eng., President of the Royal College of Surgeons, England, and J. Playfair McMurrich, A.M., Ph. D., Professor of Anatomy, University of Michigan. Illustrated. Fourth Edition, Revised and Enlarged. In Five Parts. Cloth. Part IV, Organs of Digestion, Etc.; Price $1.50. Part V, Surgical and Topographical Anatomy; Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1907.

MANUAL OF DISEASES OF THE EAR, NOSE AND THROAT. By John H. Johnson Kyle, B.S., M.D., Professor of Clinical Otology, Rhinology and Laryngology in the Medical College of Indiana, Department of Medicine of Purdue University. Second Edition, Revised and Enlarged. With 169 Illustrations. Flexible Leather. Pp. 627. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co., 1907.

SURGERY, ITS PRINCIPLES AND PRACTICE, by Various Authors. Edited by William Williams Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Sugery, Jefferson Medical College, Philadelphia. Volume II, with 579 Illustrations. Cloth. Pp. 920. Price, $7.00 net. Philadelphia: W. B. Saunders Company, 1907.

MATERIA MEDICA AND PHARMACY. By Reynold Webb Wilcox, M.A., M.D., LL.D., Professor of Medicine at the New York Post-Graduate Medical School and Hospital, etc. Seventh Edition, Revised. Cloth. Pp. 490. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Co., 1907.

MERCK'S 1907 INDEX (Third Edition). An Encyclopedia for the Chemist, Pharmacist and Physician, Stating the Names, Synonyms, etc., of the Chemicals and Drugs Used in Chemistry, Medicine and the Arts. Cloth. Pp. 472. New York: Merck & Co.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Volume xix. Nineteenth Session, Held at Baltimore, Maryland, Dec. 11-13, 1906. Edited by W. D. Haggard, M.D. Cloth. Pp. 565. Published by the Association, 1907.

TRANSACTIONS OF THE BERKS COUNTY (PA.) MEDICAL SOCIETY for the Year Ending December, 1906. Volume xi. Paper. Pp. 51. Reading, Pa.: Norton Printing House, 1907.

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Original Articles

A REVIEW OF RECENT WORK ON THE MECHANISM OF URINE FORMATION.[*]

TORALD SOLLMANN, M.D.
Professor of Pharmacology and Materia Medica, Western Reserve University, and Member of Council on Pharmacy and Chemistry, American Medical Association.
CLEVELAND, OHIO.

PREFACE.

The study of the mechanism of urine formation is still one of the most fascinating fields of physiologic research, as is witnessed by the output of papers. Aside from its direct practical application, the kidney owes its chief interest to the fact that, of all the glands, its functions seem best adapted to a simple physicochemical explanation; which, being once found, might furnish a key to the more complicated so-called vital phenomena. On the other hand, its anatomic structure is peculiarly complex and makes a complete isolation of its functions a problem which continues to elude the utmost ingenuity of skilful investigators.

Recourse must be had, therefore, to indirect methods, to deductions and theories, which in turn rest on assumptions more or less definitely proved, or more or less probable. Such methods are peculiarly exposed to the danger of "reasoning around a circle." The temptation is ever present to consider a more or less arbitrary assumption as an established fact; to accept that a theory is proved by results which are merely in agreement with it—without inquiring whether these results do not also agree with another theory.

To avoid the dangers of these temptations, it is necessary, at every step, to examine into the real experimental basis for every assumption, and to inquire whether the suggested explanation is indeed the only one which is possible. This separates at once those facts and theories which are definitely "proved," from those which are merely "indicated" as more or less "probable." The neglect of this rigorous criticism can only result in unprofitable speculation. Indeed, experience has shown that, in this subject at least, mere "probability" is a very unsafe guide, and that it is unprofitable to make degrees of the probable, the "six of one and seven of the other" style of argument.

It has seemed to me a not unpromising task to attempt the application of this rigid criterion of definite proof to the present status of our knowledge as reflected in the investigation of the last two years; going back to previous work when this was indispensable for a clear presentation of the subject. The limits of this paper permit only a summary consideration of the principal investigations which bear directly on the main problem—the theory of urine formation. Those desiring a more detailed description are referred to the several excellent compilations which have recently appeared[1].

INTRODUCTION.

By way of introduction it may be said that these investigations emphasize that we are very far indeed from a clear conception of the kidney mechanism. Most of the recent workers consider any simple physical explanation as entirely inadequate, and tend to lay increasing stress on the vital secretory factor. On the other hand, the mechanical filtration and absorption theory of Ludwig is no longer opposed so sharply to the secretion theory of Heidenhain. The discussion has shifted to the more profitable field of inquiring in how far the physical theories explain the facts, and what is left as an unexplained "vital" residuum. In regard to this, opinions vary, and nearly every investigator has his own theory; but it is a sign of healthy progress that the investigations turn about this, as the real problem, rather than about two special theories.

The differences of opinions and theories show that we are not yet in possession of sufficient facts to justify any opinion or theory. In other words, the way of progress lies in emancipation from the bondage which the theories have imposed; and in the search for facts, more facts, and especially more definite facts. When these have been collected and assimilated, it may appear that we should not speak of the mechanism of urine formation, in the singular, but of the mechanisms, in the plural. In other words, the indications are that several mechanisms are involved, one or the other predominating according to conditions; so that an explanation which fits one case, may not fit another.

THE EXCRETION OF PIGMENTS.

One method which has been utilized in the attempt to define the function of the different cells of the kidney, consists in the introduction of substances which would be visible to these cells. Heidenhain[2] and more recently Gurwitch,[3] Höber and Königsberg[4] and Basler[5] injected pigments for this purpose. On examining the kidneys histologically, these pigments are seen as granules in the lumen and within the cells of the convoluted tubules (with a few pigments, also in Bowman's capsule). Evidently then, these cells have the function of either secreting or of absorbing, pigment. Heidenhain tried to show, by a series of experiments, that these granules are in the way of being secreted; but the adherents of Ludwig's theory contend that the results could also be interpreted as showing that they are being reabsorbed. In the frog, however, this question has been definitely decided by Gurwitch in favor of secretion; for no pigment appears in the urine when the blood is prevented from going to the tubules, while its access to the glomeruli is unimpeded—an experiment which can be performed on the frog by tying the renal-portal vein. Since the distribution of the pigment is quite similar in mammals, it seems natural to assume that it has the same explanation. There is, however, some danger in transferring results obtained on frogs directly to mammals; for it is quite conceivable that the epithelial cells in the lower animals are less specialized and more phagocytic.

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[*] Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907. A portion of the article is omitted because of lack of space. The complete article appears in the Transactions of the Section and in the author's reprints.

[*] From the Pharmacologic Laboratory of the Medical Department of the Western Reserve University.

[1] Asher (L): Die Lehre von der Harnabsonderung. Biophysikalisches Centralblatt, 1906, ii, pp. 1, 33, 65; bibliography, p. 165.
Beddard (A. P.): The secretion of urine; in Hill's Recent Advances in Physiology and Biochemistry, 1905.
Magnus (R.): Die Tätigkeit der Niere. Münch. med. Wochschr., 1906, 28 and 29.
Metzner (R): Die Absonderung und Herausbeförderung des Harnes; in Nagel's Hanb. d. Physiol. d. Menschen, vol. ii, part 1, p. 207.

[2] Heidenhain: Hermann's Handbuch der Physiology, 1883, v, part 1, p. 309.

[3] Gurwitch: Pflüger's Archiv f. d. ges, Physiol., 1902, xci, 71.

[4] Höber and Königsberg: Pflüger's Archiv. f. d. ges. Physiol., 1905, cviii, p. 323.

[5] Basler: Pflüger's Archiv. f. d. ges. Physiol., 1906, cxii, p. 203.

This series of experiments, then, only proves definitely, that the epithelium of the convoluted tubules, in frogs, is capable of secreting certain abnormal substances; and suggests that the same applies to mammals. This is not a serious blow to the filtration-reabsorption theory, for it is granted by everyone that this epithelium has some secreting function, even in mammals, at least under abnormal conditions. For instance, the excretion of sugar after phlorrhizin is attributed to them by practically everyone.

MORPHOLOGIC CHANGES IN THE KIDNEY CELLS CONNECTED WITH DIURESIS.

The morphologic characters of most gland-cells change during secretion. Such changes would therefore be an important proof of secretory function; but nothing of the kind has ever been proved in the kidney. These negative results do not suffice to discredit the secretion theory, for it is quite possible that the peculiar appearances in other gland cells are connected with the formation of new substances, rather than with the elimination of substances existing ready-formed in the blood, which is the special function of the kidneys.

THE SEPARATION OF THE TUBULAR AND GLOMERULAR FUNCTION IN THE FROG.

The separate blood supply of the glomeruli and tubules in the frog was first utilized for the experimental separation of the functions of these two mechanisms by Nussbaum[11], who ligated the renal artery to exclude the glomeruli from the circulation. His results were confirmed by Mosberg, Marcuse and Halsey, but his interpretation was put in doubt when Adami[12] showed that the operation, as performed by these investigators does not necessarily cut off the circulation from all the glomeruli. Beddard[13] proved that this can be accomplished with proper care; but in his first series of experiments, the successful operation led to cessation of the urine flow.

His second series, with Bainbridge,[14] showed that the functions of the tubules can be maintained by keeping the animals in an atmosphere of oxygen. Observations on these animals (in which the glomeruli are excluded) demonstrate that the tubules are capable under the stimulus of urea injection of secreting water, chlorid, sulphate, urea; and sugar in hyperglycemia; that they form sugar when poisoned by phlorrhizin; and that the urine is of acid reaction. In short, they prove that the tubular epithelium is capable of secreting each of the urinary constituents in frogs; and there is no good reason to assume that the mammalian epithelium behaves differently, although this is not directly proved. One of the important points in the urine controversy may therefore be considered as definitely settled. However, the experiments leave unsolved the equally important question of tubular reabsorption, of the glomerular functions, and of the relative importance of these processes.

These matters are taken up in the experiments of Cullis[15], who, instead of ligating the vessels, excised the heart and separately perfused the vessels of either the glomeruli (through the aorta), or of the tubules (through the abdominal vein), or of both. The perfusions were made with a diluted oxygenated Locke's fluid, isotonic with 0.6 per cent. NaCl.

The results show that, in the artificially perfused frog's kidney, the glomeruli ordinarily secrete all the water and probably all the dissolved substance. They are the mechanism on which the saline diuretics act, exclusively in the case of sulphates, chlorids, nitrates and acid phosphates; and mainly in the case of dextrose and urea. The tubular epithelium does not ordinarily eliminate water and it is doubtful whether it eliminates salts; it is not stimulated by saline diuretics, except to a limited extent by dextrose and urea; but it is activated by caffein and phlorrhizin (whether these also act on the glomeruli is not decided). When thus stimulated, the tubules eliminate water, chlorids, sulphates and dextrose. Phlorrhizin also causes the production of dextrose.

Could such conclusions be drawn from experiments on living, mammalian kidneys, working under normal conditions, their importance could not be exaggerated; for they would show that the elimination of all the urine constituents could be carried on vicariously by either the glomeruli or the tubules; but that ordinarily the glomeruli played the preponderant rôle.

Unfortunately, however, several objections can be made to these experiments. In the first place, the results obtained on the frog need not apply to mammals; and more seriously, from what we know of the extreme dependence of the kidneys on an arterial blood supply, it would seem that kidneys artificially perfused with a saline mixture are not proper objects for investigating the vital function of the kidney. The response to caffein and phlorrhizin is presumably vital; but it is known that different functions of the kidney disappear at different times after death.

In the mammalian kidney, for instance, the ability to secrete what may properly be called a urine is gone almost immediately after the death of the animal; the reaction of suprarenal injections lasts for some hours; the consumption of oxygen and the dilator reaction to blood or hydrocyanic acid disappears only after some days[16].

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[11] Nussbaum: Pflüger's Archiv, 1878, xvi, p. 139, and xvii, p. 580.
[12] Adami: Jour. of Physiol., vi, p. 382.
[13] Beddard: Jour. of Physiol., 1902, xxviii, p. 20.
[14] Bainbridge and Beddard: Biochemical Jour., 1906, i, p. 255.
[15] Jour. of Physiol., 1906, xxxiv, p. 250.
[16] Sollmann (T.): Amer. Jour. of Physiol., 1905, xiii, p. 243.

It is quite conceivable that a greater or lesser part of the phenomena studied by Cullis are phenomena of postmortem filtration; and as long as this doubt exists, the conclusions are insecure. Even were they granted, however, they would throw light only on the relative functions of the tubules and glomeruli, and very little on the mechanisms through which these functions are carried out: Whether entirely by secretion or partly by filtration and reabsorption.

MECHANICAL OBJECTION TO THE FILTRATION THEORY.

Until recently it has been universally believed that the structure of the glomeruli is that of an ideal filter, and consequently that filtration is bound to occur there unless it be opposed by special forces, such as osmosis, etc. Hill[17] and Filehne and Biberfeld,[18] however, now contend that glomeruli filtration, in the living or dead kidney, is *a priori* impossible. This contention is mainly theoretical and is based largely on the assumption that, the cellular protoplasm being practically a colloidal solution, it must transmit pressure equally in all directions. The fluid in the capsule of Bowman would, therefore, be under the same pressure as that in the glomerular capillaries, so that there would be no filtration pressure. Furthermore, Filehne and Biberfeld claim that, even if a pressure existed, filtration would not occur; at least they could not with ordinary pressure obtain filtration through egg-membrane or gelatin membranes, to which the capillary membrane might be compared. Finally, they failed to observe any filtration of carmin in dead kidneys.

To all these arguments of Hill and Filehne and Biberfeld, there is opposed the simple fact that filtration does occur very freely, in excised kidneys, as will be shown in the next section. It is therefore only necessary to seek for the cause of the fallacies in the above argument. The first assumption, that there can be no filtration pressure, probably errs in underestimating the importance of the relative rigidity of the vascular wall, of the basement membrane, and of other connective tissue structures, and possibly of the cell-walls—all of which interpose obstacles to the free transmission of pressures across them. The negative results with homogeneous membranes and carmin injections simply show that the conditions of glomerular filtration were not really reproduced. It is not difficult to advance several possible explanations for this failure, but it would be unprofitable to discuss these until they have been subjected to experiment.

FILTRATION PHENOMENA IN EXCISED KIDNEYS.

When a process involves many complex factors, in part of unknown nature—and this is the case with urine-formation—it may be of advantage to confine the investigation to the simplest factors. With this idea, I have carried out an extensive series of investigations (with the collaboration of Hatcher[10]) on the perfusion of excised kidneys. By using these several days after death, or by killing them, for instance, with strong salt solution, the "vital" factors could be completely eliminated, leaving only the purely mechanical phenomena. The injection of saline solutions into the renal artery produces an outflow of fluid from the vein, and in fresh kidneys also from the ureter. This ureter flow is not due to rupture of the vessels, for it does not contain corpuscles when blood is added to the perfusing fluid. Nor does it involve any vital force, for it is even much more copious when solutions of such strengths are used as would seriously impede any vital action. There are other, equally potent, reasons which prove that this ureter fluid is formed purely by filtration.

The results of these experiments show that filtration does not account at all for the composition of the urine, since the composition of the ureter-fluids corresponded quantitatively (as far as investigated) with that of the perfusing fluids. The effects on the circulation through the kidney, and on the quantity of urine, on the other hand, correspond very closely with those produced by analagous changes in the living animal.

While these experiments show that many phenomena in the formation of urine agree perfectly with the simple mechanical conception of filtration, it must be remembered that one of the most important factors—the composition of the urine—is entirely unexplained by them. Even where the correspondence is complete this does not exclude the cooperation of a vital factor. Strictly speaking, the results prove only that a series of phenomena occur in the kidney as if this were a simple filter and that any vital actions which may participate in these phenomena, either act in the same direction as filtration, or else are of subordinate importance. On the other hand, however, it must be remembered that a vitalistic interpretation is not justified until the mechanical interpretation has been shown to be inadequate.

THE OSMOTIC WORK PERFORMED BY THE KIDNEY.

It has been stated above that filtration can not account for the composition of the urine; moreover, a consideration of the composition of the urine teaches that there are forces at work in the kidney opposed to filtration and many times greater than the available filtration pressure. In the transformation of plasma into urine, the molecular concentration is generally altered. This corresponds to a change in the osmotic pressure, and this implies work. The forces required for this are very commonly a hundred or more times greater than the blood pressure available for filtration. This makes it necessary to assume that the changes in concentration take place after the urine has been filtered, i. e., in the tubules and not in the glomeruli.

This is important, for as we now understand the laws of osmosis, it follows that the glomerular fluid, if it is a filtrate, must have very nearly the same total molecular concentration as the blood-plasma. As soon as we grant that the glomerular fluid is more dilute or more concentrated than the plasma we renounce the filtration theory, at least for these conditions. There is no conclusive evidence, positive or negative, however, as to the concentration of the glomerular fluid.

The work of L. Kahlenberg,[23] which has come to my notice since writing the above, indicates that the theory on which these calculations of osmotic pressure are based, is erroneous. If he is correct—and his experiments and deductions are very convincing—all the arguments based on osmotic concentration of the urine must be reconsidered and revised, and meanwhile can not be utilized either for or against the filtration theory.

THE OXYGEN CONSUMPTION OF THE KIDNEY.

A most interesting confirmation of the large amount of work performed by the kidney, is furnished by the work of Barcroft and Brodie,[24] who investigated the oxygen consumption of this organ. In proportion to the weight, this is about as large as the average for the other organs of the body, when the urine is scanty; but in urea, sulphate or phlorrhizin diuresis it rises to a mean of five times the average of the body.

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[17] Hill: Biochem. Jour., 1906, i, p. 55.

[18] Filehne and Biberfeld: Pflüger's Archiv., 1906, cxi, p. 1.

[23] Kahlenberg (L.): Jour. of Physical Chemistry, 1906, x, 141.

[24] Barcroft and Brodie: Jour. of Physiol., 1904, xxxii, p. 18 1905, xxxiii, p. 52.

ATTEMPTS TO ISOLATE THE FUNCTIONS OF THE GLOMERULI AND TUBULES IN MAMMALS.

The striking differences in the anatomic structure of these two portions of the kidney would suffice to justify the conclusion that they work through different mechanisms, even were there no other proofs of this fact. It is, therefore, essential to an explanation of urine-formation, that the physiologic differences connected with these structural differences be known. In the frog, as we have seen, the separate blood-supply of these two sets of structures offers the possibility of isolating their functions directly. In mammals, however, the same blood passes successively through both, so that the question can not be approached in this simple manner.

Two methods of investigation have been principally followed: The one consists in the attempt to destroy one set of structures, whilst the other is left intact. The second, in altering conditions which are assumed to affect the functions of the one and not of the other. Both of these methods admit of almost infinite variations, and have been extensively practiced. They have led to the discovery of a great many empirical results and of some empirical laws; but to the problem of the special function of the glomeruli and troubles, they have contributed very little that may be considered as definitely settled or conclusive. The reasons for this failure are not far to seek, as we shall see.

METHODS INVOLVING INJURY TO ONE OF THE STRUCTURES.

No method has yet been devised, by which one set of structures can be wholly destroyed, while the other is left wholly intact; and a merely partial destruction of the one set, or a greater destruction of the one than of the other, does not lead to clear results—partly because of the compensatory action of the remaining portions, and partly because the kidney reacts to certain injuries in a specific and very violent manner.

This is illustrated by the polyuria following the partial excision of the kidneys in the experiments of Bradford[25]. Complex pathologic processes are thereby substituted, to an incalculable degree, for the simple physiologic modification at which it is aimed. Since we know nothing about the nature of these processes, and very little about the conditions under which they occur, they necessitate a most careful criticism of every destruction-method.

EXPERIMENTAL NEPHRITIS.

This can readily be produced by the use of certain drugs,[31] and may be confined at will to either the glomeruli or the tubules, at least in so far as the histologic appearance shows. The nephritis leads to certain changes in the urine; and the animals thus treated may be subjected to a variety of procedures, and the results compared with those obtained on normal animals. A very attractive field for research is thus thrown open. It must be remembered, however, that nephritis presumably *alters* the functions of cells more commonly than it *destroys* them. This introduces unknown factors, which render conclusions as to the *normal* functions insecure, or at best conditional on certain assumptions. Nevertheless, many researches have been made along this line, and they have yielded results of at least empirical value. But, for the reasons stated, they do not throw any clear light on the kidney mechanism.

EVIDENCES DRAWN FROM THE EFFECTS OF VARIOUS CONDITIONS ON THE URINE.

It will be remembered that the second method of separating the functions of the glomeruli and tubules, consists in subjecting the kidney to conditions which are assumed to affect exclusively, or at least more specifically, one of these structures. The objection to the principles of this general method consists in the necessity for making assumptions, which are often not binding and which are sometimes the very point to be proved.

THE INFLUENCE OF THE CIRCULATION ON THE URINE.

As we have seen, the flow of urine is influenced by changes in circulation, exactly as if it were formed of pure filtration, a fact which has always been the main-anchor of hope for the adherents of the filtration theory, and which has been abundantly supported by my perfusion experiments. It has been objected by those who prefer the secretion theory, that the activity of other glands is also generally accompanied by increased circulation. Macallum,[33] however, has pointed out that this is not an indispensable factor in strictly secretory action; indeed, outside of the kidney the increased circulation generally can be shown to be the effect rather than the cause of the secretion. At all events, the dependence is nowhere as intimate as it can be shown to be in this organ, when the experiments are properly conducted.

The above, of course, refers only to the quantity of the urine, and not to its composition. As to this, we have seen that it can not be explained on a mechanical basis. It may be presumed that it is influenced at least indirectly, by the circulation, but definite data are scanty.

THE EFFECTS ON INCREASED URETER PRESSURE.

The rate of excretion of different salts under different degrees of diuresis inclined Cushny[37] to the opinion that the formation of urine is essentially a filtration and reabsorption process. According to him, the glomerular fluid is a filtrate of the same composition as the plasma (minus the proteid); this fluid, in passing down the tubules, undergoes partial reabsorption. The differences in the individual constituents are referred to differences in their absorbability.

Water and chlorids are absorbed relatively readily, sulphates, urea and phosphates much less readily. When the secretion of the urine is slow, there is more opportunity for reabsorption; and consequently all the constituents of the urine would be lessened in amount; but this diminution would affect principally the more absorable constituents, the water and chlorids; while the sulphates, phosphates and urea would scarcely be altered. Rapid diuresis would have the opposite effects.

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[25] Bradford (Rose): Jour. of Physiol., 1898, xxiii, p. 415.

[31] A summary of the work on experimental nephritis is given by Sollmann, in The Journal A. M. A., Nov. 26, 1904.

[33] Macallum (J. B.): Jour. of Biol. Chem., 1906, i, p. 335.

[37] Cushny: Jour. of Physiol., 1902, xxvii, p. 429.

In brief, Cushny's results were in substantial agreement with his assumptions, although they did not prove these assumptions, since other explanations could not be excluded. Brodie and Cullis,[38] however, obtained the very opposite results in some very similar experiments. They found that moderate resistance in the ureter caused an increase of urine and sulphates, instead of the diminution demanded by Cushny's theory, which they, therefore, consider disproved. This again seems to be an extreme assumption. It does not appear absolutely certain from their paper that they really eliminated ureter-peristalsis (see above), so that they may in fact have dealt with a lessened resistance in the ureter, instead of an increased resistance, as they supposed in drawing their conclusions. But granting that their interpretation is correct, the very differences in the results prove that they were working under conditions somehow essentially different from those of Cushny. In other words, while the filtration and reabsorption theory could not explain the results obtained under their conditions, it might still explain Cushny's results, obtained under his conditions. This would only necessitate the assumption that the kidney disposes over a number of mechanisms—an assumption which is not inherently improbable.

THE REGULATION OF THE URINE.

Everybody is agreed that the main purpose of the kidneys consists in the removal of such material as would otherwise accumulate in excessive amount in the body—in other words, the kidneys exist for the purpose of maintaining the composition of the body approximately constant. It is evident that they perform this regulating function adequately under all ordinary conditions, by a suitable adaptation of the quantity and composition of the urine; but the mechanism through which they respond to the ever-varying task which is imposed on them, is by no means clear and involves some very interesting problems.

How does the body at large inform the kidneys of its needs? How do they modify their functions to comply with the demands? Since no secretory nerves can be demonstrated in the kidneys, the regulation is presumably chemical, and one would naturally refer it to the blood, which establishes a direct relation between the tissues and the kidneys. In other words, one would assume that the composition of the urine is regulated directly by that of the blood. This would be a simple explanation and it seems supported by the fact that the composition of the blood is much more constant than that of the tissues, so that the regulation of the blood appears to be the more important function.

On the other hand, however, this constancy introduces a complication: for it means that very large changes in the urine correspond to very small changes in the blood; indeed, the composition of the blood, by our methods of analysis, appears to be constant, when that of the urine and that of the tissues is profoundly altered. There is also abundant evidence (Magnus[39], Sollmann[40]) that the regulation of the blood is accomplished much more effectively by the tissues than by the urine. These facts suggest that it is the tissues, rather than the blood, which really influence the urine. These considerations give us a choice between several *a priori* assumptions:

FORSTER'S THEORY OF CHLORID RETENTION.

As is well known, the withholding of salt causes a diminution in the chlorid percentage of the urine, to a very small amount; while at the same time the percentage in the serum is practically unchanged. The urinary chlorids can be reduced by a number of other measures, and I have shown[41] that these are all such as would theoretically tend to lower the percentage of chlorids in the blood—but actual analysis fails to show this diminution.

As long ago as 1873 Forster[42] advanced a physicochemical theory for this phenomenon, in salt-hunger. He suggested that chlorids exist in the blood in two forms: firstly, free, as they are in watery solutions; and secondly, combined in some way with the colloids of the plasma. Assuming the free chlorids to be filtrable, and the combined chlorids as non-filtrable, the chlorid retention would be easily explained, as follows: In salt-hunger, for instance, the free chlorids would soon be eliminated, and the excretion would therefore stop; analysis would show an abundance of chlorids in the serum, but these would be in the non-filtrable combined form. All the other measures which lower the chlorid content of the urine would similarly reduce the percentage of free chlorids in the blood, while they would leave the combined chlorids unaffected. I have found[41] that certain salts, such as nitrates, iodids, or sulphocyanids, can raise the chlorid percentage in these conditions. All these salts are very similar to chlorids, and it seems quite natural that they could displace a part of the combined chlorid from its combinations and thus convert it into the filtrable form. The fact that urine is free from sugar, but that this substance appears at once in hyperglycemia, could similarly be explained on the assumption that the ordinary quantity of blood-sugar is bound and non-filtrable, but that any additional quantity is free, and therefore filtrable.

The agreement of these modern facts with Forster's theory is practically perfect, but the agreement is only empirical, and does not prove the theory. In the first place, the glomerular urine would need to be hypoisotonic (and there is some direct evidence that it may be so); but as we have seen, a hypoisotonic urine can not be formed by filtration alone, as Forster supposed. The theory would need to be modified in the sense that free chlorids or sugar stimulate the renal cells to their secretion, whilst bound ions do not have this action—which converts the theory from a physical one into an essentially vital one. Furthermore, it has been found impossible to demonstrate the existence of such compounds by any physical or chemical means—the latest attempt by Rosenfeld[43] having again proved negative. This is pretty strong evidence against the entire theory; at least it would be necessary to assume that the compounds are of a kind at present unknown to physics and chemistry. Nevertheless, the empirical agreement between facts and theory is so striking, that the search for new methods of demonstrating the existence or non-existence of such compounds does not appear to me as useless.

LOEWI'S THEORY.

Another theory which involves the conception of colloid-compounds is advanced by Loewi.[44] According to this theory, as in Forster's, the free substances are eliminated by glomerular filtration, with partial reabsorption, somewhat after Cushny's theory. Unlike Forster, Loewi assumes that the compounds are also eliminated, but by tubular secretion. Another difference between the two theories is that Loewi believes that each substance occurs as a rule in only one form—either all of it is free or all is combined—whereas Forster believed that the same substance always existed in both forms.

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[38] Brodie and Cullis: Jour. of Physiol., 1906, xxxiv, p. 224.
[39] Magnus: Arch. f. exu. Path. u. Pharm., 1900, xliv, p. 68.
[40] Arch. f. exp. Path. u. Pharm., 1901, xlvi, p. 1.
[41] (a) Arch. f. exp. Path. u. Pharm., 1902, xlviii, p. 410; (b)
[42] Forster: Ztschr. f. Biol., 1873, ix, p. 297.
[43] Rosenfeld: Biochem. Ztschr., 1906, iii, p. 335.
[44] (a) Arch. f. exp. Path. u. Pharm., 1902, xlviii, p. 410; (b) ibid., 1903, l, p. 326; (c) ibid., 1905, liii, p. 15; (d) p. 33; (e) ibid., p. 49.

Loewi's theory is based on the assumption that the common diuretics act by increasing glomerular pressure, and hence filtration. Such constituents as are eliminated by filtration would therefore be increased by diuresis; whereas those which are "secreted" would not be increased. These being once determined and accepted, one can, by reversing the argument, ascertain which diuretics act on filtration and which on secretion.

Loewi's own results agree with these explanations; but in the work of other experimenters (Asher, Weber) results are found which would lead to different conclusions, when interpreted by the same logic. However, the logic itself is open to criticism, for the conclusions are based on assumptions which are still in dispute, and which must be proved before the demonstration of the theory need be considered.

ASHER'S THEORY.

Asher does not deny that changes in the composition of the blood, when they exist, influence the urine; but he believes that the influence is not to be explained by filtration, but by modifications in the functional state of the kidney cells. In those common cases in which the alteration in the blood are inconspicuous or hypothetical, he believes that the supposed functional changes in the kidney are brought about (without the intermediation of the blood) in some unexplained way, directly by the tissues. To prove this theory, he and his pupils have made a series of experiments in which they have attempted to alter the functional state of either the kidney cells directly, or of other organs[46]; what Asher calls the direct and indirect activity method.

The results as a whole show that some conditions of the body do not influence the urine; while others alter it profoundly. This doubtless agrees with Asher's theory that the urine is influenced by the state of the kidney cells rather than by the composition of the blood. Indeed, it may be granted that the results are more easily explained by this theory than by any other. However, too many unknown factors are involved to consider the proof as at all positive.

The experiments of Waldstein[46g] are more convincing. He investigated the rate of urine formation under the influence of the transfusion of blood from another animal, and found that the introduction of additional blood caused a good diuresis in well nourished animals, but had little effect in fasting animals. It was practically immaterial whether the transfused blood came from a well nourished or from a fasting animal. It would appear, therefore, that the composition of the blood is of much less importance than the susceptibility of the kidney, as determined by the preceding nutrition of the animal.

THE ACTION OF DIURETICS.

This has been touched on incidentally in the preceding. We have seen that Cullis localized the action of salts in frogs, mainly in the glomeruli; that of caffein and phlorrhizin in the tubules; urea in both. Loewi, in mammals, by the use of different methods, also locates the action of salts in the glomeruli and phlorrhizin in the tubules; but caffein and urea act, according to him, exclusively in the glomeruli. In connection with caffein, he discovered the interesting fact that it may dilate the renal vessels without changing the volume of the organ. According to my work, the diuretic action of salts corresponds to their action on filtration; hence they would act on the glomeruli.

It will be seen that there is practical unanimity among these investigators in the opinion that salts act mainly on the glomeruli, and phlorrhizin on the tubules; as to their mode of action—whether they cause a vital stimulation, or a merely mechanical modification of filtration through circulatory changes—there is the usual diversity of opinion. The statements in regard to the diuretic action of water are less positive, although it is generally held that it acts in much the same manner as the salts. There is complete disagreement as to the site of the action of urea, and especially of caffein. It must be remarked, however, that none of the evidence which has been brought forward in the attempt to localize the action of diuretics comes up to the rigorous standard which I have set.

The study of diabetes insipidus and of polydipsia, has also failed to throw much light on the subject, although it has led to interesting empirical results. E. Meyer[49], for instance, has shown that the two conditions agree in an excessive output of a very dilute urine; but they differ in that the concentration of the urine can be raised at will in polydipsia by administering salt; whereas in diabetes insipidus, the salt does not increase the concentration, but merely causes greater thirst and therefore a greater diuresis. In other words, the kidney cells are incapable of secreting a concentrated urine—pointing to the importance of the functional state of the epithelium in the sense of Asher. Another rather interesting fact is that the ordinary diuretics do not increase the polyuria in either diabetes insipidus (Meyer) or in polydipsia (Sollmann and Hofmann[50]). It is also worthy of notice, as remarked by the last named investigators, that an intense and prolonged polyuria does not cause any demonstrable injury to the kidneys.

This, however, brings us to those problems which are of clinical interest, with little bearing on the theoretical questions of the mechanism of urine formation. I shall therefore conclude this review by summing up what is, in my opinion, the present status of the subject.

CONCLUSIONS.

The investigations which we have considered seem to me to justify the following conclusions:

1. *Excretion Through the Glomeruli and Tubules.*—The modifications of Nussbaum's experiment prove that in frogs' kidneys all the normal urinary constituents can be excreted vicariously by either the glomeruli or tubules, but the elimination of water, and probably of most of the other ordinary constituents occurs normally only by the glomeruli, and only under unusual conditions by the tubules. Certain pigments, on the other

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[46] (a) Asher (L.) and Cutter: Ztschr. f. Biol., 1900, xl, p. 535; (b) Asher: ibid., 1903, xlv, p. 121; (c) Tropp: ibid., 1903, xlv, p. 143; (d) Asher: ibid., 1904, xlvi, p. 61; (e) Michaud: ibid., 1904, xlvi, p. 198; (f) Asher and Bruck: ibid., 1904, xlvii, p. 1; (g) Waldstein: Biochem. Ztschr., 1906, ii, p. 1; (h) Rosenfeld: ibid., iii, p. 35.

[49] Meyer (E.) Deut. Arch. f. klin. Med., 1905, lxxxii.

[50] Sollmann and Hofmann: Amer. Jour. of Med. Science, February, 1905.

hand, are excreted exclusively by the tubular epithelium. Attempts to separate the functions of the glomeruli and tubules in mammals have not thus far led to decisive results. It is probable, but not proved, that the same conditions prevail as in frogs. There is no conclusive evidence that urea is secreted differently from the salts.

2. *Secretion or Reabsorption by the Tubular Epithelium.*—As stated, the tubular epithelium can secrete all the urinary constituents in the frog. It is highly probable that it secretes pigments in mammals. It is proven that it secretes sugar under the influence of phlorrhizin. There can be no doubt, therefore, that it is capable of secreting some substances, but there is no definite evidence as to whether any of the normal constituents are normally secreted by this epithelium. Reabsorption under normal conditions is neither proved nor disproved; however, its acceptance furnishes the clearest explanation of many phenomena. If it exists it must be selective, discriminating between the different constituents and varying with conditions.

3. *Filtration in the Kidney.*—Filtration through the glomeruli is physically possible, because it occurs in dead kidneys. The influence of saline diuretics, of changes of circulation, etc., on the urine flow corresponds closely in the living and dead kidneys. This indicates that filtration is probably an important factor in the formation of urine, but there is no direct proof. The composition of the urine can not be explained by filtration.

4. *"Secretion" by the Glomeruli.*—It is very probable, though not proved, that glomerular urine may, at times, have a much lower concentration than the plasma. The formation of such a fluid would probably require a force exceeding the available filtration pressure—in other words, it would constitute a secretory process.

5. *The Concentration of the Urine.*—It is very probable, though not proved, that the urine ordinarily becomes more concentrated as it passes through the tubules. At all events, the formation of a urine of greater concentration than the plasma requires an unknown force—whether secretory or absorbing—which must be classed as vital.

6. *The Regulation of the Urine.*—There is no satisfactory explanation of the adaptation of the urine to the needs of the body, none of the proposed theories resting on conclusive proof.

7. *The Action of Diuretics.*—There is no binding evidence as to the mechanism of any of the diuretics, but it is highly probable that salts act physically and mainly on the glomeruli, and that phlorrhizin acts on the tubules. The diuretic actions of water, urea and caffein are even more obscure.

THE IMPORTANCE OF ICE IN THE PRODUCTION OF TYPHOID FEVER.*

WILLIAM H. PARK, M.D.
NEW YORK CITY.

We may endeavor to settle this question directly by determining whether epidemics or scattered cases of typhoid fever have been traced to ice, or, failing in this, we may try to estimate the probability of such infection by learning the duration of life of the typhoid bacillus after freezing.

The total number of instances of typhoid fever which have been directly traced to ice infection are remarkably few. I have been unable to trace more than two or three. One was in France, where a group of officers placed ice made from water polluted by a sewer in their wine and afterward developed typhoid fever, while those of the same company not using ice escaped. A second case was in a small epidemic brought to my notice which occurred in those who used ice from a pond. It was found that water directly infected with typhoid feces had flowed over its frozen surface and been congealed there. If typhoid fever is communicated through ice, except under exceptional conditions, it is remarkable that so few cases are traced to it.

The fact that freezing kills a large percentage of typhoid bacilli makes it indeed possible to conceive that ice from moderately infected water contains so few living typhoid bacilli that only the exceptional person here and there becomes infected, and so the source of the infection remains undetected.

If this be true and scattered cases occur, there should be at least some increase on some or every year in March, April and May in such a city as New York, where four-fifths of all the ice consumed is from the Hudson River, which is known to be contaminated with typhoid bacilli. The people of New York use ice very freely and most of them put it directly in their water or place their vegetables on it. The new ice from the Hudson River is gathered in January or February and stored on top of the left-over ice, and thus shipments to the city are immediately begun. It is an established fact that typhoid bacilli in ice are most abundant during the days immediately after freezing. At the end of two months less than 1 per cent. of the original number survive.

If Hudson River ice produced an appreciable amount of typhoid fever, this would then be noticeable in March and in April and perhaps in May.

When we examine the records for the past ten years we find no increase of typhoid fever in Greater New York during those months, with the one exception of the present year, when we had in the Borough of Manhattan a sharp outbreak lasting four weeks. This outbreak did not occur at all in Brooklyn. As the people of Brooklyn drank different water, but received ice from the same places of the Hudson River as those of Manhattan, this directed attention to the water or milk rather than the ice. Examination of the Croton watershed at the time showed that a small epidemic of typhoid existed there and that pollution of the water was probable. This suggested still more strongly that the water and not the ice was the cause of the typhoid infection.

It happened that most of the cases occurred in those living in the section of the upper West Side, where only well-to-do people live. An investigation showed that the majority of the infected had used only artificial ice and several had used no ice in their water at all.

Let us now turn our attention to the life of the typhoid bacillus in ice in laboratory experiments. The first important investigation was that of Prudden, who showed that typhoid bacilli might live for three months or longer in ice. This experiment is frequently wrongly interpreted, as when a recent writer states: "It has been amply demonstrated that the germs of typhoid fever are not killed by freezing and that they have been known to live in ice for long periods of time."

It is true that in Dr. Prudden's experiment a few typhoid bacilli remained alive for three months, when the experiment was terminated, but these were but a small fraction of 1 per cent. of the original number.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Following Prudden's experiment Sedgwick and Winslow in Boston and I in New York City carried on independently by a series of experiments. These led to the same conclusions. A table summarizing a final experiment of mine in which twenty-one different strains, mostly of recent isolation, were subjected to the test is given below.

In these experiments twenty-one different flasks of Croton water were inoculated each with a different strain of typhoid bacilli. In one a little of the feces rich in typhoid was directly added. The infected water in each flask was then pipetted into thirty tubes. These tubes were placed in a cold storage room in which the temperature varied from 20 to 28° F. At first tubes were removed and tested twice a week, later once a week. The object of using so many different strains was because it has become evident that some cultures lived longer than others.

LIFE OF TWENTY-ONE STRAINS OF TYPHOID BACILLI IN ICE.

	Average number of bacilli in ice.	Percentage typhoid bacilli living.
Before freezing	2,560,410	100
Frozen three days	1,089,470	42
Frozen seven days	361,136	14
Frozen fourteen days	203,300	8
Frozen twenty-one days	10,280	0.4
Frozen twenty-eight days	4,540	0.17
Frozen five weeks	2,950	0.1
Frozen seven weeks	2,302	0.09
Frozen nine weeks	127	0.005
Frozen sixteen weeks	107	0.004
Frozen twenty-two weeks	0	0

At the end of five weeks the water infected with six cultures was sterile, at the end of sixteen weeks only four strains remained alive.

Two interesting investigations of Hudson River ice have just been completed. One by Dr. D. D. Jackson for the city and the other by Dr. C. E. North for a private laboratory.

There was noticed a considerable difference between the number of bacteria in the top, middle and bottom layers of ice. This is natural, since while water in freezing from above downward markedly purifies itself, 75 per cent. of the solids and a fair proportion of bacteria being eliminated, yet this can not happen in the case of the snow blanket which becomes flooded by rain or by cutting holes through the ice. Here all impurities, such as dust and leaves which have fallen on the surface and dirt which may come from the water, remain with the bacteria which they carry. The bottom ice, being the most recently frozen, has had least destruction by freezing. Dr. Jackson's report gives us a rather unpleasant impression of Hudson River ice. He states that most of the samples either at the top or bottom show intestinal germs. The worst portions of the ice showed from 1 to 10 bacilli of the colon group per c.c. These were taken above or less than five miles below Albany. Some of this ice might aptly be termed solidified sewage.

The analysis of the twenty-five samples shows, as one would expect, that the surface of the ice just at Albany was bady contaminated, one c.c. of melted ice averaging about 15,000 bacteria for four samples. Only one of the twenty-one samples taken at different distances below Albany showed over 1,000 per c.c. A sample from top of a cake of ice obtained two miles below Albany showed only 14. The other twenty samples had on the average 105 per c.c.

Dr. North, in his investigation, examined the ice from forty spots between Hudson and Albany. He took samples from the top, middle and bottom of each cake and the water of the river. He has kindly permitted me to use some of his figures.

The river water in the forty specimens averaged 1,800 bacteria per c.c., the top ice 306, the bottom ice 36 and the middle ice 14. Only four specimens of top ice had over 500 bacteria per c.c., none of the specimens of middle or bottom ice.

Thirty-three of the specimens of water had over 500 and 23 over 1,000. Colon bacilli were obtained from but one specimen of the middle ice, two from the bottom ice and twelve from the top ice.

The great destruction by freezing is noticeable in these figures. Even the top ice soiled by the horses and men gathering it contained but 16 per cent. as many bacteria as the water from which it was contained. The bottom ice, the last to be frozen, had but 2 per cent. of those in the water.

CONCLUSIONS.

The danger from the use of ice produced from polluted water is always much less than the use of the water itself. Every week that the ice is stored the danger becomes less, so that at four weeks it has become as much purified from typhoid bacilli as if subjected to sand filtration. At the end of four months the danger becomes almost negligible, and at the end of six months quite so. The slight danger from freshly cut ice, as well as the natural desire not to put even sterilized frozen sewage in our water, suggests agreement with the report of Dr. Jackson, that portions of rivers greatly contaminated, such as the Hudson within three miles of Albany, should be condemned for harvesting ice for domestic purposes—such ice alone to be used where there is absolutely no contact with food.

ROENTGEN RAY TECHNIC IN DERMATOLOGY.*

MIHRAN K. KASSABIAN, M.D.
Director of the Roentgen Ray Laboratory of Philadelphia Hospital.
PHILADELPHIA.

The value of Roentgen rays in the domain of dermatology has been thoroughly tested and cordially approved. Its place in medicine, as a therapeutic agent, is now established on a sound and rational basis. I have, therefore, attempted to prepare a brief paper on "Roentgen Ray Technic in Dermatology," because the technic, or, if you wish, the art, the skill of application, is the one great prime essential demanded of every operator, if he would attain the very best possible results. So diametrically opposed are the announcements made relative to the value, the uses and the results attained by the Roentgen rays in cutaneous affections, that an explanation for these varying opinions must be sought in the differences in technic employed by the great army of *x*-ray therapists the world over.

Needless to say, the Roentgenologist must be an adept at his work. The hand of the tyro holds no comparison with the experienced operator in this field of endeavor. In Roentgen diagnosis differences in technic result in excellent or defective skiagrams. What is true here holds equally well in the therapeutic application of the rays. In order to employ this agent so that satisfactory results may be obtained, it is primarily essential that its use as a diagnostic means should be perfectly mastered, and that the operator have more than an ordinary knowledge of the principles involved and likewise an easy familiarity with the manipulation of the apparatus.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Like all new and growing sciences, this subject is beset with embarrassing inconsistencies. In a certain skin disease one learned authority declares that the employment of a soft tube is imperative; while another decries the soft tube and asserts that a hard tube alone in that special case is effective and permissible. Some specialists condemn the repeated and gradually ascending serial irradiations, urging the massive dose treatment as the most logical and curative. Others give anywhere from one to six séances weekly, believing that massive doses are ineffective and dangerous. There are many excellent students of the science who are assured that the production of an erythema of varying degree is essential to a cure. Scores of other *x*-ray workers denounce any such procedure as wrong in conception and at variance with the dictates of good judgment. Coupled with such flagrant contradictions are all sorts and manner of opinions as to the distance of the tube; these vary from 1 to 3 inches from the part, all the way up to 25 to 40 inches, and even more; it is, therefore, necessary to determine some arbitrary rules that will give the most effective quality and quantity of the rays applicable in diseases of the skin.

Incidentally I may remark that, while variations in the technic for each and every special case is imperatively demanded, the one great *desideratum* is the determination of the *quality* of the rays best adapted for the particular case under treatment. The distance of the tube, the duration of treatment, etc., have a minor value and are of secondary importance in technic. The most important factor is the selection of the rays most suitable and best adapted for the cases under consideration. The complex nature of the Roentgen rays offers no alternative to the operator in our present state of knowledge; he must always employ the same compound rays, but the preponderant quality of rays in any bundle can be approximately determined and regulated. Resolution into their component parts has thus far baffled the skill of the physicist and yet we can judge of the quality we are employing.

From Roentgen therapist's standpoint, dermic lesions may be classified as follows:

1. Where slight stimulation is required (acne).
2. Where epilation is necessary (hypertrichosis).
3. Where absorption of pathologic tissue is desired (eczema, psoriasis, lupus).
4. Malignant types of disease (epithelioma).

The technic will, of course, vary with the special character of the lesion to be irradiated. This may be accomplished by varying both the quality and the quantity of rays, which takes into the consideration the vacuum of the tube and its distance from the part to be treated, duration and frequency of the exposures, etc. The apparatus required for effective treatment is practically identical with that employed for skiagraphic work. For therapeusis, a coil of 7 or 8 inch (18 or 20 cm.) spark length will suffice, but it must be used properly and be of good quality.

In superficial cases, the irradiations should be mild in character, thus producing but slight stimulation. In these cases it is our aim to bring about a constructive, not a destructive, condition of the affected area. From a soft tube rays emanate capable of specially effecting tissue in the vicinity of the superficial papillary network, but liable to bring about atrophy and telangiectasis, with the production of epilation. They are most applicable in such affections as psoriasis, eczema, rodent ulcer, etc., the intensity of current, distance of tube, and frequency of application altering the effect.

In deeper structures hard or medium hard tubes may be employed. We may call into requisition the medium tubes when the deeper structures are to be treated, with but little effect on the superficial layers, as in hypertrichosis. In using a hard tube, it is essential that the less easily penetrating rays be filtered, prior to the passage of the remaining rays to the deeper-seated structures. It should not be forgotten that lengthy irradiations with soft tubes will not affect the deeper parts, because the great number of rays will suffer absorption by the cuticle.

DISTANCE OF THE TUBE.

The distance of the tube from the part depends on the quality of the tube, on the size of the area to be irradiated and whether a rapid reaction is desired or not. By some it is asserted, in theory, that the distance of the tube from the part should be proportional to the height of the vacuum and inversely as the part to be affected is distant from the surface. As a rule, hard tubes should have an anodal distance of from 12 to 15 inches (30 to 38 cm.) from the area to be treated; with soft tubes 6 or 8 inches (15 or 20 cm.) is effective. The current should be generated by an induction coil.

The interrupter most frequently employed in this connection is of the mechanical type; its two prominent advantages are the ease of its manipulation and its cleanliness. The duration of irradiations is dependent on the source of the current (coil or static machine), on the patient's susceptibility and largely on the nature of the affection. As was intimated previously, some authorities advocate brief, frequently repeated exposures, gradually increasing the dose; others approve of massive doses at longer intervals.

FREQUENCY OF THE IRRADIATIONS.

The frequency of irradiations will naturally depend on several factors: character of the lesion, rapidity of action required, duration of each séance, and the distance of the tube from the lesion. It would seem the part of wisdom to expose the patient twice or thrice weekly for the first two weeks, and then to discontinue treatment for a similar period of time, seeking in the interval for the occurrence of any untoward signs or symptoms. Very close observation is imperatively demanded when treatment is administered every other day. Some prefer this serial method, but the patient's susceptibility must never be lost sight of; if, however, vigilant care is exercised to see that the affected area is not overexposed, then the applications may be arranged more closely together for an almost indefinite period.

I regret that progress in Roentgen ray technic in the past five years has not kept pace with the progress of time. What was empirically true then is empirically true now. Two great questions were propounded then: What is the true nature of the rays? What is its physiologic action on the human tissues? To-day these queries remain unanswered. The progress made and the advances wrought throughout this period are referable to the many and varied improvements in the apparatus.

QUALITY AND QUANTITY OF RAYS.

The methods employed for estimating the quality and quantity of the rays is a subject of paramount importance. By quality I mean the property that these rays possess of penetrating the tissues; some pencils of these rays may penetrate quite easily; on the contrary, others may be less penetrating, becoming readily absorbed by the tissues.

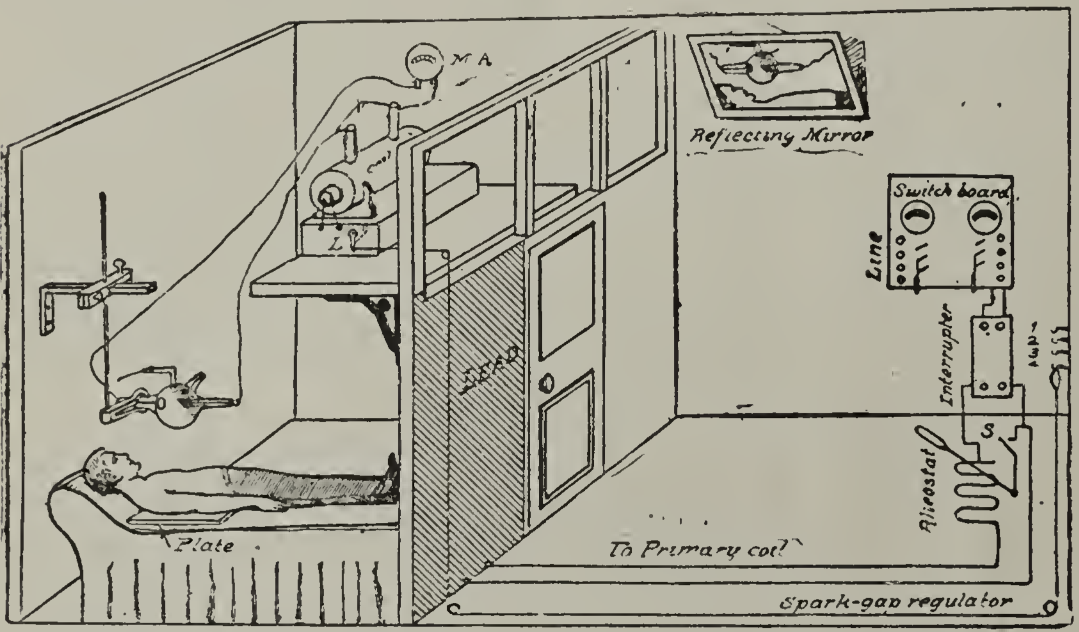
For estimating the quality of the rays, I employ the following methods: Amount of current going to the primary coil, viz., volts and amperes; length of spark in parallel gap; milliamperage of the secondary induced current; radiochromometer of Benoist.

By the quantity of the rays I mean their total action on the tissues, as is manifest by the duration and the effects of the irradiation. I measure by the amount of current passing through the milliamperemeter and the length of irradiation and distance of tube from patient.

SPECIAL TECHNIC.

In a brief paper such as this, I will content myself merely by touching on the technic that I employ in some common dermic affections. This must necessarily be only the average technic as it varies with the individual case.

1. *Where Slight Stimulation Is Required (Acne)*.—This form of disease requires the most mild action of the *x*-rays, the irradiation just strong enough to cause a slight stimulation. The production of an erythema is not desirable, especially when the lesions are situated on the face. Atrophic condition of the pitted areas may result where the follicles are advanced in the disease. Pigmentation rarely occurs and should never be permanent.



This treatment may need to be repeated several times, but the first course of treatment often causes the disappearance of the acne. A medium vacuum tube equivalent to from 2 to 3 inches (5 to 7.5 cm.) spark length, anode from 12 to 18 inches (37.2 to 45 cm.) from the part, 1 to 2 milliamperes in the secondary coil, about No. 3 of the Benoist scale; three exposures a week for two weeks, with a duration of from 2 to 3 minutes.

2. *Where Epilation Is Necessary (Hypertrichosis, Favus, Ringworm)*.—In the treatment of these conditions utmost care should be exercised in order to prevent ill results, and to obtain the desired effect, the parts often affected being the face and chin or upper lip. The utmost care is necessary to ascertain the susceptibility and the dosage. Blondes often show a greater susceptibility to the action of the rays than do brunets. I have been in the habit of irradiating first other portions of the body, for example, the arm, in order to gauge my dosage; then after approximating the dose I irradiate the face, etc. The treatment should be just enough to cause the gradual atrophy of the hair follicle without producing any erythema. After first epilation let two or three weeks elapse and then irradiate mildly in order to render the epilation permanent, being careful, however, not to cause any pigmentation or telangiectasis or pitting of the face, protecting well the portions that it is not desired to erradiate. Erythema of the skin is not necessary, but in spite of every precaution it often occurs; for such an accident cease the treatment and apply zinc oxid ointment.

A medium soft tube at a distance of from 15 to 20 inches (27 to 50 cm.) from the face, with a spark length (parallel) of from 1 to 4 inches (2.5 to 10 cm.) always with mechanical interrupter, 1 to 2 milliamperes, B scale No. 2 to 4, beginning with 2 minutes each exposure thrice weekly first two weeks and then increase up to 2 or 3 weeks. Cease then and wait for several weeks; do not be hasty; let the action of the rays work gradually.

3. *Where Absorption Is Required (Eczema, Psoriasis, Lupus, Etc.)*.—The treatment of this group of cases can be approximated in a single form of technic because there is so much variation that the conditions overlap each other in severity and the essential is the production of resolution and absorption. It is impossible in a brief summary of technic to point out more than the result desired and a technic which can be varied to suit the individual case. It suffices to say that the same technic as above, varied by more active rays, i. e., a lower vacuum, and a closer distance of tube with longer exposures, will produce a severe reaction, the intensity of the reaction being regulated by the disease under consideration and its clinical manifestations. For very intense reaction which is seldom employed and only in very resistant cases by expert clinical observers, the following technic is permissible: Tube showing the cathodic stream very faintly and only slight green fluorescence. Parallel resistance ¼ to ½ inch (0.5 to 1.2 cm.), the anodal distance varies the intensity of the effect, as also the milliamperes, as this tube is capable of carrying a very high amount of current even with a weak coil. The distance can vary from 6 to 8 inches (15 to 20 cm.), the intensity of effect corresponding. The milliamperage likewise can range from 1 to 6 milliamperes. The duration of each exposure also depends on the reaction desired. These treatments can not be repeated until the effect of a previous treatment has been observed. They are very severe and dangerous, treatments, unless employed by an expert clinical observer, should seldom be employed.

The average treatment for these lesions is a soft tube without cathodic rays, having a parallel spark resistance of about 1½ inches (4 cm.) to about B 2. The current should not be over 2 milliamperes. This treatment can be given with care three times a week with a duration of 5 to 10 minutes. The resistance of the tube or its penetration must be varied if resolution is delayed in deep seated foci. This depends on the clinical result observed.

4. *Malignant Types of Diseases (Epitheliomata)*.—Certain factors must be considered in irradiating these

growths, viz.: the character of the lesion, its rate of growth, location, glandular involvement, age of the patient, the state of health, etc. When the epithelioma has grown rapidly, I advise an immediate operation and subsequent *x*-ray treatment.

The severity of an epitheliomatous growth is largely dependent on the proximity of the lymphatic chain of glands. Thus, an ulcer of the lower lip is less favorable. For cutaneous epitheliomas, place the anode of tube about 10 or 12 inches (25 or 30 cm.) distant from the part with a soft medium vacuum, giving a spark length (parallel) of from 1 to 2 inches (2.5 to 5 cm.), irradiate thrice weekly for three weeks, duration of each séance being about 6 or 8 minutes, 1 to 2 milliamperes passing through the tube, Benoist's No. 2 or 3 scale.

Roentgen dermatitis may involve both the operator and the patient. As to the patient, the development of a Roentgen dermatitis is very prone to occur in irradiating cutaneous affections. It, therefore, becomes incumbent on the operator to watch most carefully for the appearance of the earliest symptoms, such as itching and erythema. It seems proper to remark just here that many operators aim to bring about a slight erythema, urging that its production exerts a curative action on the affection being treated. Other operators incline to the belief that a moderate tanning of the skin is a desideratum.

It is always my aim to prevent an occurrence of either of these effects. Individual susceptibility, the peculiar location of the lesion, faulty technic and inexperience of the operator, are all factors that increase the frequency of Roentgen dermatitis.

To lessen the likelihood of this complication, many advise that the Crookes tube be covered with sheets of thin lead, or encased in a box lined with lead, or that it be painted with some opaque material. A very clever device is to have the active hemisphere made of lead glass and provided with various sized diaphragms, as is well exemplified in the Piffard vacuum tube. My own personal preference is the rubber shield and diaphragm, the patient being at the same time protected by sheets of lead that have been previously grounded.

In order to diminish the quantity of the soft or less penetrating rays and to effect their absorption, the employment of filters is commended by some practitioners. Maragliano eliminates the non-penetrating rays by the use of diachylon (as a rule, disposed in a thickness of four layers), which readily adheres tightly to the skin. Pfahler and Schamberg advocate the use of wet leather, but the fact that moisture and leather absorb the rays to a too great extent and that consequently a limited quantity of rays is sent to the diseased area, my own preference reverts to the employment of a thin sheet of aluminum, 1/32 of an inch (1 mm.) in thickness (grounded), which eliminates most largely the soft rays, and is a valuable accessory to the *x*-ray worker in his treatment of the deeper structures. In treating some conditions this must be omitted.

As I have said previously, it is the duty of the Roentgen therapist to watch most carefully for the oncome of cutaneous itching and the appearance of slight erythema; if the first stage of a dermatitis seems imminent, the operator should immediately cease with the irradiation. I at once purge the patient, apply zinc oxid and employ cold compresses. In cases of vesiculation, I incise and drain the serum. When the dermatitis is of the second degree I approve of the use of a normal salt solution applied on a compress. I do not favor the employment of carbolic acid solution, corrosive sublimate solution, etc. One of the best dressings is simple sterile gauze.

It is with sincere regret that I am compelled to say that there is no known curative agent to meet that very distressing condition, unfortunately too well known to my associates, namely, chronic Roentgen dermatitis. It is my belief that meddlesome interference is undoubtedly the cause of much suffering, of loss of fingers and hands, and, indeed, of many precious lives. There is entirely too much medication, and the application of injurious and irritating liniments and ointments.

I am getting relief from the dermatitic condition of my hands by as little medication as I can conceive. I immerse them in hot water for ten minutes daily and apply a slight quantity of cold cream or lanolin to prevent cracking of the skin, completing the details by encasing the fingers in sterile gauze.

For the past five years I have avoided remaining in the same room with the patient, devising a reflecting mirror that is placed at an angle on the ceiling, which, of course, faithfully reveals the fluorescence of the tube and the position of the patient. I occupy a place in the adjoining room, whose partitioned wall is lined with layers of lead, one-half an inch in thickness (see illustration).

In an experience of 8,000 exposures for diagnostic purposes, I accidentally produced epilation once and erythema once; my assistant produced dermatitis once, in a fluoroscopic examination of ten minutes' duration, while examining for gastroptosis.

I always warn my patients of the possibility of some ill effect from the action of the rays. When about to treat acne and hypertrichosis, I pronounce this admonition with even greater emphasis.

38 East Forty-ninth Street.

TREATMENT OF ACNE AND CHRONIC ECZEMA.*

RUSSELL H. BOGGS, M.D.
PITTSBURG, PA.

The successful treatment of acne and eczema means something more than a hasty prescription for a tonic and an external application. Routine treatment without a careful study of the etiology, pathology, stage and type of the disease, shows lack of clinical knowledge. The treatment of any skin lesion demands of the practitioner a sound knowledge of general medicine and experience of the various therapeutic agents employed.

There are probably no two skin lesions in which a larger number of remedies have been employed. Sabouraud states: "There is not a single treatment for eczema, but a thousand, which proves that there is not a single good one."

As every one is familiar with the etiology and pathology, and also with the older routine remedies, an effort will be made to show some of the indications and the contraindications of the Roentgen rays. A great deal has been said and written in regard to the value of the rays in acne and eczema, but a large percentage of cases have not been treated intelligently.

The employment of the Roentgen rays in dermatology is a branch of medicine that demands a knowledge of the disease under treatment as well as a knowledge of the physiologic actions of the rays and the variations necessary to produce the desired results. Then, in order to treat skin lesions with the *x*-ray, the physician should either be familiar with the rays, as well as dermatology, or else refer his patients where they can have the proper treatment when the rays are indicated. The following replies of Prof. V. Neuman of Vienna and Dr. Leslie Roberts of Liverpool, England, to Dr. Biddle's circular letter, published in the *American Quarterly of Roentgenology* show what divergent opinions exist:

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

> Dr. Leslie Roberts, Liverpool: In reply to your questions relating to the *x*-ray treatment, I may say that I consider the treatment of acne rosacea, eczema, or psoriasis by the *x*-rays to be irrational, improper, and utterly inadmissible on scientific grounds. I am afraid that those who talk of "curing" these diseases by rays do not clearly understand the nature of these diseases.
>
> Prof. V. Neuman, Vienna: I have had a great deal of experience with radiotherapy of acne, acne rosacea, eczema and psoriasis. There are cases which can not be treated properly otherwise. Of course, I use our older methods in combination with Roentgen rays. Acne of the face and back is often cured radically by a few séances, but acne rosacea, with tumefaction of the nose, is only very little improved.
>
> Chronic eczema, wet and dry form, yield often quickly to the new treatment, but not ulcers of the leg.
>
> Psoriasis in its chronic patches, ought to be exposed strongly to *x*-rays; the acute disseminated form needs only weak séances. The disease is not cured radically though.
>
> The *x*-rays ought to be handled only by specialists; if there are none at hand, the rays ought better to be replaced by our older methods of treatment. But a specialist with much practice, will, by the use of the dosemeter of *x*-rays (Sabouraud, Noire and Kienbock, with milliamperemeter) always avoids burns; therefore, in his hands, radiotherapy will never prove harmful.

During the past two years I have visited a number of skin clinics in some of the larger cities and have been impressed with the different methods of treatment and the results. Any one who has gone to the different skin clinics and has studied the cases and the methods of applications of the Roentgen rays and has not depended on a circular letter or some other unreliable source of technic can account for both success and failure of the Roentgen rays in dermatology. In the past, defective technic has included overconfidence and rashness or timidity in the uses of the rays, and many physicians have not produced results because they were afraid of producing an excessive dermatitis, and have given an underdose.

Whenever there is a reliable meter to measure the kind and amount of rays given off by a tube, dermatologists will be able to employ the rays more uniformly and there will not be such difference of opinions.

ACNE.

After a faithful trial in the mild cases, of both local and constitutional treatment for two months, if there is no marked improvement, then I apply the Roentgen rays, but in pustular and indurated acne time is usually lost by waiting. In this class of cases, the time, in order to affect a cure, is not shortened, but the recurrences are less.

The local treatment of acne consists in the removal of comedones, infiltrates and abscesses. Jacobi states that the employment of sulphur and ichthyol soaps and hot water accomplishes the removal of excessive fat and opens the follicles so that their contents can be evacuated. Subsequent vigorous scaling of the skin is of use, and may be carried out by means of resorcin or naphthal paste or by painting with tincture or iodin or iodin glycerin.

Now the Roentgen rays remove the comedones and usually this takes place during the first few treatments; it is most likely due to the first or stimulating actions of the rays. Following this, there is marked desquamation and, thirdly, a decrease in the size of the sebaceous gland.

The first two effects of the rays can usually be accomplished by medication and will generally cure the mild cases, but medication has little or no effect in decreasing the overactive sebaceous glands. In pustular acne, the rays seem to have a fourth action on the staphylococci by rendering the soil inert.

In treating cosmetic lesions like acne, the greatest caution must be used to prevent any undesirable results. It is absolutely necessary to study the quantity and quality of the rays. In selecting an acne tube, one is taken which maintains a uniform vacuum and which can be kept low. A new tube is never used unless the rays are passed through an aluminum filter. I have been in the habit of employing a tube very low in vacuum, one which will scarcely show the bones in the hand, and with the anode placed at eight inches from the skin and with one and a half milliamperes of current passing I give from five to ten minutes' exposure. depending on the condition of the patient, until nine treatments are given. By this time I am usually able to determine the amount of radiation necessary to cure the patient. As it is for the cosmetic results that these patients are treated, and as it is necessary to vary the quantity of radiation necessary to produce the best and most uniform results, three weeks of trial treatment seems advisable. By this method of varying the amount of radiation results should be uniform and all danger of an excessive dermatitis avoided. Probably there is no skin lesion in which a more exact amount of rays is necessary to produce uniform results. It might be compared to radiography, where every one realizes that unless the proper exposure is made no picture is produced. As before stated, the amount of radiation varies with the individual case and may vary as much as in taking a picture of a hand and a shoulder.

ACNE ROSACEA.

Acne rosacea, while more resistant, has yielded the best results when glandular inflammation predominates. The Roentgen rays appear to act in this condition by causing atrophy of the sebaceous glands and by setting up an irritative desquamation. The principal effect is due to the action of the rays on the sebaceous glands. According to Gassman, the cure of acne rosacea is due to a destruction or degeneration of the blood vessels. It can be readily understood that since the *x*-rays have a selective affinity for glandular structures it requires less radiation to decrease the activity of the sebaceous glands than to cause absorption of the hypertrophic growth of connective tissue or the destruction of the small vessels.

ECZEMA.

Internal treatment is important in a certain percentage of cases, but as a large majority of patients suffering from eczema are in perfect health, and the disease is due to some local cause, local treatment only is necessary. Among the local measures which may be employed are drugs with which all physicians are familiar, and physical agents. Of these, radiant energy is probably the most efficient.

The rays are certainly not indicated in the acute forms of eczema, unless it be to relieve the pruritus which can not be controlled by other remedies, and in most forms of subacute eczema. But in many chronic and rebellious cases which resist other therapeutic agents the x-rays have proved efficient. The effects of the rays are most marked in squamous eczema, since it is more chronic and less liable to yield to other forms of treatment. It requires more intense radiation to relieve the pruritus in papular eczema and there is a greater tendency to recurrence than in any other form of the disease. It has been noted by a number of operators that after a few applications of the rays the discharge and itching ceased. The rationalé of Roentgen treatment lies in its stimulation of metabolic processes, especially in chronic inflammations. It has been stated that the rays influence eczema by stimulating the bio-activity of the cells.

In the treatment of eczema by the rays, the location and type of the disease should always be carefully considered, and the indications and the contraindications determined. In deciding on the dose, the character of the lesion, its chronicity and the vitality of the patient must be taken into consideration. Results can only be accomplished by employing rays in proportion to the condition of the patient. In chronic squamous eczema, the local condition of the skin is poor, nutrition is low and there is little vitality. In these cases more than a mild dosage is liable to result in a severe dermatitis. In some cases it may be necessary to give rather large doses, but the clinical experience of the operator should guide him, and experimental knowledge obtained by milder dosage in the same case should be employed before a severe dose is given. While almost any form of Roentgen treatment may effect a cure of eczema if persisted in long enough, if rays of low penetration are used, the treatment is hastened. A low tube is not only more efficient, but prevents unnecessary exposure of the underlying tissues. With the anode placed at ten inches from the surface, with one and a half milliamperes of current passing, providing the patient is in good physical condition, a safe rule to follow is to start with ten minutes' exposure, three times a week, until from eight to ten treatments are given. In my experience, this amount of radiation has been sufficient to clear up the lesions in many cases of squamous eczema, but in some it has been necessary to give a second course of treatment.

THE THERAPEUTICS OF TUBERCULOSIS OF THE SKIN.*

GRANVILLE MAC GOWAN, M.D.
LOS ANGELES, CAL.

It may be deemed axiomatic that wherever tubercle acilli find a resting place in an organism and there set p their characteristic histologic changes, if the focus e so localized that it may be removed entirely, by any gency whatever, this removal will constitute a cure of he disease.

On the recognition of this depends the value of any reatment for tuberculous lesions of the skin. Careful tudy of microscopic sections of infiltrative types of upus immediately shows why many of the measures roposed for treatment have no value, except as mere palliatives for some of the annoying symptoms. I have too often seen the claim of a cure made when all that had been accomplished was the temporary healing of an ulcerating surface, the claimant being entirely unaware that a non-ulcerating patch of lupus is often more difficult to get rid of than one that has already broken down.

All tuberculous lesions of the skin are granulomata and consist of an infiltration of small round cells, accompanied by giant cells surrounded by a zone of epitheloid cells, sometimes but not always containing tubercle bacilli.

The ease or difficulty of treating a patient successfully depends on the depth of the tubercle deposit, its extent, its situation, the resistance of the subject to the bacillus of tuberculosis as evidenced in his anamnesia, and the character of the local remedy selected for its control, and the vigor with which it is used.

An internal treatment to be effective alone must cause the tuberculous patches to disappear and perfectly cicatrize. There are no remedial agents which may be depended on to work this wonder, though it sometimes seems as if the goal were about to be reached. Physicians may be deceived by the common experience that chronic lesions of the skin get better or worse, following more or less favorable hygienic surroundings, and are apt to attribute the betterment to some drug given, when the fresh air, sunshine and the improved digestion are the factors which have produced the change.

All dermatologic works repeat parrot-like the injunction to give plenty of cod liver oil to lupus patients. In young persons where its absorption can be assured without digestive disturbances it may be given daily as an inunction in doses of 30 c.c. to 60 c.c. It is best given after a hot bath and in a warm room. I have many times been convinced of its definite therapeutic value in the treatment of tuberculous conditions of all kinds. The objections to its use in this manner is the intense fishy odor which the following formula nearly does away with:

℞. Heliotropin	gr. iii	18
Adeps lanæ	℥vi	180
Olei morrhuæ	℥ix	270

Given by the stomach I think it will more often act as a hindrance to the cure than as an accelerator. Arsenic, if it is tolerated, more particularly if combined with manganese, iron and the bitter tonics, is a valuable adjuvant as a roborant. But mercury in doses of gr. 1/6 (0.01 of the hydrargyri iodidum viride in the form of Garnier pill, or gr. 1/32 (0.002) of hydrargyri chloridum corrosivum given two or three times a day, the same precaution being observed with regard to keeping the mouth clean as when mercury is given to syphilitics, is of decided value in the treatment of dermal tuberculosis. This is without relation to hybrid forms where the syphilitic admixture is manifest and the necessity for specific treatment imperative.

It is difficult to say exactly what value the derivatives of Koch's tuberculin may have in the treatment of tuberculosis of the skin. As a diagnostic agent its importance in doubtful cases is unquestionable; as a therapeutic agent, in times gone by, it has been worse than a failure. I believe that a more general knowledge and application of the opsonic therapy of Wright may demonstrate its great usefulness.

In addition to roborant measures one must use local applications or procedures, having always in mind the necessity for the complete removal of the diseased tissues and the varying grades of infiltration, malignancy and destructiveness of the disease process induced in different people by the irritative action of the tubercle bacillus.

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* Read in the Section on Cutaneous Medicine and Surgery of the merican Medical Association, at the Fifty-eighth Annual Session, une, 1907.

Whatever local measure is used and whatever the apparent success attending its use, the pathology of the disease must never be forgotten. Just so long as one "tuberculome" is left anywhere within the limits of the diseased skin, lupus is not cured. It is only after years of observation of the absence of lesions that we can positively affirm a cure.

LOCAL METHODS.

These local methods may be classified conveniently following Brocq[1] and Leloir[2]:

1. *Bloody:* (a) Ablation, (b) curetting, (c) scarification, (d) electro-cautery or Paquelin cautery.
2. *Elective caustics:* (a) Salicylic acid with creosote, (b) pyogallic acid, (c) silver nitrate, (d) silver lactate, (e) lactic acid, (f) Liq. antimony chlorid, (g) electrolysis.
3. *Light rays:* (a) Phototherapy, (b) radiotherapy, (c) heliotherapy.

The choice of method depends on the type of disease and the individual to be treated. Phototherapy, in my mind, is the ideal treatment for the deeper forms of lupus. It is powerful for good and, so far as I can learn, never harms. Its drawbacks are such as preclude its general use. Departure from the method worked out by Finsen[3] does not seem to be successful. "Better than Finsen's" apparatus has from time to time appeared in the market, but it does not stay, because time and a careful observation of little things are essential elements in the contract to cure by the Finsen light. The element of time itself is prohibitive excepting when the disease is confined to a small space, or in the case of those who can not pay at all, or those who can pay anything asked. It is a treatment for the very rich or the very poor.

Radiotherapy in the hands of skilled Roentgen-ray operators has accomplished wonders in the treatment of lupus. I have time and again seen it cure tuberculous fistulæ, soften and break down the dense scars of sclerosed lupus, and melt scrofulo-tuberculous gummæ about the mucous orifices, where repeated and prolonged surgical measures had failed to relieve or cure. I have as often seen it fail to permanently destroy more superficial forms of ulcerative tuberculosis of the skin, and have twice seen it apparently establish on such lesions epitheliomatous changes requiring radical surgical intervention. Even very recently I have seen new tuberlomes develop in surrounding tissue during the daily treatment of a sclerous patch of lupus. Quite often I see deformative telangiectases occur in the scar, and fresh outbreaks from unobliterated lupus nests are not of uncommon occurrence in cases discharged as cured.

Notwithstanding the improvements in apparatus and operative technic, the Roentgen ray is not a safe agent for the unskilled to use. The best operators from time to time occasion, by the very necessity of the intensity of action required in affecting deep seated lesions, very distressing attacks of dermatitis, though they uniformly dislike to acknowledge it, and "burns" are not uncommon with ignorant and irresponsible operators. Add to the frequent uncertainty of its curative action the initial cost of the machine and the heavy charge of maintenance, and we easily see why the greater number of cases of lupus will always have to be treated by other methods. It is of these that I more particularly desire to speak. They, too, are of most value in the hands of experienced and skilled persons, but their success is dependent on observation and patience more than anything else and they require no great outlay of time or money.

ABLATION.

There are a certain number of cases of dermal tuberculosis which are so situated that ablation is easy and absolutely successful. No medical man should ever undertake to remove any malignant neoplasm by operation if he is afraid of losing his professional reputation by the deformity of the scar which may result therefrom. The first essential is that the new growth be removed in its entirety, that the incision be wide enough from the margin of the diseased area to go all around and beneath it until sound tissue is reached for the healing and that all structures intervening—skin, muscle, bone or tendon—be removed. Defects may be nicely tailored by flap sliding or skin grafting. Lang[4] has been the chief exponent of recent years. His reports of results are excellent and he has the courage to apply it to lupus of almost any extent. I have had good success from ablation and present here illustrative cases:

Case 1.—A woman, aged 65, with disseminated lupus of the face of two years' duration (Fig. 1). At the right inner canthus an epithelioma had developed on a tuberculous base. The photograph shows the results obtained by excision and flap sliding. More than one-third of the lower lid was entirely removed and a new one fashioned from the cheek (Fig. 2). The tuberculous process had involved the outer third of the orbital plate of the frontal bone and the entire outer part of the orbital plate of the malar bone, and the overlying skin and muscles. These tissues were excised and the wound healed by granulation as it was impossible to cover the defect by flap sliding or skin grafting. The other patches on other parts of the face were removed, some by arsenic paste, some by curetting and the application of a 50 per cent. zinc chlorid solution. This woman was treated for six months by a competent and skilled Roentgen-ray operator, the disease continuously growing worse.

Case 2.—A non-ulcerating patch of lupus (Fig. 3) was removed from the lumbar region of the back of a woman, aged 39, on whom it had existed from her fifteenth year, slowly extending year by year. Note the depth of the tissue removed, the disease extending almost to the muscle beneath. This patch was 9 cm. (3½ in.) long, 9 cm. (3½ in.) wide, and 6 cm. (2⅜ in.) deep. Recovery by granulation was complete in four weeks. She would not agree to skin grafting. She had received treatment for three months every second day by the Roentgen ray from an Omaha specialist without benefit. It was painful when she came to me, and this feature she stated developed during the Roentgen-ray treatment.

CURETTING.

The value of this method of attack on tuberculous foci depends on the thoroughness with which it is done. It is necessary to use firm sharp instruments, both large and small, of the Volkmann and Besnier types (Figs. 4 to 7). These instruments should always be sharp. Without ruthless destruction of sound tissue the use of the curette must yet almost be brutal in order to be curative. I think spreading of the disease after curetting is only to be feared where gentleness is observed in the operation.

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[1] Brocq (L): Traite Elementaire de Dermatologie Practique, Paris, 1907.

[2] Leloir: Traite de Scrofulo, Tuberculose de la Peau Paris, 1892.

[3] Finsen and Bie: Mitteilungen aus Finsens Medicinske Lysinstitut in Kopenhagen, Leipzig, 1903.

[4] Lang (Edward): Ergebnisse von 240 Operiten Lupus falle etc., Wien. 1905.

THE ANESTHETIC.

In curetting lupus nodules I always prefer ether anesthesia. The operation may be done under Schleich's method of infiltration anesthesia with a very dilute solution of cocain and adrenalin chlorid in physiologic salt solution. The neighboring skin must be thoroughly cleansed and disinfected and the needle entered well outside of the diseased area, the infiltration first made all around and beneath the patch in the sound tissues before entering the patch at all. The diseased area should also be mapped out by some indelible substance before the infiltration commences, for the process entirely changes the geography of the neighborhood.

THE OPERATION.

In commencing the operation it is best to sear all of the ulcers and make a few thrusts into any deep-seated nodules or hardened tissues with the electric cautery or Paquelin points heated to a dull red heat. This disinfects the débris of the first curetting and renders it surprisingly easier, particularly in sclerotic forms. The whole area of disease should be gone over thoroughly with the larger curettes; then each softened area is entered with the smaller ones, enough force being used to remove all obviously diseased tissue and also to break down the bundles of tissue fibers between outlying lupus nodules. Scissors, knife and forceps may be used to assist in the removal of ragged structures after the curetting.

I believe much of the curative influence observed from the free use of the curette on tuberculous lesions is to be attributed to the inflammatory reaction set up in the surrounding tissues by the mechanical insult causing subsequent destruction of all deposits of low vitality in the immediate zone of operation. The curetting should be slow and thorough until each visible nodule has been broken into and emptied of its contents. The hemorrhage is controlled with hot compresses and any bleeding point that persists may be touched with stick silver nitrate.

It is my custom to cauterize separately each wound with a 50 per cent. solution of zinc chlorid. The application is made by a number of small swabs of cotton rolled on wooden toothpicks. A swab is dipped into the solution and, after shaking thoroughly, applied to the dried curetted nodule and bored into its every nook and cranny. This cauterized surface immediately starts to bleed again, a compress moistened in a hot weak corrosive sublimate solution is applied to it, a fresh swab obtained and a similar application made to each and every one of the exposed nodules. The parts curetted are finally well washed with alcohol and a moist dressing, made by adding boric acid, seven parts, and salicylic acid, one part, to hot water, one thousand parts, and which is commonly known as Thiersch's solution, applied.

The dressing is removed twice a day or oftener if the comfort of the patient requires it, its continuous moisture is assured by a covering of gutta percha tissue. The slough from the zinc comes away usually in less than ten days, and the wound is nearly always healed before the fourteenth day. Where there is a doubt existing as to the amount of tissue involved, and it is desired to clearly map out the infiltrated nodules beforehand in non-ulcerating or dry forms of lupus, this may well be done by the application for a few days of a thick plaster made from common rosin kitchen soap or a 25 per cent. plaster of salicylic acid or Biersdorf's 20 to 40 salicylic-creosote plaster mull, or a 50 per cent. pyrogallic acid paste.

Formerly it was my custom to use the galvano-cautery or the Paquelin cautery to each nodule after curetting. I am satisfied, however, that this is bad practice, for it is frequently followed by keloidal scars. I think it is more useful beforehand to disinfect the ulcerated surfaces and render curettement easier. Should nodules subsequently be observed in the scar they may nearly all be treated and removed by the agents referred to under elective caustics. It sometimes may be necessary to curette portions of the patch again.

LINEAR SCARIFICATION.

Another bloody method which at one time had great vogue but now has fallen into disuse is that of multiple linear scarification as practiced by the celebrated teacher, Vidal. Properly carried out, this gives the least deformative of scars following treatment of severe cases of lupus. The objections to it are that it is painful, incurs the loss of considerable blood at short intervals, and the treatment lasts for almost, if not quite, as long a time a phototherapy. American patients on the Pacific coast are reluctant to submit to it, and I use it only in special cases for definite reasons. It is warmly advocated by Brocq,[1] who, trained in the San Louis Hospital, shows plainly in his therapeutics the influence of Vidal and Besnier. In lupus of the eyelids, lips and nose, where the individual is young and her calling is such that unsightly scars will take away her occupation, and she is so anxious to be healed that she will cheerfully endure the repeated infliction of pain, this is the method I prefer to use. It is also of definite value in assisting the Roentgen rays and fibrolysin injections in softening up hard dense cicatrices that are not keloidal.

CAUTERY.

The cautery method, in my opinion, is not to be commended in the treatment of lupus unless the area is very minute and the subject will not allow an excision. The electro cautery is preferable. A suitable cautery point should be selected, heated to a dull red glow and introduced into the nodules. The tissues should be roasted until not only the lupus tissue but a little of the sound skin is destroyed, for the electric cautery, unless its action be forced or repeated, acts very superficially.

The local remedies which have been proposed from time to time for the cure of lupus are legion. But few of them have any real value, and the apparent usefulness of many of them is based on the natural history of the malady and the credulity of their advocates.

Those which the experience of many people has demonstrated as of worth I will now refer to. These remedies may easily be obtained anywhere, do not necessitate great waste of time for the patient and require no great outlay of money by either physician or patient. They will effectually destroy nearly all of the superficial tuberculous patches. They are of great value in mapping out diseased areas before curetting or applying the Roentgen ray, and in the treatment of isolated nodules which may be left or which may appear from time to time in the scar or its neighborhood after curetting or radiotherapy.

SALICYLIC ACID WITH CREOSOTE.

The Biersdorf people in Hamburg make a plaster mull which contains 40 per cent. creosote and 20 per cent. salicylic acid, which is the best method of applying these drugs in the treatment of lupus. Given a patch of lupus, no matter how extensive, ulcerated or non-ulcerated, the mode of application is the same. A pattern is made of the part to be covered and the mull cut of the same size and shape. Then many small snips are made in the plaster by folding it straight across and cutting it with the points of scissors. The protecting gauze is then removed and the plaster applied. There is no difficulty about it adhering, for it is very sticky. If the lupus patch is crusted or covered with scabs they should be softened and removed first. It acts only on the diseased portions of the skin and for a half hour or more after it is applied causes quite a severe smarting pain in the ulcerated parts.

The first plaster is allowed to remain in place for forty-eight hours, and by this time it has marked and mapped out the situation of all nodules lying near the surface of the skin, eaten well into many of the softer ones and broken the epithelial layers over the deep ones. Its action causes a secretion of an abundant sticky seropus, for the easy exit of which I cut the holes in the plaster before applying it; this dries into irritating gummy crusts and produces a dermatitis of the surrounding skin much like an eczema. The plaster is applied and removed once or twice daily for fourteen days, the secretion varying with the abundance of the ulceration, but it is frequently sufficient to nearly float the plaster out of place, particularly on the face of males, where it is raised by the growing beard. The pain is rather severe after each fresh application, but is rarely sufficient to require any narcotic.

The appearance of the patch is not unlike that of a piece of wood that has been bored or honeycombed by the teredo. The irregular-edged ulcers are covered by a whitish yellow slough, the necrotic process extending in soft lupus very deep into the skin. Where the plaster has destroyed the nodule entirely it is not uncommon to see it skin over and heal perfectly while the plaster is still in position. After the fourteenth day the plaster is omitted and a moist Thiersch dressing applied until the ulcers heal, which is usually in less than a week. If all of the nodules have not been destroyed by this first course another course may be immediately entered on after the removal of the moist dressing, and a third or even a fourth may be needed to effect a cure.

The following case illustrates the usefulness of this method. A healing being obtained in a most satisfactory manner ten years ago, I have only the photograph of the "after taking," the negative and prints of the original condition having been destroyed in a fire two years ago. The second photograph shows the same person at the present time, April, 1907, when the recurrent nodules are being conquered by the mitigated silver nitrate and liquor antimonii chloridi. The case in its history illustrates beautifully the usefulness of the plaster, of curettage as I advocate it, of cauterizations by silver nitrate and antimony and the complete failure of the Roentgen ray to cure or alleviate.

Case 3.—Mrs. J. B. O'M., aged 32, housewife, married, of good previous history, was referred to me by Dr. J. T. Stewart Feb. 8, 1897. About one year previously a tuberculous eruption appeared on the anterior part of the left leg and on the forehead. The nodules were small and partook more of the scrofulo-gummatous than of the lupoid type. This had been treated by local measures, chiefly protective, and antisyphilitic treatment internally without benefit. Plasters of salicylic acid, 20 per cent., and creasote, 40 per cent., were applied by me for fifteen days, after photographing. The ulcerated surfaces were allowed to heal under the boro-salicylic solution, and then the caustic plaster applied for fifteen days more. The photograph (Fig. 8) was taken at this period of the second course. The disease disappeared entirely, but there was a fresh outbreak in September of the same year on the left cheek. This was easily controlled by the same remedies. In 1898 she had a tuberculous ankle joint which was treated by excision of the diseased parts with perfect recovery of joint function. In 1900 she had tuberculosis of the left elbow which also was treated by curetting and the application of zinc chlorid solution, and speedily healed.

In April, 1904, she returned with ulcerating lupus of the face of the butterfly type. She was sent to a competent Roentgen-ray operator and for two months had exposures every two days with positive detriment. Later the 20 to 40 salicylic-creasote plaster was applied with great benefit, but some patches on the forehead, cheeks and lips persistently refused to improve beyond a certain point; they were curetted July 8, 1904, under local anesthesia. This resulted in a practical cure. She has been able to work at her occupation as a copyist ever since. New nodules appear from time to time and are treated by curetting or the application of the liquor antimonii chloridi, mitigated silver stick nitrate, or lactic acid. Her condition at the commencement of April, 1907, is seen in Figure 9.

SILVER NITRATE.

Small nodules may be cured and larger patches treated successfully by the mitigated stick of silver nitrate, whose affinity for and destructive influence on tuberculous tissue seems lately to have been lost sight of. A molded cone of silver nitrate carrying 10 per cent. of potassium hydroxid (caustic potash) sinks into a tubercle of the skin like a knife into a piece of soft cheese, and this is diagnostic, for it does it with no other tissue. It completely destroys all of the lupus tissue it can reach. For tiny nodules or small fistulas a fine silver probe heated in a flame and then placed for a second in contact with the silver nitrate stick melts a portion of it, which immediately fuses itself on the point of the probe. This may then gently be forced into the "lupoma," destroying it. The black crust requires no dressing so long as it remains dry, but if pus forms beneath, the eschar should be removed and a moist Thiersch dressing applied.

LACTIC ACID.

Larger ulcers which refuse to progress toward healing may be cocainized with a little of the powder or some 10 per cent. solution and then cauterized with some pure lactic acid dropped on dry cotton packed in the wound. The surrounding skin should be protected with some resin or other heavy cerate. After from ten to thirty minutes the cotton is removed and a Thiersch dressing applied. I have not found lactic acid as useful in the treatment of nodules of the skin as it is in those of mucous membranes, where it has become my agent of first choice.

Silver lactate has the destructive and selective properties of lactic acid and silver in the treatment of tuberculous ulcerations of the skin. I employ it in the form of a 20 per cent. ointment made with simple cerate. This is worked into the meshes of strips of gauze by the hands covered by rubber gloves and used to pack the ulcers.

I have experimented with this agent considerably. It is well worthy of recognition in the treatment of ulcerative scrofuloderma and lupus. Its drawback is the dirty stain it produces on the skin of the patient and often that of the surgeon, for the lactate, like the nitrate of silver, is decomposed by light rays.

ANTIMONY.

Antimony in the form of liquor antimonii chloridi is a most dependable agent for destroying small lupoma. I modify Unna's method of application. Beechwood toothpicks are dipped into the solution and then inserted in the nodules, which is easy of accomplishment without undue force. They are allowed to remain in position for about ten minutes, even removed and replaced by others if the nodules are deep.

Unna then cuts them off, leaving the points in the skin to slough out. This I do not regard as necessary, but remove them after I think the part is sufficiently acted on by the drug and apply a moist Thiersch dressing, if the cauterized points are multiple or were the previous seat of suppuration.

PYROGALLIC ACID.

There are times when the salicylic-creasote plaster is useless or the sick person objects to its odor. Recourse may then be had to a salve or paste of pyrogallic acid, which also has selective action on the diseased tissues. It is best used as a 50 per cent. paste and, as it acts better in the presence of calomel, I add 10 per cent. by weight of this drug and enough terra silesia to the excipients—vaselin and lanolin—to make a flexible paste. This is spread on linen cloths cut to fit the diseased part, and these cloths should be covered with gutta percha tissue as a protective. The paste is applied in cycles in from five to fifteen days and renewed once or twice a day. Each time it is renewed the ulcer should be cleaned gently with gauze or cotton and as much of the resulting brownish yellow slough picked or cut away as is possible without irritation. The paste should not be omitted until it ceased to have a cauterant effect. After its removal a moist Thiersch dressing usually will be found to be the most satisfactory treatment.

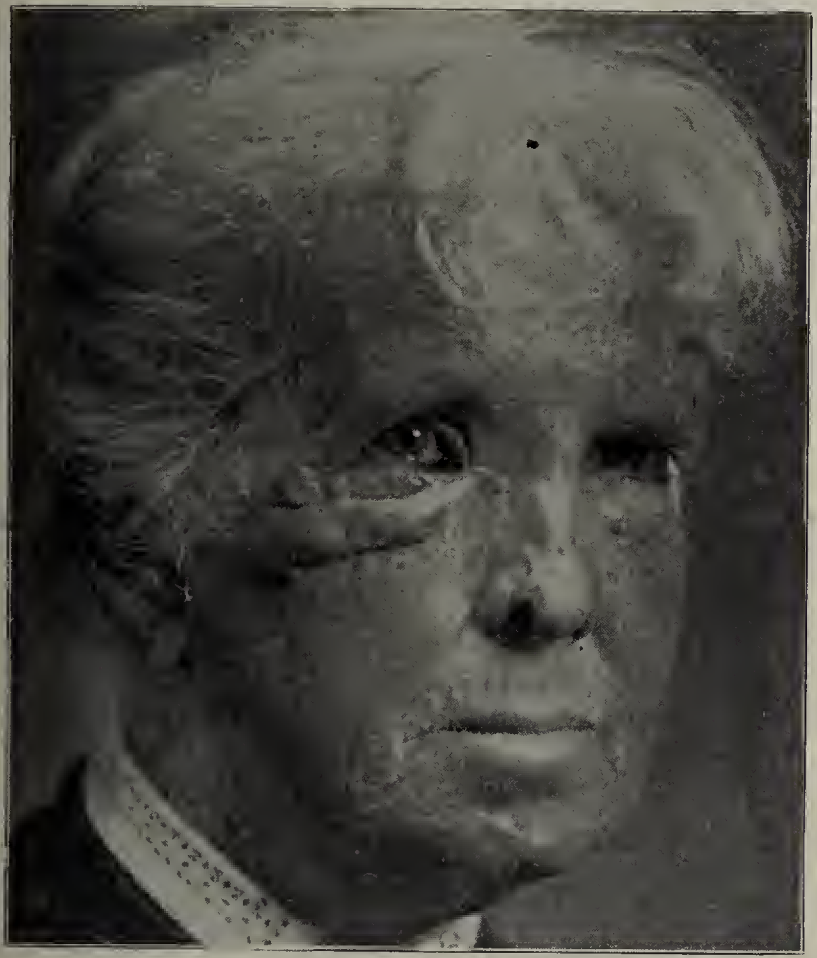

Fig. 1.—Excision of tissues about the canthus and of the right lower eyelid (one-half) for cancer developed on a patch of lupus; defect replaced by flap-sliding; nose treated by curettement and zinc chlorid solution; chin treated with arsenic paste. Photograph unretouched.

As a résumé of my experience and observation in the treatment of lupus I believe that while the Roentgen ray is, in the hands of a skilful operator, the most effective agent, all the patients can be cured within a reasonable time without it. That success follows persistence on the part of the medical attendant and patience with faith in ultimate recovery on the part of the subject.

COMBINED TREATMENT.

The combined or mixed treatment consists of the preliminary preparation of the field of operation by agents that lay bare the lupoma. Then the ulcerative surfaces are sterilized by the electro cautery and this is followed by ablation or curettage, thorough but not mutilating, with broad sharp curettes, followed by smaller and finer instruments of the same nature. This is followed by a second sterilization of the field of operation by alcohol and hot solutions of corrosive sublimate, and the subsequent chemical cauterization by a careful application of a 50 per cent. solution of the zinc chlorid to the curetted surfaces. The wound is then treated by moist dressings of boro-salicylic acid, which acts as antiseptic and keratolytic, until the healing of the ulcers. Careful searchings day after day for residual nodules in the scar, which, if found, are destroyed by the mitigated stick of silver nitrate, lactic acid or liquor antimonii, will effect an apparent and usually a real cure of the majority of cases of the disease within a period of three months, with a cicatrix that is not deformative.

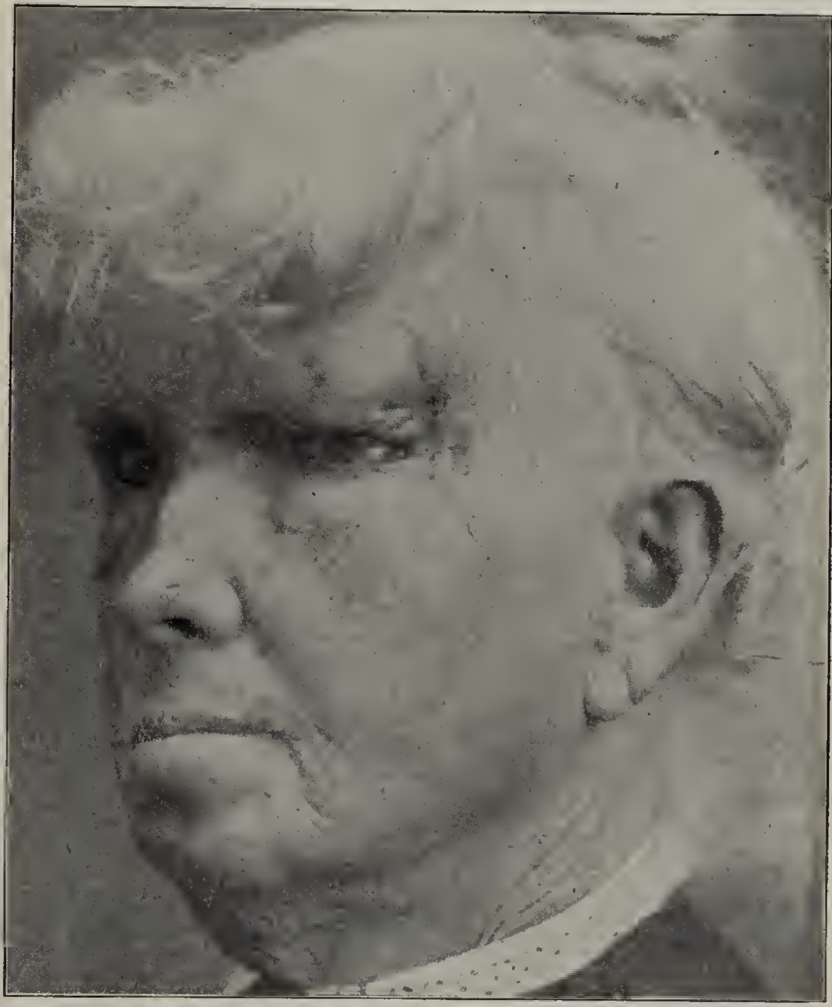

Fig. 2.—Same subject as Fig. 1. Removal of large portion of orbital plate of frontal bone and entire outer and superior orbital plate of malar bone, together with the affected skin; healing by granulation. Photograph unretouched.

About the eyelids, lips and nose, where the only consideration is to obtain healing with a minimum cicatrix, multiple linear scarification gives best results. Where the lesions are superficial the best treatment is the strong salicylic acid creasote mull or pyrogallic acid paste, with calomel repeatedly applied in several cycles of fourteen days each.

Lupus and various tuberculous lesions of the skin are not rare in the state in which I live, as it has become a haven of refuge for the tuberculous. Strange to say, in Southern California I have seen more cases develop between the third and eighth decades of life than in the very young.

HELIOTHERAPY.

There is another treatment to which attention should be called. This may or may not be original with me. I do not recall ever having read of any one using it, but I have not read everything and there is very little new.

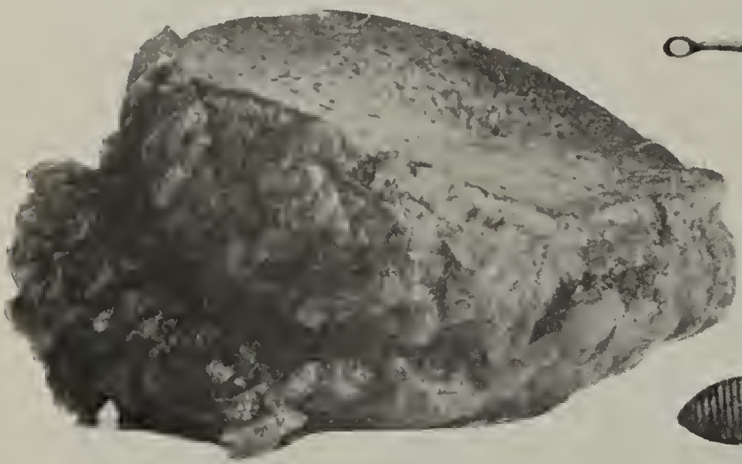

Fig. 3.—Patch of skin and deeper tissues removed from back of woman. Non-ulcerative lupus. Size, 9 cm. by 9 cm. by 6 cm.

For a number of years I have at times made use of a kind of heliotherapy in the treatment of sluggish wounds and tuberculous lesions of the skin. This consists of directing the concentrated rays of the sun on large wounds or large lupus patches with large lenses of broad focal distance, and on smaller areas with smaller lenses of lesser focal distance. The effect sought has been double: First, to obtain the stimulation from a kind of exaggerated sunshine on sluggish granulations, and, second, to obtain the destructive effects following the accurate focusing of the rays on definitely diseased tissues.

At first I had great difficulty in obtaining the consent of patients to submit themselves to the cautery effect of the sun rays, as they feared destructive burns and subsequent suffering; but now my assurance that the pain will pass with the treatment and that frequent repetition of the procedure is not necessary usually gains the consent of the subject readily. The treatment is carried out as follows: The subject sits or lies facing the sun. The operator stands or sits in such a position that he can throw the sun rays through the lens directly on the diseased tissues and change the focus of the instrument at will and at the same time observe the tissues which are being treated. The eyes of the operator should be protected with dark glasses, for the effect of gazing steadily at the concentrated light as it moves about the patch is blinding unless the eyes be covered. All of the neighboring parts should be protected with lead foil as is done in prolonged Roentgen ray exposures. The patch of lupus alone is exposed. The lens then is so held that the rays while concentrated are not accurately focused on the diseased structures, and the lens is moved so that the light rays of "exaggerated" sunshine move around and around the diseased area for from five to fifteen minutes, an occasional short rest being taken to relieve the operator's hand and accustom the patient to the treatment. The rays then are focused accurately on some point in the patch and the lens slowly moved, the focal distance being kept the same, over the whole lupus area. The pain at the time is quite severe but bearable. The tissues first redden, the individual blood vessels become engorged and expand, grow rapidly edematous, rise above the surrounding tissues and take on a yellowish brown and then an opalescent tinge. This is the time to cease. In twenty-four hours the cauterized tissues dry into a yellowish crust, which remains in position for a week or two before it drops off, leaving a smooth but slightly depressed and undeformative scar. Any point that escaped may be put to the test for tuberculous nests and submitted to a second treatment. The following case illustrates the value of this treatment:

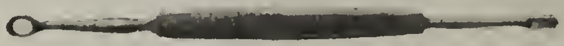

Fig. 4.—Prince Morrow curette.

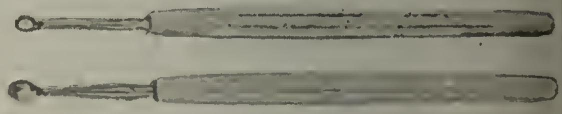

Fig. 5.—Besnier curettes.

Fig. 6.—Volkman curette.

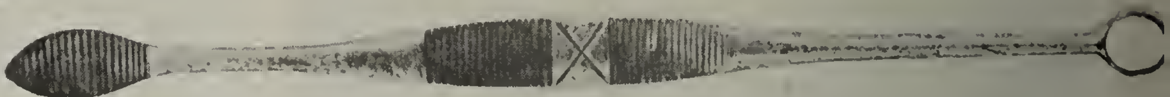

Fig. 7.—MacGowan curette.

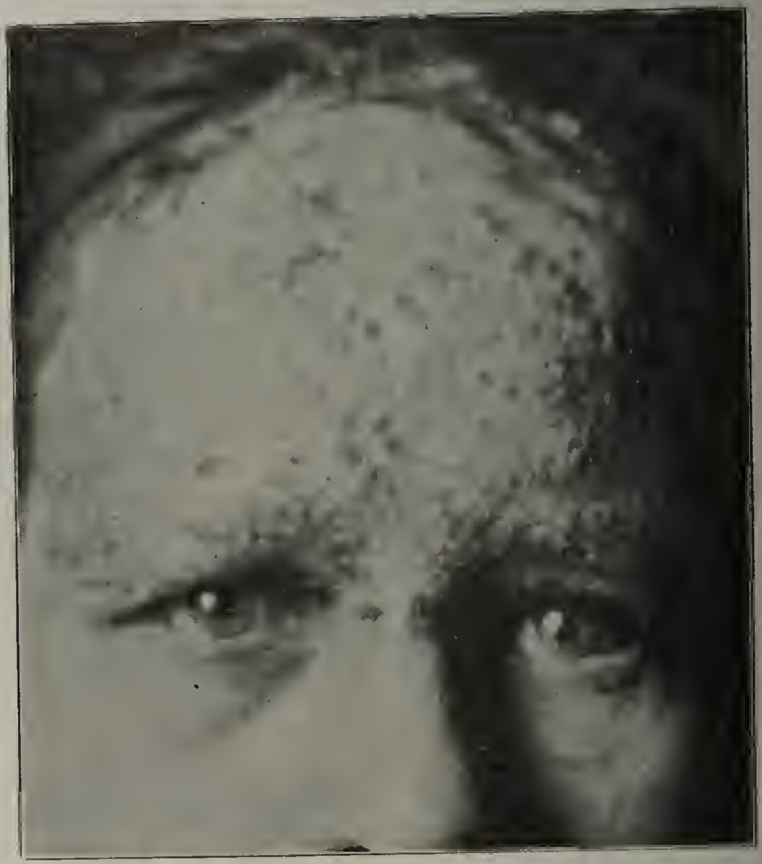

Fig. 8.—Case 3; taken in 1897 after fifteen days' application of Unna's 20 to 40 salicylic-creosote plaster mull. Photograph unretouched.

CASE 4.—Mrs. B. A. G., married, aged 34, came to me April 12, 1905, with lupus of the upper part of the bridge of the nose, extending out on the cheek on each side, the patches having approximately the same size and shape as shown in Figure 10. There was also one patch in the center of the right side of the forehead, one small one over the left eyebrow, one within the concha of the right ear, and one on the right cheek over the malar prominence. There was a previous history of tuberculosis of the lungs active ten years ago but cured at the time of consultation. The foci were first treated with the 20 to 40 plaster mull of salicylic acid and creasote and subsequently with antimony chlorid and other caustics. There was much betterment but no cure of the larger patches on the nose, but an apparent cure of the smaller patches in the ear, on the forehead and on the cheek.

Treatment by the lenses and sun rays was commenced June 1, 1906, and one patch was treated at a time at irregular intervals until Sept. 25, 1906, with practically perfect results. No other treatment nor application was made. The character of the scars is shown in the accompanying photograph (Fig. 11). They are not deformative.

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DISCUSSION

ON PAPERS OF DRS. KASSABIAN, BOGGS AND MAC GOWAN.

Dr. M. B. Hartzell, Philadelphia, said that we should not lose sight of the fact that patients with lupus were cured before the introduction of the Roentgen rays and the Finsen light. He said that he had listened in vain to hear some one say something about the untoward effects that sometimes result from the Roentgen rays, and with which we are all more or less familiar. He spoke particularly of the marked atrophy of the skin which not infrequently follows the Roentgen ray treatment, and mentioned the case of a young woman who was treated by this method for a disfiguring form of acne; the treatment proved satisfactory, so far as the disappearance of the acne was concerned, but it left her with the seamed and wrinkled face of a woman of 75. Among the cases of eczema that are most successfully treated by this method are those in which patches occur on the backs of the hands. In these cases he has often seen marvelous results.

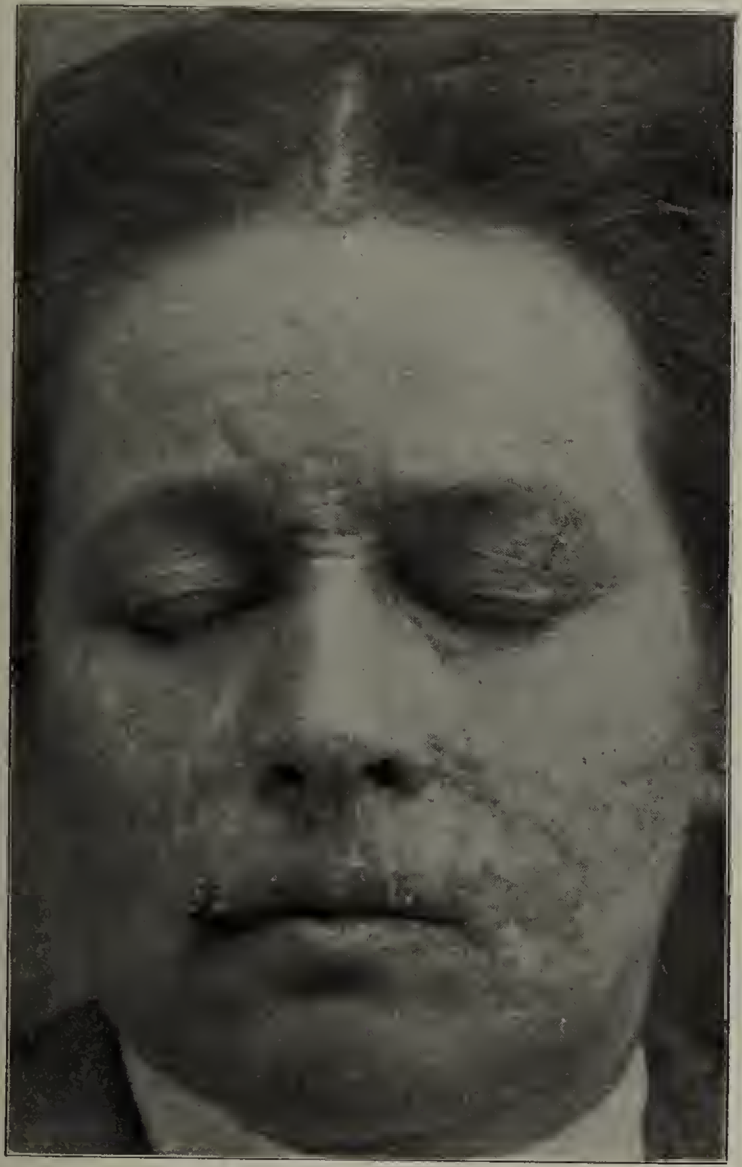

Fig. 9.—Case 3, showing condition of forehead and face with recurrent lupomes of the upper lip, April, 1907. Photograph unretouched.

Dr. G. E. Pfahler, Philadelphia, said that the papers of Drs. MacGowan and Kassabian impressed on him the fact that in the treatment of these various affections a single remedial agent can not be depended on. One man, with the proper technic and equipment, will get marvelous results from one agent, while another man with the same agent, but improperly equipped, will get poor results or none at all. Dr. Pfahler agreed with Dr. Hartzell that the Roentgen rays may prove harmful, and that they should never be used in cases in which another remedial agent will accomplish the same result. He believes that we are prone to use the *x*-ray too frequently and with too strong a dosage, especially in skin diseases. Nature should be allowed a little more time after the lesions have been sufficiently stimulated. Perhaps the ideal treatment would be to give a single dose, and then await its effects. For the past year he has been trying to perfect the technic for the removal of superfluous hair, and he agreed with Dr. Schamberg that physicians should hesitate in treating these patients with the *x*-ray. In the cases in which he has undertaken it, he has done so under protest. By an exposure of thirty seconds he has been able experimentally to remove hairs without doing any damage to the skin. With this technic, which is not yet completed, the hairs have been removed, but not permanently, and he mentions it as an example of what may possibly be done with the *x*-rays with good technic.

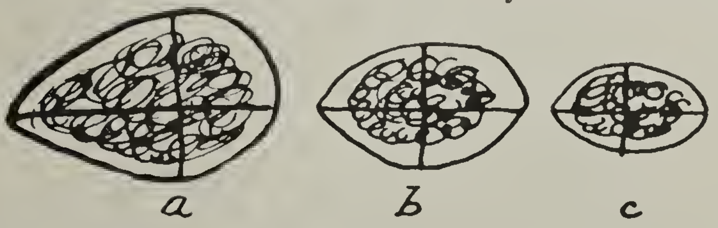

Fig. 10.—Case 4, showing approximate size and shape of patches of lupus; *a*, right side of nose; *b*, left side of nose; *c*, top of nose.

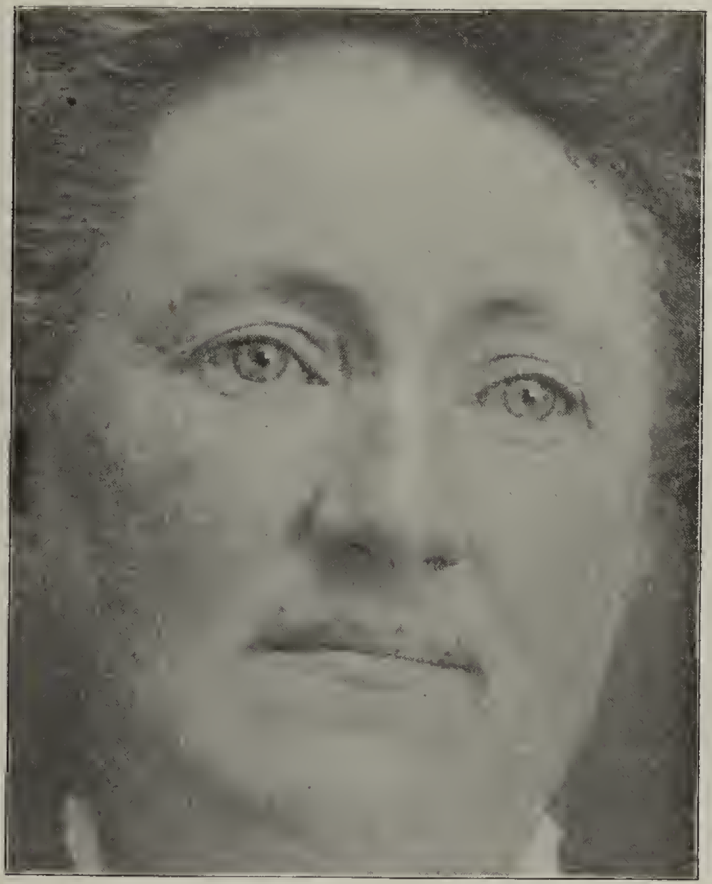

Fig. 11.—Case 4, showing character of scars on nose, cheeks and forehead following treatment of lupus by heliotherapy with lenses. Photograph unretouched.

Dr. Charles Leonard, Philadelphia, said that he indorses what Dr. Kassabian said in regard to the injurious effects of meddlesome treatment—both medical and surgical—in dealing with an *x*-ray dermatitis. All meddlesome medication should be avoided by anyone who comes in contact with these lesions. The lesions are the result of injury to the trophic nerves, and the vitality of the tissues is much impaired. He has known of many instances in which these lesions were excised in spite of the fact that the surrounding tissues were so much impaired in vitality that it was impossible to expect either healthy granulations or any reparative process. Such treatment simply aggravates the condition; the same is true of the application of irritant ointments. In Philadelphia physicians have learned to let Nature take its course in the care of these ulcers, simply limiting themselves to proper asepsis, and mild stimulation by the use of hot water baths, and application of ointments of the mildest character, such as lanolin and petrolatum in equal parts, with 5 per cent. of zinc oxid. Under this treatment, the chronic ulcers will heal, and the malignant transformation which is said to be so common, is prevented because all sources of chronic irritation are removed, and the devitalized tissues are allowed to regain their normal vitality, which is essential to reparative processes. In the treatment of lupus, particularly that effecting the nose, Dr. Leonard has seen excellent results following the *x*-ray treatment, with scarcely a perceptible scar. As the papers have shown, successful treatment is dependent on accurate powerful treatment adapted to the needs of the tissues and lesions involved. Failures are certain to result in the hands of those deficient in technic and timid because they are ignorant. This is true of all medication, as has been clearly demonstrated by Dr. MacGowan's paper.

Dr. Jay F. Schamberg, Philadelphia, said that he is in general accord with the statements made in the papers under discussion. The Roentgen rays, properly applied, form an important addition to our therapeutic armanentarium. At the same time physicians are less enthusiastic in their claims concerning the results of the *x*-ray treatment in dermatology than they were some few years ago. The *x*-rays are of decided value in acne, but the method should be used in conjunction with other approved measures. Dr. Schamberg has found the treatment more efficacious in the deep pustular varieties than in the mild superficial papular types. In eczema his best results have been obtained in the recurrent vesicular type involving the hands and feet—those rebellious varieties which recur month after month and year after year, and which are comparatively little influenced by other methods of treatment. In the treatment of superficial diseases of the skin, the older methods of treatment found to be of value should be employed and the *x*-rays used as an adjunct and auxiliary in as small degree as possible. By thus employing the minimum quantity of *x*-rays to assist in effecting a cure, much greater security is assured against producing undesired structuarl change in the skin.

Dr. R. H. Montgomery, Youngstown, Ohio, said that he has never seen any untoward effects from the use of the ray, in spite of the fact that for a number of years he employed them in a comparatively reckless manner. He recalled particularly one enormous epithelioma of the face which he succeeded in curing after the patient had been given up by the surgeons, and at that time he knew little about the proper dosage and technic. He has also used the remedy in acne and lupus vulgaris, with comparatively good results, and so far as he knows, no malpractice suit has ever been brought against him.

Dr. Granville MacGowan, Los Angeles, said that he does not know why an old man's skin should not heal in the same way as a young man's. He has operated on many patients over 80, and they recovered after serious surgical operations. The trouble with many surgeons in dealing with epithelioma is that they are a little timid, fearing to remove much tissue lest it should leave a bad scar on the face, which might be regarded in the community as a reflection on their skill. In his paper he said that there is nothing he could recommend that is new, but there is one method of treatment which he forgot to mention, and which may be new to some; he has frequently resorted to it in the treatment of lupus about the face or hands, with excellent results—that is, the application of the direct rays of the sun. He has seen astonishing results in general tuberculosis from the simple application of the sun's rays as God gives them right out of the clear sky; in California this treatment is possible over 300 days in a year, and it occurred to him that perhaps these rays, if they were concentrated on a small lupoid lesion, would prove beneficial. To make these applications, he employed a small lens for small lesions, and a large lens for large lesions. The operator is placed between the patient and the sun, and with the lens concentrates the rays on the lesion for a period of eight or ten minutes. The treatment is painful, it hurts decidedly, and even a preliminary injection of cocain does not entirely do away with the pain. Under the influence of these strong rays of sunlight the tissues undergo much the same change that we see after the application of arsenical paste. They first become brownish-yellow and then assume a peculiar purplish tint. Within twenty-four hours they dry up into a crust like that observed on old eczematous patches; this falls off in the course of ten days, leaving a perfectly smooth flexible scar.

Dr. M. K. Kassabian, Philadelphia, said that about one-half of the *x*-rays are absorbed in the epidermis and about one-tenth in the derma. He is sorry that he can not agree with Dr. MacGowan that we can use sunlight in this type of cases, and he believes that when penetration is necessary, we must resort to the *x*-rays.

Dr. Russell H. Boggs, Pittsburg, emphasized the importance of the word "conservative." This means that *x*-ray men should not only be conservative, but that physicians who know nothing whatever about the Roentgen rays must not judge good work by a few patients who have not been properly treated. Every year we hear less and less of the enthusiastic *x*-ray men, and instead of that we hear more of the conservative use of the *x*-rays.

TWO SEBORRHEIDS OF THE FACE.

I. ACNE RUBRA SEBORRHEICA. II. PITYRIASIFORM SEBORRHEID OF THE FACE.

M. F. ENGMAN, M.D., and W. H. MOOK, M.D.
ST. LOUIS.

ACNE RUBRA SEBORRHEICA.

At the third International Congress of Dermatology and Syphilography, Petrini described two cases of a disease of the skin of the face in middle-aged women, which appeared in the form of small red papules, especially about the nose. He recognized from the color and clinical features of this affection that it was a distinct and characteristic condition. To this affection he applied the term acne rubra seborrheica. In 1903 Pringle undoubtedly described the same condition in an article[1] to which he gave the title, "A Rare Seborrheid of the Face." Since that time we have carefully watched the literature for further contributions on this condition, but after a rather thorough search no further data could be obtained. One of us had for years been in the habit of classing the affection above named under the term "seborrheic acne."

It seems strange that more attention has not been called to this not infrequent condition, as it is distinct and not easily confused with any other of the skin. On close examination one can readily see that it has not the appearance of an acne vulgaris or simplex, and its therapeutic handling renders it in itself distinct from those affections. Pringle reports only one case, and mentions several others in his contribution, but seems to have confused its etiologic features.

Acne rubra seborrheica, as the title indicates, always occurs in seborrheic individuals, and when we speak of seborrhea we mean the seborrhea oleosa of the older writers, characterized by oiliness of the skin, especially through the center of the face, thickening of the skin in many instances, more or less dilatation of the follicles, and possibly here and there some small scaly patches; and there may be associated with this seborrheic groundwork a few comedones with their subsequent acne. Acne rubra seborrheica is, therefore, a disease which may occur any time after puberty.

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Britsh Jour. of Dermatol., February, 1903.

The disease begins as a small, follicular papule of a rose-red tint, varying in size from a pin point to a lesion as large as a split pea. The lesion is more or less convex, sometimes capped by a small scale, which is closely adherent, and in the very earliest stage in the formation of this scale there may be seen a minute pustule, which quickly dries into a crust. As evolution progresses the desiccation extends from the summit to the base of the papule. The papule gradually flattens and remains in this desiccating condition for some time. Several of these lesions may coalesce to form small patches, but this is, in our opinion, unusual, as one of the distinct characteristics of the disease is the disseminated distribution of the eruption.

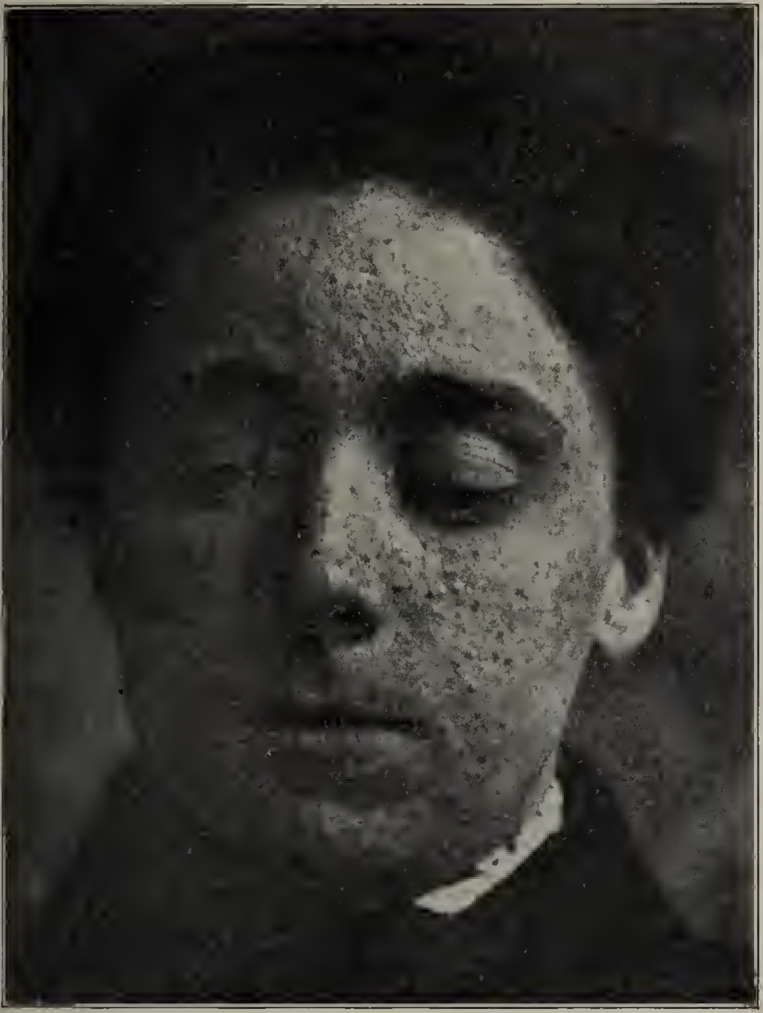

Fig. 1.—Acne rubra seborrheica.

Here and there is sometimes slight grouping, but it is not a conspicuous feature. In the majority of cases these lesions are irregularly scattered about the base of the nose, near the naso-labial furrow, about the chin and on the forehead. The nose itself is not so frequently affected as its immediate neighborhood. Where the disease has existed for a long period it is widely scattered over the face and neck. As yet we have seen no lesions of this type on the chest or shoulders. On account of the rose-red color of the lesions, when taken in their ensemble, and when closely placed together, they give the appearance of flushing, almost of a rosaceous condition. Especially is this true when the patient enters a warm room or blushes, and it is a fact that in all of these cases, without a single exception, a blush is easily caused, rendering the lesions, therefore, more congested and conspicuous.

The disease, without proper treatment, does not undergo involution, as some of our cases have existed ten and twenty years, and have been treated in many instances, possibly, for acne vulgaris. Although the condition does not as a whole undergo involution, yet here and there, where it has existed for long periods, sites of former lesions are easily recognized by a slight pigmentation, and when the face becomes congested by blushing or exertion these foci are easily discernible.

Not infrequently there is a complication of some other seborrheid. Petrini refers to a probable seborrheic condition of the lips and mucous membrane in one of his cases. Seborrheic eczema of the scalp is, of course, most frequently associated. In several of our cases there have been some slight desquamative changes of the lips, and in one case a lesion of the tongue, which was also probably of the same origin. The seborrheic eczema of Unna —with the exception of the condition of the scalp above referred to—we have never seen associated with this affection. When the disease has existed for a long period, the time, of course, varying as to the individual, minute telangiectases are formed on and immediately around many of the lesions in the form of thread-like vessels, and every lesion has a more dusky and rosaceous appearance. We may safely assert that the longer the disease has existed the more dusky the rosaceous is its appearance. This telangiectatic condition occurs most frequently in the center or seborrheic areas of the face and does not exist on the sides of the cheeks. Subjectively the patient will notice possibly a slight amount of itching, and when the disease is widely disseminated and has existed for some length of time there is a decided tingling and burning, which is markedly accentuated on exer-

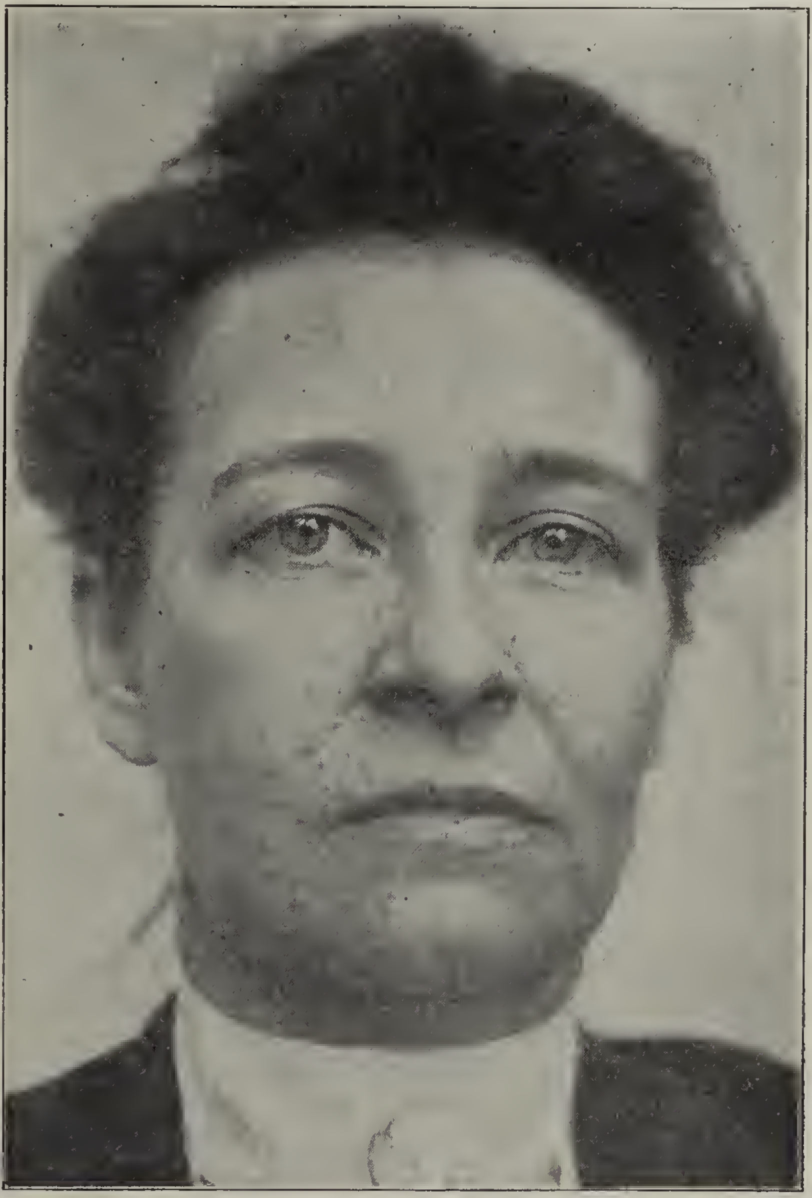

Fig. 2.—Acne rubra seborrheica.

tion or by anything that will cause an increase of the congestion of the face. This seems to annoy the patient in many instances, and, with those in the lower walks of life, is the principal cause of their visit to the physician.

Acne rubra seborrheica always begins with the formation of a few papules, occurring on the chin and around the nose, and when it is widely distributed one can feel sure that it has existed for some years, as the disease extends very slowly. It does not appear in crops or acutely, but by gradual and slow extension of the process. Irritating applications, possibly soaps and various lotions, which the patient generally uses in the home treatment of this affection, no doubt add to the rapidity of its spread.

Acne rubra seborrheica is to be differentiated principally from: 1, A small papular syphilide; 2, acne vulgaris; 3, acne rosacea; 4, pustular folliculitis; 5, acne agminata (Crocker); 6, acne varioliformis; 7, adenoma sebaceum. The diagnosis is easily made when one bears in mind the following salient features: The seborrheic base, associated in most instances with seborrhea of the scalp; papules of various sizes, ranging from a pin point to a split pea; superficial, convex papule, capped by a slight scale or covered with fine desquamation, containing no comedo or pus; dissemination being characteristic feature, grouping a question of accident; location in the seborrheic areas of the face; duration; subjective symptoms; tendency to flushing; often small telangiectases; no pitting or scarring; and, above all, a dry, non-suppurative superficial desiccating papule. These points are certainly sufficient to differentiate this papule from that of any of the above-named affections, without the therapeutic test, which is a final and positive differential point and will be spoken of later.

Petrini, in his original communication, classed this papule among the seborrheids for the reasons above given, viz., its association with other seborrheic conditions. Pringle, who has written most clearly on this subject and adds to his article a colored plate, says that his case was labeled seborrheic eczema, but it was finally brought to the dermatologic society as a case for diagnosis; as it presented about the same condition as that described by us, although the eruption was more widely distributed than those usually seen, and it had more of the rosaceous element about it, it was undoubtedly an extreme type of this affection. Pringle also speaks in his article of a similar case described by Dr. Colcott Fox and one by Dr. Galloway. Dr. Fox's case contained no telangiectases, due probably to its short duration. Dr. Galloway's case had a great deal of general erythema and contained numerous small telangiectases, and, on first glance, had some resemblance to adenoma sebaceum, but on more careful examination it proved to be an entirely different affection.

It seems odd to us that this affection has not been previously brought to the general notice of the profession, and strange that more cases have not been reported. Our statistics show, from the St. Louis Skin and Cancer Hospital, and our private practices, 40 cases out of 1.000 cases of skin affections; from our clinic in the Skin and Cancer Hospital we have recorded 19 cases out of 500 cases of skin diseases; in private practice 64 out of 1.000 cases of skin diseases. All of the cases included in these statistics have undergone the therapeutic test and presented the characteristics of this affection above-enumerated.

On account of the location of this disease it has not been possible for us to obtain material for microscopic study. In lieu of that we will take the liberty of quoting the report of a histologic examination by Dr. Graham Little, given in Dr. Pringle's article above mentioned:

> *Examination with low power* (*No. 3 Leitz*): The small elevations corresponding to the papules are seen to center round a pilo-sebaceous follicle. The follicular orifice is not especially large or dilated, and there are no plugs as in acne. The hair in the follicle is not coiled on itself, or abnormal in any way. The horny layer is normal; there is no acanthosis. The only pathologic features noticeable are as follows: Around the hair follicle throughout its extent, but more especially in its deeper parts, there is an extensive infiltration of cells. In the case of the larger papules this mantle of cells exceeds two or three times the diameter of the cross-section of the follicle, as measured with a micrometer eyepiece; in the smaller papules the sheath of cells surrounding the follicle may consist of only a few layers of cells, but the hair-follicles, almost without exception, seem to have this surrounding envelope of cells. The collagenous bundles are displaced by these collections of cells and wall them in. The sebaceous glands appear in many cases abnormally large, but this enlargement is in no way comparable to that seen in sebaceous adenoma. The blood vessels appear normal and there is no other tissue change to note.
>
> *Examination with high power* (*1/12 oil immersion, No. 4 eyepiece, Leitz*): The collections of cells round the pilo-sebaceous follicles consist of mononuclear and polynuclear leucocytes, with some connective-tissue corpuscles. There are no plasma cells or mast cells. The most careful examination for micro-organisms gave a negative result.

We have attempted a bacteriologic investigation of the papules and scales, but our findings are possibly of no value, as we could only demonstrate the organisms normally found on the seborrheic skin, viz., the flaschen bacillus of Unna, the polymorphic coccus (white coccus) of Cedererentz, and Sabouraud's microbacillus of seborrhea. Whether we are to follow, in reasoning out the etiology of this disease, the dictum laid down by Sabouraud, namely, using his microbacillus of seborrhea as a pioneer, or not, is a matter of taste. The organisms mentioned are found in the normal skin, and it seems to us it is going rather far to state, dogmatically, that a certain bacillus, normally found in the skin, paves the way for secondary infection by other organisms also normally found in the skin. Therefore, we will pass this matter over by saying that the affection which we are attempting to describe should possibly be classed, for the present at least, with the seborrheids, as it is closely associated with other seborrheic symptoms.

We do not believe that internal conditions, as far as the papule is concerned, have anything to do with its etiology. Flushing of the face, so characteristic in long-standing cases of this disease, is, in our opinion, secondary to the skin involvement, and is due solely to inflammatory changes produced by some infection, extending over long periods of time in a seborrheic skin. All of our cases presenting marked flushing and congestion have recovered by local treatment alone; therefore, we do not believe that there is any connection at all between this condition and the alimentary tract. Of course we are not now discussing the probable underlying seborrheic factor, whatever its cause may be.

The treatment of acne rubra seborrheica may be summed up in four words—salicylic acid and sulphur. All patients will recover in from two weeks to two months, no matter how severe, if properly treated with these drugs. In using sulphur and salicylic acid in this, as in other affections, we must begin with a weaker strength in an ointment base and gradually increase the strength, commensurate with the slightest amount of irritation of the normal skin of the patient. The stronger the preparation of salicylic acid and sulphur the quicker will be the recovery, provided one does not irritate too markedly the normal skin and produce a dermatitis.

Many of the patients appear for treatment after they have used various irritating and ineffectual applications, and we may find more or less of a dermatitis, which might probably mask the real condition. If acne rubra seborrheica is suspected soothing applications should be used until the latter affection becomes plainly evident, when mild applications of sulphur and salicylic acid can be ordered. Our usual procedure, where no dermatitis accompanies the disease, is to begin with 20 grains of sulphur precipitate and 5 grains of salicylic acid to the ounce of cold cream. This is gradually increased and continued until the disappearance of the disease. No matter how mild the strength of the sulphur and salicylic acid, the patient will complain of its burning during the first applications.

If there is marked tendency to flushing and congestion, which occurs in the older cases, the internal administration of ichthyol and strychnin assists in the control of the vessels. Often mild applications of the Roentgen ray will hasten the disappearance of the lesions, and we believe it also assists in quieting the vessels to their proper tone.

After the patient has recovered from the papular elements of the disease the underlying seborrhea should be treated to prevent its recurrence, and the patients should be instructed to continue the treatment of the seborrhea in a routine manner and add it to the routine of their toilet, as they do their tooth powder or manicure set. For this purpose we generally use a solution of 1 per cent. of salicylic acid with 3 per cent. or boric acid in some spirit. Accompanying this we often order the following powder, which is lightly rubbed over the face, after it has been thoroughly mopped with the above-mentioned solution: Acid boric, sulphur precipitate, zinc oxid, pulv., calamin prep., equal parts. Such a routine procedure, when properly carried out, will almost always insure the patient against a relapse, and will markedly improve the oily seborrhea. The scalp in every instance should be treated in the manner usually employed for such cases.

PITYRIASIFORM SEBORRHEID OF THE FACE.

We will mention only in outline another condition of the face, which is in our experience rather frequent,, and we believe should also be included with the so-called seborrheids, as it is in every instance associated with a seborrheic condition of the scalp. It is most frequent in those with fine, delicate skins, occurring, therefore, especially among women and children, and more frequently in blondes. We see more cases in the winter months, and in those who have been recently exposed to sharp winds, being markedly frequent in women after automobiling.

This disease occurs in the form of one or more scaly patches, scattered over the front of the face and sides of the neck. The patches are irregular in shape, ranging in size from the most minute point to an area often occupying more or less a quarter of the face surface; the usual size, however, corresponds to that of a small coin. There are very few, if any, inflammatory symptoms, and the patch can only be seen in many instances on close inspection. It is covered by fine, closely adherent scales, giving it an appearance of a branny, desquamative character. The edges are irregular in outline and the patches spread peripherally. Often the patches are distinctly circular and are mistaken by the patient for ringworm. When circular they have more of an inflammatory character and the edges are of a distinctly pale pink. In the center of these patches the scales are adherent, and there is a yellowish, reduced, parchment appearance to the whole area. The patient will state that these patches are prone to recur and are aggravated by the slightest irritation.

We have never seen this condition except on the face and neck, never on the hands or on the covered portions of the body. Crocker refers to a similar condition and speaks of it as produced by soaps. Sabouraud refers also to furfuraceous patches similar in character, complicating streptococcic impetigo, and says they are also due to that organism. From a close study of these cases we feel assured that they have a direct connection with the so-called seborrheic element, and are most probably due to autoinfection from the scalp, occurring in those with dry, delicate skins, the exciting agents probably being cold winds, irritating soaps, harsh water, violent friction to the face, and other traumata, followed by infection.

We feel encouraged in making this statement when, on looking over our records, we find that antiseborrheic treatment is the most valuable curative agent, though this has to be used in as strong doses as possible. Often reducing agents will have to be pushed to marked exfoliation of the epidermis before the patches are eradicated. It seems to us that chemical and mechanical agents, such as soaps, etc., are only the exciting factors, and that this condition must be due to some living agent following such trauma, as it does not undergo involution, but spreads peripherally, as other infectious processes. It is only eradicated by the proper antiparasitic agents, which often have to be pushed to marked irritation of the normal skin and followed by soothing applications before a beneficial result is obtained. To prevent recurrences the scalp conditions should be most thoroughly treated, and it is only by this method that repeated attacks can be controlled.

These pityriasiform patches must not be confused with the usual seborrheic eczema with their yellow, greasy scales, or other acutely inflammatory conditions, because we have in this instance a furfuraceous patch, extremely superficial, circumscribed, with the slightest possible evidences of inflammation, slightly itchy, rather rebellious to treatment, sensitive to the slightest irritation, without vesiculation or crust formation.

DISCUSSION.

Dr. Joseph Zeisler, Chicago, stated that he admired the classical observations in this paper, but questioned whether it is opportune to overload our dermatologic nomenclature still further. In the one form of acne described we have simply a symbiosis of acne with seborrhea; in the second variety we have those familiar cases which were usually described under the term of eczema squamosum.

Dr. Jay F. Schamberg, Philadelphia, said that for some years past he has seen, particularly during the spring months of the year, a considerable number of children with sharply defined, furfuraceous patches on the cheek, which were recorded as cases of eczema squamosum. He has long been suspicious, however, that they are of a seborrheic nature. The condition usually develops in March or April; he has observed as high as 10 per cent. of the pupils in certain classes of certain schools to be affected with patches of this kind. Whether the affection is the result of the harsh winds that usually prevail at this particular season, or whether it is transmitted from one child to another is a question which he is unable to answer. It is, he said, very difficult to speak concretely on the subject of seborrheids, as we have not a very clear comprehension of what seborrheids really are, nor are we in accord as to the etiologic factors that have been described in connection with seborrheic processes. Some years ago he examined the skin of fifty patients who came to the dermatologic clinic, for various reasons, and in 45 per cent. of these cases, the sebaceous glands contained the microbacillus of Sabouraud. Whether this organism bears any special pathogenic relationship to the class of eruptions under discussion future investigation must determine. It has not been positively proved that the microbacillus is not a normal inhabitant of the sebaceous glands, although Sabouraud certainly makes out a strong case for its pathogenicity in relation to oily seborrhea.

Dr. W. H. Mook, St. Louis, said, in regard to the pityriasic affections of the face and neck which are embraced under the second heading, he would insist that this is certainly a distinct condition from eczema, and should be so regarded. The idea of his classification of this form of acne is to distinguish it from the other forms, as it is, in his opinion, a distinct entity.

THE TECHNIC OF OPERATIONS FOR CARCINOMA OF THE BREAST.*

MILES F. PORTER, A.M., M.D.
Surgeon to Hope Hospital, Professor of Surgery in the Indiana Medical College, Department of Medicine, Purdue University.
FORT WAYNE, IND.

The chief object of operation for cancer of the breast is, of course, the cure of the cancer. This is as it should be, but it is also important that the convalescence of the patient be as comfortable and as rapid as possible, and that the resulting disability be as slight as consistent with radical removal of the growth. It is especially with a view of aiding somewhat in the accomplishment of the last-named objects that this paper is written. The chief basis of the paper—aside from a study of the literature—is my personal experience in this line of work, something over fifty cases of radical removal.

SUPERFICIAL INCISION.

This must be varied often to suit the case in hand, but the skin forming the floor of the axillary space should not be incised except in cases wherein the removal of a portion of it is necessary. There are two reasons why it is desirable to avoid incising the skin in this area: First, because infection is more likely to follow incisions made in this area, and, second, because the resulting scar is likely to interfere with the movement of the arm.

Figure 1 illustrates these points. There was a slight infection of the wound in the apex which increased the amount of scar tissue and exaggerated the bridle which interferes with the upward movement of the arm. Incisions so made as to form flaps with acute angles are objectionable, because they are difficult to coapt and are prone to slough on comparatively slight provocation. Rectangular incisions for removal of the breast, as compared with circular or elliptical incisions, are wasteful of tissue. The incision which I think the best, and one which is adapted to most cases, is one commencing at the humeral insertion of the pectoralis major muscle and following its lower border until the breast is reached, then surrounding the gland in a somewhat elliptical fashion so that when coapted the line of coaptation will occupy about the position occupied by the lower border of the normal pectoral muscle, save that it extends farther inward and downward. This incision gives ample room for the clearing of the axilla and the removal of the pectorals, and leaves a minimum scar, which may be fixed well up in front of the joint, where it will be least likely to interfere with abduction of the arm.

Figure 2 shows the result after an incision of the kind described. As stated above, the lines of the incision must of necessity be changed sometimes to meet the requirements of the case at hand, but the principle of so planning the incisions as to allow of coaptation with a minimum amount of tension made in a vertical direction, especially in the outer aspect of the wound, must be adhered to as nearly as is consistent with complete removal, if the best results are to be attained, so far as concerns the movement of the shoulder.

PART TO BE REMOVED AND METHOD OF REMOVAL.

All of the pectoralis major muscle, except the clavicular portion, and the abdominal portion when present, should be removed, together with the whole of the pectoralis minor, the axillary fat and glands, and the breast, with its coverings.

The pectoral insertions are most quickly and safely divided by scissors, using the finger as a guide. The cleaning of the axillary space should be from above downward and from without inward. The larger part of this dissection can be most satisfactorily done by wiping the fat and gland away from the vessels. I owe my knowledge of this gauze dissection to Dr. A. J. Ochsner, and regard it as an important improvement in the technic. By ligating the vessels near the main trunks, as advised by Jackson, the field may be kept free from blood and the work much expedited. Clamps are placed, when necessary, on the distal ends of the vessels. As the mammary gland is lifted from the chest wall the perforating arteries may be caught with forceps before they are divided.

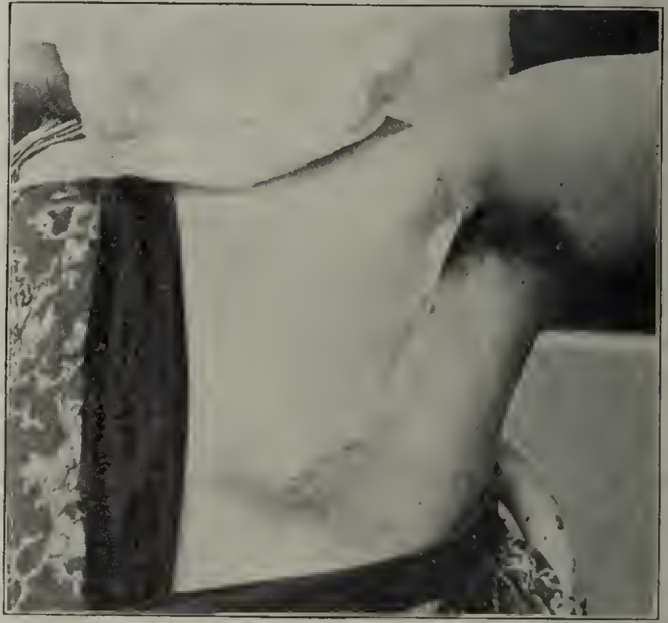

Fig. 1.—Showing scar tissue in axillary space interfering with upward movement of arm.

CLOSING AND DRESSING THE WOUND.

The rapidity and completeness of the patient's recovery, as well as her comfort, depends, in a large measure, on the way the wound is closed and dressed. The most perfect wound treatment is that which reduces to the minimum the scar tissue, and disposes that which is unavoidable in such manner as not to interfere with function. With this object in view the wound should be completely closed and no drainage used. In a very few cases, indeed, will it be impossible to secure complete coaptation of the margins of the wound, and in still fewer will drainage be necessary.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Hemostasis must be practically perfect. In accomplishing this, the use of hot compresses is invaluable. These are applied to oozing surfaces while the larger vessels are being tied or twisted and the wound is being closed. Not only does the heat assist in preventing the bleeding, but it is of material value in preventing the untoward results, pneumonia, shock, etc., which may follow the exposure of so large a raw surface to cold. I have already said that in all but a very few cases complete coaptation of the margins of the wound can be secured. In six patients operated on in Hope Hospital since October, 1905, complete closure of the wound has been secured in all. In order to do this, the skin must be drawn taut over a larger or smaller area, but the skin will stand much more tension without breaking down than most operators seem to think. In most of these cases in which the wound is completely closed, the skin will have to be stretched until it is white, but by placing tension sutures properly, and in sufficient number so as to distribute the tension as evenly as possible, no harm will come from the tension, and the wound will heal by first intention within a week. For tension sutures I prefer silk-worm gut and buttons. The buttons have a tendency to produce pressure necrosis if the tension is great, but this can be so nearly overcome, by placing under the buttons a little gauze, that it amounts to but very slight annoyance at most.

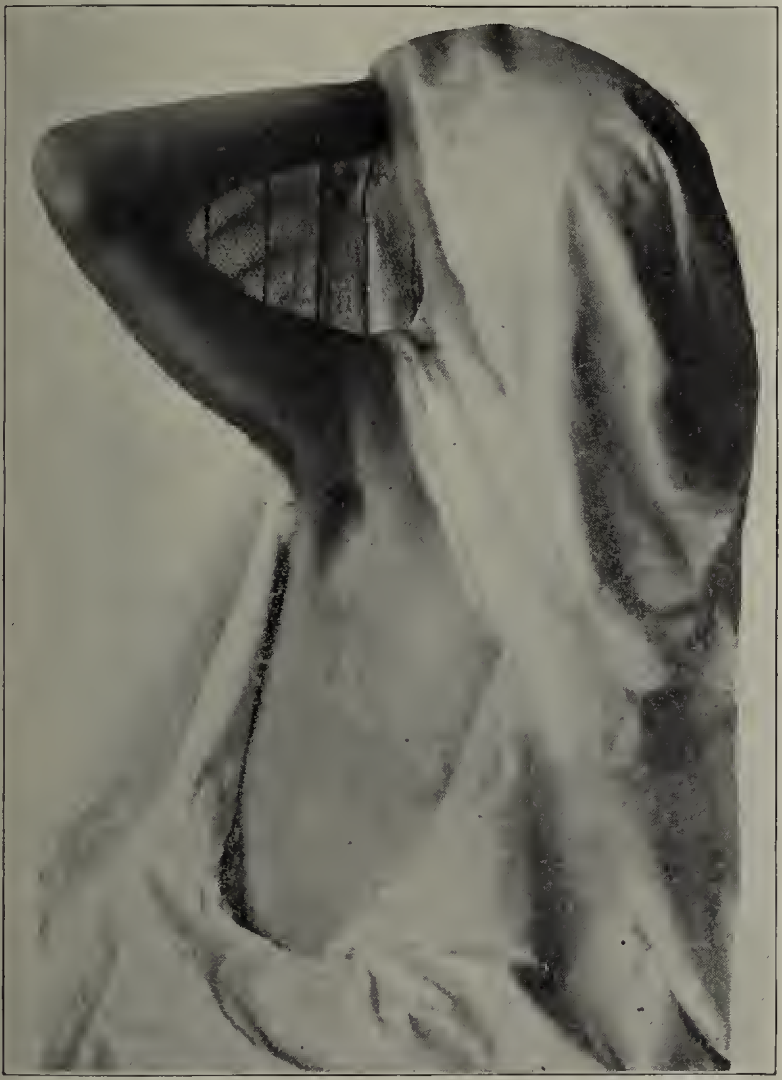

Fig. 2.—Showing scar following incision recommended by author.

Figure 3 is from a photograph, taken before operation, of a case of recurrent adenocarcinoma of the left breast. One can see from the picture how extensive a removal of the skin must have been necessary in this case, and yet, following the method described, complete closure of the wound was secured and the wound was found to be completely healed when the dressing was changed on the seventh day after the operation.

Figure 4 is from a photograph of this patient taken seven days after operation; the wound is healed, and the hand can be placed on the head. Equally good results, as to wound closure and movement of the arm, were obtained in the case of a Mrs. H., in which, in addition to the removal of the tissues ordinarily removed, the floor of the axillary space, the fascia of the serratus magnus, and subscapularis, and the edge of the latissimus dorsi were removed, together with the supraclavicular glands. These latter were removed through an incision above the clavicle.

With the tension sutures properly placed, the edges of the wound can be brought together without marginal tension. In coaptation, adhesive straps are of much value. Indeed, the coaptation of the margins of the wound is, for the most part, accomplished by adhesive straps, aided not infrequently by subcuticular sutures of catgut, and, in rare cases, a few through-and-through sutures are used.

Of no less importance than the coaptation of the margins of the wound is the coaptation of the skin to the underlying surface. If this part of the coaptation is perfect, there will be little likelihood of subsequent trouble from lack of motion in the shoulder or from venous stasis, except, of course, the stasis due to compression of the vein by recurrence of the carcinoma. Lymphatic edema will occur in a small percentage of cases as a direct result of the operation, owing to the cutting off of the communication between the lymph vessels of the arm and those of the neck, and, under these circumstances, is rather an indication of a complete operation than otherwise. Edema of this kind usually manifests itself soon after the operation, and is usually at most a source of some inconvenience. The point is that we have removed the anterior wall, together with the cellular and glandular contents of the axilla, and to secure subsequent freedom of movement of the shoulder nothing more nor less is necessary than to apply the skin flaps accurately to the remaining walls and secure their union without infection. Of especial importance is it to secure coaptation of the skin and underlying cellular tissue to the apex of the axilla. Failing in this, there will be formed a smaller or larger wedge of connective tissue in the apex of the axilla, closely adherent on all sides, or a bridle will be formed

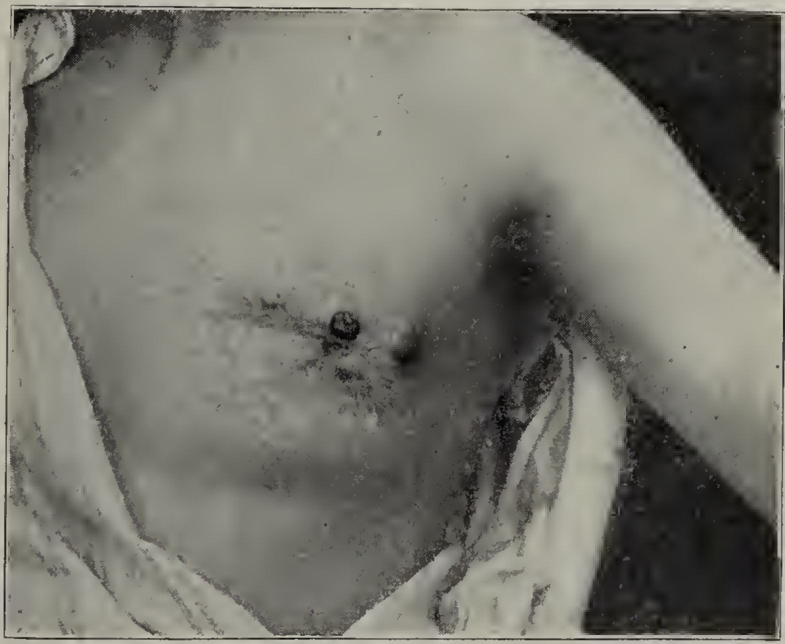

Fig. 3.—Recurrent adenocarcinoma before operation, showing how much tissue it was necessary to remove.

at some distance below the joint and firmly attached to both inner and outer axillary walls. The natural result of either condition will be inability to raise the arm and more or less interference with the return of blood from the arm. To secure the opposition necessary to prevent those untoward results, I relied on a snug application of the external dressings until something less than a year ago, but it was found, not infrequently, that they were too tight for comfort and produced considerable swelling of the arm, forearm and hand. To overcome this difficulty, I conceived the idea of using subcuticular stitches of catgut to secure the apposition necessary, and have used them in six cases with perfectly satisfactory results in all save one, which is shown in Figure 1. In this case, the incision is faulty, but, notwithstanding this, a proper placement of the stitches would have prevented the inhibition of movement which is present. (The arm can not be raised higher than it appears in the picture.) The line of incision in the skin should have been fixed well up in front of the joint. Two or three stitches are usually sufficient.

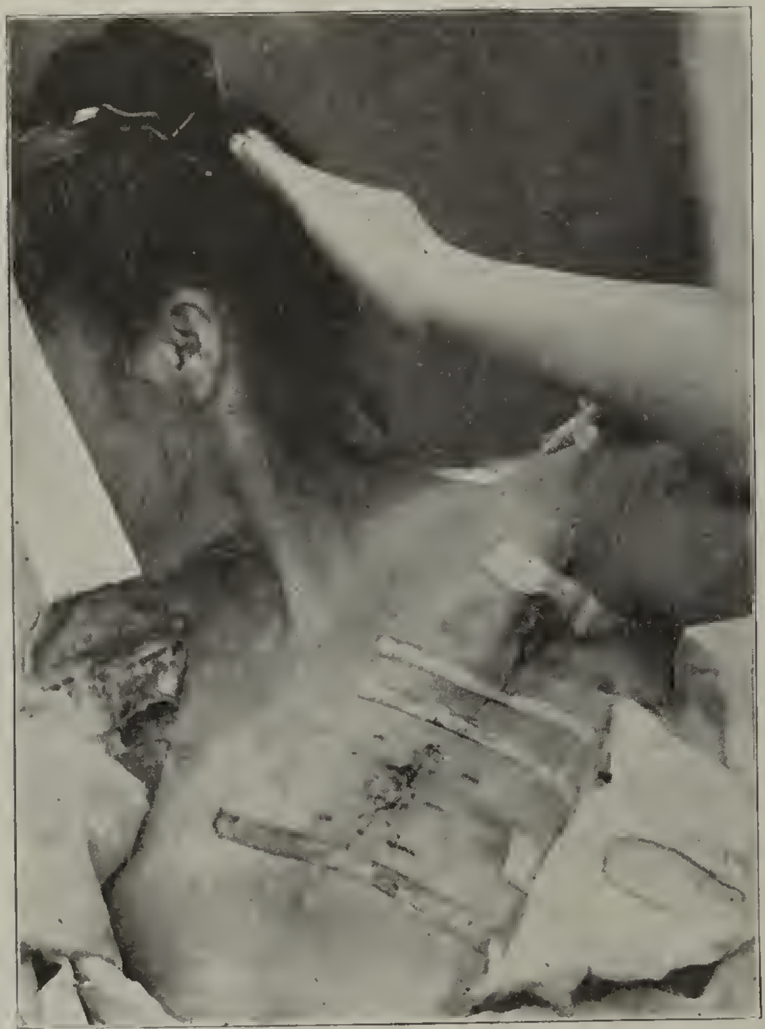

Fig. 4.—Recurrent adenocarcinoma seven days after operation, showing degree of freedom of movement in arm.

I described this method to several of my friends and requested them to try it, and I would be glad to hear of their results. The advantages of this technical device over others, whose object is the same, are:

1. The certainty of the good results.
2. The comfort it secures to the patient.
3. Its simplicity and ease of execution, and
4. More rapid recovery of usefulness of the arm.

Figure 5 is from a photograph taken fourteen days after operation. The wound area in these cases is so large that with the most perfect hemostasis practicable there will be enough oozing to cause considerable accumulation of blood under the flaps while the margins are being coapted, unless measures are taken to prevent it. The use of hot compresses has already been referred to, but I wish here to speak of their use more particularly. As soon as the axillary space is cleared, a hot compress is placed in it and held snugly by an assistant while the removal of the parts is being completed, and the same thing is done with the remaining wound area as soon as it is cleared. The aim is to keep these compresses applied as continuously and as long as is consistent with the reasonably rapid completion of the work. The one in the axilla is not disturbed until one is ready to place the sutures that anchor the skin in the apex, and only just enough to permit this to be done. The margins are sutured over the compress until its lower margin is reached when it is withdrawn. During the suturing and after the withdrawal of the compress, an assistant is directed to keep the flaps closely applied to the underlying compress and chest wall, respectively. The compresses in the lower and inner aspect of the wound are removed for the placing of the tension sutures. Before the last stitches are tightened, the flaps are methodically compressed toward the opening to remove any blood that may have accumulated; the stitches are tightened, the adhesive straps placed, and the dressing put on. Care should be taken to apply this so that it will hold the raw surfaces snugly in apposition. The arm is carried in a sling for a week, when the patient is allowed to use it with caution for another week, after which she is allowed to use it as she pleases.

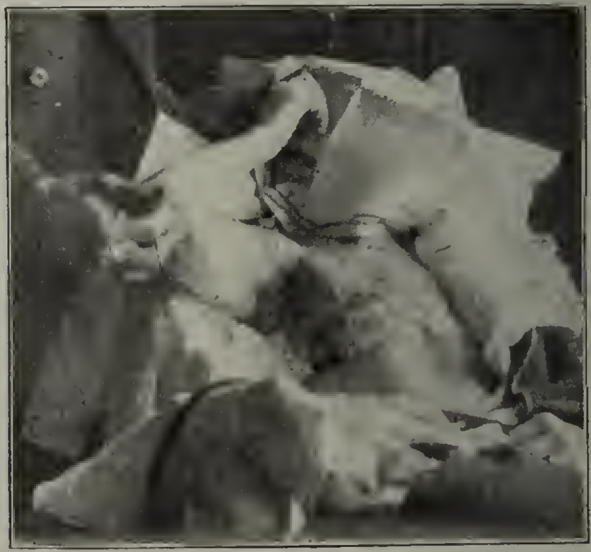

Fig. 5.—Showing result of using subcuticular stitches of catgut. Fourteen days after operation. Hand can be raised to head.

The first dressing is allowed to remain undisturbed for a week, when it is taken off and another applied for a week longer, when no further dressing is needed unless it be a few layers of gauze to protect the tender surfaces. The patient is put to bed, with the head and trunk well raised, and is allowed to assume the full sitting posture as soon as she will. Patients are usually walking about by or before the end of the week.

CONCLUSIONS.

In conclusion, permit me to emphasize the following points:

1. Complete closure of the wound after removal of cancer of the breast may be secured and drainage dispensed with in nearly all cases if proper attention be paid to the placing of the incisions, the securing of hemostasis and the use of tension sutures.

2. Venous stasis in the arm and lack of motion in the shoulder, as postoperative results, may be avoided in nearly all cases by avoiding infection and keeping the wound surfaces in close apposition until healing is complete.

3. The best means of accomplishing the last-named object is a few buried sutures in the apex of the axilla and a properly adjusted compressive dressing held in place by adhesive plaster.

DISCUSSION.

Dr. William L. Rodman, Philadelphia, agreed with Dr. Porter as to the necessity of the free removal of the overlying skin, even in such cases as show that we can not get primary union. He inclined to the belief that possibly the greatest mistake that is made in practice generally is to subordinate the probabilities of a radical cure to securing primary union in every case. He said that we should keep constantly before us that Gross and Pancoast and the older surgeons reached 10 and 15 per cent. of cures, but only by very freely removing the skin. A complete axillary dissection was never done, and muscles were not destroyed. Whatever good was in these operations must have been in the free removal of skin. Therefore, he thinks that we should not accentuate the necessity for getting primary union, even in a majority of the cases. It is all very well if it can be done and without making too much tension, and this, he said, can be done, as Dr. Porter says, by undermining the skin, or by skin grafting, which can always be resorted to to cover in any defect that may exist.

Dr. Rodman has done the operation according to the method described by Dr. Porter a number of times, and he has also advocated strongly the operation of Warren, which is practically the same. He liked it very much and thought it the best operation he knew, inasmuch as it has generally made primary union possible, but he has found in a number of cases a bridle of skin which fetters and prevents the uplifting of the arm beyond that extent, thus interfering with the doing up of the back hair, etc. While Dr. Rodman still believes that that operation is one of distinct value, he has obtained recently a better result from the operation of Jackson, and prefers to place the incision in that way. He believes that it is a mistake to cut on to the arm, or, at least, to go low down on the arm.

Dr. Rodman emphasized the necessity of removing the muscles in every case of cancer of the breast, although he was not prepared to say that the muscles will be involved. Researches have demonstrated that the fascia of the muscles usually will stop limitations of the growth, but recent anatomic discoveries show that Halsted built better than he knew when he insisted on the removal of the muscles in every case. For, in the first place, a complete axillary dissection can not be made with the muscles *in situ*, and Gross and Pancoast demonstrated that occasionally there will be lymph glands which can not be felt with the muscles in position. Therefore, it is necessary to remove the muscles in every case, otherwise the operation is incomplete.

As to drainage, Dr. Rodman admitted that in the majority of instances the wound can be closed without drainage, and yet it certainly is the custom of American surgeons to drain after amputations of the breast. In preparing a paper on this subject some time ago, he wrote to fifty American surgeons, and of the twenty-one who replied, there were three who did not use drainage. Certainly drainage is not necessary in case of a small breast particularly, but Dr. Rodman believes that, as a rule, it is just as well to drain.

Speaking of the necessity of invading the neck, Dr. Rodman stated that he is satisfied that we do not invade the neck as often as we should. Recent anatomic investigations show that if the tumor is located superiorly, in the upper hemisphere of the breast, it is drained by the lymphatics which pass from the clavicle into the glands above the clavicle and not directly into the axilla. Therefore, in the case of tumors that are situated superiorly, it is unnecessary to enter the neck in every case.

Dr. Miles F. Porter, Ft. Wayne, Ind., was very glad indeed that Dr. Rodman emphasized the necessity of not sacrificing the chance of a perfect recovery for the sake of securing primary union. In the case he reported the breasts were removed as widely as any one removes them, and yet, in the majority of cases, union was achieved. Dr. Porter invades the neck, when it is the proper thing to do. As to drainage, he said that it is never too late to mend. The sooner those who make it a rule to drain, make it a rule not to drain, the better.

PLASTIC RADIOGRAPHY.

A PRELIMINARY COMMUNICATION.

WALTER G. STERN, M.D., and E. ROSENBERG, M.D.
CLEVELAND, OHIO.

Radiographs, usually spoken of as skiagraphs, are not, as the latter name would imply, mere shadowgraphs or silhouettes; they are, rather, the result of the superimposition of semishadows or half-tones as they are called in photography, whose size, shape and intensity depend on the size, shape and molecular density of the object to be radiographed. But such pictures have never been interpreted as perspectives or "plastic" reproductions, and successful attempts have never been made to obtain "relief" effects except by means of stereoscopic reproductions.

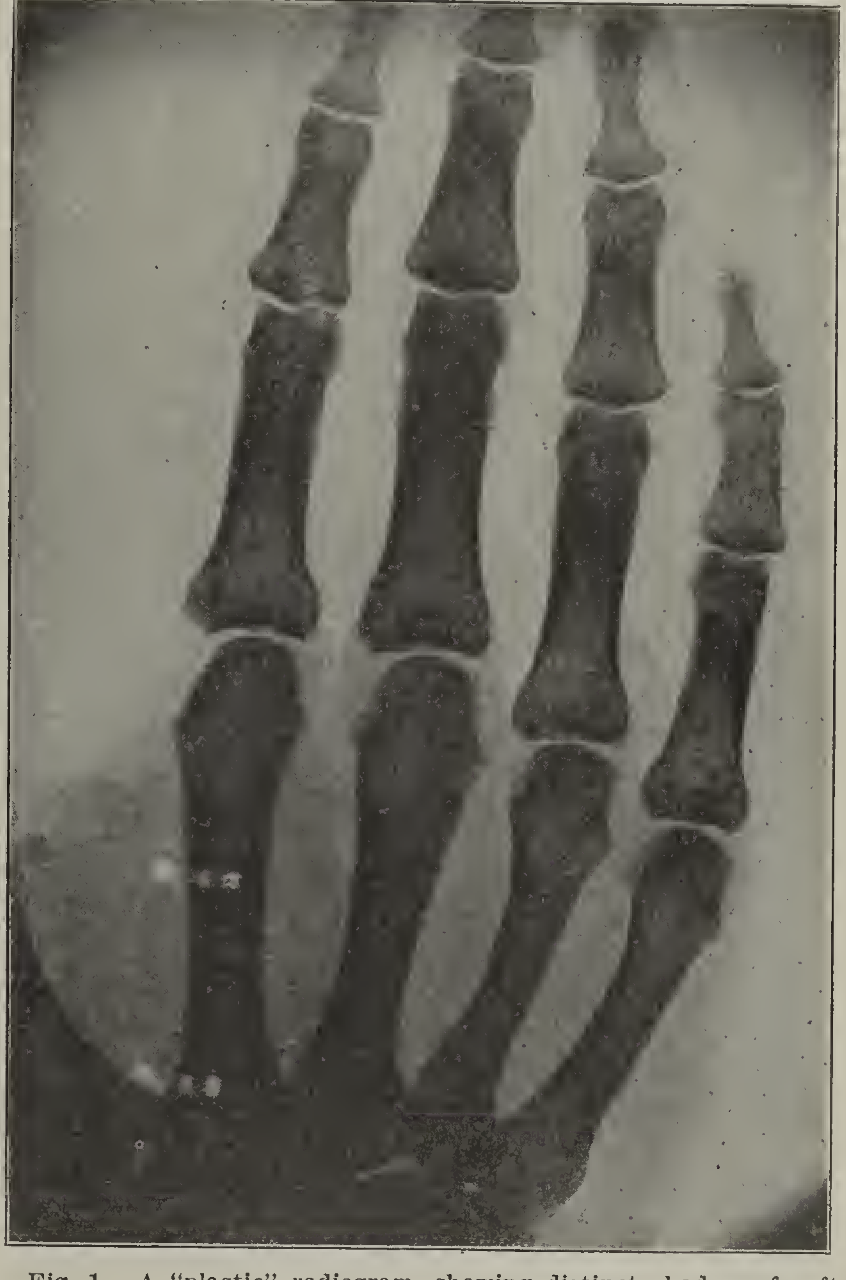

Fig. 1.—A "plastic" radiogram, showing distinct shadow of soft parts, with high-lights and shadows of the bones, giving relief effects. Print on bromid paper direct from the combination of the negative and positive.

Béla Alexander, a country practitioner hitherto unknown, living in an obscure part of Hungary, first published[1] a method of obtaining "plastic *x*-ray" photographs. It is through the efforts of one of us (Rosenberg) that the substance of this and other contributions of Alexander and other Hungarian writers in the various Hungarian medical journals has been collected and abstracted. The method as they give it is long and tedious, full of archaisms and omissions of most important details such as the time and methods of exposure, copying, registering, printing, etc. We have tried many methods, always rejecting anything which could smack of "dodging" (as the professional photographer would say) and are now ready to report the following provisional modification of Alexaander's method:[2]

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[1] Orvosegyesület, March 10, 1906.

A careful exposure is made with two tubes on a specially prepared double coated x-ray plate. This plate is coated so that the slower emulsion is on top, and was made for this process, together with the plate for the positive (No. 2) by the Lumiere Company.

The first tube used for the double exposure is a very soft one, and without changing in the least the relations between the tube and the object and the object and the plate a second exposure is given with a hard tube. This change of tubes is easiest done by using a compression diaphragm apparatus of the Albers-Schoenberg or Freiberg type, in which latter the tube holder is a separate piece and has two sights for centering the tube. My own apparatus has a shallow wooden cup accurately centered over the diaphragm for receiving the tube; thus in using tubes of the same size the target will always fall approximately in the same place.[3] Neither the object nor the plate dare be disturbed in the least during this change. Although the European writers claim to have had great difficulty in determining the relative lengths of the exposure to the various tubes, we have found that for very soft tubes followed by medium hard ones the relative exposure will be about as 5 to 1. That is, if with a certain current one would ordinarily expose, say, a hand twelve seconds, then for "plastic" work the first exposure should be ten seconds and the second two. Of course no hard and fast rules can be drawn.

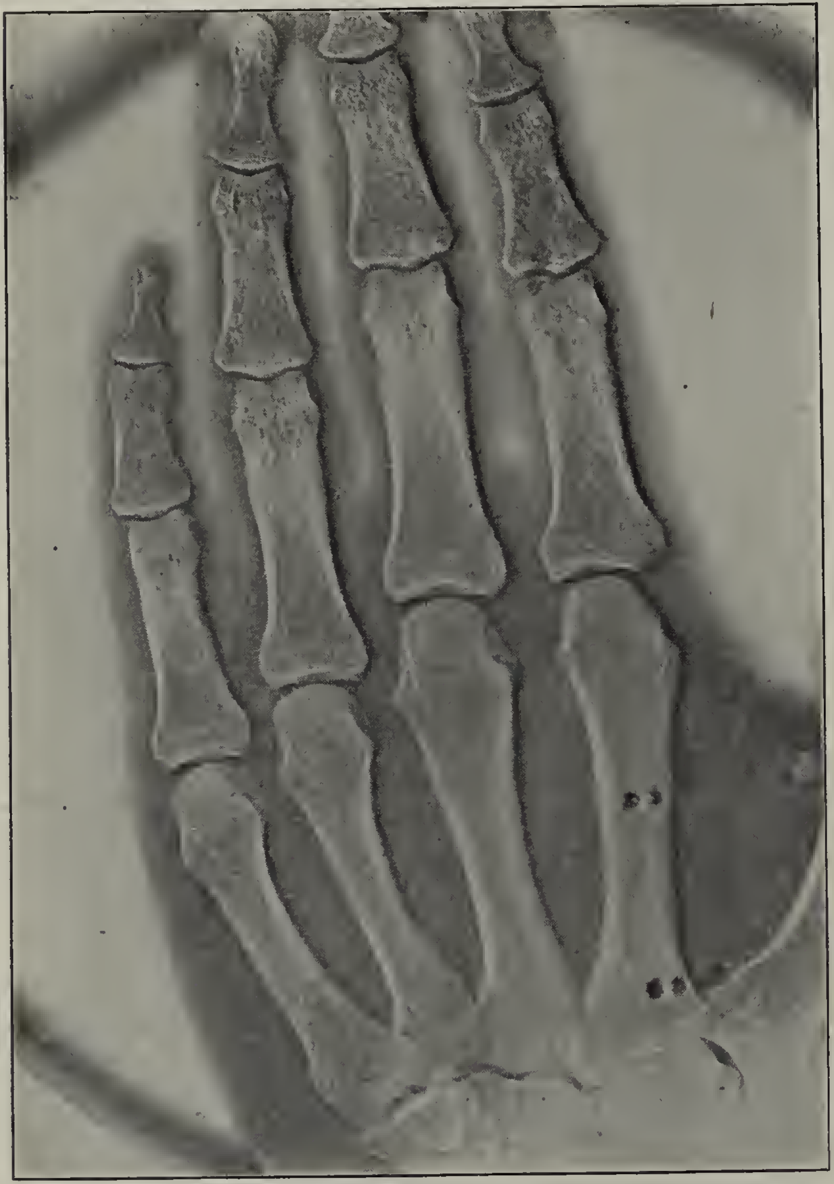

Fig. 2.—Ordinary radiogram of same hand as shown in Figure 1, made with a moderately soft tube; exposure 12 seconds. Note flatness and weak shadow of soft parts.

The plate is then developed in the usual manner and must be quite dense and contrasty; if the exposures have been correctly timed "plastic" effects will already be observed in this plate, which is, of course, the negative (No. 1). After the negative has been dried, a positive (No. 2) is to be made by direct contact in a printing frame, using a slow plate on the order of a lantern slide plate. The positive must be equal in density and contrast to the negative.

The plates are now placed back to back and accurately registered. This is best done by scratching on the negative before making the positive a short fine vertical line in the center of the upper edge of the plate and two short fine horizontal lines, one each in the lower right and left-hand corners. These fine scratches on the negative will, of course, be reproduced on the positive by corresponding fine black lines. If the plates thus marked are placed back to back and held together by light spring clamps and examined in a strong light sending out parallel rays—an automobile gas lamp, for instance—they can easily be moved one over the other until these fine lines are found to overlap accurately. The plates are now properly centered and are permanently bound together with passe partout binding paper.

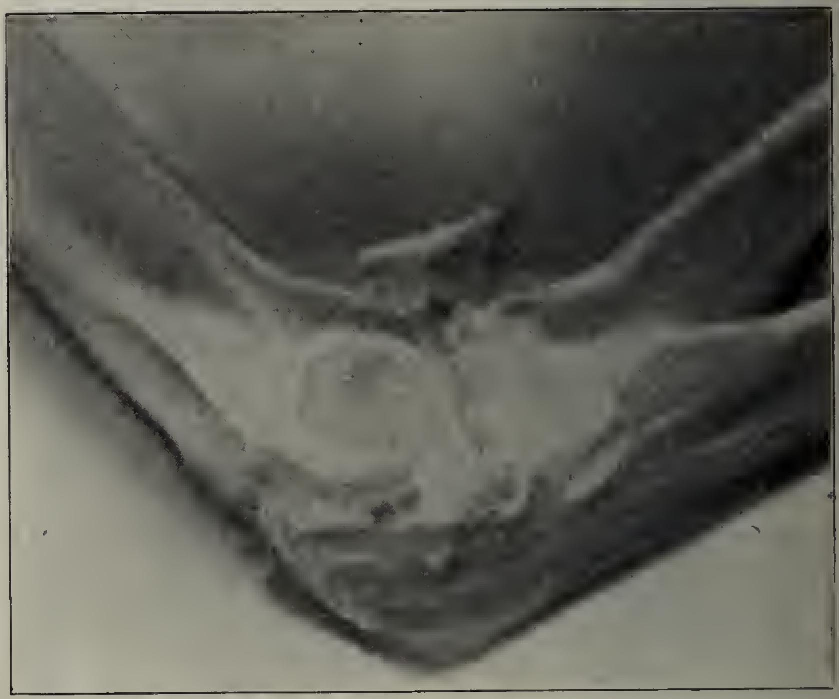

Fig. 3.—Plastic radiograph of a fractured elbow showing stereoscopic projection of the internal condyle. Picture was taken with the internal condyle and ulna nearest the plate. The picture shows best if held three feet away and two feet below the level of the eyes.

A print must now be made with the paper in contact with the positive plate, and for this purpose we advise the use of bromid paper, as it alone has the requisite speed to take the place of the Plates 3 and 4 of Alexander's method. The printing of No. 3, the "plastic," can only be done with parallel rays of light which must strike the plates at an oblique angle. Ordinary light is, of course, out of the question on account of non-parallelism of the rays, dispersion and reflection. For this purpose we use the aforementioned automobile gas lamp at a distance of from ten to twenty feet. The plate holder stands at an angle of about 45 degrees to the plane of the lamp, thus giving very oblique illumination. The distance from the light to the plate does away with any possible unequal illumination, for the nearer edge of the plate necessarily receives more light than the more distant one. The "plastic" illustrating this article (Fig. 1) was exposed fifteen minutes on bromid paper.

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[2] Alexander makes use of four plates before his final print can be obtained. We have shortened the method and use only two.

[3] By using a Mueller tube No. 16, for hard and soft rays, one can obviate the use of two different tubes, as this tube No. 16 is constructed in such a manner that by changing the connecting wires to different cathodes one can get soft or hard rays at will.

When developed the print (No. 3) will show beautiful "plastic" effects and the soft parts usually stand out in wonderful clearness. The more perfect the first negative—Plate No. 1—the better the "plastic."

How does this "plastic" result from the double exposure and the combination of the negatives? We do not know. According to the law and the prophets the combination of an equally dense and perfectly centered negative and positive should result in an absolute blank,[1] as the opacities in the one and the transparent parts of the other should counterbalance.

How does the "plastic" differ from the ordinary skiagram? As previously stated, the "plastic" does not consist merely of the overlapping of half-tones of different intensity, but contains "shadows and high lights"—the two light values which make an ordinary photograph or drawing stand out in relief.

Are the effects mere photograph dodges? So the skeptics have claimed, and at first sight we were inclined to the belief that they were mere artifacts. But one by one the skeptics have been silenced and have joined the ranks of the believers until even Schellenberg, the earliest and firmest opponent, has been converted and forced to admit the "plastic" radiography to the greatest advance since Roentgen.

As for the theories and rationale of "shadowgraphs and plastics" and the explanation of the various phenomena involved in their production, we are not yet able to speak from conviction. It has taken most of our time to perfect the details, and we shall give at another time and in a more suitable place an explanation of the various principles involved.

A SIMPLE AND SAFE OPERATION ON THE FRONTAL SINUS BY THE INTRA-NASAL ROUTE.

R. H. GOOD, M.S., M.D.
CHICAGO.

The instruments used in this operation are two frontal sinus rasps, two tapering curved chisels and three protectors.

The frontal sinus rasp (Fig. 1) is made on the same principle as the old-fashioned coarse horseshoe rasp, from which I derived the idea. It is slightly curved at the rasp end to fit into the frontal sinus and the teeth are on the longitudinally concave surface, pointing toward the handle, so that when traction is made on the rasp, the bone anterior to it is rasped away, as illustrated in Figure 5. The posterior surface of the rasp is perfectly smooth and flat.

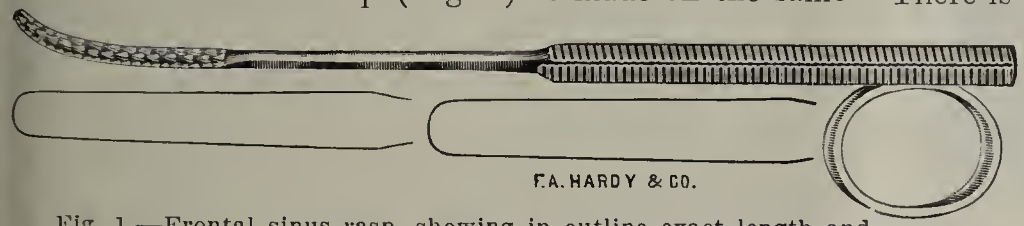

Fig. 1.—Frontal sinus rasp, showing in outline exact length and width of rasp.

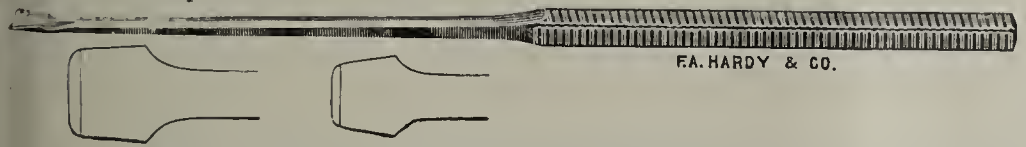

Fig. 2.—Chisel, showing in outline exact size.

The chisels (Fig. 2) are short, curved and tapering. The handle at the chisel end is very slender so that the chisel can be manipulated under the direct vision of the eye. The edges are tapering as well as blunt, so that if the edge should strike a bony surface it would tend to glide off instead of penetrating.

The protectors (Fig. 3) are made of brass and in three different widths, as illustrated. They can be bent easily into shape on the flat, but not sideways.

I have performed these operations under local anesthesia. The cocain crystals are rubbed into the mucous membrane with a cotton swab on an applicator which is first moistened with adrenalin chlorid 1 to 1,000, and then dipped into the cocain crystals. The entire olfactory region as well as the bulla ethmoidalis and unciform plate are thus anesthetized. The middle turbinate is then removed by the ordinary methods and the processus uncinatus of the ethmoid bone is removed with the larger chisel.

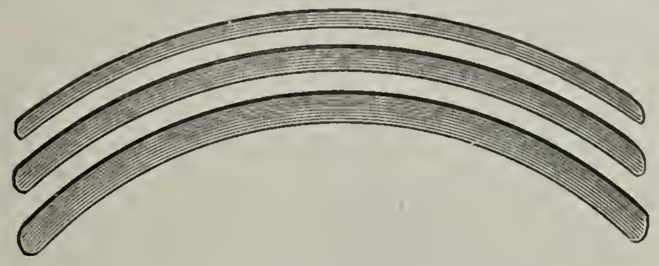

Fig. 3.—Frontal sinus protectors.

A frontal sinus catheter, with syringe attachment, is then inserted into the frontal sinus and a half dram of a 10 per cent. solution of cocain in adrenalin 1 to 1,000 is injected into the sinus. A pledget of cotton is placed over the infundibulum for a few minutes to take up the cocain as it returns from the sinus. The largest possible protector is now inserted into the frontal sinus, and if the smallest protector will not enter, which is rare, a good-sized probe is used, until later in the operation when the protectors can be inserted.

Having the protector or probe, as the case may be, *in situ,* the larger chisel is placed in position as illustrated in Figure 4, and a part of the processus frontalis of the superior maxillary bone, as well as a part of the spina frontalis of the frontal bone, and the anterior medial wall of the labyrinthus ethmoidalis are chiseled through and removed with forceps or curettes.

The chisel must always be kept in direct line with the protector so that the tabula interna is not endangered. There is a considerable space between the spina frontalis and the tabula interna of the frontal bone, and the operator can almost always chisel without touching the protector, for the moment the chisel has chipped off a piece of bone it has to pass through a space before it encounters the protector, and the hand nearly always will stop the chisel before it touches the protector; and in case it does strike the protector, the hand has reduced the force to such an extent as to make hardly a mark on the protector.

As stated above, the edges of the chisel are dull and tapering, so that if the edge should touch the lamina papyracea of the ethmoid bone or the tabula interna of the frontal bone, it will slide off and by the time the chisel has traveled through the space of about half an inch, under proper care, would not have enough force to penetrate even if the edges were sharp.

The anterior ethmoidal cells are removed with forceps or curette, and by this time the frontal sinus rasp may be introduced into the sinus; and if not, the smaller chisel is used to make the opening a little larger. When using the small chisel high up I put in two protectors at a little different angle to insure still better protection.

The structures to be guarded against injury are the lachrymal bone, lamina papyracea and the inner lower floor of the frontal sinus. By keeping a prepared skull in front of you while operating it is almost impossible to penetrate these structures, but an assistant can put his finger into the orbit and can tell at once whether the chisel is lifting the orbital periosteum. The lamina cribrosa is not in danger because the chisel is directed outward and not in the direction of this structure. The tabula interna is protected first by the protectors, and second by the fact that the chisel has to go through a space before touching it, and being carefully held by the hand, loses its momentum by the time it reaches this structure.

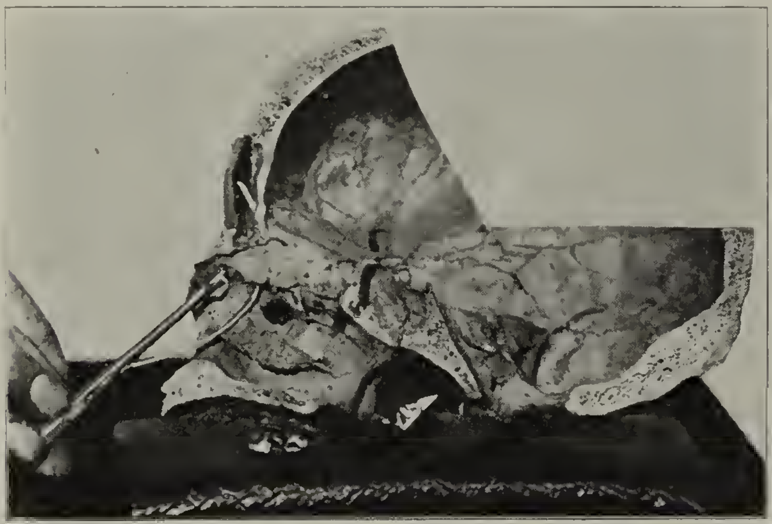

Fig. 4.—Showing chisel and protector in position.

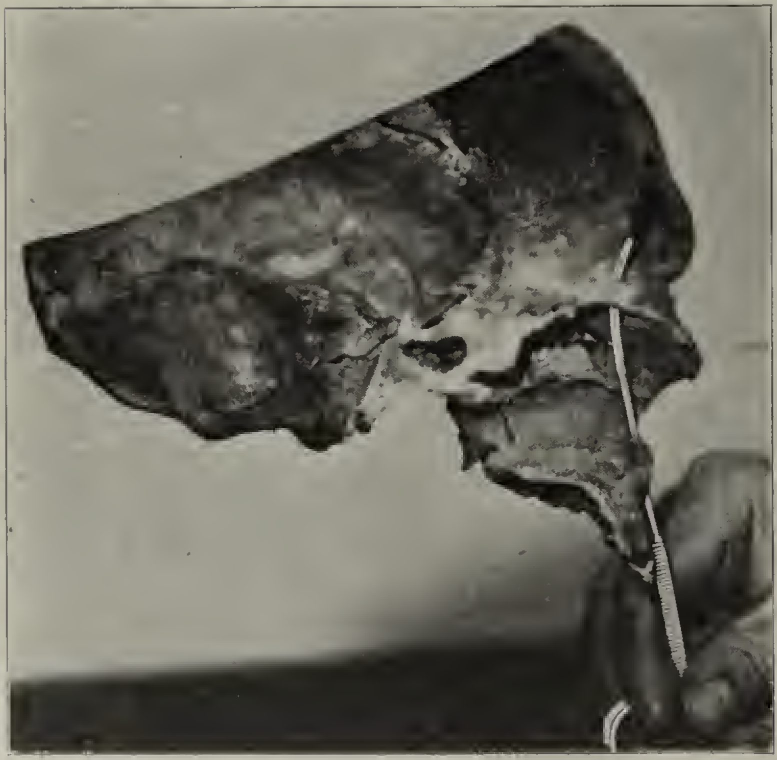

Fig. 5.—Frontal sinus rasp in position.

The frontal sinus rasp is now easily introduced, as illustrated in Figure 5. With this instrument the spina frontalis is rasped out, as well as the frontal accessory ethmoidal cells, if present (Fig. 6). There is absolutely no danger to the intracranial structures, and the worst thing that could happen would be to rasp through the orbital wall, but this can be avoided by an assistant putting his finger into the orbit.

The rasp must not be directed directly forward, but outward and forward, and care must be taken not to withdraw the rasp too far, as it will damage the septum and cause synechia between it and outer wall, as occurred in one of my cases, which was, however, easily remedied. The sinus is then curetted with flexible curettes and diseased membrane removed. The reaction following this operation is very slight, and patients who have been suffering pain for several weeks will sleep with comfort the first night after the operation.

The sinus is packed with sterile gauze, soaked in carbolized petrolatum, to which has been added a few drops of oil of cloves. In twenty-four hours the packing is removed, and after that the patient is left absolutely alone, except that care should be taken that no adhesions form between the septum and the outer wall; if granulations form, cauterize them with silver nitrate.

I believe that my frontal sinus rasp would make a valuable addition to Dr. Ingal's method of making an opening into the sinus with a burr, as the rasp would fit into the opening which his burr drills out, and thus the opening could be enlarged three or four times. I feel that my chisels are less dangerous than the drill.

I have had the pleasure of seeing some of Dr. Halle's patients operated on by his drill method, and he makes a good large opening. I, however, consider my method much simpler, requiring but a cheap instrumentarium, and the operation can be done in a much shorter time. My experience with drills, run by motor power, is that it is more or less difficult to keep them absolutely under control, whereas my rasp can be used without any danger whatever to the intracranial structures.

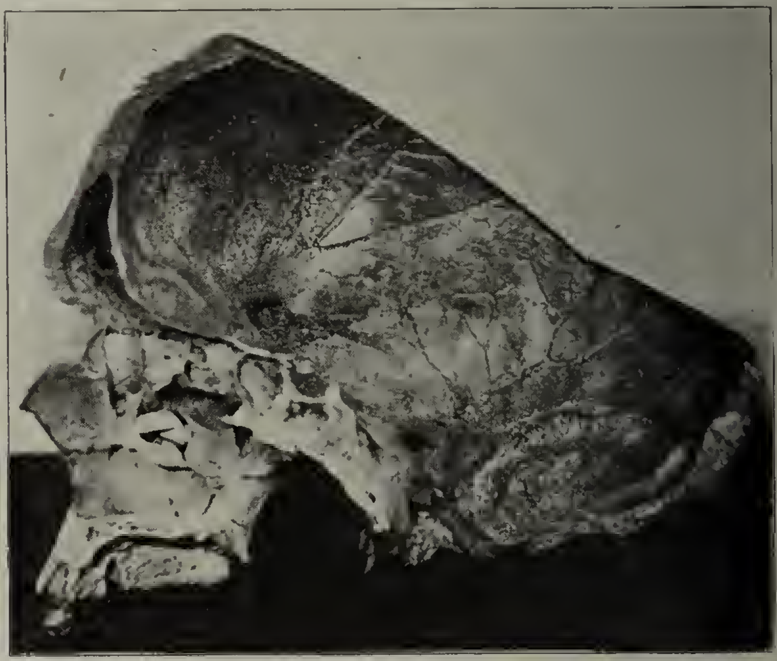

Fig. 6.—Showing size of opening when operation is completed. The ethmoid cells are all removed in this preparation.

I believe that with this method a large majority of the frontal sinusitis cases can be cured without resort to the external disfiguring operation. This operation should be done in all cases where an external operation is indicated, as it does no harm and is of great assistance in diagnosing cholesteatoma or tumors in the sinus, and should an external operation be necessary, a good drainage has already been established of larger size than is ordinarily made when doing the external operation.

Cool Temperature Checks Mosquito Biting.—Dr. Carlos J. Finlay, chief sanitary officer of Havana province, thinks that in Havana a daily mean temperature below 23 C. (73.4 F.) does not allow the stegomyia to bite and suck blood.

THE CLASS METHOD OF TREATING CONSUMPTION IN THE HOMES OF THE POOR.*

JOSEPH H. PRATT, M.D.
Physician to Out-Patients, Massachusetts General Hospital.
BOSTON.

In the great out-patient department of the Massachusetts General Hospital several hundred consumptives seek advice and treatment every year. In my own clinic in that institution I have frequently seen two or three new cases in a single morning. In some of the favorable ones the patients are able to enter the state sanatorium at Rutland. But there are many more who have families depending on their weekly wages and no money in the bank. These are often fairly healthy looking men and women who say all they need is some medicine to stop the cough or a good tonic to brace them up. Others too ill to work and yet with a good fighting chance for recovery under sanatorium treatment can not pay even the small weekly charge at Rutland. There is still another group, eager to get well, willing to spend their scanty savings if their life can be saved, and sometimes with kind friends and relatives who are willing to lend them money, who are refused admission to the sanatorium because the disease is too far advanced.

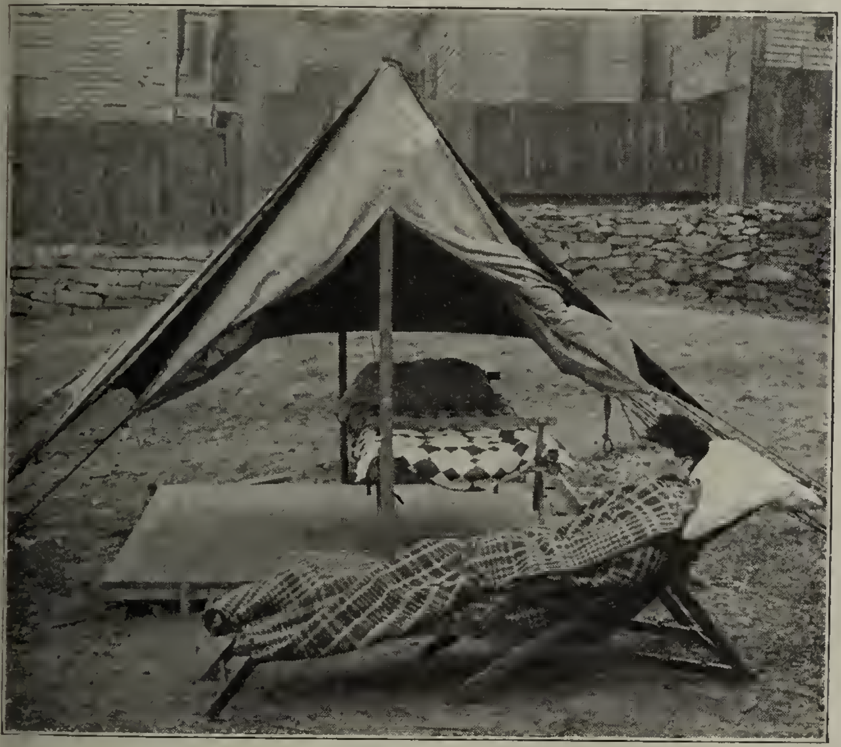

Fig. 1.—Tent converted into canopy by fastening up the sides and ends. Photograph shows proper position of patient in reclining chair.

One day I found among the new patients two sisters, sitting side by side in the examining room. The elder presented the typical picture of advanced phthisis. In the other girl the disease was just beginning. I called the younger sister aside and explained the nature of her illness, but assured her that if she went to Rutland for a few months in all probability she would recover. If she continued to work, I said, the disease would surely progress and her life would be the penalty. I told her frankly that her sister's lungs were so extensively diseased that I could not hold out to her any hope of cure.

She paused a few minutes before speaking and then told her story. Her parents were old and feeble and entirely dependent on her scanty earnings. With no outward sign of the inward struggle, she quickly made her final decision and said: "Before there was sister and I to work for father and mother, now I am the only one. I can not leave them."

There was no answer I could make. They left the room and I have never seen them since. Doubtless there were many people who would have been glad to help this unfortunate family, but I did not know where to find them and there was no organization to which application could be made, as they lived beyond the city limits and could not look for help to the Boston Society for the Relief and Control of Tuberculosis or to the Associated Charities. Furthermore, this, unhappily, was no isolated case. Every physician working in a large dispensary has had similar experiences. Thousands of men and women make this same renunciation. A few months of treatment would have restored the girl to health. Yet to meet the conditions in that family, home treatment, not sanatorium treatment, was indicated. The problem, as in this case, is often more complex than providing free treatment in sanatoria. There was the family to be supported and the sick sister needed nursing and medical attention.

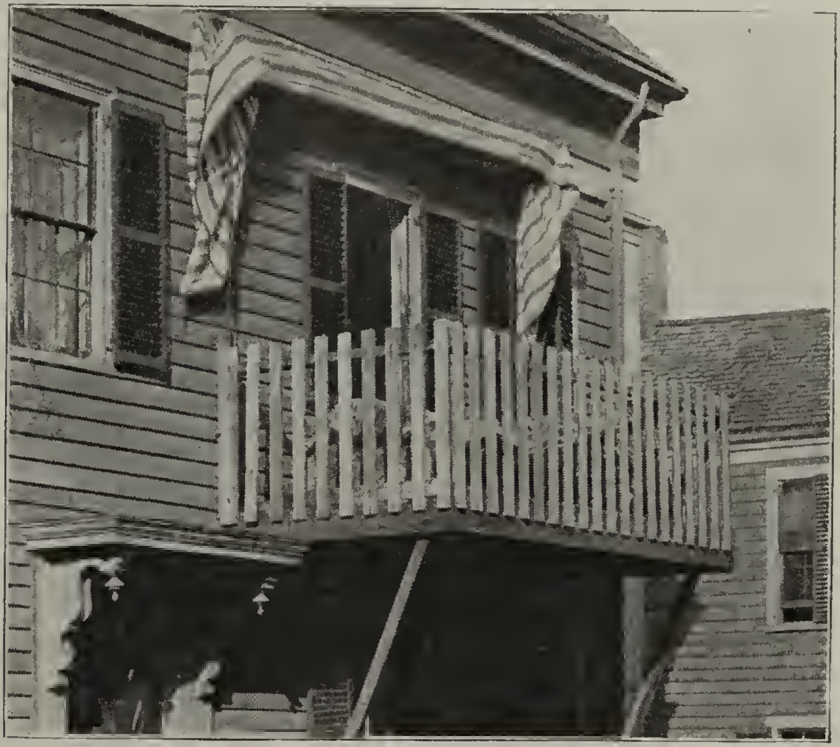

Fig. 2.—Simple platform erected where neither yard nor roof were available. Total cost, $11.50. The patient for whom it was built had advanced tuberculosis. He spent most of the day on this platform and slept here every night for a year. He gained sixty pounds in weight while in the class.

Thanks to the Rev. Elwood Worcester, the rector of Emmanuel Church, such tragedies are fortunately a thing of the past at the Massachusetts General Hospital. If the two sisters had come to the same clinic a year later they would have been referred to the Emmanuel Church Tuberculosis Class and I could have assured the younger sister that those in charge of the class would find some way to solve the financial difficulties so that she could give up her work and take the rest treatment at home. She would have also been told that the results obtained in the class even with advanced cases had been so encouraging that some hope of recovery might be held out to her sister. The two girls would have gone home cheered and hopeful.

On the following day the friendly visitor would have called and explained to them and the rest of the family more about the class, the nature of the disease, the manner of its spread, the methods of disinfection, and how to get well by taking the treatment. Plans would have been made at once for erecting a balcony so that both girls could sleep out of doors. The friendly visitor would have begun at once the search for a housekeeper if the mother was found to be too feeble to do the work properly and to care for the sick ones. The financial problem would have been attacked at the same time. The employer of the sick girl would have been visited and his aid solicited, the friendly visitor would have called on the priest or minister and I am sure that his aid would have been secured, for we have never yet appealed in vain to Protestant, Catholic or Jewish organizations or to charitable or fraternal societies. If all other channels of relief were closed, and if a volunteer visitor of the class were unable to secure loans or gifts, then the actual necessities of the family would have been paid out of the class treasury until the girl was able to work again.

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* Read at the Third Annual Meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 6, 1907.

What the Emmanuel Church Tuberculosis Class has been to its members and what happiness it has brought into their lives is indicated by the numerous letters sent by its members who are now working, after years of illness and inactivity. The class was organized in July, 1905. In an article published in *The Journal of the Outdoor Life* the following September the plan of treating poor consumptives by sanatoria methods in their own homes was outlined. The first report was published February, 1906, in the *Boston Medical and Surgical Journal* and the class method explained more fully. Recently a report was issued by Dr. Hawes and Dr. Floyd of the work done in the Suburban Tuberculosis Class which was formed in January, 1906. This organization is designed for those consumptives who live too far from the city to be visited by the paid nurse of the Emmanuel Church Tuberculosis Class. In the suburban class the visiting is done by volunteers in the various towns and cities where the members live.

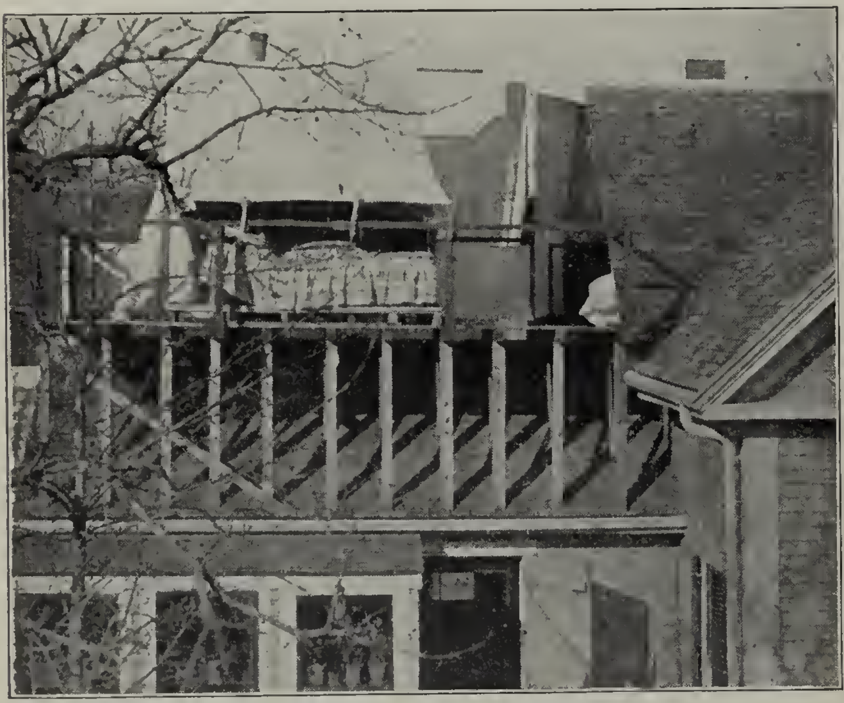
Fig. 3.—Platform and tent erected on pitch roof.

The admirable paper of Hawes and Floyd describes in detail the class system. It is important that the class should be small, as the doctor and the friendly visitor must establish close personal relations with each member. In the Emmanuel Church Tuberculosis Class the limit of membership is twenty-five. For the greater part of the time we have had from fifteen to twenty members. If more than twenty-five consumptives are to be treated an additional class should be formed, as the work can be carried on most effectively in small units.

In April, 1906, money was offered by ladies outside of Emmanuel parish for extending the work. Instead of increasing our membership, a separate class was organized. Each class has its own directing physician and a paid friendly visitor who devotes practically her entire time to the work. Nearly all of the members have been referred from the Massachusetts General Hospital. The cases taken into the class were those patients to whom other avenues of escape were closed. Either they were too poor or the disease was too far advanced for them to gain admission to the state sanatorium. Three advanced cases, rejected as unfavorable by the examining physician for Rutland, have recovered from the disease in our class and have been allowed to return to their work.

Our first member is now the friendly visitor in the Arlington Street Church Tuberculosis Class, which she has served faithfully and satisfactorily since its organization in April, 1906. I take pleasure in reporting that she insisted on using her first savings to repay the Emmanuel Church Tuberculosis Class the money loaned in her sickness and need. Our second member, who had had a cough for five years, has completely recovered. He is a painter by trade and has not lost a day's work from illness since he graduated from the class a year ago this spring and has not lost in weight, and this in spite of the fact that he has been doing inside painting. The third member, whose case was described in detail in my first report, has been working over a year. Through the generosity of a lady of the congregation of Emmanuel Church a little tailor shop was provided for him on River street. During the spring and summer he worked with the door and window always open so that he might still get fresh air while at his trade. He has not lost an ounce of the forty pounds he gained in the class and, although he works eight or ten hours a day, he looks the picture of health.

In all, fifty-two consumptives have been admitted to the class since it was started nearly two years ago. The membership is confined to those in whom the clinical diagnosis has been confirmed either by finding tubercle bacilli in the sputum or by a positive tuberculin test. Deducting fifteen, the number of present members, thirty-seven are left. Thirteen of these were in the third stage of the disease (far advanced tuberculosis). Three in this group have recovered and are now at work. Seven have died. Four of them were on the roll of the class at the time of their death. Two of the remaining three were discharged for not conforming with the rules and one is now too ill to attend the class. There were fifteen moderately advanced cases. Of these one patient was sent to Rutland in an improved condition; two left the class because they considered themselves well, although the disease was not arrested and the danger of returning to work was fully explained. One of these had gained twenty-one and a quarter pounds and the other ten and one-half pounds in a single month. These two are the only ones that have withdrawn from the class.

Another in the group of moderately advanced cases was unable to continue treatment on account of chronic joint disease (arthritis deformans). The remaining nine patients (60 per cent.) of the fifteen moderately advanced cases left the class with the disease arrested. In five of these the disease was apparently cured. We had in this series nine incipient cases and in seven of the patients the disease was apparently cured and in the other two the disease was arrested. In other words, 75 per cent. of the patients out of the twenty-four incipient and moderately advanced cases recovered. No one is graduated until the disease is arrested and the member able, in the opinion of the physician in charge, to return to work. Seventeen of our members have fulfilled these requirements and have graduated. Their average gain in weight was 25.2 pounds. The greatest gain was sixty pounds. This record is held by a negro, whose weight had fallen from 200 to 146 pounds during his two years' illness. Eight have been at work twenty weeks or over and in none has the disease recurred.

EXPENSES.

The expenses of the class from July 1, 1905, to May 1, 1907, were about $2,000. A little more than $200 was contributed by friends outside of Emmanuel parish and by the patients themselves. The remaining $1,800 was furnished by the church. If the value of a life during the productive years be fixed at $2,000 and the cost of a two years' sickness, which is about the average duration of a fatal case of consumption, be placed at $1,000, this would mean that Emmanuel Church, by saving the lives of seventeen persons, has saved $54,000 by an expenditure of $2,000. Six of the seventeen were married men with families depending on them, and five were the mothers of little children. Emmanuel Church has furnished the facilities for leading the out-of-door life, such as tents, cots, reclining chairs, and blankets. Medical care and nursing have been furnished free. Drs. J. B. Hawes, C. Floyd and N. K. Wood have been associated with me and gave their services. The zeal and tireless labor of the friendly visitor, Mrs. Elsie L. Oreon, has been the chief cause of our success.

The families of our members have been taught to help themselves. Sometimes they have been able to let rooms. In several instances we have boarded one of our members in the family of another. This is an admirable arrangement, because this money paid out for board gives a little available cash each week for a needy family, and thus two members are helped.

The four chief factors in the success of the class have been: 1, The patients have spent the nights as well as the days out of doors; 2, they have been kept at rest in the recumbent position, not only until their temperature is normal, but until the symptoms of active disease have disappeared; 3, the system of daily records devised by Dr. C. L. Minor; 4, the weekly meeting. Implicit obedience of the rules and regulations has been demanded.

FRESH AIR DAY AND NIGHT.

The importance of Dr. Millet's discovery of the value of sleeping out of doors, even in a harsh climate, in the treatment of consumption can scarcely be overestimated. If any one thinks it is the same thing to sleep in a room with the windows open as to sleep out of doors, personal experience will soon convince him of his mistake. All of our members are required to sleep in the open air. This has proved no hardship even in winter. Plenty of blankets and warm clothing keep them comfortable. They frequently tell of the pleasure they find in sleeping out of doors, and some declare they will never sleep in a room again. If the house of the candidate for membership offers him no opportunity for living out of doors, then he must move. The cost of moving is paid out of the class funds if necessary. Our members sleep on flat roofs, piazzas, balconies, or in yards. Protection from rain and snow has been usually secured by small wall tents. These have been furnished free to all members who could not afford to buy them. An ordinary army tent, measuring seven feet by seven feet with an extra "fly," is used. This costs $7.25. But it should be understood that the purpose of the tent is simply to furnish a shelter in time of storm. The ventilation in a tent with the sides fastened down is as bad as in a stuffy room. Our tents are converted into canopies by tying back the ends and rolling up the sides (Fig. 1). In fair weather the head of the bed is drawn outside of the tent so that the face will be exposed to continuous currents of fresh air. In stormy or windy weather one or, if necessary, two or more sides of the tent may be fastened down to keep the rain or snow from reaching the bed. In summer the tent roof shades the patient from intense sunlight.

We use in some instances, instead of tents, small balconies, built in front of a window, usually on the second story. These balconies are simple platforms, protected with a railing. Adjustable awnings and screens keep the balcony dry in stormy weather. The balcony shown in the photograph (Fig. 2) was erected for one of our members by his landlord. It cost $11.50. The awning was given by a neighbor. Another member had an elevated platform (Fig. 3) built for $6.50 Tents may be readily erected on inexpensive roof platforms (Fig. 3).

There is an advantage in placing the patient's bed out of doors that I have never seen mentioned. It removes the source of infection. With the patient lying in bed out of doors the danger of house infection is eliminated, and even if he is careless in his habits Nature's disinfectants, sunlight, rain and wind, render him practically harmless. This applies particularly to patients with advanced tuberculosis. It should not be forgotten that Flügge's observations showed that not only the sputum but the smallest droplets of mucus projected from the mouth in coughing, hawking and even in speaking contain tubercle bacilli.

In four (27 per cent.) of the families now represented in our class, unsuspected cases of tuberculosis have been found among the children. The disease seems to be chiefly spread by house infection, and the most dangerous are the advanced cases with persistent cough and abundant expectoration who live in small, overcrowded, ill-ventilated and poorly-lighted rooms.

The reason that the death rate from tuberculosis is higher in Boston than in Berlin or London is probably due to the fact that these cities have had hospitals for advanced tuberculosis, while Boston has had none, except for paupers and criminals.[1]

We do not use the window tent. Doubtless a patient in a properly constructed window tent gets fresh air at night, but in the morning and evening it will be almost inevitable that precious hours are lost in the house that would have been spent in the open air if his bed had been out of doors. Furthermore, the window tent does not prevent house infection.

THE REST TREATMENT.

The chief reason that so many of our moderately advanced cases have recovered seems to lie in the fact that we have insisted on absolute rest in every instance. Even in cases without fever, rest in the recumbent position is continued until symptoms of active disease have disappeared. I find less difficulty in keeping a patient quiet all the time than half the time. The rest treatment simplifies wonderfully the management of the case. It saves the patient from many dangers. Each patient is provided with a comfortable canvas reclining chair. The friendly visitor at her first visit selects the exact spot out of doors where the cot-bed and chair are to be placed. The chair must not be moved without permission. Many of the members spend the greater part of the day on their cot-beds. This is encouraged. The patients are never allowed to take any of the prescribed rest in a sitting position or in any form of rocking chair. No sewing or other hand work is allowed and only a moderate amount of reading. The "cure" consists simply in keeping in the recumbent posture all the time, except that members free from fever are allowed to dress themselves and to take their meals at the table.

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[1] Money has been appropriated by the municipality, and plans have been formulated for the establishment of a hospital for advanced cases of pulmonary tuberculosis.

The members do not find the enforced hours of rest irksome. It is, of course, hard to keep quiet for the first week or two of treatment. Much harder for some than for others. But the rest habit is soon acquired. In the past year not a single member has begged me for exercise. It is rare, indeed, that they ask for it after the treatment is fairly begun. Our experience supports the opinion of the lady quoted by Benson in his "Upton Letters," who maintained that the recumbent posture was conducive to cheerfulness. Resting in the open air seems to keep up the muscle tone, for when walking is finally allowed the amount can be rapidly increased without tiring the patient.

Attending the weekly meeting of the class involves considerable exertion and gives us a measure of the gain in strength. No one with persistent fever is allowed to attend the class. When applications for membership are received from consumptives with considerable fever, they are told to place their bed out of doors and remain absolutely at rest until their temperature is normal. The promise is held out to them that they will be taken into the class when their fever leaves. Four months ago a man with advanced phthisis and high fever wished to join the class. I sent him to bed. The friendly visitor called and gave the usual instruction to him and his family and left a record book. At the end of a month his temperature had become normal and he was permitted to attend a class meeting. He lived at the top of a steep hill. On returning home from his visit to me on the day he began treatment he had difficulty in climbing the hill and reached the top exhausted. After spending a month in bed he found, after starting for the class meeting, that he had forgotten his record book. He climbed the hill and, to his delight, found that the ascent was no longer difficult and exhausting. He gained seven pounds during that month in bed. I realize that the effort of making the weekly visit to the class is in some cases tiring and of itself injurious, but in the majority of cases the mental uplift seems to more than compensate for the harm wrought by the expenditure of strength. In exceptional instances members are permitted to attend the class only every other week.

FOOD.

Milk forms the basis of the diet in all the cases. Of course, many say when they enter the class that they are unable to take milk. It is usually an easy task to prove they are mistaken. Milk is nutritious, it is easily digested and it is cheap. Most of the members take two quarts, a few three quarts, a day. Olive oil is taken after every meal. Many object to the taste of cottonseed oil, so that its use has been largely abandoned. As the tastes of different races are so different, we have allowed them great freedom in selecting their food. We insist that they shall take plenty of milk, considerable fat in some form, and fresh fruit.

RECORD BOOK.

The record book is the invention of Dr. C. L. Minor,[2] of Asheville, N. C., and is an essential feature of the class method. The patient records his temperature, his pulse rate, the food he eats, and every other detail of the daily life. He is required to enter in this diary the number of hours he is out of doors and the amount of milk he drinks. The book is inspected by the friendly visitor at every visit and by the physician at the weekly meeting. In my experience I have never found that keeping the records leads to introspection or depression of spirits. It is a great aid in carrying out the details of treatment. The members take pride in keeping neat records. It encourages the members to persevere.

THE WEEKLY MEETING.

This is the most important feature of the class system. It is held every Friday in a large, cheerful room at the Massachusetts General Hospital. The class meeting is a pleasant social hour for the members. One confided to the friendly visitor that the meeting was her weekly picnic. Made up as our membership is of widely different races and different sects, they have a common bond in a common disease. A fine spirit of camaraderie has been developed. They never discuss their symptoms and are almost invariably in good spirits. Frequently our graduates drop in at the meeting to get weighed and to greet their old associates. The members are weighed each week and their pulse and temperature taken by the friendly visitor, assisted by one of the senior members. The greatest gains in weight are posted conspicuously each week on the blackboard, and the member who remains out of doors the greatest number of hours during the month has his record exhibited. One patient was out of doors 706 hours in a month, an average of nearly twenty-three out of the twenty-four. Some of the sickest members gain this distinction. The favorable cases that are making rapid progress toward recovery infuse a spirit of hope in all.

After the strength of the member has been tested and increased by carefully prescribing amounts of exercise he is graduated and allowed to work. Home treatment has one advantage over the sanatorium in the fact that if health has been regained by leading the out-of-door life at home it is easy to keep up the hygienic habits after recovery. A place for sleeping out of doors and a reclining chair for resting in the recumbent posture are still available. Our graduates continue to sleep out of doors or with their heads in open windows.

MEDICINE.

Very few drugs have been given. With the patient resting in the open air cough and toxic symptoms quickly diminish so that medicines are rarely needed. Although they take large quantities of food, indigestion is rare. The use of Priessnitz's chest compresses for cough or pleuritic pains is a routine procedure. Tuberculin has been used in many of the cases. The three cases of far advanced tuberculosis that recovered were treated with old tuberculin for months.

DAY CAMPS.

The work of the Parker Hill Day Sanatorium and of the Day Camp maintained by the House of the Good Samaritan will be described by Mr. W. M. Wilson and Dr. A. K. Stone. Experience has shown that excellent results can be obtained in these day camps. A number of our members enjoyed the privileges of the Parker Hill Sanatorium. The good food furnished, the cool shade of the trees, and the pleasant company more than compensates, in most afebrile cases, for the exertion of traveling to and from the camp. An ideal location for a camp would be the grounds of a large hospital situated in the heart of the city such as the Massachusetts General, the Pennsylvania, or the Johns Hopkins. Camps in connection with hospitals can be maintained at small cost, as proved by Dr. Stone and Dr. Floyd, at the House of the Good Samaritan in this city. In Southern cities the need of a summer day camp in connection with tuberculosis classes will be found well nigh indispensable. The heat of mid-day on the little porches and in the little confined spaces in the rear of the houses, of East Baltimore, for instance, will be intolerable and the patients will probably be forced into the house unless a day camp is established in some airy, open spot where the members can take the rest treatment under the shade of trees.

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[2] N. Y. Med. Jour., Dec. 21, 1901, and Jan. 11, 1902.

OTHER CLASSES.

In Boston and vicinity at least five other tuberculosis classes have been organized. The Suburban and the Arlington Street Church classes have already been mentioned. In addition to these are the Cambridge and Lynn Tuberculosis Classes and one started by the Mount Sinai Dispensary of Boston intended especially for Jewish patients who can not speak English. In January, 1906, a class was formed in Providence by Dr. F. T. Fulton. Within the past six months classes have been organized by Dr. W. L. Niles in New York City, by Dr. David Riesman in Philadelphia, Dr. F. J. Ripley in Brockton, and Dr. C. Dencker in Baltimore.

The class method has proved to be economical and efficient. It is hoped that classes will be established in cities where at the present time no systematic effort is being made to cure consumption. But it must ever be borne in mind by those in charge of the classes that the necessary conditions in the treatment of pulmonary tuberculosis are, as Dr. Osler has said, "rigid regimen, a life of rules and regulations, a dominant will on the part of the doctor, willing obedience on the part of the patients and friends"—without these and without the spirit of the living creature within the wheels the system will fail.

INSTRUCTIONS ON INSIDE COVER OF RECORD BOOK.

EMMANUEL CHURCH TUBERCULOSIS CLASS.

Name ....Address ....

Record from................19— to..................19—

NOTES.

Make notes of temperature and pulse at 8, 12, 4 and 8 o'clock daily, movements of bowels, hours in open air, all food taken, total amount of milk, total amount of oil and butter, appetite, digestion, sleep, spirits, cough (amount, chief time), expectoration (amount in 24 hours, color, nature), exercise (if allowed), with temperature and pulse 15 minutes after exercise, sweats, visitors.

Attend every meeting of the class unless specially excused.

RULES FOR REST.

Rest out of doors is the medicine that cures consumption. Absolute rest for mind and body brings speedy improvement. It stops the cough and promotes the appetite. The lungs heal more quickly when the body is at rest. Lie with the chest low so the blood flow in the lungs will aid to the uttermost the work of healing. The rest habit is soon acquired. Each day of rest makes the next day of rest easier and shortens the time necessary to regain health. The more time spent in bed out of doors the better. Do not dress if temperature is above 99 F., or if there is blood in the sputum. It is life in the open air, not exercise, that brings health and strength. Just a few minutes' daily exercise during the active stage of the disease may delay recovery weeks or months. Rest favors digestion, exercise frequently disturbs digestion. When possible have meals served in bed. Never think the rest treatment can be taken in a rocking chair. If tired of the cot, shift to the reclining chair, but sit with head low and feet elevated. Do not write letters. Dictate to a friend. Do not read much and do not hold heavy books. Remain in the recumbent posture while reading.

THE LIFE OF QUIET.

> "There are few medicines better than clouds, and you have not to swallow them or to wear them as plasters, only to watch them. Keeping your eyes aloft, your thoughts will shortly clamber after them, or, if they don't do that, the sun gets into them, and the bad ones go a-dozing like bats and owls."—Charles M. Skinner, in "Do-Nothing Days."

BLANK FOR FRIENDLY VISITOR'S REPORT OF FIRST VISIT.

Nurse's Report. History No.

Name. Address. Age. Place and Date of Application.

House. Stories. Number of rooms. Occupies. Flat roof.

Balcony. Yard. Locality. Dust. Sunlight.

Sanitary conditions. Length of time in present location. Record of other cases

Patient's room. Bathroom. Number in family.

Financial condition. Occupation. Habits.

Disposal of sputum. Intelligence of patient. Diet, with amount of milk taken.

Family history. Personal history.

Date of joining class. Date of nurse's first visit. Time spent.

Remarks. Improvements suggested.

OBSERVATIONS ON PLAGUE IN INDIA.*

JUDSON DALAND, M.D.

Professor of Clinical Medicine in the Medico-Chirurgical College and Physician to the Medico-Chirurgical Hospital.
PHILADELPHIA.

Plague, in the time of Galen, was any epidemic disease causing many deaths, but the word is now restricted to that acute epidemic, febrile disease, with polyadenitis, due to the plague bacillus. It is believed to be transmitted to man by fleas that have infected plague-stricken rats. This malady has doubtless existed for ages, and certain epidemics that occurred two or three hundred years before Christ were unquestionably plague.

In the fourteenth century plague was pandemic and spread from the tropical and subtropical countries of the East through Europe as far north as Greenland, and it is estimated that the mortality was in the neighborhood of 25,000,000. Between 1876 and 1889 it is estimated that more than 250,000 deaths occurred from plague. This disease is now confined to Asia and is only occasionally imported into Europe by way of Turkey. The following centers for this disease are recognized: (1) Bombay, (2) Uganda, (3) Persia, (4) Thibet, (5) the west coast of Arabia, and (6) eastern Siberia, in all of which plague is always present, either sporadically or endemically, and from these centers epidemics and pandemics originate.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City June, 1907.

The plague bacillus was discovered by Kitasato and Yersin in Hongkong in 1894. It is a short, thick bacillus resembling that found in chicken cholera, having a length of from 1.5 to 1.75 microns and a breadth of from 0.75 to 0.7 microns; it is ovoidal, slightly convex, rounded at each end, non-motile, aërobic and frequently appears at a diplobacillus which occasionally joins, forming short chains. This new organism takes a characteristic bipolar stain with methylene blue, the middle portion often remaining transparent. During life the bacillus is easily obtained from the bubo in the bubonic, from the sputum in the pneumonic and from the blood in the septicemic forms, and after death may be discovered in almost all the tissues. The following varieties are recognized clinically: (1) Bubonic, (2) pneumonic, (3) septicemic, (4) intestinal and (5) ambulatory. The vast majority of cases fall under the first group. The septicemic form is rare as a primary affection, but is not uncommon in the terminal stage. The ambulatory form is most active in the spread of the disease, as the symptoms are so slight as to cause but little inconvenience and, therefore, seldom come under medical observation.

One of the first cases of pneumonic plague diagnosed during life was that of Maj. Manser, who was one of the faculty of Grant Medical College in Bombay and who was under the care of Maj. Childe, the present incumbent of the chair of medicine in that institution. He presented the ordinary signs and symptoms of pneumonia. As extreme prostration showed itself early, Maj. Childe suspected the pneumonic form of plague, and the sputum, by staining and culture, showed the plague bacillus. The patient was in good health January 2 and died January 6. The nurse who attended him fell ill on the following day and died three days later of the same affection. There was no dyspnea nor the ordinary pneumonic disproportion of pulse and respiration; the sputum was a pinkish serum and bore no resemblance to the characteristic rusty sputum of pneumonia, and the general condition was far worse than could be explained by the small amount of lung involved.

My personal experience with plague includes about 50 cases observed in the Maratha Plague Hospital in Bombay during the summer of 1905. This hospital is especially devoted to plague, although it is occasionally necessary to set aside pavilions for other diseases, such as relapsing fever, etc. The hospital is composed of a number of pavilions, one story in height, with beds made of wood, the bottoms of which are covered with rattan. These beds are placed on each side of the pavilion and number about 20 or 30. Contrary to our custom the patient faces the window. The total capacity of the hospital is about two or three hundred, and in times of epidemic, by overcrowding, the capacity is doubled. No attempt is made to make bedside notes, and all records are placed on the temperature charts, which show the name, age, date of admission, temperature, and only occasionally the pulse and respiration. A record also is made of the day of the disease and the treatment. Blue and red pencil marks are used freely for any additional data.

These pavilions are thoroughly well ventilated by numerous windows and doorways. The native habitually keeps his head covered by a sheet, which strange custom is probably due to the fact that he is accustomed from childhood to covering his head with a thick turban, which renders the head peculiarly sensitive to drafts and slight changes of temperature when the head covering is removed. This sensitiveness is still further accentuated by the custom of wearing the turban during the entire day and evening, excepting when eating or sleeping. The natives occasionally utilize this strange head covering at night as a pillow, and at all times it serves as a bank, as money may be discovered tied in one corner of the material composing the head dress.

Patients with plague are transferred to the hospital by means of a two-wheeled vehicle, on the top of which is placed a stretcher. This ambulance is painted white and is in charge of two men who supply the motive power. The patient is covered by a coarse blanket, and it is the belief of the physicians of Bombay that these patients do not propagate the disease while being transferred from their homes through the narrow crowded streets to the hospital.

The expectoration in primary pneumonic cases is infective, and it is believed that the urine may possibly carry this disease, but the discharges from the bowels are believed to be free from this danger. Suppurating buboes are often highly infective, and in acute cases the pus from these buboes show large numbers of plague bacilli.

The hospital is under the direction of Dr. N. H. Choksy, assisted by a native physician. Dr. Choksy is possessed of unusual vigor, both mental and physical, and is the happy possessor of an intense enthusiasm and love for his work. He is, however, handicapped by duties which belong more strictly to a superintendent, which duties occupy time which should be spent in purely medical work. He has been in close association with plague for many years, and to-day probably possesses more practical information regarding the clinical aspect of plague than any physician in Bombay or elsewhere. The Parsees, followers of Zoroaster and worshipers of fire, although few in number, are remarkably intelligent, prosperous and charitable, highly neurotic and differ widely from the other nations of Bombay and possess many of the mental and emotional characteristics of the better class of Hebrews. Special pavilions are assigned the Parsees in the Plague Hospital, which custom is followed in other public institutions. They visit their sick at all hours and in such numbers as seriously to interfere with their proper management and nursing.

The Maratha Plague Hospital and the Arthur Road Hospital are so rich in clinical material illustrating various contagious diseases more or less peculiar to India that it is regretable that each medical student in Bombay is not compelled to live a certain number of months with these patients. Most of the cases of plague present the ordinary features of the bubonic form of the disease, but few show the septicemic or pulmonic variety. The latter occurs in about 0.5 per cent. of all the cases, although terminal pneumonia is present in about 10 per cent. of the cases. When bacilli are found in the blood 98 per cent. of the cases are fatal, and many patients enter the hospital and die before the medical officer's visit the following morning. Most patients, however, die on the third day, and the average daily mortality among the natives is 81 per cent. and among Europeans about 15 per cent.

When plague is complicated with tympanitis it is usually fatal, and when the thyroid is affected it constitutes a grave complication. The common complications of plague in the order of frequency are:

1. Delirium.
2. Cardiovascular weakness or paralysis.
3. Tympanitis.
4. Persistent vomiting and diarrhea, which are rather uncommon.

The rarer complications are:

1. Aphasia.
2. Peripheral neuritis.
3. Bulbar paralysis.
4. General acne resembling chickenpox, which may appear in one night.
5. Panophthalmitis followed by total blindness, which may occur within twenty-four hours.
6. Keratitis.
7. Hematuria, which was rather common in the last epidemic.
8. Meningitis.
9. Secondary pneumonia.

In one case of plague at the end of the fifth week the classic symptoms of meningitis developed. The following combination of diseases are occasionally met with during epidemics of plague: (1) Plague and smallpox; (2) smallpox and plague; (3) relapsing fever and plague, in which case the fever chart shows a less marked crisis, but the buboes suppurate, as is usual in plague; (4) plague and relapsing fever; (5) relapsing fever chickenpox and plague; (6) plague and measles, in all such cases the mortality is very high; (7) erysipelas. leprosy and plague; (8) leprosy, smallpox and plague.

Each of these mixed infections are exceedingly rare. In fourteen hundred cases of plague but three of smallpox and plague were observed. When a case of plague occurs complicated by epistaxis it suggests the possibility of the coexistence of relapsing fever, and when subnormal temperature and perspiration also are present examination of the blood will show the presence of the spirillum of relapsing fever. Occasionally errors in diagnosis occur, of which the following is an example: A patient entered the hospital suffering from fever, bubo and pain over the bubo, particularly on pressure. During an epidemic of plague these symptoms are usually sufficient to make a diagnosis of plague. Two such cases occurred in men sent from a jail in Bombay. Examination showed that the bubo was an old enlarged gland and that the skin overlying was hyperesthetic. The blood examinations proved that they were cases of relapsing fever and not plague, and many hundreds of inmates of the jail were later seized with this malady.

The number of cases of plague in India during the summer of 1905 was comparatively few and many of the pavilions were empty. I observed in the neighborhood of fifty cases, however, all occurring in natives. The average daily mortality in Bombay was forty; during an epidemic it rises to one or two thousand. Many die in their homes without medical attendance. The majority of patients were ill two or three days prior to their admission to the hospital. The vast majority of the cases were of the bubonic variety and the glands usually affected were the inguinal or femoral, the axillary or cervical, and there was one example of primary involvment of the isthmus of the thyroid.

Not infrequently the inguinal or axillary or the inguinal and cervical would be affected in the same individual. In the majority of cases the diagnosis was based on: (1) Sudden onset; (2) extreme prostration; (3) fever, which usually decreased on the third day; and (4) painful glandular enlargements or buboes. In no instance was the diagnosis corroborated by the discovery of the plague bacillus. Clinically the introduction of a hypodermic needle into an enlarged gland and the removal therefrom of a small quantity of lymph in which the pest bacillus may be recognized, establishes the diagnosis in doubtful cases. Unfortunately the natives object to autopsies and it is the policy of the government to acquiesce so as to popularize the hospitals. In consequence no autopsies have been performed in the Maratha Plague Hospital for more than four years.

As a rule the onset of plague is sudden as if the patient was "stricken down," and although diarrhea is uncommon, it has been observed before death and is colliquative in character. The washed-leather appearance of the tongue is diagnostic.

The following is the report of two cases of plague, one occurring in Dr. N. H. Choksy and the other in his father-in-law.

Case of Dr. N. H. Choksy:—The attack began on the morning of May 7, 1904, the axillary gland showing enlargement, probably from an infection received through a small blister, which was unopened, situated on the tip of the left index finger. The temperature rose in a few hours to 106 F., accompanied by delirium. There was considerable periglandular inflammation and edema and the bubo was only moderately painful. The first two injections of the Roux serum were 100 c.c. each and subsequent injections were smaller. On the first day two injections were given; on the second day two and three injections were given, subsequently and in all 400 c.c. were administered. Ordinarily 100 c.c. repeated thrice, at six-hour intervals, are sufficient to abort ordinary cases of plague. Four hundred c.c. of serum were injected around the bubo and one injection was given on the opposite side. The temperature descended to normal on the fourth day. Afterward there was an interval of five or six days during which time he was in good health and then fever occurred with urticaria, an after effect of the serum. This urticaria affected both upper extremities, which became extremely red, many wheals formed and itching was extreme. Later a third rise in temperature ensued with pain and swelling, one after the other, of almost all the joints of the body, the wrists, elbows, shoulders, hips, knees, ankles and maxillæ. These joint phenomena were secondary to the serum. During the third week severe neuritis accompanied by spasms occurred, chiefly affecting the thighs and legs. The least movement was agonizing. Morphin and atropin were useless. Improvement was eventually secured by the use of opium, which was spread all over the limbs, which were bandaged afterward with cotton. He remained drowsy for three days. Spasms, weakness of the limbs and wasting of the muscles caused great suffering for four months. Although right-handed, the muscles of the right forearm are less in bulk than those of the left. In five months he was able to begin work, but it was necessary to move with great caution as the slightest over-use of the muscles immediately induced spasm. Lithicin in two-grain doses, four times a day until 200 grains had been taken, improved the tone of the muscles, lessened pain and increased weight. Occasionally the glycophosphites act beneficially in the nervous troubles following plague. Moderate fever was produced by nervousness and suffering and his medical adviser ordered suppositories containing quinin, which produced proctitis with retention of urine, to alleviate which a rubber catheter which unfortunately was unclean was passed and was followed by cystitis. Following the proctitis, hemorrhoids, from which he had occasionally suffered, became acutely inflamed and rectal hemorrhages frequently occurred during a period of two months and almost caused death. Relief was secured by a complete change in diet, as drugs were valueless.

Case of Dr. Choksy's Father-in-Law:—The patient was infected May 1, 1905. Returning home from business at 7 p. m., he felt sick with slight pain in the groin. He was able, however, to take dinner as usual, and had none of the premonitory symptoms described by Hunter. As the pain in the groin increased and fever appeared, he lay down. At 9 p. m. the temperature was 101 F. and the pulse was rapid. He declined medical assistance, feeling that it was unnecessary, but in one hour, i. e., 10 p. m., the temperature had risen one degree. At 10:30 p. m. he was given 100 c.c. of serum and the following morning another 100 c.c., and at 4:30 p. m. a third injection of 100 c.c. In spite of these injections a bubo appeared on the opposite side, showing the malignancy of the infection. After the third injection the temperature fell and on the morning of the third day became normal. On the fourth day two injections of 50 c.c. each were given as a prophylactic and the buboes rapidly declined in size and he made a good recovery.

While I was in Bombay the plague commission was engaged in successfully solving the question of the transmission of plague; preliminary communications have already appeared in print and further reports will soon be published. Their experiments prove that fleas from rats dead of plague are able to transmit plague to rats, guinea-pigs and monkeys.

By an ingenious method devised by Captain Liston infected fleas were secured by placing a live guinea-pig in a room in which plague had occurred. Although a rat flea will not by choice select another animal as its host, under the influence of hunger it will attack almost any living animal. A cage of healthy rats surrounded by a fine wire gauze, when placed in a room from which patients dead of plague had been removed, remained free from plague, whereas the majority of rats, exposed in a similar manner, unprotected by wire gauze, died of plague. When rats imported from England were thus exposed they all died of plague, which suggests that a certain proportion of Bombay rats are immuned to this disease. Complete protection of healthy rats, when confined in an ordinary wire cage and placed in an infected room, was secured by suspending the cage in the air or by placing it on the floor, provided it was surrounded by a strip of fly paper wider than a flea could jump. Infected fleas secured by the live guinea-pig method, when permitted to attack healthy rats, guinea-pigs or monkeys in flea-proof cages, caused an epidemic of plague among these animals. The discovery by Captain Liston of the rat flea on the body of a Hindoo dying of plague adds one more link to the chain of evidence tending to prove that the infected flea from the plague-stricken rat is the transmitter of plague from the rat to man. It will be most interesting to learn the precise manner in which this transmission occurs and the behavior of the *Bacillus pestis* while in the body of the flea.

For many years the natives of India have been convinced of the necessity, during epidemics of plague, of (1) evacuation of villages when disease and death appears among rats; (2) burning the houses of the villagers; (3) destroying the roofs of houses so as to permit the sunshine to penetrate all portions of the dwelling, as the flea prefers darkness. The correctness of this belief is easily comprehended in the light of the results secured by the plague commission, as is also the cause of the infrequency of plague among Europeans.

It is regretable that the time allotted to this communication forbids a discussion of sanitary and quarantine questions, the present status of the treatment of plague by sera prepared in accordance with the methods of Prof. Lustig of Florence, Prof. Terni, formerly of Messina and now of Milan, and Dr. Brazil of San Paulo, Brazil. Consideration should have been given to the efficiency of adrenalin, spartin, caffein, the uselessness of alcohol and the undoubted value of Haffkine's serum as a prophylactic in plague.

THE QUALITY OF PUBLIC WATER SUPPLIES.*

WILLIAM S. JOHNSON.
Sanitary and Hydraulic Engineer.
BOSTON.

It is particularly gratifying to me to be called on to speak before a gathering of physicians, as it gives an excellent opportunity to air certain grievances which, as a sanitary engineer, I have against the physician.

One of the chief of these grievances is that there is often so little apparent relation between the quality of a water supply and the health of those habitually using the water. Engineering is supposed to be an exact science, and when the cause is present the engineer looks at once for the effect. It grieves him, therefore, when a water supply is obviously polluted, when it is known to contain excreta from typhoid fever patients, that the epidemic of typhoid fever does not follow. On the other hand, he is even more annoyed when, after he has introduced an unpolluted water supply, the high typhoid fever death rate which obtained when the polluted supply was in use is not materially reduced.

Another grievance of the sanitary engineer is the impossibility of obtaining from the physician any satisfactory conclusion as to the results of the use of water which is not contaminated by sewage but which has other features generally considered undesirable. For example, we have always wished to know the effect of habitually using a very hard water or a water containing large numbers of live or decaying organisms. We have been given vague answers to the effect that while no specific diseases may be caused by such conditions in the water supply, the general effect on the system is bad and may make the users of the water more susceptible to diseases of various kinds.

All this to the man of engineering training is exasperating. One or two well-known examples illustrative of our trials may be of interest. In the city of Lawrence, Mass., the water supply was for many years taken directly from the Merrimac River, and the death rate from typhoid fever in that city was abnormally high. In 1893 a slow sand filter was constructed through which all of the water supplied to the city has since been passed and the death rate from typhoid fever was immediately greatly reduced and has continued low since that time. This seems to be a clear case of reduction in the mortality from this disease due to the filtration of the public water supply. If this was the only fact which the statistics show, the results would be satisfactory, but coincident with this reduction in the death rate from typhoid fever is a corresponding reduction in the death rate from almost every other disease. In fact, the general death rate has been very greatly reduced since the introduction of filtered water. If we say that the typhoid fever death rate has been lowered by abandoning the polluted water supply shall we say also that the mortality from other than the so-called water-borne diseases is reduced by an improved water supply?

In the city of Washington, a polluted water supply has been in use for many years and the death rate from typhoid fever has always been high. Recently works for the purification of the water by slow sand filtration have been completed, but there has been practically no reduction in the number of deaths from typhoid fever.

Is it any wonder that the man whose training has been in an exact science is somewhat distressed by being met with such facts as these? Fortunately, however, the engineer, in dealing with water supply problems to-day, is working for something beyond the public health, namely, public comfort. The public, in many parts of the country at least, is no longer satisfied simply to know that the use of a water supply will not produce typhoid fever, but it is unwilling to drink water which is known to contain the excreta from human beings, or water which is so hard as to be unfit for domestic purposes, or water which is so highly colored or which contains organisms giving objectionable appearance, taste or odor. In fact, it is no longer satisfied with a water which is dirty, even though it may be safe.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

It surprises us many times, when we carefully examine the sources of supply, to discover what we have been drinking and enjoying. It is not appetizing, to say the least, to think of drinking water from a pond which is frequented by fishermen. Neither is it appetizing to see cows wading in a stream which provides water for our table use, yet these are the conditions which we have contentedly endured until the more recent demands for clean as well as safe water.

Waters which are free from objectionable appearance, taste or odor, as well as free from contamination, are found in nature only in the ground. A good ground-water supply obtained from a spring or well is undoubtedly the most satisfactory supply which can be secured. A good ground water is clear, colorless, odorless and practically free from any organic matter whatsoever. Any community which is favored with large areas of sandy or gravelly soil from which water can be obtained has little excuse for having a poor water supply.

There are many cities and towns where water supplies of inferior quality are in use or where expensive filtration plants have been constructed, while there is an abundance of water of excellent quality in the ground which can readily be secured.

A point in favor of ground waters which may seem of minor importance but which really means much to the consumers is the low temperature at which the water is supplied to the consumer. The temperature of ground water as delivered in the houses during the warmest months has been found in Massachusetts to be from 52° to 55° F. The water derived from surface sources is delivered to the consumers at a temperature of from 70° to 75° in warm weather. The chief points to be guarded against in obtaining a ground-water supply are the presence of iron and an excess of hardness. Hardness is likely to occur when water is obtained from soils containing limestone. Iron occurs usually where there is much organic matter in the soil from which the water is derived or through which it passes on its way to the wells. The presence of iron renders the water almost useless for many domestic purposes, but it can be removed without any serious difficulty, although the iron occurs in many different forms and different treatment must be employed with different waters.

In speaking of water obtained from wells, I do not refer to artesian wells, but to shallow wells which have depths of from 30 to 50 feet. Artesian wells are undoubtedly of great value in many parts of the country, but in New England, at least, they are seldom satisfactory and can not compare with the shallow wells drawing water from sandy or gravelly strata at a not very great distance beneath the surface.

Where the area of sandy or gravelly soil is not extensive and the quantity of water to be obtained from it limited, there are several ways of increasing the supply. If the water-bearing material is found in the vicinity of a pond or stream, the yield of the wells can be increased by infiltration from the neighboring surface-water source if the wells or filter galleries are properly placed. It is also possible to increase greatly the yield from the ground by flooding areas in the vicinity of the wells with water from some surface source. These are things which should be done intelligently, since trouble is apt to occur if surface water enters the wells too rapidly and is imperfectly purified.

Ground-water supplies have been in use for many years, but there are many places where the water-supply problem could be solved very satisfactorily if these sources of supply were better understood. It has been unfortunate that such supplies have been developed by well drivers rather than by engineers. The selection of a ground-water supply by a well driver is much the same as the regulation of plumbing by plumbers as practiced in many of our cities.

Where ground waters can not be obtained, the most satisfactory substitute to meet the modern demands for a water not only free from pollution but free from other objectionable characteristics is a filtered surface water, and the time is not far distant when all surface waters will be filtered before being delivered to the consumers. It is now possible to make almost any water suitable for domestic use by applying the proper treatment, but there is a tendency to think that because any water can be made suitable for domestic purposes any water will do as a source of supply, providing it is filtered. In fact, the advisability of neglecting the sources of supply and filtering the water is being publicly advocated in some places. This, it seems to me, is a very dangerous tendency.

Certain of the dangers attending the use of a polluted water supply after filtration are obvious. We need only recall the recent epidemic of typhoid fever in Butler, Pa., where a large percentage of the population was stricken with typhoid fever on account of the temporary shutting down of the filtration plant while making necessary repairs. Other examples of perhaps less serious character have occurred which show on how slender a thread the health of a community hangs which depends for its water supply on the proper operation of a filtration plant managed frequently by ignorant workmen.

There are some cases in which it is necessary to use water which has been polluted, and in such places the only safeguards are in properly designed works so constructed as to make it difficult to operate them improperly and in the operation of the works by competent and trustworthy men.

Surface water sources can be greatly improved in many cases without filtration. The most effective method is by storage for a considerable time in a deep pond or reservoir, with bottom and shores free from loam and mud or other organic matter. It water could be stored for a sufficient time and under proper conditions all disease germs would be killed, the water would become colorless and in every respect excellent for domestic purposes.

The water found in such lakes as Winnepesaukee in New Hampshire is at most times an almost perfect water, notwithstanding the fact that many of the tributary streams contribute water of very inferior quality. I say at most times, for all such waters are subject to objectionable tastes and odors. The conditions in Lake

Winnepesaukee can be approximated artificially and some of the reservoirs recently constructed, like the Wachuset reservoir of the Metropolitan water works in Massachusetts are giving water of most excellent quality, although the water entering theim is highly colored and contains large quantities of organic matter.

The best evidence we can have of the safety in the use of such waters is the fact that our large cities, like Boston and New York, which are supplied from storage reservoirs, never have an epidemic of typhoid fever which can be attributed to the water supply, although the feeders of the reservoirs are known to be polluted. The weak points about such supplies are the possibilities of local contamination which may quickly reach the point from which water is drawn and the occasional troubles from tastes and odors due to growths of organisms.

Running streams are the least desirable sources of supply and I do not believe there is any stream, accessible for water supply purposes, which can be considered a safe source from which to take water directly. Although there may be no permanent sources of pollution on the watershed, it is absolutely impossible to prevent access to the stream, and when we consider that any pollution entering the stream at any time is almost immediately taken into the distributing pipes of the water supply system, the danger is obvious. Such supplies, if used at all, should invariably be filtered.

Experience is showing us that the nearer we get to nature, either in disposing of sewage or in obtaining a water supply, the better the results secured. The old-fashioned cesspool which has been so much abused is now considered the best method of disposing of small quantities of sewage. In methods of water purification the most satisfactory are those where nature is assisted as little as possible. The addition of chemicals or the construction of works which require constant personal attention, while frequently necessary, should be adopted only as a last resort.

FILTRATION OF PUBLIC WATER SUPPLIES.*

HARRY W. CLARK.
BOSTON.

The purification of municipal water supplies by filtration has been practiced for over seventy years. Apparently the first filter of considerable size was that constructed by the city of London in 1829, and that city now has about 120 acres of sand filter beds. Berlin, Germany, built water works and sand filters in 1856, fifty years ago, and at the present time practically all the important cities of Great Britain and Germany filter their water supply if this water is taken from a surface source. Filtration of public supplies is widely practiced in other countries, especially Belgium and Holland. Even Russia has several large municipal filters; a recent article in the *Engineering Record* describes large sand filtration plants in Japan, while in India and Egypt a number of large municipal supplies are treated by mechanical filters.

The first large municipal filter in America was constructed at Lawrence, Mass., in 1892-93, although at Poughkeepsie and Hudson, N. Y., St. Johnsbury, Vt., and Nantucket, Mass., small filters had been previously built, the first one being that at Poughkeepsie, N. Y., constructed in 1872. During the last half of the last century public water supplies in America increased greatly in number, but perhaps the true beginning of the modern desire for pure water in this country, in distinction from the desire for enough water, was given by the State Board of Health of Massachusetts in 1886, when systematic examinations of the water supplies of the state were begun, frequent analyses of these supplies made and the Lawrence Experiment Station established.

Filtration of water is resorted to for various causes: To remove disease germs and render a polluted water safe, to remove undesirable organic or mineral matter present in suspension in water and thus improve its appearance, to remove color and to remove tastes and odors and the organisms causing these tastes and odors.

The first municipal filters were constructed for the purpose of improving the appearance of public supplies, and for many years the removal of organic and mineral matter in suspension in the water was believed to be the chief benefit of filtration. Studies showing the efficiency of sand filters in removing bacteria from water were begun in Berlin in 1884 and since that date the water supply of the city of Berlin has been systematically examined bacterially, and since 1888 constant bacterial examinations of the water supplies of London have been made. In 1887 the Massachusetts State Board of Health began at the Lawrence Experiment Station its investigations on the filtration of water and the purification of sewage, and since then notable studies of the science of water filtration have been made by various municipalities in this country. At Lawrence the studies for many years were directed entirely to what is known as slow sand filtration, but of late years other methods have been studied at Lawrence and mechanical and other forms of water filters have been operated. The improvement of water by double filtration has also been extensively studied there.

The municipal studies in America have been directed almost entirely to determining the comparative efficiency and applicability of sand and mechanical filters in the treatment of the various kinds of water necessary to use in various sections of the country, together with studies of sedimentation, coagulation by different coagulants, etc. In the Lawrence studies more than seventy-five experimental water filters have been kept in operation for periods varying from a few months to fourteen years, and with the laboratory facilities of the station almost every conceivable determination of the efficiency of these filters has been made. Daily determinations of the bacteria in the raw and filtered water and chemical analyses to show the work of the filters in removing color, organic matter, etc., have been made; the effect on filter efficiency of different rates of operation, different depths of filter and filter efficiency when treating different waters have all been exhaustively studied and the results given from year to year in the Lawrence Experiment Station reports.

Since the Lawrence filter was built in 1893 sand filters have been constructed at Mt. Vernon, Albany, Providence, Philadelphia, Washington, Yonkers, New Haven, Springfield, Bar Harbor and other places, and such filters are in process of construction at Pittsburg, Pa., Cincinnati, Ohio, and South Norwalk, Conn. Investigations are also under way looking to the filtration of the old and new water supplies of the city of New York.

Mechanical filters began to be extensively used in America, especially throughout the south and west, in the latter part of the 80's, largely, however, for the purpose of clarifying river water rather than for bacterial purification. In 1904 it was estimated by Hazen that 560,000 people in America were supplied with sand filtered water and 3,000,000 with water treated by mechanical filters. In the past three years, owing to the introduction of sand filters at Washington, Philadelphia, Providence and other places, the number of people supplied with sand filtered water has more than tripled, so that at the present time about 2,000,000 people in this country are so supplied.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

The government has recently constructed covered sand filters of twenty-nine acres in area at Washington, these filters having a capacity of 75,000,000 gallons daily. Filter beds twenty-two acres in area supplying 288,000 people, have recently been constructed in Philadelphia and fifty acres are in course of construction, while at Pittsburg forty-six acres of filter beds to supply a population of 400,000 are being constructed and will be completed probably during 1908. The introduction of mechanical filters constructed on a scientific basis has also gone forward with great rapidity during the past few years and probably 1,000,000 more people are supplied with water purified in this way than were supplied in 1904. The filters at Little Falls and Hackensack, N. J., are the largest of this type of filter yet constructed.

A sand filter is a very simply constructed affair. It is in its essential features merely a body of sand of sufficient thickness, underlaid or supported on a few inches of coarse and fine gravel or broken stone, with a proper number of pipe underdrains to collect the water that passes down through the sand, the filtering material enclosed by a suitably constructed concrete masonry basin with tight bottom and sides and in the northern states covered with a roof. These are its essential features of construction, but the details can be varied through wide limits and by the engineering skill of those engaged in planning and building filters; they are being constantly improved, these improvements tending to simplify filter operation, to promote constant efficiency and to reduce the cost of filtration.

Such sand as that in the Lawrence filter will, when first placed in position, allow 50,000,000 gallons of water daily to flow through one acre of surface area; such sand as in the Albany filter will, theoretically, allow under the same conditions about twice as much water to pass through. As the sand remains in position and in constant use, however, it becomes compacted and its maximum rate decreases very materially, so that under the same conditions of head, free underdrains, clean surface, etc., the maximum rate of the filter may be only one-half or one-fourth as great as when first put in use. During the past two or three winters the volume of water that could be made to pass through the Lawrence municipal filter decreased so materially, owing to compactness of the sand due to use and continued water pressure, that it has been a serious problem to filter a volume sufficient for the city's needs. An experimental filter at the experiment station, of the same grade of sand as in the municipal filter and of the same age of operation, has shown similar results as to decreased capacity to flow.

The maximum rate at which a filter may be operated has little connection, however, with the actual rate necessary for bacterial efficiency. In Germany the official rate of filtration recognized by the imperial board of health is 2.57 million gallons per acre daily. The experiments at Lawrence and elsewhere in this country, however, have shown what common sense would tell us, that the rate of filtration may vary very materially with the character and degree of pollution of the raw water. Lawrence experiments make it clear that under careful supervision badly polluted water can be filtered at rates as high as 3,000,000 to 4,000,000 gallons per acre daily with entirely satisfactory results and that with ordinary river and reservoir waters, not grossly polluted, rates of 5,000,000 gallons per acre daily can be safely followed. A sand filter containing from three and one-half to five feet in depth of suitable sand and filtering polluted water at the rates mentioned, is capable, under proper conditions of filtration and skilled operation, of removing 99 per cent. or more of the bacteria present in the applied water and a considerably larger percentage of the bacteria of intestinal origin present in such water.

For nineteen years experimental sand filters have been in operation at the Lawrence Experiment Station. For fourteen years the Lawrence municipal filter has been in use and the Albany filter plant since 1899. Daily records of the bacterial efficiency of the Lawrence filter and the Albany filter show that by proper supervision a thoroughly satisfactory effluent from a bacterial point of view can be obtained at the rates followed at these places. Constant chemical analyses show, moreover, that organic matter can be reduced about 50 per cent. and coloring matter from 20 to 40 per cent. when filtering such river water as passes to these two filters. It has been found that not once has the average yearly efficiency of the Lawrence filter fallen below 98.5 per cent., and that during the past eight years it has been about 99.5 per cent. The Albany figures on the table show a similar result.

In the operation of sand filters a certain amount of sand clogged with organic and mineral matter has to be removed from the surface every little while in order that the filter may be kept in operation and the required rate of filtration and volume of filtered water be obtained. At Albany the period between scrapings averages about twenty-five days and at Lawrence practically the same period elapses. At each scraping about one-half inch of clogged sand is removed, although when the laborers employed in this work are skilful a lesser depth is taken away at each scraping, the depth that must be removed varying, of course, with the character of the matter in and removed from the raw water; for example, the Potomac river water passing to Washington filters contains fine clay particles that penetrate to a considerable depth below the surface and cause deeper sand removal than necessary at Lawrence or at Albany, while a filter receiving lake water free from turbidity would need even less sand removal than the Lawrence and Albany filters. The sand removed is subsequently washed and replaced. Replacement of sand is usually carried out once or twice each year and at this time the filters are filled to grade with new or washed sand. At the present time sand is removed from filter beds by water pressure, that is, a movable hopper connected with pipe or hose is placed on the filter and moved about from place to place and the sand that has been scraped from the filter surface and heaped up is shoveled into it. A stream of water passes through the bottom of this hopper, carries the sand into a pipe and through this to the washing area. According to Lawrence and Albany figures, the cost of filtration exclusive of interest on plant is about $1.50 per million gallons of water filtered. This includes scraping, ejection of sand, washing of sand, replacement of sand and general care of the filter beds. At Washington by improved methods and machinery the cost is stated to be only about one-third of this, or 50 cents per million gallons. Including interest on cost of plant and depreciation, the cost of sand filtered water averages about $10 per million gallons filtered.

The first scientific work in this country on water filtration was that in Massachusetts, where the comparatively clear river water of the eastern states was experimented with. It was found that such waters, polluted by considerable amounts of organic matter and containing the dangerous bacteria from the sewage of cities along their course, could be successfully and comparatively cheaply treated by sand filtration. When the studies were begun at Louisville, Cincinnati and elsewhere on the turbid waters of the central and western states, carrying at times of flood large amounts of clay and silt in suspension, it was found that sand filters were but poorly adapted to the filtration of these turbid waters without extensive preliminary treatments of such waters. Bacterially they could be made about as efficient as in the east, but, owing to the large amount of matter in suspension in these waters and the fineness of many of the particles of this matter, sand filters would quickly clog and the effluents produced were not of a satisfactory quality as regards freedom from matters in suspension. It was also found that it was not economical even with mechanical filters to treat the western river waters directly, but that large sedimentation basins capable of holding from one to many days' supply of water were necessary, and the addition of coagulants in different amounts at different times before filtration, varying with the character of the water treated. It was found, however, that a purification system suitably planned, consisting of sedimentation basins, apparatus for the introduction of coagulants and properly constructed mechanical filters, was capable not only of producing satisfactory effluents from a bacterial point of view but also effluents of a satisfactory clearness and freedom from color.

The simplest form of mechanical filter used in paper mills and elsewhere where a clarified water is desired is a large wooden tub with a couple of feet of sand in its bottom over underdrains and strainers and supplied with mechanical devices by which the sand can be agitated and washed in position by reversing the current of water and passing it up through the sand. In connection with such filters in mills a coagulant, such as sulphate of alumina, is often used, but often also the water is simply strained by the sand at a very high rate without the use of a coagulant. Early forms of mechanical filters employed such filtering materials as charcoal, coke, etc., and water was in some instances passed through under pressure from the city mains. The coagulant, sulphate of alumina, when introduced into an alkaline water decomposes and the gelatinous hydrate of alumina is formed which gathers in aggregates the organic matter, suspended mineral water and bacteria of the raw water, and, by the formation of these aggregates and their subsequent entanglement and collection at the filter surface, forms a most excellent body for the retention of bacteria and organic matter. By the use of a coagulant and this formation, and the use of coarse sand, rates of 75,000,000 to 125,000,000 gallons per acre daily can be maintained.

From the first crude type of mechanical filter, through the experience of those engaged commercially in installing filter plants, and also as a result of the able investigations carried on at Louisville, Pittsburg, Cincinnati and other places by experts in water purification, a new type of filter has been evolved. This new type is a combination of a mechanical and sand filter, although, of course, much nearer the mechanical filter form. The chief change, however, as typified by those recently constructed, is that it is built of practically indestructible materials, concrete or re-enforced concrete, instead of the perishable wooden forms formerly employed. The sand beds are considerably larger than the old wooden tub mechanical filters, but still small compared with the beds of slow sand filters. Improved devices for the even passage and collection of water after passing through the sand have been devised and also better and more efficient methods of washing the sand. Filters of this new and improved type have been installed at Little Falls and Hackensack, N. J., at Ithaca and Watertown, N. Y., Louisville, Ky., Harrisburg, Pa., and are being planned for other places. At Little Falls, N. J., the first large plant of this new and improved type was constructed and put into operation in 1902. This plant is designed to have a capacity of 32,000,000 gallons daily and covers a total area of only about 1¼ acres. It has 32 individual filter beds of 360 square feet each, a coagulating and subsiding basin with a capacity of 1,750,000 gallons and a clear water basin of 3½ million gallons capacity. The filters are constructed above the clear water basin. The water filtered is taken from the Passaic River and is a water somewhat dirty in appearance, not highly polluted, but unsatisfactory for domestic use on account of its appearance and the matters in suspension in it.

Sulphate of alumina is used as a coagulant in amounts averaging about 1.3 grains per gallon, and in order to supply sufficient alkalinity to cause good decomposition and coagulation and prevent the passage of undecomposed alum into the effluent, soda ash is used in amounts averaging about ½ grain per gallon. These filters contain 2½ feet in depth of sand of an effective size varying from .35 to .40 mm., placed over fine gravel or broken quartz and this resting on the filter floors in which are inserted the strainers. In washing the sand in these filters, water is passed up from below and the sand agitated by compressed air instead of by the stirring rakes formerly employed. The dirty wash water flows away through the inlet pipe to which a branch is attached leading into the sewer. The rate of filtration employed is 125,000,000 gallons per acre daily. This filter removes more than 98 per cent. of the bacteria in the applied water, about 85 per cent. of the coloring matter, about 40 per cent. of the organic matter determined as albuminoid ammonia, and a much greater percentage of the total organic matter. It lowers the temporary but increases the permanent hardness of this water about 40 per cent.

When a slow sand filter is first put into operation the water comes through almost unchanged, and before good filtration—that is, good bacterial efficiency—can be obtained, the sand grains, especially those near the surface of the filter, must be covered with films of organic matter and this organic matter be filled with the bacterial life which is capable of entangling and destroying the ordinary water bacteria and disease germs present in the raw water. That is, sand filtration is not entirely mechanical straining, but largely a bacterial process of water purification.

With the ordinary New England waters several weeks are necessary for this process of biologic construction to be established. With a clear water containing little matter in suspension, a longer period even is necessary and finer sand in the filter is of advantage. When the filter has by this biologic construction become a proper medium for the efficient filtration of water, it not only removes bacteria but also improves the appearance of the water. It will also remove from ordinary river and pond waters a large part of the odor and tastes present in these waters. At the low rates at which sand filters are operated, this biologic purification is the efficient agent by which disease germs and organic matter are removed. In mechanical filtration where rates 30 to 50 times as great as ordinary sand filter rates are used, this natural purifying agency is much less efficient and the removal of bacteria depends very largely on the coagulant used, and the flocculent precipitate formed by it, which entangles the bacteria. In sand filters at a 3,000,000 gallon per acre per day rate, the water passes downward through the sand at a rate of about 4.5 inches in depth per hour, but in mechanical filters operated at a rate of 120,000.000 gallons per acre daily the water passes downward at a rate of practically 180 inches per hour.

I have stated that the actual cost of operation at Lawrence and Albany is about $1.50 per million gallons filtered. I understand that at Little Falls, N. J., it amounts to slightly more than $3 per million gallons filtered exclusive of cost of filtered water used in washing the filters, and the water used in this way amounts to about 4 per cent. of the total effluent.

In connection with this, however, it must be stated that, while the operation of mechanical filters in which coagulants are used is more expensive per million gallons filtered than sand filtration, yet when the smaller cost of the mechanical filter plant is taken into consideration, the actual cost of each method of filtration, including interest on plant, etc., is ordinarily about the same per million gallons of filtered water obtained.

The efficiency of a mechanical filter depends almost entirely on invariably applying a correct amount of coagulant for the water being treated, however much it may vary from hour to hour and in a suitable period for the decomposition of the chemical coagulant and for sedimentation before the water passes to the filter. In slow sand filtration the changes of the water and the personal equation are not such important factors, as the sand filter operating at a low rate adapts itself more readily to changes in the character of the raw water, receives no coagulant and its efficiency rests on natural rather than chemical means. It is, of course, true that on this account a slow sand filter is more easily worked by unskilled hands and better results obtained than when a mechanical filter is operated by those insufficiently trained to appreciate the necessity of constant care and attention. This gives a certain percentage of safety to the slow sand filter. A decrease of filter efficiency even for a few minutes may, of course, be of serious moment when treating a polluted water, and especially if these few minutes occur several times in the course of a day or of a week. It is the aim at the present time of those planning mechanical filters of the modified type, used for the purification of public supplies, to so construct them that failures are almost impossible. Constant examination of the raw water and effluent is also insisted on. It is undoubtedly true that, with expert supervision, a mechanical filter of the latest design is capable of giving a bacterial efficiency nearly equal to, but probably not quite as great as, that obtained by sand filters. Whether this very slight difference in efficiency is of any hygienic importance or not yet remains to be demonstrated.

I have collected some data bearing on this phase of the water filtration problem, the results covering thirteen different experimental filters and two large filtration systems. In every case the period that I have selected for comparison of these filters has been such that each, as far as I can determine, was being operated under normal conditions and all analytical results obtained during this period are included in this comparison. From the figures obtained it will readily be seen that the efficiency of all these filters was at times lower than the normal and desired efficiency. Taking the results of the two types of filters collectively, the slow sand filters had an efficiency of over 99 per cent. 42 per cent. of the time, of over 98 per cent. 64 per cent. of the time, and below 95 per cent. 13 per cent. of the time; while the mechanical filters had an efficiency of over 99 per cent. 32 per cent. of the time, of over 98 per cent. 49 per cent. of the time, and less than 95 per cent. 28 per cent. of the time. The filters used in this comparison are the Lawrence city filter, the Little Falls filter and experimental mechanical and sand filters at Lawrence, Washington, Cincinnati, Pittsburg and New Orleans.

Finally, the chief test of the efficiency and value of filtration is the effect that filtered water has on the health of a community using such water compared with the health of the same community when using polluted water before the introduction of filters, or, of course, it can be shown also by comparison between communities using purified water and those still using polluted water. Unfortunately, few results are obtainable showing the direct effect on the health of a city of mechanically or chemically filtered water, while we have, on the other hand, many illustrations, especially abroad, of the hygienic efficiency of slow sand filtration and in this country the results of years of operation of the Lawrence filter and Albany filter. The Lawrence results have been related so frequently that many of you are familiar with them, but, as they are as yet the foremost American exemplification of the value of sand filtered water, they must be repeated here.

The water works of the city of Lawrence were built in 1875, water being taken from the Merrimac River, and soon after their introduction the number of deaths from typhoid fever in the city began to increase. It was finally recognized in the last of the '80s that whenever there was an epidemic of typhoid fever in Lowell, which occurred practically every year, there was also an epidemic of typhoid fever in Lawrence, the city of Lowell, with its present population of 100,000 people, being located about nine miles up the river from the intake of the Lawrence water works and all its sewage passing into the Merrimac. Investigations showed that infection from Lowell reached Lawrence and was distributed throughout the Lawrence water supply system, and this investigation resulted in the construction of the Lawrence filter in 1892 and 1893.

In the tables given showing the growth of the city of Lawrence in population, the total number of deaths in the city, year by year, is also shown and the total number of deaths from typhoid fever before and after the construction of this filter. It will be seen from this table (Table 1) that the greatest number of deaths from typhoid fever in the city, namely, 60, occurred in 1890, when the population of the city was less than 45,000; that in 1892, the year before the construction of the filter, the total number of typhoid deaths was 50, the city having in that year a population of about 48,000; in 1894, the first year that filtered water was supplied to the city, the number of deaths from typhoid decreased to 24 (more than in any subsequent year to date, as shown by the table), and the total deaths in the city decreased more than 300, or from 1,211 to 901. In 1906 the total number of deaths was 1,330. an increase of 9.8 per cent., and the population of the city was 76,000, an increase of about 75 per cent. The total number of deaths from typhoid fever in 1906 was 15, as against 50 in 1892, making the comparative death rate from typhoid fever as follows: In 1892, 111 per 100,000, and in 1906, 20 per 100,000, or a decrease of 83 per cent. The rates for the intervening years are shown on the table. In Albany the reduction was from an average of 71.5 deaths per year from typhoid for the nine years preceding the building of the filter to an average of 23.8 for the six years following construction. The reduction in the number of cases of typhoid in Albany was from an average of 424.8 cases per year for the nine years preceding the building of the filter to an average of 100.5 for the six years following construction. The total deaths also decreased very remarkably as at Lawrence.

TABLE 1.

VITAL STATISTICS, LAWRENCE, MASS., 1888 TO 1906, INCLUSIVE.

Year.	Total number of deaths from typhoid fever.	Typhoid death rate, 100,000 of population.	Total deaths.	Population.
1888	48	120.0	....	43,100
1889	55	137.5	1122	43,800
1890	60	133.3	1191	44,700
1891	55	122.0	1136	46,200
1892	50	111.1	1211	47,700
1893	39	86.6	1171	49,200
1894	24	50.0	901	50,700
1895	16	30.7	993	52,200
1896	10	18.6	1017	54,300
1897	9	16.2	1087	56,400
1898	11	18.8	1057	58,500
1899	20	33.1	1234	60,500
1900	11	17.6	1250	62,500
1901	12	18.5	1118	64,700
1902	11	16.5	1163	66,800
1903	22	31.9	1178	68,900
1904	10	14.1	1140	71,000
1905	14	19.0	1372	73,500
1906	15	19.6	1330	76,400

TABLE 2.

NUMBER OF DEATHS FROM TYPHOID FEVER REPORTED IN ALBANY DURING THE NINE YEARS BEFORE AND SIX YEARS SINCE THE STARTING OF THE FILTER PLANT.[1]

Deaths from Typhoid Before Filter Plant was Started.		Deaths from Typhoid After Filter Plant was Started.	
1890-1	97	1899-1900	39
1891-2	38	1900-1	27
1892-3	45	1901-2	19
1893-4	47	1902-3	22
1894-5	98	1903-4	24
1895-6	85	1904-5	12
1896-7	65		
1897-8	84		
1898-9	84		

While, as I have stated, the actual hygienic efficiency of modern mechanical filters has not been as yet adequately demonstrated, yet such efficiency is, I believe, undoubtedly obtained and will be demonstrated eventually. There is a place for each type of filter. Sand filters are successful with polluted but comparatively clear waters and with the addition of sedimentation basins and the occasional use of coagulants with waters somewhat turbid. At the present time, however, no method of satisfactorily handling the very turbid waters full of clay and other matters in suspension is known other than by the use of coagulants and mechanical filters, although sedimentation and double sand filtration is of much promise. The prejudice in some minds against the use of aluminum sulphate under proper supervision is, I believe, not justified; the aluminum hydrate formed is invariably removed by the filters if they are successfully operated. We might, perhaps, as well refuse to eat many common foods because in their production chemicals are used as to object to water clarified by coagulants. The public is beginning to demand a clean water of good appearance, as well as safe, and in order to obtain such a water coagulants are sometimes necessary. Before either type of filter is adopted, thorough preliminary studies of all the local conditions as to water supply, etc., should be made and hasty and inexpert conclusions prevented.

TABLE 3.

NUMBER OF DEATHS FROM TYPHOID FEVER AND RATE PER 100,000 POPULATION IN ALBANY AND NEIGHBORING CITIES.[2]

	Albany.	Cohoes.	Troy.	Watervliet.	Schenectady.	Rensselaer.
Population	100,000	24,000	75,000	14,300	56,000	10,000
Number of deaths yearly from typhoid	12	13	32	6	11	5
Rate per 100,000.	12	54	43	42	20	50

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[1] Compiled from records of Bureau of Health and State Board of Health.

[2] From monthly bulletins of State Department of Health.

THE PELVIC ARTICULATIONS.

A CONSIDERATION OF THEIR ANATOMIC, PHYSIOLOGIC, OBSTETRIC AND GENERAL SURGICAL IMPORTANCE.*

JOEL E. GOLDTHWAIT, M.D.
BOSTON.

The first paper on this subject was published by me in conjunction with Dr. Robert B. Osgood[1] in May, 1905. A second paper now seems justified, since as the result of a larger experience many features of the subject are better understood, and it is possible to write with greater definiteness than was the case two years ago.

In the first place, in the consideration of the subject, it is to be remembered that the pelvic articulations are true joints and that in normal health, entirely irrespective of age or sex, motion is a definite part of their function. In the next place, it should be remembered that because of the character of these articulations, being flat bone surfaces brought together with oblique or vertical axes, their stability is dependent on the tone and character of the muscles and ligaments. This being the case, and it being recognized that all of the strong trunk and abdominal muscles, as well as the muscles involved in the movements of the thighs, are attached to the pelvic girdle, it is evident that anything that interferes with the stability of the pelvis, or that which represents the structural base, must interfere with the normal use and development of the muscles attached to it. The converse of this is equally true, and anything that interferes with the normal use or development of the muscles in this region must result in weakness and lack of stability in these joints, so that after the condition has once started a vicious circle exists, the full significance of which must be recognized if the various features are to be understood and the appropriate treatment given. This, together with the effect which the unstable pelvis, associated with the weakened trunk muscles, must have on the support and function of many of the abdominal organs, is to be recognized, and should, it seems to me, be given special emphasis in a paper presented before this Association.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Boston Medical and Surgical Journal, May, 1905.

ANATOMIC CONSIDERATIONS.

From the anatomic point of view the joint between the pubic bones is vertical in its axis, the bone surfaces are narrow, and the muscles are so placed that they can give but little direct support, while the ligaments are such that great strength or stability is impossible. It is well known, as was shown in the previous article, that the pubic bones are frequently entirely absent, and that full activity, even to uncomplicated pregnancy, is possible under such conditions. On the other hand, the joints between the sacrum and ilia are broad and flat, with strong ligaments and muscular attachments, so that in their anatomic formation strength is at once apparent. The axes of these joints are oblique, in two directions inclining upward and outward, as well as forward and outward, a fact that naturally adds strength, but which is also of much importance from an obstetric point of view. It is evident from a thorough study of these joints that the stability of the pelvic girdle depends almost entirely on them and that motion at the pubes is practically impossible except as there is relaxation or motion at the back. The motions which are normal and which should exist at all ages and in either sex, unless some pathologic condition or congenital defect be present, consist at the pubic articulation in simply an up-and-down play, this being markedly exaggerated in certain physiologic conditions, but only as there is a corresponding exaggeration at the sacroiliac joints. In these latter joints the normal motion consists in the tilting of the sacrum on the ilia (or the ilia on the sacrum), the motion taking place on a transverse axis situated about in the middle of the sacrum. Because of the position of this axis it is obvious that as the upper part of the sacrum moves forward the lower part moves backward, and vice versa.

PHYSIOLOGIC CONSIDERATIONS.

The effects of certain physiologic conditions on these articulations is of importance. In pregnancy a definite, and commonly a measurable, relaxation takes place as a normal feature, and while this becomes more marked toward the end of the term, it may nevertheless be present during the entire period and be so marked as to cause great disability.

Not only is this true, but there is probably a physiologic relaxation at every menstrual period, which from a physiologic point of view represents a miniature pregnancy. This is naturally not very marked under ordinary conditions, but it may be enough to cause considerable disability as well as explain many of the backaches common at that time. The relaxation is certainly definite enough to justify the more careful avoidance, at such times, of those activities that would cause strain of these articulations, than would be necessary under other conditions.

Not only should these two conditions, that of the relaxation in connection with pregnancy and with menstruation, be recognized, but it is probable, after the study of a considerable number of cases in connection with the gynecologists, that any disease of the pelvic organs in which there is much circulatory disturbance may be followed by this same reflex relaxation of the pelvic joints.

While this is probably true, the converse of this is also true, that if the pelvic joints become relaxed as the result of accident or disease, the lack of stability of the pelvic girdle, with the resulting weakening of the support of the pelvic organs, leads to congestive disturbances in these organs, and as this in turn probably acts on the joints, there exists, until the proper treatment can be instituted, a vicious circle of cause and effect.

OBSTETRIC CONSIDERATIONS.

From the obstetric point of view the pelvic joints are of importance, and recognizing that there is motion in these joints and that during pregnancy this motion is increased, a knowledge of the character of the motion is desirable.

The most important feature is the tilting or movement of the sacrum on the ilia (or the ilia on the sacrum), and because of the double obliquity of the axes of the joints between these bones, it is necessary, if the sacrum is moved backward at the top, that not only should the antero posterior diameter at the brim of the pelvis be increased, but the lateral diameter must also be increased. As, however, all of these motions are made on the transverse axis through the middle of the sacrum, it is necessary that, as the bones are moved in such a way that the diameters at the brim of the pelvis are enlarged, the diameters at the lower portion, or the outlet of the pelvis, must at the same time be reduced. If this motion be reversed so that the sacrum moves forward at the top the diameters at the brim are all narrowed, while those at the outlet are correspondingly increased.

The importance of the possibility of modifying these diameters is at once apparent, and the ease with which this can be accomplished should be understood. Pressure on the end of the sacrum forces the lower part of this bone forward, thus narrowing the diameters below, but enlarging those above. Pressure over the base of the sacrum or over the low lumbar spine forces the sacrum forward, thus narrowing the diameters above, while at the same time enlarging them below. Under ordinary conditions the amount of pressure necessary to accomplish this is easily compatible with that which could be borne by the patient and which could be applied by the accoucheur.

It is still further to be remembered that as all of the trunk and abdominal muscles are attached to the pelvis, these muscles can be of little assistance at the time of delivery if the pelvic relaxation is much in excess of normal unless some support is applied that will prevent this undue motion and make the basal attachment of these muscles secure. To accomplish this a belt carried around the body over the trochanters and sides of the ilia is the simplest and most practical form of support.

GENERAL CONSIDERATIONS.

When once it is recognized, in the consideration of the pelvic articulations, that we are dealing with true joints, it is evident that they are liable to the same disease conditions as are the other joints. That a tuberculous process may be present has long been recognized; but beside this, any of the non-tuberculous affections, the infectious arthritis, the atrophic arthritis, the hypertrophic arthritis, or the malignant diseases, may be present, the symptoms depending on the special disease present in the given case.

Not only are these articulations liable to disease, but because of their character, they are more liable to injury than any of the other articulations. Their obliquity, the lack of bony projections or formations that would tend to prevent strain or injury, such as the shape of the acetabulum in the hip joint, both emphasize the fact that the stability of the pelvis depends almost entirely on the ligaments and muscles. This being the case, anything that leads to loss in the tone of these structures renders the joints more liable to strain, and explains the frequency with which these conditions are met.

The simplest type of trouble consists of the strains of the sacroiliac joints which result from postures such as stooping, standing, lying, or sitting. In stooping, the muscles at first protect the joints, but as they tire, the support is then thrown on the ligaments, and if continued leads to sufficient strain of these structures to produce discomfort. This is usually instinctively relieved by stretching, in the act of which the lumbar spine is drawn forward or hyperextended, and the sacrum, moving with the spine, is drawn into its normal position, and the strain relieved.

In long standing the joint strain is similarly produced, except that the line of strain is downward, and is relieved by change of position, in which other muscles are used. On lying down in the supine position, or dorsal decubitus, strain of these joints is also possible, the spinal muscles soon tire, and as they relax the lumbar spine sags. With this downward movement of the spine the upper part of the sacrum is drawn downward also, the movement with reference to the pelvis being backward at the top or base and forward at the tip. If this position is continued for any length of time the drag on the ligaments results in distinct strain, with the common backache. This is naturally seen most markedly where, as the result of the large size of the buttocks or other physical peculiarities, the amount of depression of the spine, with the consequent drag on the sacroiliac ligaments, is greater than the average. It is also more marked when for any reason the support and protection of the muscles is more completely eliminated than is usual with simple recumbency. In this way the common postoperative backache is to be explained, the complete relaxation of the muscles from the anesthesia allowing the maximum amount of sag, together with the fact that at such times the patient usually lies on a hard, unyielding table, without opportunity for the buttocks to settle into it as they do, in varying degrees, into the mattress or surface of the ordinary bed. It is also in this way that the troublesome backaches occurring in connection with the acute sicknesses are to be explained, where as the result of the general disease the muscles are more relaxed than normal, while at the same time the position is commonly on the back.

A similar condition of strain results from long sitting, especially if the body is not held reasonably erect. The common lounging attitude in sitting, if continued, results in strain entirely similar to that seen in recumbency, and explains the backache seen under these conditions, especially common after long car journeys, the common car seat predisposing to such attitudes, while the few opportunities for change of position assist in favoring this strain.

In all of these conditions which have been described the symptoms are due simply to strain of the joint structures. No actual injury has taken place, and as soon as the position of strain is corrected the symptoms disappear. If, however, the position of strain is continued, the ligaments either give way, allowing the bones to become misplaced, causing a true sprain, or gradually become relaxed, producing greater instability of the joints, with or without misplacement of the bones, but always causing weakness and instability. In this latter type the condition can best be described as a chronic strain.

Of these two types, the first is most often seen in the so-called "stitch" or crick in the back, coming on after long stooping or standing in awkward positions, or in lifting or straining, especially where the load is suddenly increased. Under these conditions the sharp, sudden pain, usually referred to the lower part of the back and frequently definitely to one of the sacroiliac articulations, is due to the rupture of some of the ligaments of these joints, and as this allows a greater range of motion than is normal, a partial luxation at times results. In this there is, of course, very rarely an entire separation of the apposing articular surfaces, a complete dislocation, but the bones slip enough so that their normal relation is disturbed, with a corresponding disturbance in the normal function of the part. Frequently this is corrected simply by the muscular effort in assuming the erect position, but at other times the irregularities which form the surface of the articulation are caught in the irregularities of the surface of the apposing bone, and voluntary correction becomes impossible.

Because of the character of these articulations it is evident that if one joint is injured each of the other joints must be somewhat strained, so that the disability resulting from even a slight luxation of one of the sacroiliac joints at times is very great. The attachment of the thigh and trunk muscles to the pelvic bones explains the great disability that may result from such an injury.

In such an injury not only are the joint structures injured or strained, but the large nerve trunks which cross this articulation in front are frequently strained or irritated with resulting symptoms. Anatomically the sacral plexus with some of the branches from the lumbar plexus cross just in front of the synchondroses, and this being the case, it is not difficult to understand the fact that irritation of these nerves is possible. The symptoms resulting from such irritation naturally vary, depending on the special nerve irritated and the degree of irritation, but it must be remembered that the pain or disturbed sensation will be referred to the distribution of the nerve irritated and not to the seat of the injury. In this way the so-called referred pains, the areas of anesthesia or hyperesthesia so often seen, or the obstinate sciaticas, are to be explained, and the hopelessness of treatment applied to the seat of the pain is evident.

The displacement most often seen is backward of the upper portion of the sacrum on the ilium. In the acute injuries or disease conditions this is usually seen only on one side, while the chronic strains or the cases in which there is long-standing relaxation the displacement is usually on both sides, resulting in the flat back seen commonly in these cases. With the acute cases, while the usual displacement is of the sacrum backward, the reverse of this is possible, the upper part of the sacrum being drawn forward on the ilium. It is also probable that in rare instances, especially as the result of falls from heights striking on the feet, that the sacrum is forced downward, so that the ilium is made actually higher, with the apparent shortening of the leg. It is in these cases of injury or of disease on one side that the lateral deviations of the trunk are seen. It is also in these one-sided lesions in which the referred pains are met most frequently. In the chronic relaxations apparently the changes take place so slowly that the nerve trunks become adjusted to the changes as they take place, so that referred pains are less common. It is to be remembered that the displacement of the bones which results in this nerve irritation may be produced by disease of the joints or by traumatism, and in either the pain may vary from slight twinges to most intense suffering. If the irritation is continued for any length of time the muscles supplied by these nerves may become atrophied, a fact that frequently shows by measurement, but which is very noticeable to the feel.

In the pelvic joints as in the other joints it is to be remembered that the joint weakness which results from the common injuries or long continued strains predisposes to disease which probably would not develop otherwise. This is undoubtedly true of any of the infectious processes, either the tubercular or the non-tubercular, and it is certainly true that continued strain or injury leads to the development of the hypertrophic arthritis (osteo arthritis), which in many instances results in the complete ankylosis of the joint.

Of the special disease conditions most often met in these joints, the infectious processes are the most common, and of these the tuberculous is less frequent than the non-tuberculous. Of the non-tuberculous infections, any of a large number of organisms may apparently produce the local conditions, being part of a polyarticular process or confined entirely to this region. The course of the disease in the given case must naturally depend on the particular organism that is present or on the degree of virulence shown by this organism. The symptoms may be mild, with no ultimate impairment of the joint function, or they may be very severe, with actual bone destruction, with much suffering, and with much disability.

CONSIDERATION OF THE PELVIC JOINTS IN CONNECTION WITH THE SUPPORT OF THE ABDOMINAL AND PELVIC VISCERA.

The importance of the stability of the pelvic joints in connection with the proper support of the abdominal and pelvic viscera has been mentioned earlier in the paper. It is, however, my wish at this time to emphasize this feature more definitely, since an understanding of it suggests the explanation of many conditions about which there has, at least, been uncertainty, and at the same time suggest treatment for the relief of symptoms now not satisfactorily controlled.

The viscera are held in position naturally by ligaments or structures which, while perhaps not so designated, are nevertheless ligaments in point of practical function, by muscles, and by the direct support which one organ from its bulk or structure may give another. In the first place, of these the muscular support is undoubtedly the most important. The tone of the ligaments naturally depends largely on the tone of the muscles, since that which stimulates one must stimulate the other, and also because that which lessens the muscle tone leads to increased strain on the ligaments, this in turn, if continued, leading to weakness of the structures strained. In the second place, the muscles are of importance not only by furnishing firm abdominal walls, thus preventing the sag of the viscera and leading to the weakness and relaxation of the ligaments, but are of quite as much importance in making it possible to hold the body in such attitudes that there is the least possible tendency to visceral sag with the ligamentous strain. It is evident at once that when the body is erect with the muscles in good tone, in which the abdominal walls are firm and comparatively flat, that the viscera, the stomach, the liver, the intestines, the kidneys, in fact all the viscera, are causing the minimum amount of sag and producing the minimum amount of ligamentous strain. It is equally evident in the attitudes seen invariably in those who are poorly developed that there must be more drag on the ligaments, with consequently an increasing tendency for this drag to become more marked. The mere character of the attitudes, all of which are attitudes of muscle fatigue and in all of which there is the droop of the body forward, the organs sag more and drag forward, pulling directly away from their attachments. With the body erect and being held, as so many of these organs are, against the spine or back of the abdomen, this wall actually holds them in place to a certain degree, entirely apart from the ligamentous support, so that the amount of ligamentous strain is comparatively slight.

If this is true, and there can, it seems to me, be little question if the subject is carefully considered, especially if at the same time the results of the ordinary treatment of the loose or misplaced viscera are also considered, then the condition of the general muscle tone becomes of more importance than has been commonly held. It must be remembered that strain, relaxation, or disease of the pelvic joints must be followed by weakness and relaxation of the muscles attached to the bones making up the pelvis. It must also be remembered, as has been previously explained, that weakness of the muscles attached to these bones necessarily leads to weakness of the pelvic joints, so that strain and relaxation frequently take place.

If these two conditions are recognized, so that in whatever treatment may be decided on, whether surgical or medical, the stability of the joints is also recognized and appropriately treated, I fully believe that there will be a much smaller number of patients, than exist at present, who are unrelieved even after long and often heroic treatment for conditions in which the viscera are loose or misplaced. I do not naturally believe that the joint condition is responsible for all of the cases of visceral displacement and relaxation, with all their neurasthenic manifestations, but I do believe that either condition may lead to the other and that when once started there exists a vicious circle of cause and effect which makes it difficult to relieve unless both are recognized. Joint support and improvement in the muscle tone may not alone relieve the many symptoms present in such cases any more than does surgery by itself often relieve such cases, but if the problem is faced from both points of view I believe most fully that unless some actual disease is shown to be present (which, of course, is rarely the case), the relief of this large class of patients is simple and definite, and will not in the future represent the reproach to the profession that it does at the present time.

SYMPTOMS.

The symptoms on which a diagnosis of disease or weakness of the pelvic joints is to be based vary considerably, but certain ones are practically always present, and if properly interpreted should make its recognition easy. The most common symptom is the limitation of motion, and this in itself is usually very suggestive.

Pain.—Aside from the limitation of motion, pain, which may be localized at the seat of the disease or referred to the leg or foot, is the most important symptom. The referred pains may extend the length of the leg or may be referred to definite areas in the upper or lower leg or the foot. They are definitely increased by motions which result in strain of the affected joints, but are not increased by pressure along the course of the nerves, as would be true with a neuritis. The pain is almost always worse at night, because of the strain on the pelvic joints which results from recumbancy, but is relieved by changes of position which overcome this strain, and is prevented by postures in which this strain is not present. In the day time it is not apt to be present unless the joints are strained, as may result after long sitting, standing, stair climbing, stooping, etc. It is always worse in one leg, but may be present in both. The local pain when present may be referred definitely to the sacroiliac joints, but more often to the sacral region. This is made worse by anything that results in strain of these joints, and in women is worse at the menstrual period, because of the increased mobility of the joints at that time and consequently the greater possibility of joint strain. Recumbency, long sitting, or standing increases the pain because of the strain of these joints possible at such times.

With children the pains usually take the form of legache or backache, rarely being acute, and while they may be present during the day and interfere with the normal activities, they are almost always present at night, awakening the child, and are often supposed to be growing pains or confused with the night cries and pains met with in disease of the spine or hip.

Swelling.—At times, usually in connection with the infectious processes, the sacroiliac joints are swollen sufficiently so that the swelling is visible and can be palpated. The character of the swelling will depend on the nature of the lesion. If tuberculous, there is usually considerable infiltration of the tissues without definite fluctuation, unless the process is so far advanced as to result in abscess formation. With this there is also to be expected considerable atrophy of the buttock, and this, with the history and slow onset, is usually enough to make the nature of the process clear. With the nontuberculous processes the infiltration is less, and there can sometimes be made out a distinct sense of fluctuation. The muscular atrophy is slight, and this, together with the more acute onset and the usual involvement of some of the other joints, should make differentiation possible.

Abnormal Mobility.—While in lesions of the pelvic joints there is almost invariably limitation of some of the motions, there also, in certain cases, is an increase of the normal motion. This increase will naturally be seen chiefly in the cases in which, as the result of long continued strain, the joints are much relaxed. To determine this various tests may be made. Forced hyperextension of the thighs, one at a time, thus moving the ilia on the sacrum, may be sufficient. At other times with the patient standing, if one hand is held over the sacrum and the pubic bones are held between the thumb and finger of the other hand, and the patient now raises first one knee and then the other, the motion is often quite distinct. Again if the crests of the ilia are grasped with the two hands, the thumbs resting on the sacrum, and the patient raises the legs as above, the mobility is also often apparent. Another method is to have the patient lie down and raise first one leg and then the other with the knee straight. With one or all of these the mobility is usually apparent, but it is to be borne in mind that while there is an abnormal amount of motion under certain conditions, there is also in these very cases under other tests, definite limitation of motion.

Attitudes on Standing or Walking.—Disease or weakness of the sacroiliac joints frequently results in peculiarities in the use of the body that are suggestive. When standing, the body is usually inclined away from the joint chiefly affected. In rising, the spine is usually held rigid, and the hands are frequently used for support. In stooping, the flexion of the trunk is avoided. In walking, the motions are made guardedly if the condition is at all acute, or if the joints are much relaxed the gait is rolling or even waddling as the result of this pelvic instability. If the condition be acute, a long step in walking is impossible, owing to the spasm of the hamstring muscles, produced where the knee is straightened with the thigh flexed. In lifting the weight with the knee bent, as in stair climbing or rising from the sitting posture, the discomfort is increased, and the hands are frequently used for support.

Limitation of Motion.—In any event, if the sacroiliac joints are strained or diseased, motion of the body which causes strain of these joints is limited involuntarily, as is true in the disease of other joints. With the sacroiliac joints, the limitation may show by motions of the body on the thighs or by the motions of the thighs on the body. In the first place, forward bending of the body with the knees straight will be limited if the lesion is one of any magnitude, since as soon as the hamstring muscles become tight, the motion which up to that point had been made largely in the hip and spine is then made by the sacroiliac joints and the spine. When this point is reached the spinal and trunk muscles contract reflexly to protect the irritated joint, and the motions are restricted. To determine whether this limitation of motion is due to disease of the spine or to the sacroiliac joints, the tension of the hamstring muscles should be released, and this is most easily accomplished by the patient being allowed to sit, and in this position the same motion tried. If the spine is involved the limitation will be present in this test as when standing. If the sacroiliac joints are at fault, however, the bending will be much more free, since with the hamstring muscles relaxed, the forward bending is performed almost entirely with the hips and the spine, the sacroiliac joints under such conditions being used only in the extremes of motion such as are rarely made. While the forward bending is limited when the patient is standing, the lateral bending is also limited. In this, as one side is usually more affected than the other, the bending to one side may be more free than to the other, and not only is this more free but it is usually made with different segments of the spine. While with the forward bending the change from standing to sitting makes a very noticeable difference in the motions, in the lateral bending this difference is not as marked, since in this the hamstring muscles play but little part. In backward bending the motions are usually guarded, while in the extreme cases the body may even be drawn forward so that it is not possible to assume the erect position, and under these conditions backward bending would naturally be entirely impossible.

Thus far in the consideration of the motions, the thighs are made the fixed point, and not only this, but the tests are made with the joints carrying the body weight. These same motions can be tested without the latter feature being present, by having the patient lie down and the thighs held fixed. In this way, if lying on the back, the forward bending can be tested by raising the body, and when on the face the amount of backward or lateral bending can also be determined.

After these tests have been made the leg motions should next be tried, the body, in this, becoming the fixed point. The knee motions should be free and with the knee bent, the hip motions should be free and without pain except when the disease or lesion of the joint is very acute, at which times the extremes of motion, especially outward rotation with abduction, may be associated with pain referred to the sacroiliac joints. In making these tests, while the hip motions are free as long as the knee is flexed, if the knee be straightened and then flexion of the thigh is attempted, the limitation will be definite. In this position the hamstring muscles are stretched, and since these muscles are attached to the ischia, then any motion made in which they are tense as in the straight leg raising, will result in the innominate bone moving with the leg and in this way the motion and possible sensitiveness to the sacroiliac joints will be developed. In any case in which there is definite disease or weakness of these joints, the straight leg raising will be limited, and not only is the motion limited, but attempt to carry it farther will develop pain which will be referred either directly to the sacral region or to the legs. In applying this test, whenever there is trouble in one joint, not only will the straight leg raising on that side be limited, but also there will be a similar limitation in the other leg, although naturally not as marked. This limitation on the opposite side is to be explained by the fact that in the motion made with the hamstring muscles tight the ilium on that side is moved, the sacrum naturally moving with it, and as the result of this movement of the sacrum the affected joint, although on the opposite side, is strained. Not only is this limitation of motion present on the side away from the lesion, but the pain which is developed by this same test is referred to the seat of the disease or to the leg on the side affected, so that whether one leg or the other is raised the pain is referred to the one on the side of the lesion. These tests, which should be at first made passively, will be even more striking if attempted actively by the patient.

TREATMENT.

It is not the intent in this paper to enter into a detailed discussion of the various features involved in the treatment of the pelvic joint lesions. The time is too short in the first place, and in the second place there is comparatively little new to be added to that which was described in the earlier paper already referred to. At this time it is the purpose to simply state the principles which should represent the basis of the treatment, leaving the application of these principles to the discretion of the physician who may be responsible for the given case. It must be remembered, and this should never be lost sight of, that the pelvic joints, being joints, differ in regard to their treatment only, as would be determined by their anatomic or mechanical peculiarities. If the joints are being strained, they should naturally be relieved from strain. If they are diseased, the treatment would be such as would be indicated for that particular disease in any of the other joints.

If the condition represents one of strain, whether acute or chronic, naturally the first consideration should be to protect the joints from strain; and, as the strain may be received under different conditions, in standing, in sitting or in lying down, all of these features must be taken into account. Long standing should be avoided, but in standing the body should be held erect so that the proper poise, with the weight through the shoulders, hips, knees and ankles, is obtained. In sitting the lounging attitudes should be avoided, and, if necessary, a support in the hollow of the back should be used to prevent the sag of the lower spine. In lying, especially in the dorsal position, a support under the lumbar spine should be used also to prevent the sag to the back or sides.

Frequently by relieving the attitudes of strain the symptoms are relieved and the condition is corrected, so that nothing further is needed. At other times, however, while this relieves, it does not correct the trouble, and mechanical assistance for the support of the joints becomes necessary. For this the adhesive plaster strapping applied across the lower back may be sufficient, or belts fitted to give support about the pelvis (avoiding pressure on the crests of the ilia) are often required, while at times more rigid or complicated forms of apparatus may be needed, but only as the simpler forms fail.

In all of these conditions in which the symptoms are due to joint strain which is consequent almost always on the weakness of the muscles, it is to be recognized that, while mechanical supports may be necessary for a time in order to relieve the acute strain, these are nevertheless only palliative measures and do not correct the primary weakness. To overcome this, special exercises (given so as not to cause strain of the weak joints), massage, stimulating bathing, etc., are of the utmost importance and should be continued until every evidence of the weakness has passed.

If the symptoms are due to disease, the nature of the disease should, of course, be determined first, and then such treatment applied as would be consistent with the special disease present. If tuberculosis, the joints should naturally be protected so as to avoid painful use, and for this the stiff jackets are most often satisfactory. If inflammatory processes, due to other organisms than the tubercular, the so-called infectious arthritis, the joints should also be protected so as to avoid painful use, and for this all varieties from simple firm bandages covering the lower body and thighs, to the rigid jackets, may be required.

If the hypertrophic arthritis (formerly called osteoarthritis) is present, the joints should be protected, as is true with the same process in other joints.

At times the symptoms are due to the displacement of the bones, and when this is the case naturally, supports, no matter how perfectly they may be fitted, will fail to give relief. Under such conditions the position of the bones should be corrected, and, as the malposition does not often consist in more than the slight slipping of one ilium on the sacrum or sacrum on one or both ilia, this is not usually difficult and may be brought about in several ways. At times simply hyperextending the spine, as would be produced by having the patient lie with a firm pillow under the "hollow of the back," may, by raising the lumbar spine, draw the sacrum into place. At other times the same thing may be accomplished by having the patient lie face downward with the thighs and legs supported on one table, and the head and shoulders on another, the body hanging entirely unsupported between. In this position the weight of the body drags the spine forward, thus favoring the replacement of the sacrum. If this is successful, the plaster-of-Paris jacket, which may be considered advisable to hold the bones in place, may be applied before the patient is moved.

At times more definite pressure over the sacrum apparently is needed, and for this the frame which is in common use for the application of plaster-of-Paris jackets in the hyperextended position in cases of Pott's disease works admirably. In using this the flexible rods, which conform to the shape of the back, should be bent with a sharp curve low down, so that the greatest pressure is on the upper part of the sacrum and the low lumbar spine. In this position the weight of the body tends to force the sacrum forward, with frequently sudden marked relief as the bones slip into place. While in this position, the plaster-of-Paris jacket should be applied, the steels being removed when the jacket is thoroughly hard.

If these procedures are not successful, an attempt should be made to manipulate the ilium on the sacrum and thus effect the replacement. For this the patient should lie on the side, and with one hand gripping the ischium, while the other holds the iliac crest, the bone is moved on the sacrum either forward at the top or the reverse, depending on the character of the luxation.

In case none of these methods are successful, an anesthetic should be used so that the muscular relaxation is complete, and an attempt then made to overcome the difficulty. For this either of the above procedures may be used, but that which is most reliable consists in flexing the thigh, with the knee straight, so that the hamstring muscles are tight, to at least a right angle with the straight line of the body. If the displacement of the sacrum is backward, this manipulation will result in slipping the ilium backward on the sacrum and consequently into place. If the position of the bones is reversed the patient should lie on the face or side, and the thigh is drawn backward, the innominate bone moving with the femur because of the attachment of the Y ligament, so that the ileum is moved forward on the sacrum.

After the bones are once in place, they should be held by means of some fixed support, and for this purpose the plaster-of-Paris jacket is probably the best. This should be fitted well down over the buttocks and the trochanters, so that the pelvic bones, as well as the spine, are held.

Naturally from what has been said earlier in the paper, if disturbances of the pelvic or abdominal organs, such as could cause reflex relaxation of the pelvic joints, are present, these should be corrected before that which could more properly be called the joint treatment is undertaken.

PROGNOSIS.

The length of time required for treatment in a given case depends on many things. In a wrench or strain without much displacement of the bones, strapping for three or four weeks followed by a belt for a few weeks longer may be all that is necessary. If the condition still represents an injury, only more severe, the treatment must be kept up for a longer period, the duration and the completeness of the fixation depending on the severity of the injury. It should always be remembered in such cases that, as the sacrum and ilia are held in place almost entirely by ligaments and muscles, without bone sockets or other supports, the treatment should be continued for a considerably longer time and more attention paid to improving the tone of these structures than is considered necessary in other articulations where the ligamentous support is less important.

In the cases in which the symptoms are due to hypertrophic arthritis, tuberculosis or other inflammatory processes, the condition in these articulations should be treated in the same manner as a like condition in any of the other joints. The protection should be more complete than is necessary in the cases of strain, but the form of support is to be determined by the given case.

In the relaxed cases associated with pregnancy the patient may be allowed up with some form of support in three weeks after delivery, and the support should be worn until two or three menstrual periods have passed without trouble. If nursing prevents the menstruation the support should be worn for at least three months.

In some of the relaxed cases associated with menstruation without pregnancy or which are part of a general relaxation, it may be necessary to wear some form of support for an indefinite period.

In the cases in which the weakness has been associated with menstruation, or in which the weakness has followed pregnancy and gone on untreated, in case pregnancy should again occur, if the bones are properly supported during that period, benefit will result. The acute congestion of the joints occurring at such a time will act, as acute congestion in other chronic joint conditions acts, to stimulate more complete and more rapid repair.

Clinical Notes

SPIROCHETES IN HODGKIN'S DISEASE.

PRELIMINARY COMMUNICATION.

WILLIAM CHARLES WHITE, M.D.
PITTSBURG, PA.

Having noticed the frequency with which spirochetal infections are attracted to the lymphatic tissue, for example *Spirochæta pallida* to lymph glands, *Spirochæta obermeieri* to the spleen, and knowing the frequency with which spirillar forms are present in the mouth and familiar with the frequent history of enlarged tonsils preceding Hodgkin's disease, I was tempted to apply the specific stains for spirochetes to the glands in Hodgkin's disease.

This seemed the more likely to give results by coupling the observation of the peculiar giant cell formation described by Reed and by Longcope in the glands of Hodgkin's disease with the observation of Benda that the giant cell formation in syphilitic children's livers was made up of pale spirochetes.

With these thoughts in mind, I sent to a number of laboratories a request for glands of Hodgkin's disease which had been hardened in formalin. Dr. W. G. MacCallam, of Johns Hopkins, Baltimore, was the only one from whom I could obtain such, but from him I obtained two typical Hodgkin's glands.

The first of these I stained by Levaditi's method, the technic of which I owe to the kindness of Dr. H. R. Gaylord, of Buffalo. The result from this was surprising. The sections of the gland presented innumerable spirochetes. I next stained the other gland which came imbedded in paraffin with Giemsa's stain. This was not so successful in acuteness of stain, but showed very many spirochetes in these sections also.

I was not satisfied with my own observation, and submitted the sections to Dr. Fr. Pröscher, a former assistant of Ehrlich, now pathologist at the Allegheny General Hospital here. Dr. Pröscher has been familiar with the spirochete for a number of years. He had no idea of my thought in the matter and at once pronounced it a syphilitic gland, remarking, however, that he had never seen so many spirochetes in luetic tissue.

I next stained sections in iron hematoxylin and eosin and was surprised to find the organism stained a deep black with this stain within the blood vessels. Dr. Pröscher also identified these, but always insisted that they were pale spirochetes.

Two facts, however, are positive:

First.—The glands which Dr. MacCallam sent me were diagnosed as Hodgkin's disease and conformed in every way to the histologic structure described so carefully by Reed and later by Longcope for this affection, the uninuclear and multinuclear giant cells and abundant eosinophile cells with the increased reticulum all being present in the sections.

Second.—There were in the sections of these glands tremendous numbers of spirochetes which stained readily with Levaditi's silver method, with Giemsa's method and with iron hematoxylin. The Levaditi sections gave a beautiful counterstain with toluidin blue.

The spirochetes were in the blood vessels among the cells and at times within the cells. In a later paper I will furnish drawings of these sections and a fuller description of the findings. The presence of the organisms within the blood vessels would indicate that they should be found in the blood stream of these cases during life. It is not possible that they were in any way accidental; their tremendous numbers quite precluded this.

Three possibilities are presented by these conditions: 1, either the spirochetes were the etiologic factor in the enlargement of these Hodgkin's glands; or, 2, the glands were infected secondarily with *Spirochæta pallida;* or, 3, Hodgkin's disease may be a mild form of lues, as tuberculous glands are a mild form of tuberculosis.

My excuse for publishing this incomplete report is that my present work excludes my seeing or having the opportunity of studying other cases of Hodgkin's disease. My time is taken up fully with organization directed against tuberculosis in this city, and I have little time at disposal for the pursuance of this work further at this time. It seems, however, so positive a result that if it be true that spirochetes are a factor in Hodgkin's disease other cases examined in this way should give a similar result, and in the hands of observers with material at their disposal the truth or falsity of the relation can be more easily determined.

I wish to thank Dr. W. A. Gekler, my assistant, for his work in preparing the sections and Dr. Pröscher for his help and advice.

VAGINAL HEMORRHAGE IN THE NEW-BORN.

FRANK I. DRAKE, M.D.
MADISON, WIS.

Occurrences of vaginal hemorrhage of the new-born are sufficiently rare to warrant my reporting the following case:

History.—Baby D. was born Sunday morning, June 23, 1907, after a normal confinement of three and one-half hours' duration. When three days old her nurse noticed a tinge of red on her diaper. The day following, on inspecting the vulva, I noticed blood at the vaginal orifice and wiped away several drops with a pledget of absorbent cotton. The flow remained constant for two days, then gradually diminished in amount and ceased spontaneously June 30. Between one and two drams would be a fair estimate of the total amount of blood lost.

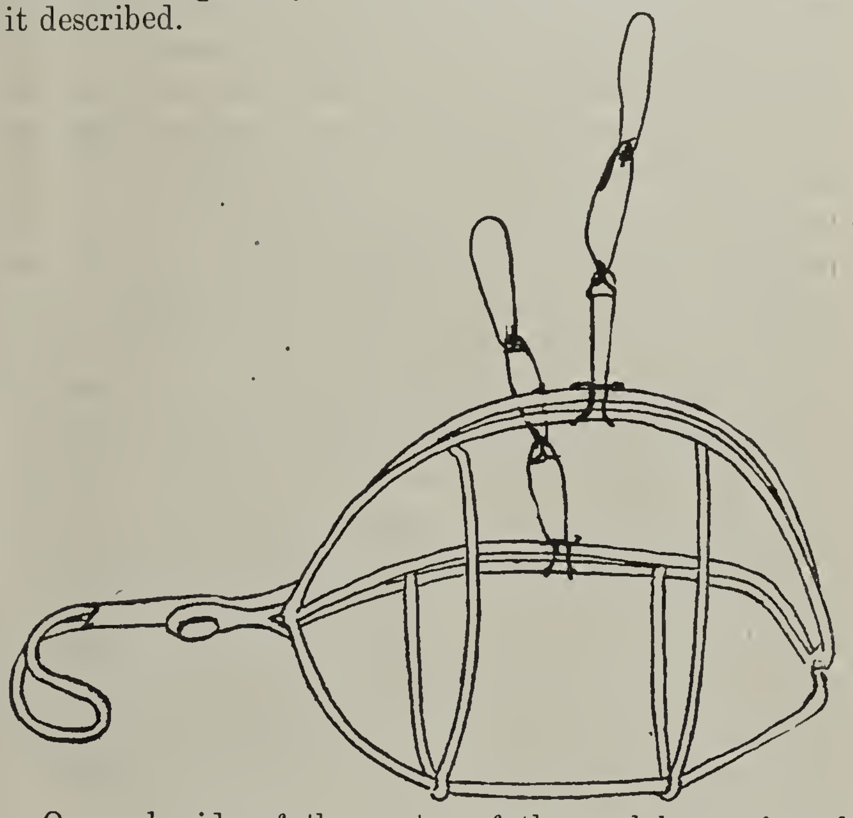
The infant was normal in every respect, weighing at birth 7½ pounds. She is the fourth child in a family of robust children. She comes of a remarkably healthy ancestral line—neither syphilis, tuberculosis nor any blood dyscrasia appearing as a possible etiologic factor in this disease. There was no history of trauma. The stump did not bleed when the cord separated on the eighth day—the time that the vaginal hemorrhage ceased. The baby is now six weeks old and there has been no recurrence of the hemorrhage. Precocious menstruation is thereby excluded.

In the light of our present knowledge the etiology of spontaneous vaginal hemorrhage of the new-born must be sought, as Holt points out, in the change of the character of the blood itself and in the radical change in the circulation of the blood produced by ligation of the cord.

SIMPLE METHOD OF RETAINING THE ANESTHETIC MASK IN PLACE.

MAYNARD C. HARDING, M.D.
AULT, COLO.

On reading a recent article in The Journal I was reminded of a simple appliance which can be used to hold any kind of an anesthetic mask in place. I make no claim for originality, but do not remember to have seen it described.



On each side of the center of the oval base wire of say the ordinary Esmarch mask, loop two or three small rubber bands, end to end, and pass the last ones around the patient's ears. The tension should be slight—just enough to keep the mask in place. The curved handle is better turned toward the chin, then the mask can be raised like a trap door to regulate the air supply or to allow access to the mouth. With a struggling patient the advantages are obvious and it can be removed instantly, when desired, by a simple pull.

The Best Bovine Wet Nurse.—In an article with this title in the *Dietetic and Hygienic Gazette*, J. A. Gilbert, Portland, Ore., states that the milk of the Jersey cow is not suitable for infant feeding, as in that breed all else has been sacrificed to a milk rich in fat to be used in butter making. He asserts that Holstein milk most nearly meets the requirements. The fat globules are small and even-sized, ensuring a stable emulsion, slow churning, easy remiscibility, and ease of absorption. A milk like that of the Jersey, with large fat globules, churns easily and frequently globules of butter can be found in Jersey milk when it is delivered to the consumer. Milk poor in fat is better for the young growing animal than a milk rich in fat. A diet of milk with a great deal of fat destroys the appetite and disorganizes the digestion.

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SATURDAY, AUGUST 31, 1907.

THE DEVELOPMENT OF A METHOD OF STUDY OF EXPERIMENTAL THERAPEUTICS.

Although a vague appreciation of the fact that a therapeutic agent can act only on tissues with which it can combine has existed in medical thought since the earliest times, yet its proof and its application to therapeutic studies have been slow in coming. One of the reasons for this tardy progress lies in the impossibility of observing exactly how ordinary therapeutic agents distribute themselves in the healthy and diseased body, a difficulty that has been partly overcome in studies of therapeutic substances that are readily visible to the investigator even when highly diluted, such as the dyes. By introducing the "vital stains," that is, dyes which penetrate living cells without seriously injuring them, Ehrlich opened not only a new field of biologic investigation but also a new method for the study of experimental therapeutics. In 1880, when he first urged the value of methylene blue as a stain for bacteria. Landau suggested to him the propriety of using this substance as an internal antiseptic, but for a long time he could not pursuade himself to follow up this idea. The subsequent observation of the power of this dye to enter the elements of living nervous tissue led to its application with some success as a means of reducing the pain of neuralgia, and later to the discovery of its effect in destroying malarial parasites.

For many years Ehrlich did not follow up these experiments on the therapeutic application of dyes, feeling that without animal experiments nothing could be profitably done, but the study of trypanosome infections, which are readily transmitted to small laboratory animals, gave the looked-for opportunity which was promptly taken advantage of. The tremendous importance of trypanosome infections, both for human life and for economics in tropical and semi-tropical countries, added a special incentive to such investigations, which have yielded at least two valuable trypanocides and which open the way to further studies of the possibilities of internal antisepsis. As every one knows, what is desired above all things in medicine is a substance which will unite with bacteria and destroy them without at the same time uniting with and destroying the tissue cells, but as yet such a substance has not been produced in the laboratory. Appreciating the fact that drugs must combine with the cells they are to affect, we must seek some drug that has a greater affinity for the bacteria (bacteriotropic) than for the tissues (organotropic). The recent review by Ehrlich[1] of his experimental studies along this line is a classical example of the typical systematic, painstaking and thoroughly scientific German way of taking up a problem. The method followed consisted in trying one by one great numbers of different organic substances on animals infected with trypanosomes, until at last one was found that showed some slight influence on the course of the infection by delaying the fatal termination some few days. Having found such a substance the next step was to make in the chemical laboratory all sorts of modifications, trying each one on animals, until it was discovered what groups added to the effect of the drug; then by adding such groups in various positions in the molecule to secure the maximum of efficiency. By such exact but laborious methods as this a substance was at last obtained that had positive curative effects on trypanosome infections in mice, and called "trypan red" (Trypanrot). Indeed, so efficient is this dye that it is often possible by a single dose to exterminate entirely the trypanosomes that have infected a mouse, without dangerously intoxicating the animal. As might be expected of such a substance, its efficiency varies not only for different varieties of trypanosomes but also for different species of animals, hence the discovery of trypan red is only the beginning of these researches. Already derivatives of trypan red have been made which have more effect on certain of the pathogenic trypanosomes than has trypan red itself. Another investigator, Wendelstadt, has observed that a certain other class of dyes, malachite green and brilliant green, are efficient against certain varieties of trypanosomes, and Ehrlich has developed an effective trypanocide in parafuchsin which may be administered by mouth. Atoxyl, an organic arsenic compound, which has been found of great practical value in the trypanosome diseases of Africa by the workers of the Liverpool School of Tropical Medicine, and the value of which has been corroborated by Koch, is of different chemical nature from the dye stuffs mentioned above.

An interesting and important observation made by Ehrlich concerns the development of immunity by the trypanosomes against the various drugs mentioned above. It was found that if not all the trypanosomes were killed in an animal by a single dose of fuchsin, the survivors begin to multiply after a time, and although decreased in number by subsequent administration of the drug, yet after a time the parasites are not at all affected by fuchsin and increase until the animal is killed, even when it may be thoroughly saturated with fuchsin. If parasites from such an animal are transplanted to another animal they are found to retain this resistance to fuchsin, although they are not resistant to atoxyl or to trypan red. Similar strains of parasites immune to trypan red or to atoxyl can be obtained in the same manner. To the American reader this observation recalls Welch's pregnant suggestion that bacteria become immune to their hosts or to special tissues or fluids of their host just as readily as the host or his tissues become immune to the bacteria, for here Ehrlich finds a specific resistance on the part of a pathogenic protozoan to a toxic drug to which it has been repeatedly exposed. The existence of such a specific immunity on the part of the trypanosomes may be taken as evidence that the trypanocidal substances must each combine with some specific chemical group in the protoplasm of the parasite. Such immunized trypanosomes retain this acquired property through many generations after being transplanted to normal animals, a fact of great practical importance, for, as Ehrlich suggests, trypanosomes derived from persons under treatment with atoxyl may show themselves resistant to this drug when growing in a new host, and thus races of trypanosomes immune to atoxyl and the other remedies may be developed. Fortunately this immunity is strictly specific, so that a strain of trypanosomes that resist atoxyl is readily killed by trypan red, and conversely.

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[1] Berl. klin. Wochschr., 1907, Nos. 9-12.

As there seem to be natural differences in the susceptibility of trypanosomes to the different drugs, we have an explanation of why Laveran and others have had the greatest therapeutic success with combined treatment by both atoxyl and trypan red. To avoid the development of strains of trypanosomes, that are not susceptible to the drugs commonly used, Ehrlich urges that the medication in each case should be pushed hard at the beginning to destroy completely all the trypanosomes at once, if possible, without their having an opportunity to acquire resistance to the drug.

THE VIBRATING SENSATION IN DIAGNOSIS.

As the science of medicine grows older and the number of workers in the field of medical inquiry increases, new methods of diagnosis are constantly being added or old methods are modified. In some instances the tests of time and of independent investigation show that a new diagnostic method is not so pathognomonic as its originator thought, but under these circumstances it often happens that the method is still found to have value as a corroborator of other methods and serves as a link in a diagnostic chain of evidence. Among the new tests which have been used in Europe for some time, but have not been especially noted in this country, is the so-called vibrating sensation, sometimes spoken of as "bone sensibility" or as "pallesthesia."

If the foot of a tuning fork of a certain size is placed over subcutaneous bony prominences or surfaces a peculiar vibrating sensation is felt by normal individuals, and it is to this that the name "vibrating sensation" has been given. It seems that in order to produce the sensation the tuning fork must have a certain size and amplitude of vibration. Certain European authorities have had special tuning forks constructed, but this is not necessary, according to Williamson,[1] who states that a fork nine inches long with prongs five and a half inches long will suffice. The vibrating sensation is best tested at certain points, and if it is used as a routine test the same points should always be selected. The places best suited for the test are: The styloid process of the ulna, the external and internal malleoli, the inner surface of the shaft of the tibia, the anterior superior spines of the ilia, the sternum, the palms of the hands over the heads of the metacarpal bones, the soles of the feet over the heels and the heads of the metatarsal bones, and the nails of the fingers and thumb and the big toe.

The results from investigations of the test seem to show that it is of particular value in the early stages of certain diseases which are accompanied by loss of cutaneous sensibility, its greatest advantage lying in the fact that the vibrating sensation is often lost before changes in the ordinary sensibility can be made out. For this reason the test should be employed in patients suspected of having early tabes or peripheral neuritis. Investigation has also shown that in some instances in which nervous symptoms are not usually prominent, diabetes for example, changes in the vibrating sensation are rather common. It has long been known that in a small percentage of patients with diabetes mellitus changes occur in the cord similar to those found in pernicious anemia, but Williamson's researches seem to indicate that signs of less marked spinal changes are common in diabetes. He found frequently in this disease loss of vibrating sensation in the legs, often accompanied by pain and tenderness and loss of the Achilles jerk. In beginning paraplegia from spinal caries, and occasionally in patients with spinal syphilis, the loss of the vibrating sensation may be the first objective sign to appear. In diseases of the spinal cord strictly limited to the motor regions the vibrating sensation is not lost, even at an advanced stage of the disease. In the differentiation of organic and hysterical hemianesthesia the test may be of great value, for in the case of organic hemianesthesia the tuning fork placed on the sternum on the anesthetic side still causes the vibrating sensation, while in hysterical hemianesthesia the vibrating sensation is not felt on the anesthetic side, but is transmitted to the sound one. It would seem that the test for the vibrating sensation might be a valuable corroborative procedure in many nervous diseases, and may, in some diseases, allow of diagnosis at any earlier date than is at present possible.

MORPHIN AND THE ALIMENTARY CANAL.

The influence of morphin on the motor function of the gastrointestinal tract has long been a disputed point. In the human subject, the effect of morphin is usually seen in constipation, although in the non-habituated, as well as in the dog, the cat and the rabbit, diarrhea may be provoked. According to Nothnagel, this result is brought about by the action of the drug on a spinal center, small doses stimulating the inhibitory mechanism and large doses paralyzing it. Other writers contend that the morphin acts directly on the intestinal wall, while still others believe that the action is partly central and partly peripheral. Several observers have investigated the influence of morphin on the action of the stomach. Batelli reports that the gastric movements are at first stimulated and later inhibited. Hirsch, who studied the gastric movements of a dog through a duodenal fistula, states that the evacuation of the stomach is delayed by a spasmodic contraction of the pylorus. Riegel has shown that morphin produces hypersecretion and hyperchlorhydria.

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[1] Brit. Med. Jour., July 20, 1907.

The most recent work on this subject may be found in the investigations of Magnus,[1] who, while he has not succeeded in simplifying the problem, has demonstrated certain facts which should help to harmonize much of the apparently contradictory evidence now before us. The first step in the work of Magnus was to test the validity of Nothnagel's theory. To accomplish this, he operated on cats, carefully dividing the nerve plexuses about the celiac axis and superior mesenteric vessels from the solar ganglia and the hypogastric, the inferior mesenteric and the small ascending colic branches from the mesenteric ganglia, thus practically cutting off the sympathetic nerve supply of the stomach and intestine. Before proceeding with the experiment he allowed a period of at least seven days to elapse, in which time he was able to demonstrate a degeneration of the peripheral portion of the cut nerves. In cats thus treated he was able to control an artificially induced diarrhea with as little morphin as had been required for the same cats before the operation, thus proving that the sympathetic system is not a necessary factor in this action of morphin.

In his further studies on the nature of the changes brought about by morphin, Magnus made use of Cannon's method of studying the movements of the gastrointestinal tract. Cats were fed with twenty-five centimeters of potato gruel, containing five grams of bismuth, and were then observed by means of a fluoroscope. In the normal cat, the entire stomach could be outlined by the shadow of the bismuth, and in the course of about fifteen minutes portions of the contents were seen to be rhythmically forced into the duodenum. In cats which had previously received an injection of morphin the picture was very different. In most cases, a certain amount of the food remained in the lower part of the esophagus for some time, but the most constant occurrence was a stasis of the food in the fundus of the stomach. When the morphin was administered after the stomach was full, the organ was seen to be divided into two parts by a spasmodic contraction of that circular bundle of muscle fibers known as the sphincter antri pylorici. That portion of the food which was shut off in the fundus by the sphincter remained there for a number of hours, while that which had already passed the sphincter went on undisturbed into the duodenum. Further experiments with a dog, in which a duodenal fistula had been established, showed that the time intervening between the entrance of food into the stomach and its passage into the duodenum was greatly lengthened by the influence of morphin, and that it required much more time for the stomach to empty itself even after peristalsis had been re-established.

His observations on the small intestine, both by means of the fluoroscope and by direct observation of the isolated gut, showed a stimulating action of morphin in moderate amounts, while very large doses slowed or stopped the peristaltic movements. This he attributed to the action of the drug on the plexus of Auerbach. While the passage of the chyme through the small intestine was accomplished with more rapidity than under normal circumstances, its ultimate arrival at the colon was much delayed by its retention in the stomach. Magnus could demonstrate little or no influence of morphin on the movements of the large intestine.

These experiments suggest that the constipation caused by morphin is the result of the retention of food in the stomach; and this may be due, at least partly, to the hypersecretion and increased acidity of the stomach contents which, it is well known, exerts an inhibiting influence on the gastric and intestinal movements. An interesting observation of Magnus concerns the dilatation of the stomach which occurs under the influence of morphin, and which he attributes to the accumulation of air which seems to be retained in consequence of a spasm of the cardia.

To what extent these observations of Magnus on experimental animals may be applied to the human subject remains to be demonstrated. Clinical evidence has shown that under many circumstances the peristaltic movement of the small intestine in man may be completely controlled by the administration of morphin. The possibility suggests itself that this may be accomplished when small doses are used rather by a suppression of the exciting cause of hyperperistalsis, such as some sensory irritation, with perhaps a blockade of the foodstuff in the stomach, than by the direct influence of the drug on the motor mechanism of the intestine.

These investigations suggest the interesting practical questions: To how great an extent does the use of morphin previous to operation tend to favor the occurrence of acute dilatation of the stomach, and what is the action of anesthetics, like chloroform, on the movements of the gastrointestinal canal?

A JOURNAL OF HEALTH (?).

We recently received a copy of a journal of health which we have difficulty in classifying. At first sight it impressed us as being a perfectly ethical though rather popular exchange. There was an article on milk supply by a physician who also had a high scholastic degree, and, although this article was a eulogy of a certain dairy, there was much in it of interest. Other articles dealt with what the people ought to know about proprietary remedies, medical frauds preying on women, osteopathy, etc., and expressed exactly the same general principles that we ourselves would enunciate, but with the significant exception that, in each instance, some particular remedy or institution was selected for the highest praise. The journal contained a liberal padding of humerous and "literary" material and some advertisements. Curiously enough, none of the advertisements were alluded to in the reading notices, and the announcement was made that no proposals would be received for insertion in the reading pages. The only way in which we can explain such a journal is that it is conducted by a syndicate of firms that want a certain kind of advertising; at the same time it is difficult to understand how such a journal could obtain *bona fide* advertisements from outside concerns, and why such a journal would be mailed to a physician of nominally good standing. It also seems a peculiar course to proclaim general ethical and hygienic principles and to expect that a fairly intelligent public will fail to see that they apply just as well to the nostrums and institutions singled out for praise as to others. It would be interesting to know if such a journal can secure a genuine subscription list, and if this kind of advertising, which shows up plainly the weak points of quackery in general, can be made to pay for certain quacks who say that they are different from others.

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[1] Münch. med. Wochschr., No. xxix, 1907.

ALASKA AS A HEALTH RESORT.

The experience of the Army, which keeps about eight hundred soldiers constantly stationed at its posts in Alaska, would seem to indicate that that country is a remarkably healthy location for troops. There are six posts scattered over the vast territory, four of them but little south of the Arctic Circle. Notwithstanding that a great deal of labor incident to construction and maintenance of telegraph lines has devolved on the troops, the sick rate has been uniformly low, not at any time more than two-thirds of the rate in the United States. Since the statistics for Alaska have been compiled separately, that is since 1904, there has been but one case of typhoid fever and but four cases of malarial fever, all the latter probably contracted before going to Alaska, though mosquitoes of the sub-family *Anophelena* have been found at one post. Pneumonia is conspicuous by its absence from the returns. On the other hand, venereal diseases, alcoholism and tuberculosis have given higher rates than in the United States. The long, dark winters, with the consequent confinement to quarters, and the imperfect ventilation of the quarters resulting from the efforts to exclude the cold, have no doubt been factors in the development of tuberculosis. These same influences, together with the monotonous life in winter, have unquestionably encouraged the drink habit and its attendant liability to venereal infection. The fact remains, however, that Alaska is comparatively free from infectious diseases, and in the health-preserving qualities of its climate far surpasses that fairy land of the tropics, Hawaii.

HISTORIC SALT-FREE DIET IN ASCITES.

The value of a salt-free, or at least a salt-poor, diet in the treatment of edematous conditions is generally conceded to be a comparatively modern theory. That the fact was known, clinically at least, ten centuries before the christian era and probably much earlier is evidenced by the Charaka-Samhita. The Charaka-Samhita and the Susruta-Samhita are ancient Hindu medical works compiled from a still more venerable work, the Ayur-veda, which the Hindus say was written by the gods. The date of the compilation of the Charaka is probably 1000 B. C. and it corresponds to the Hippocratic treatises; in fact, there is little doubt that Hippocrates made free use of the work. The Charaka is written in Sanscrit of the most ancient construction. This ancient work, after describing the various kinds of "dropsy" and the appropriate treatment for each, recommends for "abdominal dropsy" (ascites) tapping. The postoperative treatment reads as follows:[1] "When the water has been let out the patient should first observe fasts and then take 'peya' (thin gruel of rice or other corn[2]) without any kind of oily substance and *salt*. After this the patient should for six months live on milk only. For the next three months he should live on 'peya' mixed with milk. For the next three months he should take the rice . . . with milk but *devoid of salt*." The following prognosis is given by Charaka if the instructions are followed: "Conducting himself thus for one year, one may conquer abdominal dropsy characterized by accumulation of water even when it has manifested itself in a pronounced way." This is a reminder that "there is no new thing under the sun." With peculiarly distorted views of human physiology and still more weird conceptions of pathogenesis of disease, these ancient writers, from careful clinical observation, had achieved no inconsiderable skill in the treatment of disease.

METEOROLOGIC FACTORS AND ACUTE RHEUMATISM.

The relation which acute rheumatism bears to meteorologic conditions has long been a subject of speculation and seems likely to remain so for some time. It would naturally be assumed that the disease would be most prevalent in moist weather, but this is so far from being the case that Newsholme and other authorities have brought forward evidence which strongly supports the view that exactly the opposite is true, viz.: that rheumatism is most apt to occur in extremely dry weather. Some recent studies published by Greenwood and Thompson[3] seem to support the view that acute articular rheumatism occurs most frequently, in England at any rate, during the driest month, August. The article points out that most of the conclusions as to the meteorologic relations of rheumatism have been drawn from hospital statistics, and it further shows that a "general hospital population" is constituted differently from a normal population. This really opens up the whole question of disease statistics and suggests that many of them, being based on studies of hospital patients rather than on the normal population, probably contain serious errors. It suggests that, in working out problems of this kind, the collective investigation method, carried on by committees of medical societies or of groups of practitioners, will probably give more reliable statistics than hospital records.

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[1] From the English translation of Charaka-Samhita by Pareshnath Sarma, Calcutta.

[2] Corn is here used to mean any small grain.

[3] Journal of Hygiene, vii, No. 2, 1907.

YELLOW FEVER IN CUBA.

The reappearance of yellow fever in Cuba is a matter of a good deal of sanitary significance, especially in the light of the testimony of Governor Magoon as to the inefficiency of the local municipal authorities in matters of sanitation. In Havana reasonable attention to health conditions could be looked for, but in the smaller cities and rural districts, as the recent outbreak at Cienfuegos demonstrates, this could not be guaranteed. There seemed little prospect, judging from past records and the governor's testimony, that the Cuban local authorities would if left to themselves carry out the conditions of the treaty securing Cuban independence, so far as sanitation is concerned. The signing of the decree[1] by Governor Magoon by which the sanitary service is nationalized is, therefore, a matter of great import. The municipal sanitary service is, by this important measure, taken out of the hands of the local authorities all over the island and placed under the control of the Havana department of sanitation. The local authorities have been tried and found wanting; a Cuba left to itself would doubtless be a yellow fever peril for many years to come. With the closer commercial relations of the island with this country, much closer of late years than before its separation from Spain, this has become a very important matter. The United States has assumed a certain degree of responsibility for Cuban good government and welfare which some of us would be glad to see relinquished. If such a policy were adopted, however, there is every reason to fear that conditions would soon become unendurable.

VACCINE IMMUNITY.

The advisory board of the Department of Health of Pennsylvania has ruled that three faithfully performed vaccinations at intervals of two successive weeks without taking are sufficient evidence that the individual is for the time being (estimated as one year) immune from smallpox. This is probably correct enough for most sanitary purposes, and the chances of a smallpox epidemic with such a rule in force may be practically negligible. Many physicians, however, have seen cases in which typical vaccinia has been produced by a fourth or fifth attempt at vaccination, hence it is not an altogether safe rule to follow with patients who have never been successfully vaccinated, that is, so far as absolute immunity is concerned.

NEED OF A NATIONAL VAGRANCY LAW.

The need of a national law dealing with tramps or vagrants and of better provisions for dealing with this class in cities is urged by Graham Taylor,[1] in commenting on the paper of Orlando F. Lewis on "Vagrancy in the United States," read before the National Conference of Charities and Correction. The vagrant is a well-known means of introducing epidemics, and when he crosses state lines the only effective means of dealing with him is by the national law and a national board of health. The problem of the tramp in the cities has close relations with the public health. Taylor says: "Far better provision for lodging homeless men must be made by cities in municipal lodging houses of their own, such as Chicago effectively conducts, and by far stricter public regulation and supervision of lodging houses must be maintained for profit or by charity. The antituberculosis crusade shows that this supervision and regulation should be shared by the health authorities with the police. Within a period of five years 679 consumptives were taken from only a portion of Chicago's lodging house district to Cook County Hospital, most of them in the most dangerously infectious stages of the disease. An investigator of Chicago's 165 cheap lodging houses and their 19,000 beds declares that 'the unfortunate man forced to sojourn in them for a while may enter sound and strong and come out condemned to death'."

Medical News

ALABAMA.

Physicians' Building.—An association of 15 physicians of Mobile, headed by Dr. C. S. Spotswood, proposes to erect a four-story building, to be occupied exclusively by physicians, and to cost $50,000.

Personal.—Dr. James B. Luckie, Birmingham, is reported to be seriously ill with spinal disease.——Dr. Marion J. B. Vancroft has been elected president, and Dr. John O. Rush, secretary, of the Mobile Chapter of Auburn Alumni.——Dr. Byron T. Dozier, Birmingham, has been appointed surgeon general of the United Sons of Confederate Veterans.

COLORADO.

Scarlet Fever.—By order of the Board of Health, the schools and theaters of Leadville have been closed on account of the prevalence of scarlet fever.

Personal.—Dr. A. W. Scarlet, Pueblo, is convalescent after a severe attack of typhoid fever.——Dr. William Page Harlow has been appointed dean of the medical school of the University of Colorado, Boulder, vice Dr. Lucian M. Giffin, resigned; Dr. Ross O. Whitman, Chicago, professor of pathology and secretary; Dr. Edward F. Dean, Denver, professor of anatomy, and Dr. John Andrew, Jr., Longmont, demonstrator of anatomy.

GEORGIA.

Critically Ill.—Dr. George B. Carter, a veteran practitioner of Wilkinson County, was recently seized with cerebral hemorrhage and is reported to be critically ill.

Open to Female Students.—The Atlanta School of Medicine has announced that the institution is to be made coeducational, and at the opening session, September 25, a dozen or more women will begin their studies at that institution.

Against Tuberculosis.—The Georgia Antituberculosis League held a meeting August 3, when the following officers were elected: Dr. Joseph M. Thomas, Griffin, president; Dr. J. Cheston King, Atlanta, and Harry R. Slack, La Grange, vice-presidents; and Dr. Louis C. Roughlin, Atlanta, secretary and treasurer.

Railway Hospital to be Opened.—Drs. William C. Jernigan, Thomas H. Hancock and James D. Manget, Atlanta, surgeons for the Southern Railway, the Georgia Railway and Electric ompany and other corporations, are arranging to open a anitarium and emergency hospital in Atlanta, September 1. A double tenement at 31 and 33 Cone Street has been secured nd is being equipped. There will be separate wards for white nd colored patients, and ambulance service is to be provided.

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[1] Referred to in General News in this issue.

[1] Charities and the Commons, Aug. 10, 1907.

ILLINOIS.

Communicable Diseases.—A number of cases of typhoid fever re reported in Decatur.——Dr. Charles E. Crawford, Rockford, nspector of the State Board of Health, has returned from Coal Valley, where he found 10 cases of smallpox and placed the inected houses under quarantine. The disease is said to have xisted in Coal Valley for two months, but had been diagnosed s chicken-pox.

Personal.—Dr. Joseph C. Dodds, Champaign, has been appointed district surgeon for the Illinois Central Railroad beween Gilman and Effingham, vice Dr. Henry E. Cushing, deeased.——Dr. F. B. Clark, Elgin, has been appointed assistnt physician at the Illinois Western Hospital for the Insane, Watertown.——Dr. Robert Hoag has been transferred from he Home for Feeble-minded Children, Lincoln, to the Illinois Northern Hospital for the Insane, Elgin.——Dr. James M. Tinsley, Philo, sailed from Liverpool August 15, on his return rom Europe.

Chicago.

Hospital Addition.—The work on the George W. Smith nemorial addition to St. Luke's Hospital was commenced August 19. By the will of the late George W. Smith $500,000 was bequeathed for this purpose. The new structure is to be levoted to paying patients, and the income from this to the charity wards of the hospital. The building will be six stories n height and will contain accommodation for 112 patients.

Islolation Hospital Closed.—The Chicago Isolation Hospital was closed on August 20 because of the lack of patients. Since December 20 74 smallpox patients have been under reatment at the hospital. The largest number registered was on March 20, when 20 patients were in the hospital. Not one of the attending physicians, nor one of the thousands of visitors nor of the 2,000 medical students who visited the hospital, contracted the disease.

Deaths of the Week.—During the week ended August 24, 684 deaths were reported, 14 more than for the preceding week and 104 more than for the corresponding week of 1906, the respective annual death rates being 16.92, 16.58 and 14.99 per 1,000. Acute intestinal diseases led death causes with 212, followed by consumption and violence (including suicide), each with 51; heart disease, with 45; pneumonia, with 39, and nephritis, with 37. Typhoid fever caused 11 deaths; scarlet fever, 8; diphtheria, 5, and whooping-cough, 4.

Communicable Diseases.—During the week ended August 24, 55 cases of diphtheria, 68 of scarlet fever, 16 of whooping-cough, 7 of measles, 20 of typhoid fever and 41 of consumption were reported. This is an increase of 12 cases of diphtheria and 25 cases of scarlet fever over the preceding week. The other diseases decreased slightly in number during the week. The outbreak of scarlet fever in South Chicago has been kept under control by the active cooperation of the department of health and the police department, with the aid of the doctors and priests in that section of the city.

INDIANA.

Personal.—Dr. Ruliff L. Truitt, Hartford City, has resigned as a member of the city council.——Dr. Richard B. Wetherell, Lafayette, sails from New York in October for a trip around the world.

Warning to Physicians.—On account of the increase in typhoid in Fort Wayne, the city board of health has sent a circular letter to physicians calling attention to the necessity for the immediate report of contagious diseases in accordance with the state statutes.

Epileptic Village.—Dr. W. C. Van Nuys, superinterdent of the State Epileptic Village near Newcastle, announces that the first two cottages are completed and furnished, that attendants have been engaged, and that the institution will be ready to receive patients as soon as the governor issues his proclamation declaring the institutions open.

Evansville to Fight Tuberculosis.—An Evansville Anti-Tuberculosis Association has been organized. A tract of land is to be secured near the city where the tents will be erected for the care of patients. Dr. James Y. Welborn has been elected president of the association, which proposes to raise a fund of $15,000 with which to conduct the work. The physicians of the city have been asked by the association to report all cases of tuberculosis.

INDIAN TERRITORY.

Buy Hospital.—The Muskogee Hospital Association has purchased the Martha Robb Hospital in that city.

Personal.—Dr. Walter Penquite, Chickasha, fell down an embankment recently and fractured a rib.——Dr. Robert H. Henry has been elected a member of the Ardmore Board of Health.

IOWA.

Free Dispensary to Open.—The Sioux City Medical College in cooperation with Helping Hand Mission, will open a free dispensary September 1. Regular clinics will be open to all students of the college.

Personal.—Dr. and Mrs. Theodore B. Askew, Waterloo, sailed for Europe August 24.——Dr. Lee M. Coffee, Keokuk, has been elected professor of clinical diseases of the stomach and intestines, in Keokuk Medical College, and Dr. John R. Walker, Fort Madison, professor of etiology, hygiene and state medicine.——Dr. J. L. Whinery, Marshalltown, is critically ill.

KENTUCKY.

Veterinarians Attend Meeting of Dairymen.—Dr. F. T. Eisenman, state veterinarian, and R. M. Allen, state inspector of food and dairy products, were invited to attend the mass meeting of the dairymen of Hardin County, held at Elizabethtown, August 24. The purpose of the meeting was to enable the dairymen of Hardin County to compare notes relative to their business and to give and receive suggestions looking toward better sanitation in the way of handling milk. The meeting is the result of the refusal of the health department to allow the milk from a certain dairy to be received in the city until a tuberculin test has been made of the twenty cows of the herd. A number of cases of acute milk infection has been traced to the milk delivered by this dairy. One cow was found infected and the rest were healthy.

State Board Meeting.—The twenty-ninth annual meeting of the State Board of Health was held at Bowling Green August 23. The following officers were elected: Drs. Joseph M. Mathews, Louisville, re-elected president for two years, and J. N. McCormack, Bowling Green, re-elected secretary for the seventh consecutive time, for a term of four years. Prof. Felix C. Herrick of the Male High School was elected student examiner for Kentucky to pass on the entrance qualifications of students of medicine. The following order regarding tuberculin tests in dairy herds was passed:

> In the examination for dairy herds for tuberculosis the state veterinarian and his assistants are hereby instructed to confine the tubercular test to cows actually and individually diseased instead of extending it to the entire herd, and diseased individual cows shall be condemned instead of putting the entire herd or farm in quarantine. The board offers a reward of $25 for the conviction of any person practicing medicine or any branch of the healing art in the state in violation of law. The examining committee reported that 29 applicants had passed the examination for license to practice in the state and that 19 had failed to make necessary grade. The secretary in his report calls attention to the meager appropriation given to the State Board of Health in comparison to other appropriations for the health departments in other states. The State Board of Health receives but $5,000, while the appropriation for the Massachusetts State Board of Health is $110,000, and for that of Louisiana is $100,000. It was also shown that there had been 13,305 cases of typhoid fever reported by Kentucky physicians with 1,579 deaths. There were 3,219 deaths from tuberculosis, 1,935 from diarrheal diseases of childhood, 1,068 from diphtheria, 933 from dysentery and 119 from scarlet fever.

MARYLAND.

Baltimore.

Bequest to Physician.—By the will of the late Albert D. Shrewsbury half of his property is bequeathed to Dr. Annie W. Marchant for services rendered him during his last illness.

Personal.—Dr. Robert P. Bay, assistant surgeon at the University of Maryland Hospital, has resigned, to become medical superintendent at Bayview Asylum. Dr. R. W. Crawford has succeeded Dr. Bay.

Frank Memorial Hospital.—The drawings for the Frank Memorial Hospital, adjoining the Hebrew Hospital, have been completed. It has been decided to erect only one structure instead of two, as originally contemplated.

Tuberculosis Campaign.—By a combination of the most advanced method of advertising, circular letters, etc., the Maryland Association for the Relief and Prevention of Tuberculosis has raised in 23 days the required $10,000 required for its maintenance for a year.

MASSACHUSETTS.

Personal.—The Lawrence board of health has appointed Drs. J. Forrest Burnham, John C. Bowker, John J. O'Sullivan, Joseph F. Howard and Alphonse H. Petit school physicians.

Illegal Practitioner Sentenced.—William H. Bailey, Somerville, who is said to have been arrested many times for malpractice, but never yet found guilty, and who was charged with performing an illegal operation on a 19-year-old girl, was found guilty in the Suffolk Superior Criminal Court, August 14, and is said to have been sentenced to imprisonment for from three to five years in the state penitentiary.

Healer in Trouble.—John R. Laxton, a "botanic" healer of Lynn, was summoned before the police court August 23, charged with practicing medicine without a license. This is one of the first shots fired in the battle which Lynn physicians have started against a great number of persons in that city alleged to be practicing medicine without the license required by the state. In this case the defendant pleaded not guilty and the case was continued until September 6.

Too Expensive an Outfit.—The owners of small shops and factories are objecting to the long list of surgical instruments, appliances and dressings required by the order recently issued by the Boston board of health. The cost of the outfit is said to be about $25, and no provision is made for modification in regard to the size of the factory or the number of employés. The law in the case is as follows:

> Every person, firm or corporation operating a factory or shop in which machinery is used for any manufacturing purpose, or for any purpose except for elevators, or for heating or hoisting apparatus, shall at all times keep and maintain, free of expense to the employés, such a medical and surgical chest as shall be required by the local board of health of any city or town where such machinery is used, containing plasters, banadages, absorbent cotton, gauze, and all other necessary medicines, instruments and other appliances for the treatment of persons injured or taken ill on the premises.
>
> Any person, firm or corporation violating this act shall be subject to a fine of not less than $5 nor more than $500 for every week during which such violation continues.

MINNESOTA.

Epidemic Diseases.—The prevalence of diphtheria at Eveleth is causing alarm.——Appleton is said to be threatened with an epidemic of scarlet fever.

Pasteur Institute.—The Pasteur Institute of Minnesota at Minneapolis is fully equipped and ready to receive patients. It is located in the new building at the State University, known as the Institute of Public Health and Pathology, and is under the control of Dr. Oriana McDaniel.

MONTANA.

Society Meeting.—At the annual meeting of the Beaverhead County Medical Association, Dr. Maurice A. Walker, Dillon, was elected president; Dr. Robert H. Ryburn, Bannack, vice-president; Dr. Frederick M. Pointdexter, Dillon, secretary, and Dr. Harry A. Bond, Dillon, treasurer.

Personal.—Drs. John J. Buckley and Thomas A. Fitzgerald, Missoula, were injured by the overturning of an automobile recently.——Dr. H. W. Miller, of the Northern Pacific Hospital, Missoula, has gone to Jamestown, N. D., to become first assistant physician in the State Hospital for the Insane.——Dr. Albert H. Gieschen, Butte, has been appointed house physician of the Wells Hospital in that city.

NEBRASKA.

Personal.—Dr. Clifford W. Walden, Beatrice, has been appointed surgeon to the Second Infantry, Nebraska N. G.——Dr. R. B. Harris has been appointed police surgeon of Omaha.

State Board Ruling Sustained.—The ruling of the State Board of Health in revoking the license of Dr. John T. Mathews, Omaha, charged with performing a criminal operation, has, it is reported, been sustained by the district court.

Sues for Lost Diploma.—Dr. George H. Whiteside, Omaha, has entered suit against the Adams Express Company for $20,000 damages for the loss of his diploma, which was sent to the State Board of Health at Lincoln for registration and which has not been returned to him.

NEW HAMPSHIRE.

Opening Exercises.—The opening lecture of the one hundred and eleventh annual session of the Dartmouth Medical School, Hanover, was given August 6, by Dr. C. B. G. de Nancrede of the University of Michigan, Ann Arbor.

The State Sanatorium Site.—At a meeting of the governor and council in Concord, August 8, the commission appointed to recommend a site for the state sanatorium for consumptives, reported in favor of a site comprising 300 acres of land, at an elevation of 1,300 feet, in Glencliffe in the town of Benton.

Eddyite Sentenced.—Herbert Whitney, an Eddyite and milkman of Concord, was arraigned on the charge of neglecting to report a case of scarlet fever to the authorities, and on August 16 is said to have been sentenced to pay a fine of $10 and costs and to be imprisoned thirty days in the House of Correction. The sentence was suspended on his promise not to repeat the offense.

Personal.—Dr. George W. McGregor, Littleton, was seriously injured recently in an automobile accident, suffering a fracture of the shoulder.——Dr. John H. Neal, Rochester, former state senator, has resigned as medical referee for Strafford County, and has been succeeded by Dr. Forest L. Keay, Rochester. Dr. and Mrs. Neal are taking a trip to the Pacific Coast.——Dr. Fred E. Bryar, North Sandwich, has been appointed deputy medical examiner for Carroll County.

NEW JERSEY.

Epidemic Diseases.—Typhoid fever continues to prevail in the Hospital for the Insane at Trenton. Several new cases have developed, and the authorities consider that there is grave danger of the disease spreading to the city.——Diphtheria has appeared in epidemic form in the Italian colony of Hammonton, and that section of the city has been quarantined.

Personal.—Samuel T. Atchley, Trenton, has been elected warden of the State Hospital for the Insane, Trenton.——Dr. John C. Beckwith, Atlantic City, surgeon and superintendent of the life guard corps, has been appointed police surgeon.——Dr. Daniel Millspaugh, Paterson, was attacked and seriously injured by a patient in Riverlawn Sanitarium recently.——Dr. Peter P. Rafferty, Redbank, has succeeded Dr. John W. Ward as medical director of the State Hospital for the Insane, Trenton.——Dr. Samuel English, Camden, has been elected medical superintendent of the New Jersey Tuberculosis Sanatorium, at Glen Gardner, and has assumed the duties of his position.

NEW YORK.

New York City.

Personals.—Dr. Carlos F. McDonald sailed for Europe August 21, and Dr. and Mrs. Joseph R. Davidson, August 24.

Trinity Hospital Closed.—This hospital, which was conducted by the Episcopal Sisterhood of St. Mary up to four years ago, and since by the corporation, has been closed for repairs and may not be reopened.

Children's Hospital.—Tenement house nurses are being instructed at this hospital in the work of saving babies and teaching mothers to care for their infants. This is being done at an expense of $15,000. This is a new and successful departure and the expense is being defrayed by John D. Rockefeller.

Contagious Diseases.—There were reported to the sanitary bureau, for the week ended August 17, 354 cases of tuberculosis, with 147 deaths; 201 cases of diphtheria, with 21 deaths; 175 cases of measles, with 11 deaths; 97 cases of scarlet fever, with 5 deaths; 68 cases of typhoid fever, with 13 deaths; 18 cases of whooping-cough, with 18 deaths; 5 cases of cerebrospinal meningitis, with 9 deaths; and 8 cases of varicella, a total of 926 cases and 224 deaths.

Typhoid Fever.—During the first half of 1907 there were reported 1,028 cases of typhoid, as compared with only 816 for the same period of last year. The east side of the city appears to be almost immune. In a report received last week it was shown that there were 28 nuisances still in the watershed. These will be corrected at once. Dr. Darlington says that the condition of the city from a health point of view could not be better. Whatever nuisances there are at present will be abated, and the watershed will be a model of its kind. The water supply on the north shore of Staten Island requires investigating, 25 cases of typhoid having appeared within ten days.

NORTH CAROLINA.

Personal.—Dr. Robert P. Noble, Selma, has been appointed surgeon for the Norfolk & Western Railroad, with headquarters at Marion.

Disease for June.—During June measles was reported from 33 counties; whooping cough from 29; scarlet fever from 9; typhoid from 62; malarial fever from 14; cerebrospinal meningitis from 8; mumps from 1; pneumonia from 25, and smallpox from 14.

June Mortality.—During June the report to the State Board of Health from 21 towns showed 313 deaths, equivalent to an annual mortality of 17.6 per 1,000. Diarrheal diseases are responsible for 74 deaths; consumption for 40; heart diseases for 26; violence, including suicide, for 14 and typhoid fever, pneumonia and brain diseases, each for 10.

OHIO.

Presents Medical Library.—Mrs. Buckingham has presented the entire library of her late husband, Dr. John L. Buckingham, Springfield, to the Warder Public Library. The trustees have appointed a committee of three physicians to organize and maintain the new enterprise as follows: Dr. Clarence H. Kay, president; Dr. Noah Myers, vice-president, and Dr. Thomas M. Reade, secretary. The library will be accessible to all physicians, pharmacists and dentists.

Additions to Faculty.—The following additions to the faculty of the Miami Medical College, Cincinnati, are announced: Dr. Derrick T. Vail, clinical professor of ophthalmology; Dr. Charles E. Caldwell, professor of principles of surgery and orthopedic surgery; Dr. James T. Heady, professor of medical economics; Dr. Frederick B. Samson, professor of chemistry and toxicology; Dr. John W. Murphy, clinical professor of laryngology; Dr. Joseph A. Hall, assistant to the professor of gynecology; Dr. C. S. Bond, lecturer on photo-micrography; Dr. Francis M. Hollingshead, instructor in physiology; Dr. R. E. Gaston, instructor in physiology; Dr. J. Ambrose Johnston, clinical lecturer in surgery; Dr. Frank B. Cross, clinical assistant in laryngology; Dr. A. J. Markley, clinical lecturer in dermatology; Dr. Samuel E. Allen, professor of hygiene; Dr. William D. Porter, professor of obstetrics, and Dr. Mark A. Brown, professor of physical diagnosis.

Unlawful Practitioners Punished.—"Professor" Mayo, who was arrested at Bucyrus July 11, charged with practicing medicine without a license, is said to have been fined $100 and costs on each of two charges, and to have gone to jail in default of payment.——The license of Dr. Carey S. Ferris, Cleveland, charged with quackery, is said to have been revoked by order of the Probate Court.——The appeal of W. E. Remyen, Uhrichsville, against the revocation of his certificate by the State Medical Board for alleged moral turpitude, has been denied.——The certificate to practice medicine granted to Dr. Joseph E. Wenman, Lorain, is said to have been revoked by the secretary of the State Board of Medical Examination and Registration July 3, on the charge of having made illegal use of the mail by sending obscene literature.——Dr. James A. Ambrose, Dayton, charged with performing a criminal operation which resulted in the death of a woman, was found guilty and is reported to have been sentenced to imprisonment for 18 months in the state penitentiary.

PENNSYLVANIA.

State Society Meeting.—The fifty-seventh annual meeting of the Medical Society of the State of Pennsylvania will be held in Reading, Sept. 23-26, 1907. The preliminary program gives every indication that an active and interesting meeting will be held.

Society Meetings.—The physicians of Sullivan County met at Dushore, August 9, and organized a county medical society. Drs. George D. Nutt, Williamsport, and Cyrus L. Stevens, Athens, secretary of the state society, were present and assisted in the organization of the society. The following officers were elected: President, Dr. Martin E. Herrman, Dushore; secretary, Dr. William F. Randall, Dushore; treasurer, Dr. Philip G. Biddle, Dushore; delegate to the state medical society, Dr. Arthur J. Bird, Overton; alternates, Drs. H. Irvin Woodhead and John R. Davis, Forksville, and censors, Drs. Justin L. Christian, W. H. Randall, Dushore, and J. R. Davis, Forksville.——The second annual meeting of the Fifth Censorial District Medical Society was held in Carlisle, August 13, when the following officers were elected: President, Dr. James Evelyn Pilcher, Carlisle; vice-president, Dr. Charles Rea, York, and secretary, Dr. John J. Coffman, Scotland (re-elected). An address on "Medical Organization" was delivered by Dr. Isaac C. Gable, York, president of the state association.

Philadelphia.

Personal.—Dr. J. Leslie Davis was recently operated on for acute hernia.——Drs. M. J. Horn and J. B. McAvoy, resident physicians in the Medico-Chirurgical, were thrown from the hospital ambulance August 19 and sustained severe contusions.

To Repair Naval Hospital.—As a result of the visit of Surgeon-General Rixey to the Naval Hospital located here, it is reported that several alterations and improvements will be made in this institution. Dr. Rixey also visited the Navy Yard and will recommend a new dispensary for the men at League Island.

Diphtheria on Train.—It was discovered by the board of health that three children suffering with diphtheria were brought to this city from New York, August 22. The health authorities have instituted stringent measures to prevent a spread of the disease and nine cars of the Pennsylvania Railroad were fumigated.

Health Report.—The total number of deaths reported for the week ended August 24 reached 489. This is a decrease of 13 from the number reported in the preceding week and an increase of 8 over the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 14; pertussis, 6; diphtheria, 11; consumption, 46; cancer, 31; apoplexy, 17; heart disease, 52; tetanus, 2; acute respiratory disease, 19; enteritis, 94; Bright's disease, 26; premature birth, 9; congenital debility, 17; suicide, 4; accidents, 9, and marasmus, 12. There were 190 cases of contagious diseases reported, with 26 deaths, as compared with 148 cases and 17 deaths reported the preceding week. There was an increase of 21 cases of typhoid fever over the previous seven days.

School Inspections.—Reports just completed by the health bureau show that one out of every four children in the elementary school is afflicted with some physical or mental defect. The report of the medical inspectors shows that 135,959 children were examined and that 25.9 per cent. were afflicted with some ailment. In that classification were included 16,654 out of 67,464 boys, or 24.6 per cent., and 18,660 out of 68,495 girls, or 27.2 per cent. A further analysis showed that of the 135,959 children inspected 78,732 were promoted on their class standing last June without examinations. Of these, 18,644 or 23.6 per cent., were in the medical defective class, while 57,227 failed to attain the exemption standard and had to take the regular examination. Of these, 18,226 or 31.8 per cent., were rated as medically defective. The exempted children included 37,920 boys and 40,812 girls, while the non-exempted included 29,944 boys and 27,683 girls. Following is the statistical table showing in detail the causes of the defects noted in the exempted and non-exempted classes:

Defect.	Exempted children.	Non-exempted. children.
Eye	8,105	7,730
Ear	965	1,087
Nose	1,258	1,459
Throat	4,815	4,027
Skin	2,400	2,166
Orthopedic	405	348
Mental	68	610
Miscellaneous	628	799
Totals	18,644	18,276

TEXAS.

Dengue Under Control.—It is reported from Corpus Christi and Brownsville that the dengue situation is well in hand. The physician of Bee County has accordingly advised against quarantine measures.

Impure Milk.—Charges have been filed by the Board of Health of San Antonio against 13 dairymen of the city, for selling impure milk.

Personal.—Dr. James Byars, Columbus, has returned from a trip to South America.——Dr. Jesse M. Pace, Dallas, has resigned as a member of the board of health.

Medical Board Organized.—At a meeting of the Medical Examining Board for the State of Texas, August 16 and 17, Dr. Marquis E. Daniel, Honey Grove (eclectic), was elected president; Dr. Thomas J. Crowe, Dallas (homeopath), vice-president, and Dr. Garland B. Foscue, Waco (regular), secretary. The first meeting of the board will be held October 21 at Fort Worth.

UTAH.

Pre-Medical Course.—The University of Utah, Salt Lake City, announces that students desiring to secure the degree of doctor of medicine may take the first two years of their work at the university, and that their work will be given full credit by the leading medical colleges of the country.

Sanitary Condition of Southern Utah.—The State Medical Inspector, F. E. Clark, reports that in general the sanitary conditions of towns in the southern part of Utah are very bad; that the water is of inferior quality; that little attention is paid to the cleaning of corrals or outhouses, and that there are a great number of sloughs in which a great many mosquitoes are bred. Many towns get their drinking water from small rivers into which masses of sewage are poured.

WEST VIRGINIA.

Antituberculosis League.—A local branch of the West Virginia Antituberculosis League has been organized at Grafton, with Dr. Thomas F. Lanham, president, and Dr. Joseph H. Doyle, recorder. Dr. Wallace Longstretch, general field manager of the league, will visit 17 cities in the state during September in the interest of the organization.

Personal.—Dr. Fleetwood, Clarksburg, medical examiner for the B. & O. R. R., has been transferred to Pittsburg, Pa., and Dr. W. B. Rogers, formerly medical examiner at Clarksburg, has been transferred to Baltimore.——Dr. Ed. Cummings has been placed in charge of the department of diseases of the lungs in the Hinton hospital.

WISCONSIN.

Medical Lobbyists Expense.—Milwaukee Medical College is said to have filed in the office of Secretary of State a schedule of the expense, amounting to $1,309.50, incurred in its fight against the bill creating a college of medicine in the University of Wisconsin.

Smallpox.—Several cases of smallpox have occurred in the Glasgow and Hardie's Creek settlements near Galesville.——Seven cases of smallpox have been discovered in the town of Milwaukee, and Health Commissioner Bading complains that proper care is not being taken in their isolation.

Hospital Car in Service.—The hospital car of the Milwaukee Street Railway, built and equipped according to the plans prepared by Dr. Charles H. Lemon, was put into commission August 23. During the day 26 patients were treated by Dr. Lemon. There were no serious cases and no accidents.

Chiropractic Acquitted.—A jury in La Crosse is said to have returned a verdict, August 14, finding Shentago Morikubo, a so-called "chiropractic," not guilty of breaking the state law which compels the licensing of surgeons and osteopath physicians. The defendant was immediately rearrested on a new charge of practicing the art of healing and receiving money as a physician.

Personal.—Dr. J. A. Paterson has purchased the interest of Dr. George B. Taylor in the Taylor Institute, Iron River.——Dr. U. J. Tibbitts, Prospect, is reported to be critically ill with septicemia.——Dr. Albert H. Brundage, Milwaukee, professor of toxicology in the department of pharmacy, Marquette University, has been appointed to the chair of physiology, and Dr. Arthur J. Somers has been appointed a member of the faculty of the institution.

Pre-Medical Courses.—The Lawrence University announces that a pre-medical course of two years will be introduced in that institution, which will include the subjects of the first two years in medical colleges.——The new medical course in the University of Wisconsin will open with the fall term. No clinical work is to be given. The department of pathology and pharmacology will take up the manufacture of serum and antitoxin.

GENERAL.

Manila Free from Disease.—The report of the Manila bureau of health shows that for the first six months of the year no epidemic disease had been reported, and states that this is the first time such conditions have been on record. During June there were fewer deaths in the city than at any time since the American occupation.

The Yellow Fever Situation in Cuba.—Lieut-Col. Blair D. Taylor, chief surgeon at Marianao, reported to the War Department, August 22, that no new cases of yellow fever had occurred at Cienfuegos, but that there was one new case at St. Nicolas. In a report from Governor Magoon to the War Department, the charge is made that there has been a most complete disregard of the treaty obligation, under which the Palma government agreed to keep the island clean and healthy, so that it should no longer be a source of danger and infection to the United States and other countries. On August 26 Governor Magoon signed a decree nationalizing the sanitary service; that is, taking the municipal sanitary service out of the hands of the local authorities and placing it under the control of the department of sanitation in Havana. It has been found impossible under diverse municipal sanitary regulations to stamp out yellow fever. On August 26 five new cases of the disease were reported from Cienfuegos, making a total of ten in the city. All but one of the patients are Spaniards. The last of the soldiers attacked by the disease was discharged from the hospital August 26.

Society Meetings.—At the annual meeting of the National Fraternal Congress in Buffalo, N. Y., August 20, the following were elected officers of the medical session: President, Dr. George G. McConnell, Chicago; vice-presidents, Drs. Jane W. Carrell, Buffalo, N. Y., and Wallace K. Harrison, Chicago; secretary, Dr. E. Franc Morrill, Chicago, and treasurer, Dr. Talbert Sleneau, Port Huron, Mich.——At the regular quarterly meeting of the Fairfax Medical Association, held in Alexandria, Va., August 2, the following officers were elected: Dr. George Tully Vaughan, Washington, D. C., president; Drs. Llewelyn Powell, Alexandria, and Frederick M. Brooks, Swetnam, Va., vice-presidents; Dr. Edwin L. Detwiler, Herndon, treasurer, and Dr. Robert L. Wilkins, Alexandria, secretary.——The thirty-third annual meeting of the Mississippi Valley Medical Association will be held in Columbus, Ohio, October 8-10, under the presidency of Dr. H. Horace Grant, Louisville, Ky. The orator in medicine will be Dr. George F. Butler, Chicago, and the orator in surgery, Dr. Frank D. Smythe, Memphis, Tenn. The association is furthering the work of medical research by offering a prize of $100 for the best original essay on some medical or surgical subject. The committee to award this prize is composed of Drs. Hugh T. Patrick, Chicago, Charles H. Hughes, St. Louis, and Albert H. Cordier, Kansas City, Mo. Dr. Florus F. Lawrence is chairman of the committee of arrangements.

FOREIGN.

Cholera in China and Japan.—Cable reports state that cholera has broken out in the Chinese quarter in Shanghai and that several Europeans also have succumbed to the disease. Twenty-five cases are reported from Moji, in southern Japan, and several other Chinese and Japanese coast towns are said to be infected.

Australasian Medical Congress.—The eighth session of the Australasian Medical Congress will be held in Melbourne Oct. 19-24, 1907. The council of the University of Melbourne has granted the use of the university buildings and the government of Victoria has undertaken to print the transactions of the congress. Special meetings will be devoted to (a) the relations of the medical profession to hospitals, and (b) syphilis.

Medical Inspection of School Children in South Australia.—The *Australasian Medical Gazette* states that the government of South Australia is beginning to recognize the value of healthy children as an asset to the state. The minister of education, the Hon. T. Price, recently declared his intention of seeking parliamentary assistance in his crusade against defective eyesight among school children. He wishes to have a physician appointed to examine the eyes of every child in the schools. A certificate will then be given stating the condition of the child's sight, and if it is defective, in what way; this will secure the necessary attention to the defects discovered. The hearing is also to be tested, and that will incidentally, of course, reveal the presence of adenoids, which are generally associated with defective development. Mr. Price recognizes that this procedure will cost money, but, as he says, it is necessary to keep "the best asset the state can have—good healthy children, and thereafter healthy citizens."

British National Society for the Prevention of Cruelty to Children.—At the annual meeting of the Manchester and District Branch of the National Society for the Prevention of Cruelty to Children, July 23, according to the report in the *British Medical Journal*, some interesting statistics were given. During the year 1,540 cases, involving the welfare of 4,723 children, had been investigated. Of these, 1,982 were known to be insured for over £11,000. Of the 1,540 cases inquired into, 1,480 were for neglect, 40 for other forms of ill-treatment, and 10 for exposure for begging purposes. Warnings were given in 1,334 cases, 101 persons were sent to prison, 10 bound over, 7 reprimanded, 2 dismissed, and one case was withdrawn. The lord mayor, who presided, in moving the adoption of the report, said that he was informed that 95 per cent. of the cases of neglect investigated by the society were due to intemperance. Mr. R. J. Parr, in seconding the resolution, said that the society is doing an educative as well as a preventive work, and that he believes that most of the deaths are caused by ignorance on the part of parents. In the first few years of the society's existence 45 per cent. of the cases dealt with were for brutality, but last year the proportion of cases of gross brutality was only 8 per cent., and he claimed that much of this improvement is due to the society's methods.

Special Pay for Medical Officers in India.—The government of India has announced its intention of granting special pay to officers of the Royal Army Medical Corps of the Indian Medical Service. The *Lancet* states that the allowance will be payable to officers below the rank of lieutenant-colonel for special sanitary, surgical or medical work done for the state which it is not in the power of an ordinary medical officer to perform with the same efficiency as the specialist. It will not be a personal allowance but will be granted only to incumbents of certain specified appointments. There will be 105 specialist appointments in India, each carrying pay at the rate of Rs.60 a month. Of these, fifty-five will be allotted to the Royal Army Medical Corps and fifty to the Indian Medical Service in military employment. The special subjects are as follows:

(a) prevention of disease (including parasitology, bacteriology, and preventive inoculation), forty appointments; (b) dermatology (including the prophylaxis, treatment of, and instructional measures in connection with venereal diseases), ten appointments; (c) advanced operative surgery, twenty appointments; (d) ophthalmology, ten appointments; (e) electrical science (including skiagraphy), ten appointments; (f) mental science, two appointments; (g) otology, laryngology and rhinology, three appointments; and (h) midwifery and diseases of women and children, ten appointments.

LONDON LETTER.

(From Our Regular Correspondent.)

London, Aug. 17, 1907.

Outbreak of Cerebrospinal Meningitis in Belfast.

At the recent meeting of the British Medical Association, Dr. A. Gardner Robb, in the section on medicine, made some observations on the outbreak of cerebrospinal meningitis in Belfast. Of 230 cases which occurred there, 160 ended fatally. Three different kinds of serum were used in treatment without beneficial effect. Phenacetin seemed to give the greatest relief from headache, but no relief was obtained from the use of mercury, iodids, bromids, quinin or the salicylates.

Alcohol and the Medical Profession.

A meeting of the British National Temperance League was held in Exeter during the meeting of the British Medical Association. So many pronouncements have been delivered by physicians in Great Britain during the past few months on the value of alcohol, that the subject is becoming somewhat tiresome. The extremists on both sides press their views and the moderate man is severely handled by the opponents of alcohol if he ventures to express opinions which in any way clash with theirs. Dr. Davy, president of the association, said that notwithstanding the fact that most temperance advocates usually talk the most unscientific twaddle, and although he is personally in favor of light beer as a beverage rather than tea, he emphatically supports the principle of temperance. The general attitude of all the speakers was adverse to alcohol in any form.

Free Meals for Children.

Mr. C. F. G. Masterman, M.P., speaking on the subject of free meals for children, pointed out that the state has now taken on itself the responsibility of seeing that every child in the elementary schools should have sufficient food—breakfast or dinner, as the case may be—to enable it to carry out its studies. The weakness of the act, however, is obvious in that it is not universal, and the result on the whole has not been encouraging.

Critical Position of the New Sydenham Society.

The New Sydenham Society, which has done valuable work for half a century in translating important medical works from foreign languages, is in a critical position. It has been a prosperous as well as a useful society. Twenty years ago its volumes in their well-known bindings might be seen on the shelves of all doctors who aspired to a good library. The works of the great foreign masters, such as Trousseau, Charcot and Virchow, were thus made available to English readers. But *tempora mutantur et nos mutamur in illis.* The modern developments of medical journalism have to some extent though by no means completely rendered the work of the society superfluous. The authorities of to-day publish their views to a greater extent in periodicals than used to be the custom, and the important articles which appear in foreign journals are translated and abstracted in English journals to an extent not known before. Moreover, the enormous output of text-books with their rapidly succeeding editions competes heavily with the monograph, however good. Finally, this is not an age productive of great masters, whose writings are reverently cherished and conned for decades. This is an age of mediocrity, and men want to read of the latest discoveries, or, perhaps one should say, alleged discoveries, which have not yet been replaced by views equally ephemeral. As a consequence of the changed conditions of publication, the New Sydenham Society has in recent years turned its attention from the translation of monographs and essays to the publication of a valuable atlas of "Illustrations of Clinical Medicine and Surgery." In 1906 the society issued two double fasiculi illustrating the subjects of variola, vaccinia and varicella, and a printed volume containing selected papers on the parasites of syphilis and smallpox. In the current year they have issued an atlas on gynecologic subjects. The society has still 900 members (who pay a subscription of $5 annually), but the production of the atlases is too costly for the income. At a meeting of the council held in London it was decided to recommend the winding up of the society at the annual meeting.

The Royal Commission on Tuberculosis.

This commission has issued another bulky book of over 700 pages on "The Pathogenic Effects of Bovine Viruses." Different species of animals were inoculated. In general, it was found that the goat is more susceptible to the bovine bacillus than the calf. Tuberculosis is readily produced in pigs, but is not necessarily fatal. The chimpanzee and the various species of monkeys are highly susceptible; only one lived 100 days after inoculation. The dog was found very resistant to subcutaneous inoculation, but less so to intraperitoneal. Feeding experiments were also carried out with different species of animals. All, except the rat and fowl, developed tuberculosis. The young pig was found the most susceptible animal and the adult dog the most resistant. The goat was found less susceptible than the pig, and the calf less than the goat. Cats were much more easily infected than dogs. General progressive tuberculosis was set up in dogs with difficulty. Several rats were fed with enormous numbers of tubercle bacilli and showed nothing beyond some minute necrotic foci in the mesenteric glands. In the few experiments performed with fowls no disease at all was produced.

The Pure Milk Bill.

The so-called pure milk bill for London is making progress. The bill in question is really termed the London County Council's General Powers Bill, the most important of which is intended to prevent the sale of tuberculous milk. The bill is a purely London one. What are called model clauses passed by the British Local Government Board are already in force in various parts of the country, but the London County Council and the county councils outside the metropolitan area are agreed on certain modifications which the Local Government Board opposed. The most encouraging symptom of the situation in Great Britain as regards milk is that there is a general demand for national legislation to improve the supply.

Brain Exhaustion.—C. Meyers, Toronto, in the *Canada Lancet*, August, 1907, states that the differential diagnosis of brain exhaustion, while at times easy to make, is at other times one of the most difficult problems in medicine. This is especially true in the somatic form of the disease in which the diagnosis between an organic and functional lesion becomes at times extremely difficult.

Prophylaxis of Plague.—The value of the domestic cat as a preventive against plague has been brought forward by Lieut.-Col. A. Buchanan, I. M. S., whose suggestion is referred to by the *Journal of Tropical Medicine and Hygiene.* Buchanan took a cat census of certain villages that enjoyed exceptional immunity from plague and found that those villages harbored an exceptional number of cats. Of course a corollary to the proposition "more cats, less plague," would be that of "more cats, fewer rats."

The Sanitary Importance of Ice in Hot Climates.—The Englishman living in a climate which, while often raw and cold, is seldom too hot, is apt to overlook the importance of a supply of ice when he passes into other and totally different climatic environments. This, according to the *Journal of Tropical Medicine and Hygiene,* is not the case with the American, who, being used to a wider range of temperature, fully recognizes the value of ice in hot weather from an instinctive knowledge of its sanitary importance. The Anglo-Indian is the greatest sinner in respect to ignoring the sanitary importance of ice. While he no longer plays cricket under the torrid heat of a Calcutta sun, in a top hat, he still braves the extreme temperature without the alleviation of either ice or punkahs. The trouble is that from the (British) public and official point of view, ice is a mere luxury, whereas, it should be regarded as an essential of well-being in the tropics, provided, of course, that it is not used improperly. They did not "get on very well without it in the good old times." On the contrary, they grew ill and died. There are many parts of Britain's tropical empire where ice is still unobtainable, notably on the African coasts. There is no doubt that the improvement in diet and the increased efficiency of the community would, many times over, pay for the initial cost of ice machines and cold-storage plants.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Chronic Malaria.

Chronic malarial poisoning is a chronic condition of malaise and debility with more or less anemia, often with an enlargement of the spleen, and generally caused by a previous severe or several mild attacks of malarial infection.

In patients who have repeatedly had malaria it is not easy to eradicate the disease. The peripheral blood may show no plasmodia, but blood obtained by splenic puncture will show these germs. After a considerable period without quinin irregular muscle aches and pains, headaches and malaise occur, and the peripheral blood may then show the germs. Enormous doses of quinin may be taken and tolerated, and still on stopping it, in a short time the symptoms again occur, the spleen harboring these germs. These patients should receive a week of quinin treatment with small doses of quinin (2 or 3 grains, three times a day) once a month for four or five months. Small doses of arsenic (2 milligrams or 1/30 gr. of the trioxid of arsenic, three times a day) taken for a long time seems to be of marked benefit in these cases. Ammonium chlorid in doses of 50 centigrams (7½ gr.) three times a day also seems to tend to aid in reducing the enlargement of the spleen in these cases. Chronic malaria can be present without any evidence of enlarged spleen, however. If the spleen tends to remain enlarged from malarial poisoning, every possible means to reduce the enlargement, the splenic cold douche, electricity, *x*-ray treatment and change of climate, should any and all be tried, as the condition is serious and it may lead to some serious blood disease. Every means possible should be taken to build up the system and to ameliorate any anemia that may be present.

Patients who do not become immune to malarial infection even under the repeated use of quinin should not live in malarial districts. See article on malarial fever in department of Therapeutics, The Journal, Aug. 3, 1907, page 427.

Latent Malarial Infections.

Dr. Charles F. Craig, assistant surgeon U. S. Army (*Yale Med. Jour.*, June, 1907), makes a distinction between chronic malarial infection and latent malarial infection. He understands the latter to be an infection in which the malarial plasmodia may be demonstrated to be present in the blood of an individual, but in which no clinical symptoms of the disease of sufficient gravity to attract attention are to be observed. "The term should not be confined to those instances in which no symptoms of malaria have ever been present, for if the parasites be present in the blood in recurrent cases between the attacks, the disease is as truly latent as it may be before the initial one." He recommends the administration of quinin for a long period in this condition.

Sunstroke.

A method of treating this condition advocated by Captain W. A. Heppolette of India is referred to by Captain Foulds, in the London *Lancet*, Dec. 22, 1906. The patients suffering from insolation are stripped, put on cots, and one attendant pours cold water over them while another rubs ice over the body, and a third gives an enema of a quart of iced water, and this is repeated every ten minutes until the mouth temperature drops to 102 F. Ice water enemata are also advocated in cases of heat prostration in which sunstroke has not actually taken place as possibly tending to abort collapse from heat.

If conditions are satisfactory and a large bathtub can be had, there is probably no better method of treating insolation than by immersing the patient, with proper support for his head, in a tub of water which is constantly kept cold by additions of ice. When a tub is not available, ice-water enemata should certainly be tried. Whatever the cold application, care must be taken that when the temperature begins to drop the application is not continued too long. During cold applications wet, iced cloths or an ice cap must be kept constantly on the head.

If the patient is strong, sturdy and full-blooded, venesection had perhaps better be done, especially if the face is flushed and dark. Some advise after venesection the intravenous injection, or hypodermoclysis of physiologic saline solution. Whether or not the heart requires stimulation with hypodermics of strychnin, will depend entirely on the case.

Gelatin Capsules.

It is a sad commentary that the very gelatin capsules with which we endeavor to pleasantly administer bad tasting drugs should possibly contain the germs of tetanus, as stated by Dr. Wiley in the *Dietetic and Hygienic Gazette*, May, 1907. Dr. Wiley states that the gelatin factories are the dirtiest in the world; that this gelatin is sometimes made in glue factories; that the stuff that is not fit for glue is made into gelatin, and that this gelatin is used in ice-cream and candies, and to make capsules for the administration of medicine. He also states that "there is plenty of wholesome raw material for making clean, pure gelatin."

It would be perfectly easy to investigate the purity of gelatin capsules by asking the druggist of whom he buys his capsules, and then from inquiry find where these capsules are made. Next, some of the members of the American Medical Association who live in the towns where these capsules are manufactured could be requested to investigate the factories. If the gelatin at these factories was found to be impure and dirtily made, a few letters written to The Journal and published, public opinion and the Food and Drugs Act could obtain pure, clean capsules for the administration of drugs.

It is indifference and neglect of things that are positively known to be objectionable that allow the American people to be imposed on.

Dengue.

Dr. P. M. Ashburn and Dr. Charles F. Craig, surgeons of the United States Army (*New York Med. Jour.*, June 15, 1907), could find no organisms in the blood in this fever and found no specific organism in cultures, but they can inoculate dengue into healthy men by using blood from dengue patients. They think the disease can probably be transmitted by the mosquito, and state that the period of incubation is about three and one-half days. Dengue is not contagious, but is infectious, like yellow fever and malaria. They found a normal red blood count, with a diminished total white count (mostly a diminution of the polymorphonuclears with an increase of the small lymphocytes).

The symptoms of dengue or break-bone fever develop suddenly, and are principally pains and aches referred to the muscles and bones; especially is there severe headache and lumbar backache. The pain may be excruciating. The fever may rise to a considerable height, but often is not high; it lasts a few days, and during the remission an erythematous rash appears on the body. There may also be at this time some enlargement of the lymphatic glands in the neck, axilla and groin. The eruption may last a day or two, to be followed by a second, but less, rise in temperature for a day or two, when convalescence develops. During the feverish period all the symptoms of a general fever are present.

There is no specific treatment but absolute rest in bed, even if the disease is mild, and protracted rest even in convalescence seems to render the disease milder and hasten the termination. One of the coal-tar products, as antipyrin, acetanilid or phenacetin, is needed for the aches and pains, and if these are severe morphin must be given. A useful combination of salol and acetphenetidin (phenacetin) is as follows:

℞.	gm.		
Acetphenetidini	1|50		gr. xxv
Phenylis salicylatis	1|50	or	gr. xxv
Caffeinæ citratæ	|25		gr. v

M. et fac chartulas 5. Sig.: A powder every three hours. Or:

℞.	gm.		
Antipyrini	4|	or	ʒi

Fac capsulas 10. Sig.: Two capsules, with plenty of water, and repeat dose in twelve hours, if needed.

If the headache is severe and there is much fever, an ice cap is indicated, and if the fever persists high, cold sponging must be done. A saline cathartic is generally indicated. The diet depends on the amount of fever present—a low diet if there is much rise in temperature.

If the headache is intense and there are meningeal symptoms, bromids or even chloral may be given as:

℞.	gm. or c.c.		
Potassii bromidi	20|	or	ʒv
Aquæ	100|		fl℥iii

M. Sig.: Two teaspoonfuls (10 c.c.) or two fluidrams, in water, and repeat if needed. Or:

℞.	gm.		
Chlorali hydrati	5|	or	ʒii
Syrupi pruni virginianæ	50|		fl℥ii

M. Sig.: Two teaspoonfuls (10 c.c.) or two fluidrams, in water, and repeat if needed.

If there is much prostration, small doses of alcohol may be given.

Gelsemium in small doses, preferably the fluidextract, or belladonna, best given in the form of the tincture, have been used successfully in stopping the pains.

Achylia Gastrica.

Dr. Frank Billings, of Chicago (*Ill. Med. Jour.*, July, 1907), states that Einhorn of New York, in 1892, suggested the above name for the condition in which there is entire failure of secretion of gastric juice, in other words, in cases where there is "entire absence of hydrochloric acid, pepsin, rennin, etc."

The treatment, when a neurosis seems to be the cause of the condition, consists, he states, in an attempt to improve the general nervous tone of the individual and by increasing the general nutrition by frequent small feedings of food of such a character that the unavoidably undigested remnants which may remain in the intestine will cause as little disturbance as possible. The use of bitter tonics to attempt to stimulate the stomach secretions is of doubtful benefit. The tincture of nux vomica in 15 or more minim doses before food is taken can do no harm and may be of possible benefit.

℞.	c.c.		
Tincturæ nucis vomicæ	20|	or	flʒv
Tincturæ cinchonæ compositæ ad	100|		fl℥iii

M. Sig.: A teaspoonful (5 c.c.), a fluidram, in water, three times a day, before meals.

Billings says that one can not give hydrochloric acid in sufficient amount to compensate for the absence of its secretion, but perhaps enough may be given to control partially the mechanism of the pylorus. From 15 to 30 minims of dilute hydrochloric acid well diluted with water should be used after the feedings.

℞.	c.c.		
Acidi hydrochlorici diluti	20|	or	flʒv
Aquæ ad	100|		fl℥iii

M. Sig.: A teaspoonful (5 c.c.), a fluidram, in water, three times a day, after meals.

The acid may also serve as a stimulant, Billings asserts, to the secretion of the pancreatic and intestinal ferments.

Changes in the Urine Due to Drugs.

"Drugs that increase the amount of urine cause it to be lighter.

"Drugs that irritate the kidneys cause the urine to be darker.

"Methylene blue causes the urine to be green in color, if it is acid.

"Phenol may cause the urine to be almost black.

"Rhubarb may cause the urine to be brown (same appearance as bile).

"Santonin causes the urine to be yellow, if acid; purple, if alkaline.

"Senna may cause the urine to be red, if acid; yellow, if alkaline.

"Sulphonal and trional may cause the urine to be very dark."—Osborne's "Materia Medica and Pharmacology."

Many drugs interfere with urinary tests. Methylene blue in the urine will allow a precipitate with Esbach's test for albumin on account of the picric acid it contains. Balsam of copaiba, turpentine drugs, and sometime santal oil often allow a precipitate with nitric acid. Terpin hydrate may cause the urine, on boiling and on the addition of nitric acid, to give a precipitate without albumin being present. The tincture of myrrh can also give a precipitate with heat which may not be albumin.

A number of drugs, or even biproducts and coloring matters absorbed from the intestine in serious constipation or intestinal fermentation, can cause reduction of copper in Fehling's test, and even in small amounts may cause decolorization of the copper solution. Such urines must be tested by other methods before it is decided that glucose is present.

Pharmacology

Kutnow's Powder—Patent or Proprietary?

The term "patent medicine" has been applied, rather loosely, to those nostrums sold and exploited directly to the public, while the name "proprietary" has been given such preparations as are advertised only to the medical profession. As has been many times exemplified by reports in The Journal, the distinction is often a very fine one and the dividing line frequently reaches the vanishing point.

It is not unusual, for instance, for "proprietary" preparations to be foisted on the medical profession until a certain number of testimonials (of doubtful value, it is true, but still testimonials) have been ingeniously wheedled out of physicians and the product rather generously prescribed. When this objective point has been reached the manufacturer comes into the open and advertises the nostrum to the public direct and the testimonials previously given for the "proprietary" are used as advertising assets for the "patent medicine."

Then again there are certain preparations which are "proprietaries" or "patent medicines" according to the location. On one side of the Atlantic the product is advertised to physicians only, while on the other side it runs indiscriminately on the billboards and in the newspapers. One of the best examples of this last class is Kutnow's Powder. In England, where it originated, this preparation which "dissolves and eliminates uric acid," is consistently lined up with Beecham's Pills and Pink Pills for Pale People. Full-page newspaper advertisements announce the fact that free samples will be

....

"SENT TO ALL APPLICANTS."

....

In the United States, however, Kutnows have learned from their wide advertising experience that a cheaper and surer way of introducing a nostrum to the public is to advertise it to the medical profession only. By means of advertisements in medical journals (whose space is much less expensive than that of the daily papers) and the liberal distribution of samples

....

"SENT FREE TO PHYSICIANS ONLY"

....

the medical profession becomes the unpaid "barker" for the nostrum manufacturer. At present, therefore, Kutnow's Powder is—in the United States—an ethical(!) "proprietary."

There exists in this country, as most of our readers know, an organization of "patent medicine" manufacturers whose "reason for being" is to get full value received for the $40,000,000 paid annually in advertising nostrums in the newspapers of the country. This organization is known as the Proprietary Association of America. The now familiar "red clause" in the advertising contracts by which the newspaper forfeits its contract if state laws are enacted that are inimical to the "patent medicine" interests, is a creation of this organization and has been most effective in making the newspapers the unpaid lobbyists of the nostrum interests. The "silence clause" is another "joker" in the contracts by which the agreement is cancelled if matter detrimental to the nostrum "is permitted to appear in the reading columns" of the paper. It is little wonder that with such weapons the "patent medicine" manufacturer has assumed an arrogance that is as disgusting as it is serious.

Great Britain, too, has its "patent medicine" men's organization, which is known as the Proprietary Articles Trades Association. Of both these honorable bodies Mr. S. Kutnow of Kutnow Brothers, Ltd., is, or was, a conspicuous member. At a recent meeting of the British organization, Mr. Kutnow worked himself into a fine frenzy of indignation because of some articles that had appeared in the *Pharmaceutical Journal* of London on the subject of "Secret Remedies and Proprietaries." As these articles did not specifically mention Kutnow's Powder, and as criticism was directed against only those preparations as were most disreputable, it is evident that Mr. Kutnow appraises his own product at its face value. He gave his opinion of the *Pharmaceutical Journal* and told the meeting that when the advertising man for that journal solicited advertising he refused to have any more dealings with him owing to the articles that had appeared in the *Pharmaceutical Journal*. He expressed himself as quite independent of any newspaper or journal, and able to take care of himself.

Therein Mr. Kutnow is mistaken; he is not independent of newspapers and journals. On the contrary, he, and others of his ilk, are most subserviently dependent on them. Let reputable papers and medical journals refuse, for but one year, to carry the high-flown advertisements of his Anglo-American Patent-Proprietary, and his firm would perforce seek some worthier, if less profitable, line of business.

The editor of the *Pharmaceutical Journal* resents Mr. Kutnow's "implied assumption that by inserting paid announcements in the advertising columns of a newspaper, he or any one else, can dictate the policy of that organ."

The *Pharmaceutical Journal*, it should be said, is the official organ of the Pharmaceutical Society of Great Britain, and is the most influential organ of the drug trade in the British Isles. It is refreshing to note, in these days of "canned" editorials and paid "write-ups" masquerading as original articles, that there is still to be found a journal that can not be bought.

One wonders whether a large experience in the advertising world, and especially his membership in the Proprietary Association of America, has unconsciously led Mr. Kutnow to assume that muzzling the press is one of the perquisites of the large purchasers of advertising space.

Carcinoma in Calcutta.—In the report of the Medical College Hospital, Calcutta, given in the *Indian Medical Gazette*, it is stated that 59 cases of cancer were analyzed. Of these 76.3 per cent. were males and 23.7 per cent. females. The sites affected differ largely from those given in western statistics. Thus, the penis was affected in 28.8 per cent. of the cases; the breasts in 11.8 per cent.; the cheek, lower jaw, tongue and liver, each, in 6.7 per cent.; the upper lip, pancreas and stomach, each in 5 per cent.; the upper jaw, rectum and neck, each in 3.3 per cent., and the pharynx, thigh, larynx and epiglottis and gall bladder, each in 1.6 per cent. of the cases. Of the cases of cancer of the penis all the patients were Hindus, 29 per cent. of whom gave a history of congenital phimosis. The native habit of chewing betel leaves with lime may have some causal relationship to the frequency of cancer of the mouth.

Correspondence

The Preparation of the Specialist.

New Haven, Conn., Aug. 17, 1907.

To the Editor:—Dr. Shambaugh's article on "The Preparation of the Specialist" in The Journal, Aug. 17, 1907, especially as regards what he says about the granting of the Ph.D. degree in medicine, deserves great applause and commendation. It advances a thought that many a progressive man has felt, but failed to express. It does indeed seem peculiar that universities should grant advanced degrees for work done in almost any of the sciences, except in medicine, as if to take no cognizance of its deep and exhaustive sciences. And yet, at present, fully three-fourths of all the research being carried out all over the world is in medicine. Again, of all the scientific journals published, fully three-fourths are devoted to the medical specialties and their fundamental sciences. In every respect, every one of the medical specialties stands in the first rank and on a par with mathematics, history, zoology, botany, etc. Still, where is the university which offers courses toward the Ph.D. degree for investigations in internal medicine, in diseases of the eye, ear, nose or throat, or diseases of the nervous system, or even pathology? Many a man who engages on his Ph.D. work, choosing anatomy, histology, bacteriology, embryology or physiology as his major, does so with the flimsiest sort of a rudimentary knowledge of any of these branches. To what extent has he studied these? Practically none. They were only in reality touched on in his academic school. Yet, the thing which gives him access to the attainment of the Ph.D. is his bachelor degree in arts or sciences; whereas the physician, if he does not hold a B.A. or a B.S., in spite of his superior knowledge and training in these branches, is barred from working toward that degree. If this is the case with these fundamental subjects,, then what can be expected with medicine itself, with the higher specialties which seem to command no recognition in a graduate department's curriculum?

That leads to the question, "Is it justifiable that the possession of an academic degree be absolutely necessary before a man may engage on the work for his Ph.D.?" Why, no. It is far better that he hold one; but it is wrong to make it absolute. If a man has the ability and ambition to strive for something higher and is heart and soul a student; or if he possess an aptitude for original research, which many a Ph.D. does not, then by no means should the lack of an academic degree keep him from his Ph.D. The degree of Doctor of Medicine no longer represents a mere profession from the business point of view. It represents a purely scientific pursuit as well, to do justice to the mass of practitioners who are striving their utmost for the advancement of science, and to the hundreds of Doctors of Medicine who give up their whole life to research. The present status of medicine in its relation to the advanced degree makes it urgent for the benefit of mankind that certain reforms or rather improvements take place very shortly. The change in entrance requirements to medical colleges taking place throughout the country makes the future recognition of the medical specialties, on a higher plane, more hopeful. Philip Frank, M.D.

Hemiplegia as a Complication in Typhoid Fever.

Pittsburg, Pa., Aug. 17, 1907.

To the Editor:—On two or more occasions I examined the literature to ascertain the frequency of hemiplegia as a complication of typhoid fever, and I was able to find very few references to it. Some text-books failed to mention the subject, and in none can one find it adequately treated. The accounts by Osler and Nothnagel were the fullest found. Therefore, the article on this subject by Dr. Frank Smithies, Ann Arbor, in The Journal, August 3, impresses me as a very valuable one. After considerable search through the literature, Dr. Smithies was able to collect forty-three cases. In his text-book Dr. Osler refers to Hawkins' collection of seventeen cases as the largest number with which he is familiar. The value of Dr. Smithies' paper thus becomes apparent.

The writings of Nothnagel, Osler and Hawkins, and this recent paper by Smithies indicate that hemiplegia is a very rare complication in typhoid fever. But I am inclined to believe, that, while this is true, the complication is less rare than we had formerly supposed; for I have myself seen three well-marked cases, two of which I have reported. One of these (*Medical Record*, Dec. 19, 1903) is included in Dr. Smithies' table; the other (The Journal A. M. A., May 27, 1905) is not. The third case I have never reported.

The complication deserves more study; and it is to be hoped that physicians will place on record such cases as may come under their observation, so that a more adequate idea may be obtained as to the genesis, character and frequency of this complication. Theodore Diller.

Taxing Private Hospitals.

Cleveland, Ohio, Aug. 15, 1907.

To the Editor:—In The Journal, July 27, 1907, the matter of taxing private charitable institutions is discussed. The view there taken is a mistaken one. Public support given private institutions, no matter for what purpose organized, whether religious, charitable or otherwise, is unsafe, as it tends to foster the unjust taxation systems under which we labor. Exactly as I am glad to see half rates withdrawn from ministers of the gospel, so I would be happy to find all land or monopoly values (they amount in last essence to the same thing) taxed on their actual social value and that regardless of what use put to (except in the case of state institutions, where the reason for not taxing is self-evident, clear cut and incapable of misapplication). Human nature being such that men will support the system which is easy on them, i. e., which gives them an advantage, real or imaginary, over their fellows, irrespective of the justice of that system, I would rather not see the situation further muddled by more institutions on the free list. Let there be economic justice, and charity (such as we have now) will become a nightmare of the past.

J. E. Tuckerman.

Probilin.

Philadelphia, Aug. 24, 1907.

To the Editor:—The report on Probilin in The Journal, August 24, explains my experience with the formula suggested by Dr. R. W. Wilcox in his article on "The Medical Treatment of Gallstone Disease" (The Journal A. M. A., Aug. 4, 1906, page 347). Being desirous of carrying out the treatment suggested by Dr. Wilcox, I prescribed the formula of phenolphthalein with acid sodium oleate and salicylic acid. The pharmacist to whom the prescription was submitted informed me that it could not be compounded as written, but that he could dispense the materials massed separately in a capsule. Subsequently the same pharmacist suggested the use of sodium salicylate in place of the salicylic acid, the following modified formula being prescribed:

Sodium oleate	0.10
Sodium salicylate	0.10
Phenolphthaalein	0.05
Menthol	0.015

Mix and dispense in 1 capsule.

The sodium oleate was prepared by mixing the proper proportion of sodium hydrate and oleic acid.

While my experience with the above formula has been limited to four cases, the results obtained seemed to be due to free catharsis resulting in a lessening of the jaundice and the presence of bile in the stools. In no case were stones recovered. Two capsules daily were found to produce active catharsis and dosage was limited to that number.

Henry F. Page.

Organization.—The spirit of the present organization of the medical profession is unique. It is not the labor union spirit of merely personal and material benefit; it is spirit of personal uplifting, of personal education, of personal improvement in all those things which go to make a man a better physician and a better guardian of the sick in his charge.—Editorial in *California State Journal of Medicine.*

Miscellany

Serum Treatment of Plague.—Experience with the serum treatment of plague illustrates clearly the difficulties under which the experimenter labors in producing a curative serum for a bacterial infection of the blood like the plague. The natural process of cure for plague appears to be the destruction of the bacilli which have entered the blood, while the toxins which they produce are destroyed or antidoted by the natural powers of the system. No great amount of antitoxin appears to be formed in the organism which is able by its natural powers to cope with the toxemia only to a limited extent. This explains in a manner the extreme fatality of the plague. The destruction of the plague bacilli in the blood sets free a large amount of toxin which overwhelms the system so that it can not by its unaided powers antidote or eliminate it and a condition known as plague marasmus results. This condition is graphically described by Choksy in his "Report on the Treatment of Plague with Yersin-Roux Serum at the Maratha Hospital During 1905." The plague serums so far produced are bacteriolytic serums with little antitoxic power. They hasten the destruction of the plague bacilli, but leave the system to cope with the toxemia unaided. If administered before the bacilli have multiplied extensively in the blood, they cut short the disease, but if administered at a later period they may intensify the toxemia by increasing the bacteriolysis and really aggravate the condition. Hence the administration of the serum in hospital practice, where a considerable number of cases are admitted somewhat late in the disease, shows but little advantage over the cases treated without the serum; indeed, a larger proportion of cases exhibiting acute marasmus with marked toxemia are observed under the serum treatment than without it. But if the hospital cases are analyzed according to the day of the disease when the treatment was applied a considerable improvement under serum treatment may be demonstrated. Choksy finds that by summing up three series totaling 500 cases there was a general mortality of 53.6 per cent., while the percentage of mortality among those inoculated on the first day, numbering 89 cases, was only 38.2. The mortality increases in a regular ratio (with the exception of a slight drop on the fourth day) to 75 per cent. of those inoculated on the seventh day. The results from serum treatment are better in private practice largely because of the fact that such patients apply for treatment earlier and have better care. The serum treatment not only secures somewhat better results in general, but it secures an earlier convalescence, marked by fewer complications than occur in cases that have not had serum treatment. Choksy instituted a comparison of the two methods of treatment under circumstances well calculated to give a fair representation of the value of each. Of 148 cases, 46 were rejected as unfit for serum treatment, and of the remainder each alternate patient received serum treatment, the others serving as controls. Of the 51 in the control group, 42 died and 9 recovered, while of those treated by serum 37 died and 14 recovered, the mortality being 82.3 per cent. and 72.5 per cent. respectively. On the whole, therefore, there can be no doubt that there was distinct gain under the serum treatment, and that more lives were saved than under the ordinary treatment. The results leave much to be desired, however. This result, it must be remembered, is obtained in a disease that carries away about 84 people, on an average, out of every 100 attacked. Choksy is inclined to believe that, for the present at least, the limit of success is reached. He suggests that the results might be better if the serum were administered intravenously. If a serum could be discovered combining antitoxic and bactericidal properties, more lives could doubtless be saved. Under the present circumstances, a grave responsibility would seem to rest on those in charge of plague hospitals, if they withhold the serum even for a few hours.

Efficient Treatment of Ivy Poisoning.—The extremely poisonous character of poison ivy or sumach, the especial susceptibility of some individuals, and the fact that cases of poisoning occur in which there is no evidence of positive contact with the plant, leading many to think that the poisonous constituent is volatile, lend a peculiar interest to attempts to determine the composition of the plant and the source of its poisonous properties. Previous researches on this plant have been more or less unsatisfactory, but some late investigations by S. F. Acree and W. A. Syme (*Journal of Biological Chemistry*, March, 1907), seem to have been more successful in advancing our knowledge of this plant. The authors found that the plant contained a poisonous tar, gum or wax, which appeared to be the active ingredient in producing the phenomena of poisoning. This substance seemed to be non-volatile, as no poisonous substance was carried over when it was warmed to 55 C. (131 F.) with acetic acid or with alcohol. The poisonous tar or wax was decomposed by acids and yielded gallic acid, fisetin and rhamnose, showing the probable source of these compounds in the plant, and indicating that the poison is a complex substance of a glucoside nature. Perhaps the most important outcome of the investigation is the discovery of a rational remedy for the effects of the poison. The poison was found to be easily oxidized by potassium permanganate, and it occurred to Dr. Syme that this should be a good antidote for its effects. The successful use of permanganate in rhus poisoning was reported by Maisch, 1866 (*Am. Jour. Med. Sci.*, lii, page 288), but it never came into general use, probably on account of its staining the skin and clothing. Its use for this purpose is not now mentioned in most works on dermatology or pharmacology. Dr. Syme found that, when applied so as to reach the seat of the poison in the vesicles, it acted as an antidote, and what appeared to be a severe case of poisoning was cured very quickly. The solution was kept as hot as could be borne for about half an hour. The use of hot water not only reduces the swelling, but also helps to destroy the poison. The action of the permanganate is also more rapid at high temperatures. The concentration of the solution used is varied according to the location and condition of the eruption. Where the skin was thin or already broken, dilute solutions (1 per cent.) were used. It is important that the remedy should be well rubbed into the skin. In one case the eruption occurred in the palm of the hand, where the skin was so thick that it was necessary to open it before the remedy could reach the poison. The difficulty of getting the remedy in contact with the poison in the skin is the reason why the eruption is so hard to cure. Other remedies which have been used may owe their utility to the chemical characters of the poison. Lead acetate has been used to a large extent and depends for its success on its power of precipitating an insoluble lead compound of the poison. This compound is not, however, completely insoluble and eventually the poison becomes freed from the lead and resumes its irritating action. Alcoholic solutions should not be used, because the alcohol dissolves the poison, and on evaporation, leaves it spread over a larger surface like a varnish. The stain on the skin produced by potassium permanganate can be removed by vigorous scrubbing with soap or by a warm solution of oxalic acid, but the latter should not be used by persons not familiar with its action.

Etiology of Dengue Fever.—Ashburn and Craig record the results of their investigations regarding the etiology of dengue fever in the *Philippine Journal of Science*, May, 1907. Over 600 cases of dengue were treated in the general wards of the hospital at Fort William McKinley without a single case originating among the other patients in the wards. Of the men on duty belonging to the hospital corps only four contracted the disease three of these being nurses on night duty in the wards and the other a cook having no contact with the dengue patients. The only precaution taken to prevent contagion was the rigid use of mosquito nets at night. The dengue and other patients ate together and were closely associated throughout the day. The only men unprotected by the mosquito nets at night—the three night nurses—contracted the disease. All the experiments with fomites were negative. Healthy men lived in mosquito-proof tents with dengue patients sleeping in the same beds, putting on the underclothes and pajamas of the patients and eating from the same table. None of these men developed the disease. They conclude from their experiments that: 1, No organism can be demonstrated in either fresh or stained specimens of dengue blood with the microscope; 2, the red blood count in dengue is normal; 3, no characteristic morphologic changes in the red or white blood corpuscles occur in this disease; 4, dengue is characterized by a well-marked leucopenia, the polymorphonuclear leucocytes being decreased, as a rule, while there is marked increase in the small lymphocytes; 5, unfiltered dengue blood inoculated intravenously into healthy men is followed by a typical attack of the disease; this also follows inoculation of filtered blood; 6, the cause of the disease is, therefore, probably ultramicroscopic; 7, dengue can be transmitted by the mosquito, *Culex fatigans* (Wied.), and this probably is the commonest manner of transmission; 8, no organism of etiologic significance occurred in bouillon or citrated blood cultures; 9, in experimental dengue, the period of incubation averages three days and fourteen hours; 10, certain individuals are absolutely immune to dengue; 11, dengue is not a contagious disease, but is infectious in the same manner as is yellow fever and malaria. The treatment, as indicated by their experiments, is chiefly prophylactic. Protection from mosquitoes is probably all that is necessary. When the disease exists, cold bathing, sponging and the use of ice caps are advisable to keep the temperature within bounds; opium and the bromids, they think, are probably safer routine measures than the coal-tar products, where there are much pain and nervous manifestation.

Prison Sentence for Eddyite.—The duty of the parent or guardian to furnish medical attendance for a sick child is affirmed in the decision of Justice McKean in the case of the state against Clarence W. Byrne, an Eddyite, of New York City, who allowed his 6-year-old daughter to die of bronchial pneumonia without calling a physician. As noted in our news columns August 10, the sentence was thirty days in the city prison. The question whether or not religious belief constitutes a valid excuse had already been decided by the Court of Appeals in the People vs. Pierson. There a child died of bronchial pneumonia without having medical attendance, and the father by adoption was convicted of violation of the statute. The conviction was sustained on the distinct ground that failure to procure medical attendance through disbelief therein and faith in the curative methods by prayer did not constitute a "lawful excuse." Justice McKean says: "An individual of some other cult, with equal plausibility, could plead disbelief in educational methods as an excuse for not sending children to school; could withhold food, clothing and shelter, leaving each, as part of his religion, to be furnished through the same or similar agency." Motion for a new trial was made on the ground that a regularly licensed physician would testify that, in cases of pulmonary pneumonia in children of 6 years of age, the room should be kept at a temperature of from 70 to 75 degrees, a trained nurse should be in attendance, and, in many cases, the use of drugs is not needed. The justice says: "The affidavit of this physician is general. It does not pretend to speak of the case of this defendant's daughter or to know anything of the symptoms manifested in her illness. He could not, therefore, schedule the case as being within his generalization. Medical attendance is needed. but this need not be constant. A doctor's skill and experience are believed to be sufficient to detect the cause of the trouble, and then to prescribe the proper remedies or the proper care to avert the disaster. A physician, authorized by the state to practice his profession, must be procured for children dangerously ill, and a parent who omits this imposed duty can find no legal excuse if the disease ends fatally, in the fact that his views differ from the legislative policy of the state."

Tuberculous Lymph Glands.—J. Eddy Blake, Brooklyn, in the *Long Island Medical Journal*, states that in a patient susceptible to tuberculosis and exposed to this disease it is just as illogical to suppose that removal of the affected glands in the neck will be followed by a cure and immunity to tuberculosis, as it is to suppose that tonics and massage will restore tuberculous glands to normal when they have undergone caseation, and abscesses have formed. Both may be possible, but neither need be expected.

Treatment of Urticaria.—N. E. Aronstam, in the *Medical Fortnightly*, states that calomel, sodium salicylate, and small doses of extract or tincture of belladonna will benefit the most intractable cases of urticaria, even after all other remedies, external and internal, have failed to effect a cure.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Aug. 24, 1907:

McCulloch, C. C., Jr., surgeon, relieved from temporary duty at Fort Meade, S. D., and will return to Ancon, Canal Zone, and resume his duties with the Isthmian Canal Commission.

Wadhams, S. H., asst.-surgeon, granted fifteen days' leave of absence.

Ives, F. J., surgeon, granted twenty-one days' leave of absence.

Hartsock, F. M., asst.-surgeon, granted thirty days' leave of absence.

Ashford, B. K., asst.-surgeon, left Washington Barracks, D. C., enroute to Camp Perry, Ohio, for duty.

Davis, W. R., asst.-surgeon, advanced to the rank of captain from Aug. 8, 1907.

Huggins, J. B., asst.-surgeon, in addition to his other duties, will report for duty as medical attendant, Washington Barracks, D. C., during the absence of Capt. Bailey K. Ashford, asst.-surgeon, at Camp Perry, Ohio.

Bourke, James, asst.-surgeon, ordered to proceed to Camp Captain John Smith, Jamestown Exposition, Norfolk, Va., for temporary duty during the absence of Capt. P. L. Jones, asst.-surgeon, on whose return to Camp Captain John Smith, Lieutenant Bourke will resume his duties on the transport *Kilpatrick*.

Phillips, J. L., and McCulloch, C. C., Jr., surgeons, and Noble, R. E., asst.-surgeon, appointed members of a board to meet at Ancon, Canal Zone, Isthmus of Panama, Sept. 23, 1907, for the examination of such officers of the medical department as may be ordered before it to determine their fitness for promotion or advancement.

Murray, Alexander, asst.-surgeon, ordered to report in person to Major J. L. Phillips, surgeon, president, examining board at Ancon, Canal Zone, Isthmus of Panama, for examination to determine his fitness for advancement.

Fisher, H. C., surgeon, appointed a member of Army Retiring Board, to meet at Denver, vice First Lieutenant G. A. Scott, asst.-surgeon.

Darnall, C. R., asst.-surgeon, left Washington, D. C., on thirty days' leave of absence.

Snyder, C. R., asst.-surgeon, granted thirty days' leave of absence.

Brown, O. G., asst.-surgeon, left Fort Robinson, Neb., with troops on practice march.

MacDonald, C. E., cont.-surgeon, arrived at San Francisco, on leave of absence for one month from the Philippines Division.

McCown, T. B., cont.-surgeon, granted leave of absence for three months.

Tetrault, C. A., cont.-surgeon, ordered to Fort Baker, Cal., for temporary duty.

Gunckel, G. I., dental surgeon, ordered to visit professionally Fort Dade, Fla., Fort De Soto, Fla., Fort Screven, Ga., Fort Fremont, S. C., Fort Moultrie, S. C., and Fort Caswell, N. C.

Wing, F. F., dental surgeon, left San Francisco, August 15, on the transport *Buford* for Philippine service.

Whinnery, J. C., dental surgeon, left Fort Egbert, Alaska, for duty at Fort Gibon, Alaska.

Le Hardy, J. C., cont.-surgeon, ordered to proceed to Fort Lawton, Wash., for duty.

MacDonald, C. E., cont-surgeon, will accompany Ninth Infantry, to Fort Sam Houston, Texas, and report to the adjutant general of the army for further orders.

Parkman, W. E., cont.-surgeon, will accompany Troops I, K, L and M, Sixth Cavalry, to San Francisco, and then return to his proper station.

Voorhies, H. G., dental surgeon, returned to duty at Fort D. A. Russell, Wyoming, from leave of absence.

Chamberlain, G. E., cont.-surgeon, reported for duty at Fort Walla Walla, Wash.

Garcia, L. C., cont.-surgeon, will proceed from Fort Riley, Kans., to Fort Leavenworth, Kans., in time to report on Aug. 30, 1907, to the commanding officer for duty to accompany the Third Battalion of Engineers (less Co. K) by rail to Fort Riley, Kans.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending, Aug. 24, 1907:

Baker, M. W., P. A. surgeon, detached from the naval hospital, Boston, and ordered to the naval hospital, New Fort Lyon, Colo.

Taylor, E. C., P. A. surgeon, ordered to the naval hospital, New York, for treatment.

(Orders issued by the Commanding General, Army of Cuban Pacification, August 8.) Holloway, James H., P. A. surgeon, Camp Columbia, Cuba, will proceed to Palmira, Province of Santa Clara, Cuba, for duty, relieving William A. Angwin, asst.-surgeon.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Aug. 21, 1907:

Wertenbaker, C. P., surgeon, directed to proceed to Cape Charles Quarantine Station for temporary duty; on completion of which to rejoin his station in Norfolk, Va.

Clark, T., P. A. surgeon, granted leave of absence for fourteen days, from Aug. 26, 1907.

King, W. W., P. A. surgeon, relieved from temporary duty at the Hygienic Laboratory and directed to proceed to San Francisco, reporting to the medical officer in command, Angel Island Quarantine Station, for duty and assignment to quarters.

Stansfield, H. A., P. A. surgeon, directed to proceed to San Francisco, reporting to the medical officer in command for special temporary duty.

Amesse, John W., P. A. surgeon, relieved from duty at Ellis Island, N. Y., and directed to proceed to Havana, Cuba, for duty in the office of the American Consul-General.

Collins, G. L., asst.-surgeon, granted leave of absence for one day, Aug. 17, 1907.

Krulish, Emil, asst.-surgeon, directed to proceed to Ellis Island, N. Y., reporting to the chief medical officer for duty.

Adamson, B. G., acting asst.-surgeon, granted ten days' extension annual leave on account of sickness, from July 28, 1907.

Bailey, C. W., acting asst.-surgeon, granted leave of absence for ten days, from Sept. 16, 1907.

Hicks, B. I., acting asst.-surgeon, leave of absence granted for twelve days, from Aug. 4, 1907, revoked.

Ransom, S. A., acting asst.-surgeon, transferred from Shanghai, China, to Kobe, Japan, for duty, vice J. P. Fowler, acting asst.-surgeon.

RESIGNATIONS.

Resignation of E. T. Olsen, asst.-surgeon, accepted, effective Oct. 12, 1907.

Turner, Linton, acting asst.-surgeon, resigned to take effect Aug. 15, 1907.

BOARDS CONVENED.

The board convened to meet at Chicago, July 25, 1907, for the purpose of examining an inspector of immigrants, amended: B. S. Warren, P. A. surgeon, to act in place of J. J. Gerkins, acting asst.-surgeon.

A board of officers was convened to meet at Galveston, Texas, for the purpose of recommending a site for a national quarantine station. Detail for the board: Capt. Percy W. Thompson, U. S. R. C. S., Surgeon J. H. White, P. H. and M.-H. S., and Capt. J. C. Oakes, Corps of Engineers, U. S. A. (by authority of Secretary of War).

Health Reports.

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 23, 1907:

SMALLPOX—UNITED STATES.

California: Oakland, July 1-21, 1 case; San Francisco, Aug. 4-10, 1 case.

Indiana: General, June 1-30, 193 cases in 31 counties.

Iowa: Keokuk, July 1-31, 2 cases.

Louisiana: New Orleans, Aug. 4-10, 1 case; Shreveport, Aug. 7-14, 1 case.

Massachusetts: Boston, Aug. 12-17, 1 case.

Michigan: Detroit, Aug. 4-10, 2 cases.

New Jersey: Newark, Aug. 4-10, 2 cases; West Hoboken, Aug. 9-15, 2 cases.

New York: New York City, Aug. 4-10, 1 case.

Utah: Salt Lake, July 1-31, 5 cases.

Washington: Spokane, July 28-Aug. 3, 1 case; Tacoma, July 28-Aug. 3, 2 cases.

SMALLPOX—FOREIGN.

Austria: Galicia, June 23-July 13, 9 cases; Vienna, July 21-27, 1 case.

Brazil: Para, July 1-27, 9 cases, 2 deaths; Pernambuco, June 1-15, 77 deaths; June 16-30, 109 deaths; Rio de Janeiro, July 8-14, 4 cases, 3 deaths.

Egypt: Cairo, July 9-22, 1 case, 1 death.

Canada: Halifax, Aug. 4-10, 2 cases.

Chile: Iquique, July 18-24, present.

China: Shanghai, July 1-13, 6 foreign cases, 83 native cases.

Ecuador: Guayaquil, July 21-27, 1 death.

France: Paris, July 21-27, 11 cases, 4 deaths.

Great Britain: Sunderland, July 21-27, 1 case.

India: Bombay, July 11-16, 3 deaths; Calcutta, June 30-July 6, 9 deaths; Rangoon, June 30-July 6, 1 death.

Java: Batavia, June 16-July 6, 5 cases.

Madeira: Funchal, July 22-28, 45 cases, 3 deaths.

Manchuria: Dalny, July 7-13, 2 cases.

Mexico: Mexico City, July 14-20, 8 deaths; Monterey, Aug. 2-8, 1 death.

Portugal: Lisbon, July 21-27, 9 cases.

Russia: Batoum, June 24-30, 1 case; St. Petersburg, July 14-20, 2 cases; Warsaw, July 14-20, 2 deaths.

Siberia: Vladivostok, June 29-July 5, 1 case.

Spain: Malaga, June 1-30, 4 deaths; Valencia, June 22-28, 14 cases, 1 death.

Turkey: Constantinople, July 22-28, 1 death.

CHOLERA.

China: Tientsin, Aug. 15, epidemic.

Japan: Moji, Aug. 20, 26 cases.

India: Bombay, July 10-16, 1 death; Calcutta, June 30-July 6, 44 deaths; Cochin, June 28-July 5, 7 deaths; Kashmir, June 30-July 9, 42 cases, 26 deaths (subject to increase); Madras, July 6-12, 1 death.

Straits Settlements: Singapore, June 23-29, 1 death.

YELLOW FEVER.

Brazil: Manaos, June 30-July 6, 3 deaths; Para, July 21-27, 1 case, 1 death.

Cuba: Alacranes, Aug. 19, 1 case; Cienfuegos, Aug. 15-19, 8 cases, 1 death; Matanzas, Aug. 7-19, 2 cases, 2 deaths.

West Indies: Trinidad, Port of Spain, July 25-31, 6 cases, 2 deaths.

PLAGUE—UNITED STATES.

California: San Francisco, Aug. 12-14, 5 cases, 4 deaths.

PLAGUE—FOREIGN.

Africa: King William's Town, June 23-July 6, 2 cases.

Brazil: Rio de Janeiro, July 8-14, 2 cases; Pernambuco, June 1-30, 3 deaths.

China: Swatow, June 1-15, present.

Chile: Antofagasta, July 2-8, 3 cases; Pisagua, July 18-24, present.

French Indo China: Saigon, June 28-July 4, 15 cases, 15 deaths.

Japan: Formosa, June 30-July 13, 116 cases, 98 deaths.

Peru: Callao, July 2-17, 3 cases, 1 death; Lima, July 2-10, 1 case, 1 death; Mollendo, July 11-17, 1 death; Paita, July 12-17, 1 case, 1 death; Trujillo, July 2-4, 11 cases, 4 deaths.

Egypt: Alexandria, July 19-Aug. 1, 13 cases, 6 deaths; Port Said, July 19-Aug. 1, 2 cases, 2 deaths.

Provinces: Behera, July 19-Aug. 1, 6 cases, 8 deaths; Beni Souef, July 19-Aug. 1, 4 cases, 1 death; Kena, July 19-Aug. 1, 7 cases, 7 deaths; Minieh, July 19-Aug. 1, 1 case, 1 death.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Dispensary Abuse.

The results of the investigation made by a committee, appointed by the president of the Medical and Chirurgical Faculty of Maryland, of the dispensary evil is interestingly summarized by Dr. W. S. Thayer in the *Maryland Medical Journal* for July 1907.

A letter was sent out to a number of physicians in the city of Baltimore and their answers to it show a wide divergence of opinion on the subject. As against the commonly accepted opinion that many people able to pay for medical services seek free service at the dispensary, one physician of large experience says: "Doctors seem to me to be eminently unable to judge of the financial standing of people." He calls attention to the fact that owing to the common habit in this country of living up to the limit of their means there are many people who, owing to temporary misfortune or loss of work, are really in a condition of genuine want. It is common for women when visiting a dispensary to put on the best clothes they have and thus give rise to an entirely erroneous impression as to their financial status. He further states that many physicians have confessed to him that the dispensaries are a "relief" to them, as the patients "when unable to pay go to dispensaries and when in funds send for their attending physician again." He concludes that "when the average American has money he spends it and becomes a pauper under any misfortune that is lasting."

Still another physician, a young man depending entirely on his practice for his support and who has had considerable experience in work among the poor, thinks the dispensary "evil" a much exaggerated one. While he admits that there are doubtless individuals who abuse the charity he is inclined to include the doctor with the patient in such abuse. He asserts that the physician often uses the dispensary to obtain a "cheap consultation or to allay the fears of a dissatisfied chronic or neurasthenic and thus prevent his drifting away."

The advertisement which the senior members of some hospital staffs get by their names being printed on the dispensary cards which the patients carry to their homes, is, in the opinion of another physician, a serious abuse. Still others maintain that the practice which obtains in some dispensaries of accepting fees from individuals who can pay or who offer to pay is a vicious one. Dispensaries, they claim, should be charitable institutions, pure and simple. The dispensary which "attempts to partially defray expenses by charging a fee" as well as that "which is run for commercial purposes or as a feeder to the practice of attending physicians" is unworthy of existence.

Still another physician was sure that the only abuse that exists is to charge persons for the prescription. This payment of a nominal fee has "prostituted more 'paying' patients into 'beats' than anything" he has encountered in twenty-five years' practice. People who would indignantly deny being objects of charity go to such dispensaries and sop their consciences by paying this ten-cent fee.

As Dr. Thayer remarks, "the regulation of dispensary abuses is a very wide problem, one which is obviously not to be settled by any simple measure."

The article abstracted above is interesting as an expression of individual opinion on a matter of great importance to both the public and the medical profession. As Dr. Thayer has pointed out, there is a wide difference of opinion on the subject of the abuse of dispensary treatment. It is safe to assume that much of this diversity of opinion is due to the lack of accurate. concise data on the subject. It is evident that some of the physicians whose opinions were given had very little realization of the importance of the subject and had not considered it carefully. While interesting as a collection of individual opinions, it would seem to be more to the point if an exact tabulation of Baltimore dispensaries had been made, classifying them according to their connection with teaching institutions, character of patients treated, etc., as well as the number of patients treated annually, the average number of times each patient was treated and the amount of care exercised by the physicians to avoid treating those able to pay. We feel safe in saying, from the results obtained by the committee on the abuse of medical charities in Chicago and from investigations in other large cities, that a careful statistical study of the dispensaries of Baltimore will show that a surprisingly large percentage of the population of that city are the recipients of gratuitous medical services and that the percentage of persons receiving medical charity far outnumbers the percentage of persons receiving any other form of charitable relief. This is an evil peculiar to large cities and one which should be most carefully and exhaustively studied before any generalizations on the subject are attempted.

Organization Notes.

The Cumberland Valley Medical Association, composed of the members of the societies of the counties of Washington, Maryland, and Franklin and Cumberland, Pennsylvania, announces its fifth annual meeting, to be held at Blue Mountain House, Maryland, September 5.

The Bucks County (Pa.) Medical Society held its fourth annual assembly at Menlo Park, August 14. The object of the meeting, as announced in the circular by the president, was "to promote a closer bond of unity between physicians through social intercourse; to give our wives an opportunity to enjoy themselves with us; to bring the press, law, pharmacy, theology and medicine into closer fellowship, and to teach each profession that a closer relationship will be mutually advantageous. The after-dinner program for the meeting included addresses on "The Druggist and the Doctor," by the vice-president of the Bucks County Druggists' Association; "The Press and the Doctor," by the editor of one of the local newspapers, and "The Lawyer and the Doctor," by a prominent Bucks County attorney.

The Rhode Island State Board of Health has issued a special bulletin showing the sanitary legislation enacted in the various states during the years 1905 and 1906, including new acts and amendments to existing acts regarding the practice of medicine, state boards of health, pure food and drug regulation and other hygienic and sanitary questions. These two pamphlets, compiled by Dr. Charles V. Chapin for the state board, will be of great interest and value to anyone working along these lines.

Society Proceedings

COMING MEETINGS.

Medical Society of the Missouri Valley, Council Bluffs, Iowa	Sept. 5.
Washington State Medical Association, Seattle	September 10-12.
Colorado State Medical Society, Glenwood Springs	Sept. 17-19.
Amer. Assn. of Obstetricians and Gynecologists, Detroit	Sept. 17-19.
American Electro-Therapeutic Assn., Boston	Sept. 17-19.
Medical Society of the State of Pennsylvania, Reading	Sept. 23-26.
Southern Medical Association, Birmingham, Ala.	Sept. 24-26.
Amer. Acad. of Ophthal. and Oto-Laryng., Louisville	Sept. 26-28.
American Public Health Assn., Atlantic City	Sept. 30-Oct. 4.
Medical Assn. of District of Columbia, Washington	Oct. 1.
American Roentgen Ray Society, Cincinnati	Oct. 2-4.
Idaho State Medical Society, Boise	Oct. 3-4.
Delaware State Medical Society, Wilmington	Oct. 8.
Nevada State Medical Society, Reno	Oct. 8-9.
Mississippi Valley Medical Association, Columbus, O.	Oct. 8-10.
Vermont State Medical Society, St. Johnsbury	Oct. 10-11.

MINNESOTA STATE MEDICAL ASSOCIATION.

Annual Meeting, held in Duluth, Aug. 12-15, 1907.

The President, DR. H. A. TOMLINSON, St. Peter, in the Chair.

About 200 members registered. The first meeting of the House of Delegates was on Monday afternoon. Three subsequent sessions were held. A committee was appointed to consider medical defense and to report at the next meeting. A committee was also appointed to draft a new medical practice act for presentation to the next legislature. The present contract with the Lancet Publishing Company of Minneapolis, for the publication of the transactions of the society, was renewed for three years from Dec. 31, 1907.

St. Paul was selected as the next meeting place, in October, 1908, the exact time to be determined by the council.

Election of Officers.

The following officers were elected: President, Dr. W. H. Magie, Duluth; secretary, Dr. Thomas McDavitt, St. Paul; treasurer, Dr. R. J. Hill, Minneapolis; members of the council (for three years), third district, Dr. William Davis, St. Paul; second district, Dr. J. J. Millspaugh, Little Falls; fifth district, Dr. H. M. Workman, Tracy.

WISCONSIN STATE MEDICAL SOCIETY.

Sixty-first Annual Meeting, held at Superior, Aug. 21-23, 1907.

The President, Dr. L. H. Pelton, Waupaca, in the Chair.

The meeting was largely attended and successful. The membership of the society is 1,503, as against 1,434 last year, out of a possible membership of 2,000. The physicians of Superior did everything possible to entertain the visitors, and the attendance reached 125.

President L. H. Pelton, Waupaca, in his annual address sketched the progress of medicine and surgery to the present time, and said that such progress had resulted in increased longevity. Their old society was a good one, but increase in numbers made reorganization and systematic alliance with the American Medical Association absolutely necessary. National legislation should be secured by strict cooperation. County and district societies should be encouraged, and the former should meet at least quarterly. There is no profession where constant reading, observation and comparison are so necessary; none that has a greater range of usefulness; none where unity and fraternalism, wherein lies the strength of all organizations, is more to be desired than in the medical profession.

Pneumonia.

Dr. L. A. Potter, Superior, said that this subject should be discussed each year until better treatment is secured and methods of prevention better understood. The virulence of the pneumococci are greatly increased when passed through a susceptible animal. Sudden chilling is a contributing cause; alcocoholic drinks and narcotic drugs favor the disease; it is probable that the amount of nostrums which contain largely alcohol and narcotics, consumed in the past, has played an important part in the causation of pneumonia. The means of prevention lie in general and personal hygiene and disinfection. Health departments should have the same authority in pneumonia as in other contagious and preventable diseases. There is no known specific for pneumonia, though one may be developed from the opsonic theory. No advantage has been secured in the serum treatment. Open-air treatment is advantageous and the colder the weather the better the results. The treatment, however, should be individualized.

Mechanism of Pneumococcal Infection.

Dr. H. E. Wolf, La Crosse, said that it is important to study carefully the organisms from the blood of pneumonia patients and of the mechanism by means of which the body protects itself against and combats infection. Phagocytosis is dependent on the presence in the blood of opsonins. The opsonic index shows the protective powers of the blood. The opsonins can be increased by the injection of the proper bacterial vaccines, and in many cases this increase of opsonins is associated with favorable influence on the infection, thus indicating a new line of treatment and pointing toward the ultimate discovery of a specific for pneumonia. The essential process in lobar pneumonia is pneumococcemia. Blood cultures in fatal cases are always positive and more virulent than those taken from non-fatal cases; but virulence (that is, the property by means of which the organism resists phagocytosis) has no influence on the extent of pulmonary localization nor on leucocytosis; the extent of pulmonary involvement has no influence on prognosis; leucocytosis is a favorable symptom, yet in the absence of sufficient opsonins is useless. The opsonins in pneumonia are decreased and in fatal cases remain below normal, while in recovery they rise above normal just before the crisis. The typical pneumococcic opsonic curve can be produced by the injection of dead virulent pneumococci.

DISCUSSION ON PNEUMONIA.

Dr. E. W. Quick, Appleton, said that pneumonia is a general disease whose prognosis depends not on the amount of lung involvement, but on the virulence of the organism. The question of opsonins promises important ultimate results in treatment. Dr. Rosenau has shown that the blood in pneumonia patients exhibits a higher percentage of acid than in health, and therefore the alkaline treatment seems to be established on a reasonable basis.

Dr. L. F. Jermain, Milwaukee, said that, since it is now established that pneumonia is an acute infections process, and that the changes in the lungs are merely local manifestations of general infection, it should not be treated as a local disease, but along the lines of other acute infectious diseases, and no consideration paid to merely local conditions. Pneumonia should be regulated by local health authorities the same as other infectious diseases are. Our hope in the future treatment of pneumonia lies along the lines of the opsonic theory.

Dr. E. J. Brown, Decatur, Ill., said that the opsonic theory explains the success of the treatment of passive hyperemia in joint disease, through increasing locally the opsonic index, and suggests new lines of treatment in various diseases. At present, however, owing to the complexity of technic, the general practitioner can not do opsonic work.

Dr. Potter emphasized the point that the cause of pneumonia is bacterial infection, and that it should therefore be treated as a general and not as a local infection.

Dr. Wolf referred to the inefficiency of the drug treatment and the great injury it does in destroying the only safeguard that the body has in combating the infection, the opsonins.

Intussusception.

Dr. C. L. Combs, Oshkosh, said that this condition is rare in adults and is difficult of diagnosis; the chances of recovery are small, especially in gangrenous cases. He reported a case, in an adult female of four days' duration, in which resection was performed and, although gangrene had set in before operative interference was determined on, yet recovery resulted.

Venereal Diseases and Marriage.

Dr. D. J. Hayes, Milwaukee, said that a syphilitic subject has no right to marry unless his disease dates back four or five years and all this time has been devoted to a careful and scientific treatment of the disease. Urethral folliculitis is one of the most insidious and important conditions that occur in gonorrhea. About 40 per cent. of all gonorrheas affect the prostate. The physician should be as cautious in assuming the responsibility of advising those who have suffered from gonorrhea, in the matter of matrimony, as he should be in advising syphilitics under similar circumstances, and the rule laid down by Ulzmann should be followed, viz., that there must be absence of gonococci, absence of pus corpuscles and absence of periurethral complications before marriage is permissible.

DISCUSSION.

Dr. Herman Reineking, Milwaukee, said that persons afflicted with venereal diseases should be warned not to marry until cured. Many cases of puerperal sepsis are due to gonorrheal affection.

Dr. Byron M. Caples, Waukesha, said that he believes that a man who has once had syphilis should never be permitted to marry, and indeed should be sterilized.

Symposium on Headache.

Dr. L. F. Jermain, Milwaukee, discussed the classification, cause and treatment of headache, including headache due to renal insufficiency, defective metabolism, toxins, drugs, migraine, meningitis, cerebral syphilis, and arteriosclerosis. Successful treatment depends on the correct diagnosis of the underlying causes of the headache.

Dr. B. M. Caples discussed the subject from the standpoint of the neurologist, confining himself to headaches resulting from neurasthenia, hysteria, epilepsy and various forms of neuritis.

Dr. C. D. Conkey, Superior, read a paper on headache from the point of view of the nose and throat specialist. Malformations and inflammations in the nose cause headaches. He described a case in which headache was cured by removing a large club-shaped projection from the middle turbinate. Where respiration is obstructed headache may result, especially in the case of adenoid vegetations in the vault of the pharynx.

Dr. Henry B. Hitz, Milwaukee, discussed headache of otic origin. He described the various forms of otic headache and concluded by saying that headache from disease in the region under discussion has not been of great importance except as a means of attracting attention to the affected region.

DISCUSSION.

Dr. L. F. Bennett, Beloit, said that headache is usually simply a symptom, and the real cause or combination of causes should be determined, which is often very difficult.

Dr. J. M. Dodd, Ashland, said that headache is simply a symptom of some disturbance occurring perhaps in a remote part of the body.

Simple Ulceration of the Bladder in the Female.

A paper by Dr. M. W. Dvorak, La Crosse, was read by Dr. Edward Evans. The existence of ulcer of the bladder is generally believed to be of rare occurrence, simply because of failure to make careful examination. The cystoscope, which is the only means of making diagnosis, should be used in all cases in which a vesical affection is more than transient. Curettage and topical treatment should be employed in these cases.

Heart Disease.

The annual address in medicine was delivered by Dr. George Dock, professor of medicine in the University of Michigan, on "Recent Advances in the Pathology and Therapeutics of Heart Disease." He said that we are entering on a new era in the investigation of diseases of the heart. All morbid phenomena, functional as well as structural, are being thoroughly investigated. He sketched the history of the study of heart disease. We have learned that the heart is more than a crude propulsive organ. It narrows orifices, fixes valves, directs currents, and has a marvelous range of adaptability. Valvular lesions are rapidly becoming better understood; we are starting on a new road in the study of muscular disease and beginning to understand the reason of disturbances of rhythm. The history of the fibers known as the Bundle of His is remarkable, and led to the development of the myogenic theory of the heart's action. Professor Erlanger has made brilliant investigation into the function of this bundle. The essential functions of heart muscle tissue are automatic stimulus-production, conductivity, irritability and contractility. With our present light we can study cardiac arrhythmias to much better advantage than we could with the physiology of a few years ago. Arrhythmia may be classified into respiratory, extrasystolic, fibrillary contraction, heart block, hemisystole and alternating systole. With reference to prognosis a good deal has been said and more can be surmised. In some cases the heart is the primary seat of disease and so causes the functional anomaly. This is true generally in extrasystole, irregular pulse, ventricular asystole, heart block and alternating pulse. In some of the other irregularities the cardiac abnormality is the result of some other, perhaps distant, lesion or functional disturbance. In some cases the part of the heart affected can be stated, while in others it can not. The subject is new. The special causes of the anomaly are often impossible of demonstration. The study of cardiac arrhythmias will rarely give us in a short time a diagnosis we could not have made without such study; but it will add much to our knowledge of disease phenomena and to the accuracy of our investigation of the individuals we have to treat in practice. Individualization is necessary in treatment. Preventive treatment is the first need. In the treatment of irregularities the main thing is to abstain from cardiac remedies until complete diagnosis has been made. In some cases, in fact, the most important thing is to stop medication, as in patients with compensated valvular lesion who have digitalis irregularities. In other cases indirect treatment is necessary, as in gastric or intestinal reflex arrhythmias, arterioclerosis and neuroses of a general kind.

Nerve Lesions Complicating Simple Fractures of Long Bones and Their Treatment.

Dr. Karl Doege, Marshfield, said that these complications may readily occur, but are often overlooked. The nerve tissue is peculiarly sensitive to even a moderate degree of pressure. Traumatism to nerves is immediate or remote. Immediate traumata are contusions or divisions of nerves; remote traumata are due to scar tissue formation. Differential diagnosis must be made between contusions and divisions of nerves. Contusions should be treated by expectancy, massage, galvanism, etc., and divisions by suture and end-to-end approximation.

DISCUSSION.

Dr. Herman Reineking, Milwaukee, recalled only one such case in his experience.

Dr. E. S. Hayes, Eau Claire, called attention to the fact that a pressure apparently insignificant may cause nerve paralysis lasting for a considerable time.

Dr. G. Perry, Amery, said that an extensive loss of nerve function might occur without permanent injury to the nerve.

Management of Labor.

Dr. F. W. Epley, New Richmond, said that labor is a natural physiologic process which often should not be interfered with. If labor progresses till the head is resting against the perineum, terminate the case at the end of a couple of hours by the application of simple forceps. Do not use the lumbering creations with high-sounding names which are now on the market. Most of them are unnecessary and their use pernicious. Employ chloroform only during the last few moments of extreme suffering. Toughen the nipples by having them thoroughly massaged some time before labor.

DISCUSSION.

Dr. J. P. Cox, Superior, recommended having bedding and cloths made aseptic and using the Kelly pad. The husband is more trouble than he is of aid and should be kept out of the way entirely. Put a brace at the head of the bed for the patient to grasp. Repair even the slightest lacerations.

Dr. Hugo Philler, Waukesha, said that the use of chloroform is of prime importance and is without bad results. He prefers the Vienna mixture of 11 parts of ether, 12 parts of alcohol, and 77 parts of chloroform, by weight.

Dr. Julius Noer, Stoughton, declared the use of chloroform dangerous; it should be watched as carefully in labor as elsewhere; its use is necessary in only a few cases.

Dr. A. D. Gibson, Park Falls, recommended that lacerations should not be repaired unless they involve the muscular tissue. He uses chloroform as a rule in labor.

Gallstones.

Dr. F. Gregory Connell, Oshkosh, read a paper on the removal of gallstones from the second and third portions of the common bile-duct. A comparison of the retroduodenal with the transduodenal approach leads to the conclusion that the latter is generally the better method. The essayist presented a report of a successful case of transduodenal choledochotomy, together with an analysis of collected cases.

DISCUSSION.

Dr. Edward Evans, La Crosse, called attention to the fact that the rarity of the condition is due to the anatomic formation of the duct.

Dr. Connell replied to a question that the time required for the formation of gallstones is in doubt, but that Dr. Mayo thinks that they are formed in a very short time when proper conditions are present.

Early Diagnosis of Gastric Carcinoma.

Dr. William Ackermann, Milwaukee, said that early diagnosis is of prime importance and can be based on no one symptom, but must be founded on the symptom-complex, including loss of appetite, nausea, eructation of gas, epigastric distress, anemia, emaciation, cachexia, age, heredity, previously existing gastric ulcer, examination of stomach contents, lactic acid in place of HCl, the Oppler-Boas bacilli in place of sarcinæ, and constant finding of occult blood. Pyloric and cardiac carcinoma may frequently be diagnosed early because of the presence of obstruction, but this is not the case with interostial carcinoma.

DISCUSSION.

Dr. F. Gregory Connell, Oshkosh, remarked that one-third of all carcinomata occur in the stomach, and 60 per cent. of carcinomata of the stomach show a previous history of gastric ulcer. Complete removal of the neoplasm is the only hope for a cure. After arriving at a suspicion of gastric cancer exploratory laparotomy should be performed.

Prevalent Ocular Diseases.

Dr. N. M. Black, Milwaukee, gave, for the benefit of the general practitioner, a description of the commonly occurring diseases of the eye, including blepharitis, hordeolum, abscess, chalazion, corneal ulceration, dacryocystitis, blennorrhea, conjunctivitis, ophthalmia, neonatorum, trachoma, scleritis, keratitis, iritis, cataract, glaucoma and squint, together with the approved modes of treatment employed.

DISCUSSION.

Dr. C. D. Conkey, Superior, considers blepharitis a most common, and one of the most obstinate, forms of eye diseases, especialy when ulcerative. Lachrymal disease following hypertrophic catarrh is also obstinate. There is no loss of sight in ophthalmia neonatorum except through failure of technic, and especially through lack of cleanliness in the eye. Nitrate of silver is the ideal treatment. A strong objection to argyrol is that it decomposes rapidly and thus deteriorates. The destruction of the eye in adults from gonorrheal ophthalmia is something frightful. Phlyctenular keratitis and conjunctivitis are readily curable by proper diet.

Dr. J. Steele Barnes, Milwaukee, dwelt on the importance of the study of the pathology of the eye. When the pathology is established, treatment is easy. Strange to say, trachoma has largely disappeared from Wisconsin. Cleanliness is the important point in gonorrheal conjunctivitis.

Dr. Black said that the orthoptic treatment of squint must be carried over a long period of time before results are obtained, but if the treatment is begun before the child has reached the age of 7 the squint can be corrected without operative procedure.

X-Ray Injuries.

Dr. Otto H. Foerster, Milwaukee, read this paper. We are sufficiently informed as to the conditions leading to the development of *x*-ray burns to avoid producing them in almost all instances. The distinctive type of burn involves the subcutaneous tissue, produced ulceration which may be very deep, is extremely painful, and successful treatment is difficult. *X*-ray burns are due to the actinic properties of the rays themselves. Idiosyncrasy to the rays exists. Patients have often been recklessly exposed at close range for periods varying from twenty to thirty minutes, on successive days, and this practice invariably leads to severe dermatitis or to the most terrible type of burn. Recklessness and unfamiliarity with proper technic have done much to bring discredit on a method which, in skilled hands (to whose use the *x*-ray should be confined), is as safe a procedure as any in medicine.

DISCUSSION.

Prof. Charles R. Bardeen, Madison, said that the *x*-rays are extremely dangerous except in the hands of skilful operators.

Dr. George Saunders, Superior, reported good results from the *x*-ray in nearly all kinds of skin diseases, in mild cases of epitheliomata, in enlarged cervical glands and in incipient tuberculosis.

Dr. Foerster emphasized the fact that proper protection of operator and patient excludes the possibility of danger. The *x*-ray is contraindicated in any skin condition which can be cured by other means without leaving a scar.

The Physician in His Relation to Contagious Diseases and the Public.

Dr. C. A. Harper, Madison, emphasized the duty of the practitioner to diagnose contagious diseases as promptly as possible, to assist the authorities in the proper enforcement of all sanitary and hygienic measures, and to insist on quarantine immediately after diagnosis. Protection to the public is of primary importance. The physician, public health officials and the public should work in harmony and with a view to the extinguishment of contagious disease.

DISCUSSION.

Dr. H. J. Orchard, health officer of Superior, remarked that physicians are too apt to look to the protection of their patients rather than to the protection of the public. In many instances it is very difficult to secure isolation in contagious diseases. There is lack of harmony between the health authorities and the people. The important point is to avoid the exposure of the public. But health officials should not be unreasonable with respect to quarantining flat buildings, hotels, etc.

Prof. Charles R. Bardeen emphasized the point that the treatment of quarantinable cases is really secondary to the protection of the public. It is the physician's duty to report contagious diseases to the proper officials immediately and then it lies with the health officer to enforce the quarantine.

Dr. John Baird, Superior, opposed quarantining in smallpox, as the public can protect themselves by vaccination.

Dr. Edward Evans, La Crosse, endorsed the position of Dr. Baird and thought the society should soon go on record to that effect. Health officials should always be well qualified experts. Schools and school children especially should be frequently and thoroughly examined.

Dr. Foerster thought vaccination should be followed up; if that is done immunity against smallpox will be absolutely secured.

Dr. Julius Noer, Stoughton, advocated the abandonment of quarantine for smallpox. Quarantine laws in contagious diseases are not obeyed because the people do not favor them.

Dr. Herman Gasser, Platteville, favored compulsory quarantine as long as vaccination is not compulsory.

Dr. William B. Eicher, Boscobel, thought the society should take a firm stand for vaccination and pay less attention to quarantining for smallpox. This would remove the skepticism of the people regarding the efficacy of vaccination.

Variola.

Dr. J. P. Cox, Superior, read a paper on this subject. Vaccination renders the subject absolutely immune to smallpox. Every vaccination can and should be made aseptic. But until non-belief in vaccination is overcome, vaccination and quarantine should work hand in hand to afford the maximum of immunity. The manufacture of vaccine should be more carefully supervised by the government in order to prevent the distribution of impure virus.

DISCUSSION.

Dr. H. J. O'Brien, Superior, said the physician should follow up his vaccination. If this were done there would be less skepticism as to the value of vaccination.

Dr. W. T. Sarles, Sparta, declared that vaccination affords absolute immunity, but quarantine should be retained until compulsory vaccination is established. In vaccinating, wash the arm with warm water and soap and dry it with gauze; put the lymph on; scarify the arm; let the case go without dressing, for secondary infection can not take place for at least four days; at the end of four days a light gauze dressing or a gelatin shield may be put on. Secondary infection never occurs until the subject gets a sore arm.

Dr. Eicher expressed the hope that there will be some change made in the quarantine laws which would give the people an opportunity to realize that the medical profession of the state have absolute faith in vaccination.

Dr. E. L. Boothby, Hammond, opposed the abolition of quarantine in smallpox cases. Faulty technic has shaken the faith of the people in vaccination. Instruments should be as thoroughly sterilized as in surgical cases; the arm should also be sterilized. There is much worthless lymph on the market.

Dr. C. A. Armstrong, Boscobel, argued for simplicity of technic. A little sterile cotton, sterile gauze, zinc oxid ointment, the needle that comes with the tube, and a match, are all one needs.

Dr. Perry thought the health department would furnish uniform vaccination certificates; if that were done the work would be more carefully looked after and successfully followed out.

Dr. Foerster said that if quarantine is abolished Eddyites and others who refuse vaccination will spread the disease. Many graduates of medical schools have never seen a case of contagious disease. How can they make a differential diagnosis? In vaccinating little children it is well to use a 15 per cent. solution of caustic potash to dissolve off the superficial layers of the skin.

Dr. Harper felt that the objection to raising quarantine in smallpox is the injustice it would do to innocent children. However, there is a law now in effect which practically makes vaccination of school children compulsory. It is not safe to rely on disinfection. Many of the disinfectants on the market are worthless.

Direct Transfusion of Blood.

The annual address in surgery, by Dr. George W. Crile, Cleveland, professor of surgery in the medical department of the Western Reserve University, related to certain clinical and experimental observations on the symptomatology and treatment of hemorrhage and some observations on the direct transfusion of blood. The paper treated of the technic, mechanics and therapeutics of the subject, and eight cases were described. In these cases the direct transfusion of similar blood has afforded (a) complete relief for acute hemorrhage, (b) complete stoppage of hemorrhage in four cases of chronic pathologic hemorrhage from the bowels and partial stoppage and relief in a similar case, and (c) complete stoppage of uterine, nasal, subcutaneous and rectal hemorrhages in a case of carcinoma of the gall bladder, with sufficient stimulation of the patient to permit an exploratory laparotomy.

Symposium on Puerperal Sepsis.

The diagnosis and clinical history were discussed and cases described by Dr. George Saunders, Superior.

Dr. J. M. Dodd, Ashland, discussed the surgical treatment. He said that here is a septic wound to treat and one must (a) remove the septic material as far as possible, (b) neutralize the septic matter that remains, and (c) provide drainage. The septic membrane should be handled very gently. Irrigation should be employed. Iodoform is an ideal remedy.

Dr. H. L. Rosenbery, Wausau, said that the serum treatment, begun early, is destined, if we reason from analogy, to be ideal.

Dr. Herman Gasser, Platteville, read a paper on what does disease mean.

Approve State Medical School.

The following resolution was adopted:

Resolved, That the State Medical Society of Wisconsin heartily endorses the action of the state legislature in establishing a college of medicine at the University of Wisconsin, and the proposed plan of the regents to develop the important departments of pharmacology and pathology.

PROCEEDINGS OF HOUSE OF DELEGATES.

Dr. W. T. Sarles, reported on the work of the House of Delegates of the American Medical Association at Atlantic City.

Dr. E. L. Boothby, Hammond, presented reports from the various councilors, showing an improved condition of affairs.

Progress in Medical Legislation.

The present members of the committee on public policy and legislation were re-elected. Dr. J. J. McGovern presented a report of the work done during the past year. He said that great progress has been made in medical legislation. Two bills were passed forbidding newspaper advertising with reference to diseases of the sexual organs; these since July 1 have been obeyed. One of the bills forbids the newspaper from taking the advertisement, and another forbids any one from placing any such advertising. A third bill embodies the Indiana law regarding the definition of medicine.

To Organize Medical Defense.

A committee was appointed to consider the question of medical defense and to report at the next meeting. The committee consists of Drs. G. E. Seaman, J. J. McGovern and H. B. Hitz, Milwaukee; Edward Evans, La Crosse; Julius Noer, Stoughton; L. H. Pelton, Waupaca, and C. S. Sheldon, Madison.

Dr. Noer introduced the following resolutions, which were adopted:

Resolved, That the committee on medical defense be and hereby is instructed to prepare resolutions for submission to the county societies for a referendum vote on the question of protective insurance recommended by Dr. Sheldon's report for 1907. Be it further

Resolved, That in case the vote by the county societies is favorable, then the above-named medical defense committee hereby is empowered and instructed to proceed with the organization of an insurance association in connection with the State Medical Society. Provided that such organization shall not become operative till after the question has been submitted to and passed on by the council of the Wisconsin State Medical Society at its meeting in January, 1908.

Election of Officers.

The following officers were elected: President, Dr. W. E. Ground, Superior; vice-presidents, Drs. Byron M. Caples, Waukesha; Herman Gasser, Platteville; E. S. Hayes, Eau Claire.

Milwaukee was selected as the place of holding the next annual meeting, time to be fixed later.

Three members of the council were appointed, Dr. C. A. Armstrong of the Fourth, Dr. Dewey of the First and Dr. G. T. Dawley of the Ninth district. Dr. L. H. Pelton of Waupaca was elected a delegate to the American Medical Association. Dr. G. Windesheim was elected his alternate, Drs. Sarles and Caples holding over. Dr. J. V. Mears was re-elected councilor from the Fifth district, and Dr. C. J. Combs, Oshkosh, was elected councilor of the Sixth district. The resignation of Dr. W. T. Sarles, of the Seventh district, was accepted and Dr. Edward Evans was appointed in his place.

On motion the action of council to pay expenses of delegates to Council on Medical Legislation, A. M. A., was approved and Dr. G. E. Seaman was elected delegate.

The annual report of the committee on laws and legislation was submitted in executive session and accepted.

A motion made by Dr. Sarles was seconded and carried unanimously that the council be empowered to make such per capita assessment as they see fit, not to exceed one dollar, to defray the expenses of the legislative committee.

By a unanimous vote the contract with the *Wisconsin Medical Journal* for the publication of the proceedings of the society was renewed for another year.

Resolutions.

The following resolutions were unanimously adopted:

Whereas, Certain old line life insurance companies insist on the payment of but $3.00 for examination, including the chemical examination of urine, be it

Resolved, That it is the sense of this society that no such examination should be made for less than $5.00.

Resolved, That it is the sense of this society that the minimum fee for examination in assessment societies should be $2.00.

Whereas, The Public Health Defense League has been organized for the purpose of protecting against imposition by quacks and "patent medicine" concerns, therefore, be it

Resolved, That the State Medical Society of Wisconsin congratulates the Public Health Defense League and pledges its support in furtherance of these objects.

Danger of Introduction of Sleeping Sickness Into India.—Consul-General Michael, at Calcutta, reports that the comparatively recent introduction of bubonic plague into India (1897), and its rapid and fatal spread through the country, have rendered Europeans and Hindus uneasy on the subject of sleeping sickness. Owing to the constant communication between India and Africa, the going and returning of native Hindus, who emigrate thither to work for a time and then return to India, it is feared that the germ of the disease may be brought back by returning Hindus and thus another scourge be introduced into the country. For this reason the deliberations of the African colonial conference, now being held in London, on the subject of combating disease, are of uncommon interest to the people of India.

Book Notices

Tics and Their Treatment.. By Henry Meige and E. Feindel, with a Preface by Prof. Brissaud. Translated and Edited with a Critical Appendix by S. A. K. Wilson, M.A., M.B., B.Sc., Resident Medical Officer, National Hospital for the Paralyzed and Epileptic. London. Cloth. Pp. 386. Price, $2.50. New York: William Wood & Co., 1907.

"*Les Tics et Leur Traitement*" was first published in 1902 and was quickly recognized as an authority. It is a logical, learned and practical exposition of a most complicated subject and a careful study of it will go far toward preventing the blunders, so commonly observed, in the differential diagnoses between a simple muscular spasm, a tic and a chorea. As these all differ in their etiology and nature, a correct diagnosis is an absolute *sine qua non* for correct treatment and a favorable prognosis. By clearly defining the term tic, giving it a narrow and precise meaning, and indicating its uniform pathogenesis and essential nature, the authors have done valiant service in dissipating somewhat the confusion surrounding a certain type of muscular jactitation. A tic is not the same as a spasm or a chorea, though superficially it bears a close resemblance to both. In the author's own words, "a tic is a co-ordinated purposive act, provoked in the first instance by some external cause or by an idea; repetition leads to its becoming habitual, and finally to its involuntary reproduction without cause and for no purpose, at the same time as its form, intensity and frequency are exaggerated; it thus assumes the character of a convulsive movement, inopportune and excessive; its execution is often preceded by an irresistible impulse, its suppression associated with malaise. The effect of distraction or of volitional effort is to diminish its activity; in sleep it disappears. It occurs in predisposed individuals who usually show other indications of mental instability" (p. 260). As tic is thus seen to be "a psychomotor affection" with "two inseparable elements in its constitution, a mental defect and a motor defect," it is distinguishable from a mere spasm, which "is the motor reaction consequent on stimulation of some point in a reflex spinal or bulbo-spinal arc" (p. 37) as from a chorea with its "inco-ordination," its "amorphous, indefinable and erratic" muscular play, its want of "succession of similar movements," its tendency to "unilaterality" and other special features (p. 280). In consonance with this conception of tic, the authors explain the peculiarly discouraging prognosis belonging to it and its proneness to relapse or reappear in another form. Under prolonged disciplining and reeducational treatment, to which the authors, of course, give first place, they find that the prognosis is far from being as bad as heretofore declared to be. It "depends solely on the mental state of the patient" (p. 293). Beginning with an elaborate history of a typical case—the report occupying the entire first chapter and being largely autobiographic in character—the authors take up the etiology, pathology, symptomatology, diagnosis and treatment of the tics in the remaining eighteen chapters. Abundant illustration is made from the writers' own large clientele and the case reports found in the current literature. In a masterly and attractive way the argument, based on close logic, deep psychology and modern scientific physiology, moves steadily and convincingly along until in the end one is all but forced to believe that at last the final word has been said on these perplexing tics.

Pulmonary Tuberculosis. Its Modern and Specialized Treatment. By Albert Philip Francine, A.M., M.D., Instructor in Medicine. University of Pennsylvania. Second Edition. Illustrated. Cloth. Pp. 266. Price, $2.00. Philadelphia and London: J. B. Lippincott Co., 1907.

To the specialist this book may seem to contain little not already known to him; to the general practitioner, however, it will prove of great value. We differ with the author in his statement that the general practitioner can not treat tuberculosis with success, because he is not qualified to do so. With such a book as this is a guide, the general practitioner will surely be able to treat the disease with a reasonable degree of success if he is possessed of an average amount of diagnostic skill, common sense, tact, etc. The modern treatment of pulmonary tuberculosis is systematically and carefully considered. The importance of rest when there is fever, the true place of exercise, of pulmonary gymnastics and of massage, the necessity of careful attention to the diet and of individualized forced feeding, the beneficial influence of sunshine, fresh air and of suitable climate, all these questions are discussed in detail and with a sane, judicial decisiveness. The use of tuberculin as an aid to diagnosis is considered, as well as its therapeutic use, and due emphasis is laid on the necessity of employing small initial doses for either purpose. Serotherapy, including the use of sera for combating secondary infections, e. g., streptococcic, is taken up, and also the use of drugs and the treatment of special symptoms such as cough, pain, hemoptysis, night sweats, etc. It is somewhat surprising, after reading the author's views as to diet and hygiene, views with which we must heartily agree in the main, to note the importance he attaches to the use of drugs. Creosote and nitroglycerin are advocated most warmly, and the latter given, as it seems to us, with unusual freedom on slight indications.

A chapter on general considerations and one on prophylaxis close the book except for the reprinting of the excellent "Hints and Helps for Tuberculous Patients," by Charles Minor of Asheville, N. C.

The views of other American specialists in tuberculosis are freely cited and occasionally those of continental writers, especially those of Cornet. The book is written in an unusually pleasing style that makes it easy and enjoyable reading. A few typographic errors that, perhaps, ought not to be expected in a second edition, were noted. The print is clear, the illustrations well executed and instructive. The book will do much good if it shall come into the hands of those who, in office, hospital or house-to-house practice, have to decide on the best plan of treatment for this all too common disease. It is a book, too, that can be read and studied by the intelligent layman who has tuberculosis or in whose family there is a case of tuberculosis; he will surely gain a clear conception of what his physician is striving to do in the way of treatment and will more efficiently cooperate with him in his efforts to effect a cure.

Nephritis. A Manual of the Disease Commonly Called Nephritis or Bright's Disease and of Allied Disorders of the Kidneys. By Seelye W. Little, M.D. Cloth. Pp. 134. Price, $1.25. New York: The Grafton Press, 1907.

This is an odd mixture of science, common sense, pseudoscience and evolutionary theories applied to the subject of Bright's disease. It is largely taken up with telling how little is really known about nephritis and how mistaken most of us are in our conceptions of the disease and treatment of it. There is some truth in it, sometimes epigrammatically put, but most of the space is taken up with stating and restating that civilization with its meat, alcohol, clothes and strenuous physical and mental life is responsible for nearly all cases of Bright's disease, and that a temperate life with avoidance of excess of food, especially proteid food—and with care as to environment, will help in warding off Bright's disease or will enable a kidney that is incompetent to perform the unreasonable task ordinarily put on it by civilized man, to be able to functionate if the exorbitant demand be lessened. Even though much that its stated as new is in reality trite, and in spite of the fragmentary and rambling presentation of the subject, there is yet enough of forcibly put truth in the book to warrant the spending of an hour or two in its perusal. The discussion of the dietetics of nephritis, taken largely from von Noorden and Chittenden, will appeal to many who wish exact statements as to food composition and nutrient value.

Essentials of Chemical Physiology for the Use of Students. By W. D. Halliburton, M.D., LL.D., F.R.S., Fellow of the Royal College of Physicians. Sixth Edition. Cloth. Pp. 258. Price, $1.50. New York and London: Longmans, Green & Co., 1907.

Although the original plan of the book, the arrangement into twenty-six lessons, remains unchanged, the author has subjected the text to such revision as was necessitated by the increased and more exact knowledge of chemical physiology. The chapter on protein has undergone the greatest change, and is far more extensive than it was in previous editions. The sections relating to coagulation of the blood and to respiration have also been carefully revised. Many new illustrations are added, thus increasing the value of the book. The appendix is deserving of special mention, inasmuch as it details the use of apparatus which should be found in the laboratory of every practitioner.

Marriages

John Emerson Heald, M.D., to Miss Frances Hartley, both of Comanche, Iowa, August 14.

Charles J. Sellars, M.D., Pittsburg, Pa., to Miss Alice J. Baldwin, at Baltimore, August 15.

Thornton C. Metz, M.D., Cumberland, Md., to Miss Rose Dickel, at Cumberland, August 14.

Herbert N. Leete, M.D., Algoma, Wis., to Miss Ruth I. Eaton, at Valparaiso, Ind., June 26.

William J. Lavin, M.D., to Miss Margaret Gallaher, both of Lexington, Ky., at Cincinnati, July 2.

W. Otto Weiskotten, M.D., Utica, N. Y., to Miss Sadie I. Pendleton of Rochester, N. Y., August 6.

W. Waters Stonestreet, M.D., Ohiopyle, Pa., to Miss Old Summit Trauty, at Baltimore, August 14.

S. Le Roy Robinson, M.D., to Miss Rena Estelle Kiel, both of Baltimore, at Portland, Maine, August 8.

D. Egbert Gurney, M.D., Newburg, Md., to Miss Mary Eleanor McShane of Baltimore, August 14.

Henry L. Dearing, M.D., Braintree, Boston, to Miss Clara Lincoln Robbins of Cambridge, Mass., recently.

Benjamin T. Rafferty, M.D., to Miss Lizzie Dean, both of Cloverport, Ky., at Cannelton, Ind., August 18.

William R. Fringer, M.D., to Miss Alma M. Barter, both of Rockford, Ill., at Grand Cascapadia, Que., August 20.

Howard A. Hanaford, M.D., Newport, N. H., to Miss Lida Estelle Hilton of Brooklyn, N. Y., at Newport, June 17.

Francis Le Baron Jenney, M.D., Chicago, to Mrs. Winifred Ament-Morgan of Indianapolis, Ind., in Chicago, August 21.

Deaths

Theophilus O. Powell, M.D. University of Georgia, Medical Department, Augusta, 1859; a member of the American Medical Association; superintendent of the Georgia State Sanitarium, Milledgeville; who for the last 28 years had given his efforts to the up-building of that institution; president of the Medical Association of Georgia in 1887; once president of the National Medicolegal Society and a member of the American Medico-Psychological Association; a Confederate veteran; died at Tate Springs, Tenn., August 18, from pneumonia, after an illness of ten days, aged 70.

Louis A. Harris, M.D. Albany (N. Y.) Medical College, 1884; for several years health officer of the town of Newburgh, N. Y., and physician to the City and Town Home and Children's Home; assistant surgeon, with the rank of first lieutenant, and assigned to the Tenth Separate Company, N. G. N. Y., died at his home in Newburgh, from cirrhosis of the liver, August 17, after an illness of more than two months, aged 48.

Nathaniel A. Morgan, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1847; assistant surgeon in the Third Louisiana Infantry and Fifth Georgia Infantry, C. S. A., during the Civil War, and since that time a practitioner of Texas; president of the board of examining physicians of the thirteenth district for five years; an invalid for the last 12 years, died at his home in Fort Worth, March 14, aged 84.

Seneca D. Powell, M.D. University of Vermont, College of Medicine, Burlington, 1869; vice-president of the Pan-American Medical Congress in 1895; vice-president of the Medical Society of the State of New York in 1898; secretary of the faculty and senior professor of surgery in the New York Post-Graduate School, died at his home in Greenwich, Conn., August 25, after an illness of three years, aged 60.

Charles Stewart Kittredge, M.D. College of Physicians and Surgeons in the City of New York, 1863; a member of the Medical Society of the State of California and the Alameda County Medical Society; a practitioner from 1864 to 1887 in Hawaii; died at his home in Santa Barbara, Cal., January 10, from subacute pneumonia, after an illness of ten days, aged 74.

Joshua F. Ensor, M.D. University of Maryland School of Medicine, Baltimore, 1862; major and surgeon in the Army during the Civil War; thereafter internal revenue collector and collector of customs at the port of Charleston, S. C., and for the past ten years postmaster of Columbia, S. C., died at his home in that city, August 16, aged 71.

Solon D. Martin, M.D. Transylvania University, Medical Department, Lexington, Ky.; a practitioner of Saline County, Mo., since 1853; surgeon, with the rank of major, in the Confederate army throughout the Civil War, died in the University Hospital, Kansas City, Mo., August 10, from paralysis, after an illness of three years, aged 82.

Patrick J. Prendergast, M.D. Jefferson Medical College, Philadelphia, 1873; director of the public library board of Brooklyn, N. Y., died in the City Hospital, Cork, Ireland, August 16, from injuries received by a fall from a companion ladder on the steamer *Cedric*, on which he sailed from New York two weeks before, aged 57.

Leander J. Jones, M.D. Missouri Medical College, St. Louis, 1876; a member of the Missouri State Medical Association and Jackson Countly Medical Society; for 10 years president of the Clay County (Mo.) Medical Society, and a pioneer practitioner of Kansas City, died at the home of his son in that city, August 13, aged 79.

William Greaves, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1870; a member of the Minnesota State and Rice County medical societies, and one of the most prominent practitioners of southern Minnesota, died at his home in Northfield, in July, aged 64.

Charles Stewart Wurts, M.D. Jefferson Medical College, 1854; for several years treasurer of the Philadelphia College of Physicians; for the last 12 years vice-president of the Cambria Iron and Steel Company, died at the home of his daughter, in Media, Pa., August 14, aged 78.

Samuel Beyea, M.D. College of Physicians and Surgeons in the City of New York, 1892; of New Rochelle, N. Y.; a member of the American Medical Association, died in the Roosevelt Hospital, New York City, August 18, after an operation for the removal of gallstones, aged 45.

Jacob Rinehart, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1858; twice a member of the Maryland legislature and judge of the Orphans' Court, died at his home in Frizellburg, Md., August 17, from cerebral hemorrhage, aged 73.

Amasa E. Field, M.D. Rush Medical College, Chicago, 1895; a member of the Illinois State and DuPage County medical societies; died at his home in Warrenville, Ill., August 23, from tuberculosis, after an illness of more than two years, aged 48.

Robert S. Beckham, M.D. Medical College of the State of South Carolina, Charleston, 1858; for many years a practitioner of Pleasant Hill, S. C., died at his home in Kershaw, S. C., from paralysis, August 16, after a prolonged illness.

Milton Blatchley Axtell (Registration, Wisconsin, 1899); a member of the Wisconsin State and Buffalo-Pepin Counties medical societies; for half a century a practitioner of Pepin, died at his home in that village, August 3, aged 81.

Ernest E. Knauer, M.D. Marion-Sims College of Medicine, St. Louis, 1896; of Duquoin, Ill.; county coroner for several years, died in Denver, recently, after an illness of several months, and was buried at Duquoin, August 21.

Morris Shanks, M.D. Baltimore University School of Medicine, 1891; of Baltimore, died at the Baltimore City Hospital, August 13, three days after an accidental fall in which he suffered a fracture of the skull, aged 38.

August Sander, M.D. Medical College of Ohio, Medical Department, University of Cincinnati, 1895; (Examination, Missouri, 1883); a practitioner of Marble Hill, Mo., for 51 years, died at his home, August 12, aged 73.

M. D. Hopper (Years of Practice, Ky.); a member of the Kentucky State and Russell County medical societies, and a practitioner of Russell County for 47 years, died at his home in Jamestown, August 19, aged 74.

Paul S. Anderson, M.D. Kentucky School of Medicine, Louisville, 1877; of Redlands, Cal., was found dead in Cajon Pass, Nev., by campers, August 9, under circumstances which point to death by violence, aged 51.

Thomas Worthington Henry, M.D. Kentucky School of Medicine, Louisville, 1890; a Confederate veteran and a pioneer practitioner of Dallas County, Texas, died at his home in Dallas, March 17, aged 69.

William B. Ray, M.D. University of Tennessee, Medical Department, Nashville, 1892; died at his home in Scottsville, Ky., August 15, from cerebral hemorrhage, after an illness of only a few hours, aged 48.

Ezra Walker Abbott, M.D. University af Vermont College of Medicine, Burlington; a veteran of the Civil War, of Concord,

N. H., died at the home of his sister, in Contocook, N. H., August 9, aged 86.

Thomas B. Williams, M.D. Western Reserve University Medical College, Cleveland, 1864; for 43 years a practitioner of Angola, Ind., died suddenly at his home in that city, August 16, aged 68.

Eliphalet Wright, M.D. Berkshire Medical College, Pittsfield, Mass., 1841; an active practitioner of Berkshire County, Mass., for 66 years, died at his home in Lee, August 22, aged 90.

Thomas B. Riddick, M.D. College of Physicians and Surgeons, Baltimore, 1893; died at his home in Woodville, N. C., March 4, from nephritis, after an illness of six months, aged 49.

James M. Young, M.D. California Medical College, San Francisco, 1884; for several years a practitioner of Oakland, died at his home in Alameda, Cal,, August 14, aged 63.

John W. Beck, M.D. Medico-Chirurgical College of Philadelphia, 1887; died recently in his home in Peckville, Pa., from septicemia due to an infected wound of the hand.

Cornelius W. Burrows, M.D. Detroit (Mich.) College of Medicine, 1871; died at his home in Detroit from heart disease, August 13, after a long illness, aged 68.

R. F. Burge, M.D. Kentucky School of Medicine, Louisville, 1898; died at his home at Roscoe, Texas, August 9, after a lingering illness, aged 48.

Francis J. Ducat, M.D. Detroit (Mich.) College of Medicine, 1896; of Detroit, died suddenly in New York City, August 9, aged 39.

Robert H. Westfelt, M.D. Beaumont Hospital Medical College, St. Louis, 1888; died at his home in Chicago, August 19, aged 55.

James Walkley Sweet (License, Conn., 1893); died at his home in New Haven, Conn., August 18, aged 54.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Massachusetts Board of Registration in Medicine, State House, Boston, September 10-12. Secretary, Dr. Edwin B. Harvey, 159 State House, Boston.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, September 17-19. Secretary, Dr. Louis A. Thomas, Des Moines.

Rules Governing Examinations in Minnesota.—Dr. W. S. Fullerton, secretary of the Minnesota State Board of Medical Examiners, states that the following rules govern examinations for license to practice medicine in that state:

1. An examination is required before a license is granted to practice medicine in Minnesota. The law requiring such procedure went into effect July 1, 1887, and has been enforced since that date.

2. Each applicant is required to make an affidavit setting forth his age, place of residence, preliminary education, time and place of each course of medical lectures, and date of graduation. The affidavit must be corroborated by the exhibition of his diploma or a certificate from the dean of the medical college showing that he has completed the prescribed number of courses and is a candidate for graduation. Graduates of medical colleges granting advanced standing for work done at other than medical colleges shall not be eligible to the examinations given by this board.

Beginning June, 1912, all applicants for the examination for license to practice medicine in this state, graduating in that or a subsequent year, must have satisfied all the entrance requirements, and completed the first two years' work of the College of Science, Literature and the Arts of the University of Minnesota, or present credits for a course elsewhere which is ruled by the said college as equivalent thereto; provided that a medical student may be matriculated with a condition in not more than one full year subject or two half year subjects; and provided further that the condition or conditions be made up before beginning the second annual medical course counted toward the medical degree.

Minnesota medical schools and Minnesota medical students shall not be discriminated against by the recognition of any medical school outside the state whose minimum preliminary requirements standard is less than that fixed for Minnesota.

3. Each applicant, if he graduated or completed his final course of lectures after Jan. 1, 1899, must show proof that he has attended four full courses of lectures at a recognized medical college, no two courses being in the same year.

4. Each applicant, if he graduated after July 1, 1887, and prior to Jan. 1, 1899, or completed his final course of lectures during that period, must show proof that he has attended three full courses of lectures at a recognized medical college, no two courses being in the same year.

5. Applicants who graduated at a recognized medical college prior to July 1, 1887, must show proof of having attended two courses of lectures at a medical college.

6. A fee of ten dollars must accompany the application. This fee is not returned in case of failure.

7. Examinations are always in charge of some member of the Board of Examiners.

8. Each candidate is known by his number, which is arranged as follows: Envelopes are numbered and each contains a blank bearing the corresponding number, on which the applicant writes his name and address. This completed blank is returned by the applicant to the envelope and the envelope sealed by him.

9. Each candidate places on his answer papers the number given him and also the year of his graduation. No other marks of identification are allowed on the answer papers.

10. The answer papers are collected and at once sent by express to the member of the board having charge of that subject. Such member examines the answer papers and marks each candidate by placing the marking opposite the candidate's number. These markings are sent to the secretary, who tabulates them and presents the same to the members of the board at a meeting which is held shortly after each examination. When the markings are completed the envelopes containing the names are opened and these names are placed opposite the corresponding numbers.

11. No dishonest methods are tolerated and any candidate who disregards this rule is debarred from further examination. This rule includes giving or obtaining aid.

12. Ten questions are given on each paper and all subjects for examination are covered by the ten question papers given.

13. The time allowed for each examination paper shall not exceed two hours.

14. No candidate is allowed to leave the room after the question papers have been distributed, until he has completed his answers and delivered them to the member in charge.

15. The examination is in writing and in the English language. If any candidate is unable to write in the English language, he will be allowed to write in his native language, provided he pays an extra fee of fifteen dollars, to cover the cost of translation.

16. A general average of 75 per cent. must be attained.

17. Candidates who fail to receive a license at any examination must be re-examined in all branches.

18. Handwriting of candidates must be legible and orthography must not be such as will disgrace the medical profession.

19. Candidates from all schools shall answer in common all questions submitted except the questions on materia medica which are adapted to the school of practice accepted by the candidate. The answer papers on subjects peculiar to any one school of medicine are sent to the members of this board who are representatives of such school.

20. Candidates shall submit to an examination in the following branches, to-wit: Anatomy, physiology, chemistry, histology, materia medica, therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear, medical jurisprudence, and such other branches as the board shall deem advisable.

21. Applicant must furnish a recent unmounted photograph of himself attested to before a notary public, to accompany his application.

Michigan May and June Reports.—Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examinations held at Grand Rapids, Detroit and Ann Arbor, May 11-13, and June 11-13, 1907, respectively. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75.

At the examination held at Grand Rapids, May 11-13, the total number of candidates examined was 8, of whom 6 passed and 2 failed. The following colleges were represented:

PASSED

College.	Year. Grad.	Per Cent.
Grand Rapids Med. Coll.	(1907)	77.3, 79.7, 82.1, 82.4, 82.8
Illinois Medical College	(1907)	80.1

FAILED.

College.	Year Grad.	Per Cent.
Grand Rapids Medical College	(1907)	68.7, 71.

At the examination held at Detroit, May 11-13, the total number of candidates examined was 81, of whom 80 passed and 1 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Detroit College of Medicine	(1903) 77.7; (1905) 84; (1906) 75.6; (1907)	75, 75, 75, 75.3, 75.6, 75.8, 75.8, 76.3, 76.6, 76.8, 77.2, 77.5, 77.6, 78, 78.2, 78.7, 78.7, 78.8, 78.9, 79.5, 79.5, 79.7, 80.1, 80.4, 80.5, 80.6, 80.7, 80.8, 80.9, 81.1, 81.2, 81.2, 81.3, 81.3, 81.6, 81.6, 81.6, 81.8, 81.9, 82.1, 82.2, 82.3, 82.5, 82.6, 82.8, 83.6, 83.6, 83.9, 84.2, 84.3, 84.3, 84.7, 84.8, 85.6, 85.9, 86.6, 86.8, 87.9, 88.5, 88.8, 89.1, 90.4, 91.
Detroit Homeopathic College	(1906) 75; (1907)	76.6, 76.6, 80.1, 81.2, 81.4, 83.1, 83.7, 86.9.
University of Michigan, Homeo. Dept.	(1907)	81.8
University of Michigan	(1893)	75.3
Michigan College of Medicine and Surgery	(1892)	75.2
Miami Medical College	(1906)	84.2
Meharry Medical College	(1905)	75.5

FAILED.

College.	Year Grad.	Per Cent.
Detroit College of Medicine	(1907)	68.1

At the examination held at Ann Arbor, June 11-13, the total number of candidates examined was 59, of whom 58 passed and 1 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
University of Michigan	(1906) 87.8; (1907)	80.6, 82.9, 82.9, 82.9, 83.2, 83.2, 83.3, 83.3, 83.5, 84, 84.9, 85, 85, 85.5, 85.8, 86.4, 86.4, 86.5, 86.7, 86.8, 86.9, 87.2, 87.5, 87.5, 87.5, 87.5, 87.7, 87.9, 87.9, 88, 88, 88.1, 88.3, 88.6, 88.9, 89, 89, 89.4, 89.5, 89.6, 90.1, 90.1, 90.2, 90.6, 91.6, 92.7, 93.6.
University of Michigan, Homeopathic Dept.	(1907)	75, 82.4, 83.4, 84, 86, 86, 87.7, 88.1, 88.7.
Ohio Medical University	(1907)	91.3

FAILED.

College.	Year Grad.	Per Cent.
American Medical College, St. Louis	(1903)	67.5

Ohio June Report.—Dr. George H. Matson, secretary of the Ohio State Board of Medical Registration and Examination, reports the written examinations held at Cleveland, Columbus and Cincinnati, June 10-12, 1907. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 164, of whom 156 passed and 8 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Yale Medical School	(1905)	86.
College of P. and S., Chicago	(1907)	88.
Illinois Medical College	(1906)	75.
Central Coll. of P. and S., Indianapolis*	(1903)	77.
University of Maryland	(1907)	85.
Johns Hopkins Medical School	(1905)	90.
Harvard Medical School	(1902)	75.
University of Michigan, Homeo. Dept	(1907)	91.
Cornell University	(1906)	85.
College of P. and S., New York	(1907)	82.
Long Island College Hospital	(1883) 81; (1907)	76.
University of Buffalo	(1907)	87, 88.
Bellevue Hospital Medical College	(1895)	79.
New York Homeo. Medical College	(1906)	76.
Medical College of Ohio	(1907)	75, 78, 79, 80, 81, 82, 82, 83, 84, 84, 84, 85, 85, 86, 86, 86, 87, 87, 87, 88, 88, 89, 89, 89, 89, 91, 91, 91.
Pulte Medical College	(1907)	76, 82, 85, 89, 91.
Miami Medical College	(1906) 81, 89; (1907)	78, 79, 79, 79, 80, 80, 80, 81, 82, 83, 84, 85, 86, 86, 86.
Ohio Medical University	(1907)	75, 80, 83, 83, 83, 84, 84, 85, 86, 87, 87, 87, 89, 90, 90, 90, 90.
Starling Medical College	(1906) 85; (1907)	75, 77, 77, 77, 79, 80, 81, 82, 84, 84, 85, 85, 85, 86, 87, 87, 88, 89.
Cleveland Homeo. Medical College	(1907)	79, 81, 81, 89.
Toledo Medical College	(1907)	84, 85, 85, 86, 87, 90, 92.
Cleveland College of P. and S.	(1906) 77; (1907)	80, 82, 82, 82, 84, 84, 85, 86, 87, 92.
Eclectic Med. Institute, Cincinnati	(1884) 79; (1896) 87; (1907)	78, 85, 85, 85, 85, 86, 86, 86, 87, 88, 89, 89.
Hahnemann Medical College, Philadelphia	(1907)	85, 87.
Jefferson Medical College	(1906)	79.
Western Reserve Univ.	(1907)	76, 79, 82, 83, 86, 87, 90, 90, 91, 91.
Western Pennsylvania Medical College	(1905)	82.
University of Pennsylvania	(1906) 81; (1907)	80.
Western University, London, Ont	(1907)	85.
University of Naples, Italy	(1905)	78.

FAILED.

College.	Year Grad.	Per Cent.
Hering Medical College	(1894)	59.
University of Maryland	(1906)	69.
Cleveland College of P. and S.	(1907)	73.
Cleveland Homeopathic Med. College	(1907)	66.
Eclectic Medical Institute, Cincinnati	(1906)	71.
Ohio Medical University	(1906)	67.
Starling Medical College	(1906)	69.
Meharry Medical College	(1906)	72.

*In 1905 this school merged with Fort Wayne College of Medicine and Medical College of Indiana to form Indiana Medical College, School of Medicine, Purdue University.

West Virginia July Report.—Dr. H. A. Barbee, secretary of the State Board of Health West Virginia, reports the written examination held at Charleston, July 9-11, 1907. The number of subjects examined in was 9; total number of questions asked, 120; percentage required to pass, 80. The total number of candidates examined was 71, all of whom passed. Two reciprocal licenses were granted at this examination. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
George Washington University	(1907)	91
College of P. and S., Chicago	(1907)	90
University of Louisville	(1904) 85; (1905) 86; (1907)	84, 84, 86, 86, 87, 87, 88, 88, 89, 91, 91.
Kentucky School of Med.	(1905) 80; 1907)	83, 87, 91
Louisville Medical College	(1905) 82; (1907)	84, 86
College of P. and S., Baltimore	(1907)	85, 86, 87, 87, 87, 88, 89, 89, 90, 91, 92, 92, 93, 93.
University of Maryland	(1906) 93; (1907)	89, 95
Johns Hopkins Medical School	(1905) 90; (1907)	93
Baltimore Medical College	(1907)	88, 89, 90, 92, 92, 92
Maryland Medical College	(1906) 81, 90; (1907)	85, 88
Harvard Medical School	(1907)	96
St. Louis University	(1907)	86
Barnes Medical College	(1905)	85
University of Pennsylvania	(1906)	90
Medical College of Ohio	(1906)	93
Ohio Medical University	(1907)	89
Eclectic Med. Institute, Cincinnati	(1907)	85, 92
Jefferson Medical College	(1907)	86, 89, 93
University of the South	(1906)	84
Medical College of Virginia	(1906) 82; (1907)	82, 85, 85, 88, 88
University Coll. of Med., Richmond	(1907)	87, 88

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
College of P. and S., New York	(1899)	Virginia
Ohio Medical University	(1905)	Kentucky

Medicolegal

Bases for Opinions of Experts—Subjects for Opinions of Non Experts—New Question on Examination.

The Supreme Court of Illinois says, in City of Chicago vs. McNally, a personal injury case brought by the latter party, that it is, no doubt, the rule that the opinions of expert witnesses in cases of this kind should be based on objective, and not subjective, symptoms, and should be the expression of the witness from what is manifest to him, rather than from the words of the person examined. This court has, however, held a physician, when asked to give his opinion as to the cause of a patient's condition at a particular time, must necessarily, in forming his opinion, be to some extent guided by what the sick person may have told him in detailing his or her pains and sufferings. But such declarations, being in favor of the party making them, are only competent when made a part of the res gestæ (essential circumstances of the occurrence) or when made to a physician during treatment or on an examination prior thereto, and without reference to the bringing of an action to recover damages for the injury complained of, unless the examination should be made at the instance of the defendant with a view to the trial.

This court has also held that, where a previous habit of study is essential to the formation of an opinion sought to be put in evidence, only such persons are competent to express an opinion as have by experience, special learning, or training, gained a knowledge of the subject matter on which an opinion is to be given, superior to that of an ordinary person.

Witnesses not experts are, however, allowed to express opinions when the subject matter to which the testimony relates is such as in its nature can not be reproduced and described to the jury precisely as it appeared at the time. Opinions may be given by non-expert witnesses as to the state of health, hearing or eyesight of another, or the ability of another to work and walk, or use his arms or legs naturally, or whether such person is apparently suffering pain, or is unconscious, in possession of his or her mental faculties, intoxicated, excited, calm, etc. A physician can ascertain from outward signs whether a person is nervous, feeble, irritable, suffering pain, or capable of performing certain mental labor.

A physician having testified that the condition in which he found the plaintiff on a certain date must have been caused by some traumatism or injury, it was insisted that the question as to the cause of her condition was purely a question of fact for the jury, and that the answer of the witness invaded that province. The court, however, does not think that this contention could be maintained.

On cross-examination counsel for the city attempted to ask the plaintiff whether she was willing to submit to a physical examination as to her injuries. Before the question had been entirely put to the witness an objection was made, and counsel for the respective parties retired with the court to his chambers to consider the propriety of the question out of the hearing of the jury. The trial judge ruled that he would permit the record to show that the question was sought to be asked in the presence of the jury and the request was refused. On returning to the courtroom the plaintiff was asked whether she was willing to submit to a physical examination. Objections were sustained to the question, and this ruling was assigned as error. The Supreme Court says that it has held in a great many cases that the plaintiff in an action of this kind can not be required to submit to a physical examination as to his or her injuries. But the question whether or not one may be asked, in the presence of the jury, as to his or her willingness to submit to an examination, has never been before this court for decision. It thinks the question, in the form it was asked, was properly refused.

Liability for Blood Poisoning After Slight Injury.

The Kansas City Court of Appeals says, in the personal injury case of Rosier vs. Metropolitan Street Railway Company, that the plaintiff's injury, sustained while getting on a street car, was apparently a slight one on the shin bone, but it finally resulted in blood poisoning, and for a while his life was threatened. The defendant contended that, in the event it was to be held liable, it should be for the original injury, which appeared to be slight, and ought not to be for the plaintiff's after condition, as it was brought on by his own carelessness in taking care of it. The specific claim of negligence was that the plaintiff treated his wound at the beginning for several days with ammonia, by keeping it bandaged with a dirty cloth, which was the cause for blood poisoning. The evidence to sustain this contention was slight. It was true the plaintiff treated his wound with ammonia, but he said that he bandaged it with a clean linen handkerchief. Shortly afterward he used an ointment prescribed by a physician, and continued to use his handkerchief as a bandage. On cross examination he stated that he put the ointment on twice a day. He was then asked: "You used the same cloth? A. Yes; used the same cloth. Q. And washed it each time? A. No, sir; I kept turning it. Q. Kept on using it? A. I used it to-day and to-morrow, maybe, then turned it and washed it again. Q. You used the same cloth quite a while, did you? A. Yes. Q. How long? A. Well, now, I don't know; I couldn't tell whether I changed—it seems to me that I got a cloth and put around it." A physician testified that the treatment described would likely produce blood poisoning. This instruction of the jury was then asked, and refused: "If the plaintiff used medicine or bandages on the injury complained of, and such treatment caused or produced blood poisoning, then defendant is not liable for any injuries caused by such blood poisoning, and you will not consider the same in making up your verdict." The court thinks that the instruction was objectionable because it did not state the law in the case. It says that the plaintiff would not have been precluded from recovering on the ground that the manner in which he treated his injury produced blood poisoning, if he was not guilty of negligence in doing so.

Admissible Evidence of Paralysis.

The Supreme Court of Illinois says, in Chicago City Railway Company vs. Shreve, a personal injury case brought by the latter party, that the plaintiff claimed, and sought to show on the trial, that she was suffering from paralysis as a result of an injury which she sustained in a collision between a street car on which she was a passenger and a truck wagon, and she called a number of medical experts as witnesses on her behalf, who testified that in their opinion such was the fact. From their testimony it appeared that they had talked with her, and made experiments, by sticking pins into her flesh and manipulating her limbs, to determine whether or not she was feigning paralysis. It was urged that the trial court erred in permitting such facts to go to the jury, and in permitting such witnesses to state to the jury their opinions as to the plaintiff's condition, based on subjective, rather than objective, conditions. But the trial court repeatedly informed the witnesses that they were to base their opinions only on what they had seen, and not on any statements made to them by the plaintiff, or on any physical manifestations of the plaintiff within her control; and in order to more fully exclude from the consideration of the jury all such statements, experiments and manifestations, the trial court gave to the jury, at the instance of the defendant, an instruction which excluded specifically all evidence from the consideration of the jury which could by any possibility be regarded an infringement of the rule against the consideration by them of any subjective condition in the plaintiff brought out during the examination of the expert witnesses. Under these circumstances the Supreme Court does not think that the evidence of the medical witnesses, or the rulings of the trial court in admitting the same, was subject to the criticism made thereon.

May Testify to Mental Condition of Patients.

The Supreme Judicial Court of Maine holds, in the case of Ireland vs. White, that skilful and reputable physicians, although not experts on the subject, may testify to the mental condition of their patients when they have adequate opportunity of observing and judging of their mental qualities. Such conditions testified to is a fact observed, which differs from a conclusion as to legal sufficiency or insufficiency of mental capacity to be deduced in each case from facts proved, under correct rules of law.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal.

August 17.

1 *Hypernephroma. I. W. Blackburn, Washington, D. C.
2 *A Valuable Sign in Exophthalmic Goiter. L. N. Boston, Philadelphia.
3 Physical Reconstruction of School Children by Means of Fresh Air. L. R. Williams, New York.
4 Police Methods for Sanitary Control of Prostitution. F. Bierhoff, New York.
5 Ligation of the External Carotid in Rhinology and Pharyngology. C. Jackson, Pittsburg, Pa.
6 *Malarial Fever as Seen in the Jungle. C. S. Braddock, Jr., Haddonfield, N. J.
7 Profound Mental Disturbance Due to Pelvic Disease Cured by Operation. A. L. Fuller, Winters, Texas.
8 Eczema in Second Year of Life. C. A. Kinch, New York.

1. **Hypernephroma.**—Blackburn gives a well-illustrated histologic study of three cases of hypernephroma of the kidney and one of papilliferous adenoma. In general, the histological evidences of hypernephroma are: 1. The resemblance of the tumor cells to those of the adrenal gland and the "adrenal rests" so frequently present in the kidney and other structures. This is seen in the shape of the cells, their nuclei, and in the degenerative changes in the tumor elements. 2. The absence of transition structure between the tumor and the renal tissue; present in renal adenomata. 3. The tendency of the metastasis to extend by way of the blood vessels rather than the lymphatics. 4. The presence of a thinly walled capillary network among the tumor cells, in this respect resembling the adrenal gland. 5. The presence of large, clear, more or less columnar cells, ranged in irregular rows along the alveolar walls, and in case of the capillary network in direct contact with the endothelial wall. 6. In some forms of hypernephroma an alveolar structure with open gland like acini, sometimes containing free cells and blood, with a stroma consisting of delicate connective tissue and capillaries lined with low columnar cells.

2. **New Sign in Exophthalmic Goiter.**—Boston describes the following sign, found in each of fifteen cases of exophthalmic goiter, after exophthalmos had become conspicuous. The patient is seated with the occiput braced firmly against the back of the chair or wall, and rotates the eyeball upward to the finger of the operator, placed above the head. The patient is directed to follow the operator's hand with the eye, as it is carried from above to below a level with the chin, keeping it about three feet distant from the eyes. In the course of the descent the following phenomena occur: The superior lid

follows downward with the pupil for a short distance, where it rests for an instant, then displays a slight spasm, with apparent slipping back, after which it continues to follow the pupil for an indefinite distance.

6. **Malarial Fever as Seen in the Jungle.**—Braddock gives some notes of his experience as chief medical inspector to the Siamese government. The writer points out that pernicious malarial fever will strike down, in spite of mosquito curtains, every man who lives even for a few days in the deep jungle without clearing it and letting the sun in. Further, that the drinking of unboiled water in the jungle, no matter how clear and sparkling the mountain stream may be, will be followed by fever. The natives appreciate this fact, and never drink a bit from the streams, but always dig wells alongside and let the water filter through.

Boston Medical and Surgical Journal.

August 15.

9 *The Psychic Factor in Disease. G. C. Smith, Boston.
10 *Blood Pressure as a Guide in Treatment of Hemoptysis. E. O. Otis, Boston.
11 *Soluble Bobbin for Intestinal Anastomosis. J. H. Cunningham, Jr., Boston, and H. W. Baker, Rochester, Minn.
12 *Two Cases of Vicarious Menstruation. R. C. Larrabee, Boston.
13 Senile Trepidant Abasia. E. W. Taylor, Boston.

9. **The Psychic Factor in Gastric Disease.**—Smith analyzes the underlying factor in the various forms of the psychic epidemic, amounting almost to a monomania in Boston, now so generally prevalent, and points out its relation to autosuggestion. For the purposes of study, he has taken 100 neurasthenic cases at random and divides them into two great classes: 1. Those individuals born with an inherited predisposition—children of tuberculous, alcoholic, syphilitic, and nervous parents especially—are predisposed to the affection, as the digestion of such patients is readily impaired, and their delicate nervous protoplasm suffers still more from faulty metabolism. Such patients are very susceptible to indigestion, mental or physical shock, fright and emotional disturbances, and from their number, furnish us with the best types of traumatic neurasthenia. A large number of nervous dyspeptics belong to this class, and by carefully watching their numerous bodily sensations, the latter soon become pathologic, and the habit of autosuggestion is established and ere long such patients may become hypochondriacs. 2. Those whose heritage is good, but who acquired the affection by bad environment, improper training in youth at home and in school; persons who worry for fear of not making both ends meet, and those who have habit spasm. Low metabolism was found to be the stigma in the majority of hereditary cases, and in some of the acquired cases. He describes in detail the method of procedure, which is essentially the same as that set forth by Oppenheim in the "Psychotherapeutische Briefe," published in 1906, but Smith does not attempt to carry it out by correspondence, finding office treatment serves the purpose. He considers the nature of fatigue, physical, mental or emotional, as affecting the neurotic, and its erection into an autosuggestive habit, and then discusses in some detail the special application of the method to symptoms, headache, autotoxemia and faulty metabolism. He then sums up the requirements of the physician to practice psychotherapy as follows: 1, A strong personality; 2, thorough knowledge of the patient; 3, considerable knowledge of psychology; 4, broad scientific training. Prophylaxis must always be kept in mind, as such a large percentage of neurotics trace the origin of their affection to their childhood. His experience confirms Barker's view that patients past middle life do not yield so well as those between 20 and 40, being, as they are, more opinionated and more commonly subjects of some organic disease. He adds that, "the chief value of the psychic factor is in the care of the organic diseases, as their functional affections are fast disappearing under the light of better diagnoses." He emphasizes his belief, however, that in recent years the eminent rôle played by psychotherapy is wholly unjustifiable and misleading. He deprecates the incorporation of the science of medicine with theology, for while the fundamental principles of right and wrong may be identical, the deductive processes by which the sciences are built up are essentially different. "Let thorough laboratory research, coupled with careful clinical study, not only of disease, but of humanity, continue in the future, as in the past, to actuate our profession."

10. **Blood Pressure in Hemoptysis.**—In regard to the indications for drugs in hemoptysis, Otis reports the results of 18 cases of treatment by the nitrites or ergot respectively, when the blood tension was taken as soon as possible after the hemorrhage began. An examination of the blood pressure in 320 tuberculous patients showed an average of 124 mm. Hg. The average in men was 128; in women, 115; the highest male average, 140; the lowest, 100; the highest female average, 120; the lowest, 98. The average blood pressure in tuberculous persons was, therefore, considered to be 126. In the 18 cases of hemoptysis the majority showed a blood pressure markedly below the average. Routine treatment was, of course, applied at the beginning, but on recurrence of persistence of bleeding, either ergot or the nitrite in the form of sodium nitrite or nitroglycerin, was tried, according to the indications of the blood pressure. If either failed in any case the other was administered whatever the blood pressure might be. In some cases both were effective, in others ineffective. The author suggests that the blood pressure should be taken as a routine measure in tuberculosis sanatoria. A fall in the blood tension is suggestive of impending hemorrhage, which may perhaps be warded off by ergot. The author's scheme of routine treatment when active treatment seems indicated is as follows: The first essential is a knowledge of the blood pressure of the patient from previous observations; on the occurrence of the hemorrhage, ice, morphin and atropin are administered subcutaneously; and, depending on the amount and rapidity of the hemorrhage, the inhalation of amyl nitrite. A laxative dose of magnesium sulphate is given and, if the bleeding persists or is recurrent, sodium nitrite is given, or nitroglycerin if the blood pressure is high for the individual, or if low, ergotin is injected subcutaneously.

11. **Soluble Bobbin.**—Cunningham and Baker describe a soluble bobbin for use in end-to-end intestinal anastomosis, made from macaroni of a large commercial size, cut into cylinders, three inches long by three-quarters of an inch in diameter. Bobbins of special design were also made. They were sterilized by dry heat. Animal experiments indicate their usefulness in facilitating intestinal suturing, holding the sutured ends in position until firmly adherent, and serving as a conduit of the intestinal contents. At a period of time not under 12 hours or longer than 35, the material is digested and absorbed.

12. **Vicarious Menstruation.**—Larrabee divides extragenital hemorrhages recurring at the menstrual periods into three groups: First, replacement of the uterine flow by bleeding from some other site without general hemorrhagic tendency; the constitutional effect in this group is negligible. Second, cessation of normal flow, with general hemorrhagic tendency, and a picture resembling purpura hemorrhagica; the resulting anemia may prove fatal. Larrabee's first case typifies this form. Third, cases closely allied to, if not identical with hemophilia. A second recorded case exemplifies this condition. Such cases are spoken of as vicarious menstruation, merely because along with the normal menstrual flow there may be an exacerbation or a tendency to bleed, present at other times as well. Uterine menstruation is absent in some cases; in others, as in that quoted, it is excessive.

Medical Record, New York.

August 17.

14 *Treatment of Surgical Tuberculosis by Hyperemia. V. Schmieden, Bonn, Germany.
15 *Ophthalmologic Phase of Diseases of the Accessory Sinuses of the Nose. W. C. Posey, Philadelphia.
16 Relations of Eye to Nose, with Certain General Conditions. C. W. Cutler, New York.
17 *Evolution of Life from the Lifeless. J. Wright, New York.
18 *Manifestations of Paranoia. A. W. Ferris, New York.
19 *Acute Intussusception. J. H. Bradshaw, Orange, N. J.
20 Methods of Teaching Medicine. O. L. Mulot, Brooklyn.

14. **Bier's Hyperemia in Surgical Tuberculosis.**—Von Schmieden describes Bier's treatment as carried out by him. The degree of hyperemia must be considered. "It is absolutely wrong to think that if a little is good more is better." The band should be broad (6 cm.), soft, applied slowly and evenly around the extremity, proximally, but not close, to the tuberculous joint. The bandages must not cause pain, either at the

place of application or in the diseased joint; the limb must remain warm and the pulse entirely unchanged. The bandage is applied once or twice daily, for from one to two hours. In the case of a tender skin the location of the bandage must be changed. No other bandages must remain during the treatment and discharging fistulas must be covered up. The joint should not be kept in fixation. A healed tuberculous joint should always be movable. The end in view is an anatomic healing with maintenance of mobility. The signs of good result are abeyance of pain, disappearance of inflammation and contractures, subsidence of swelling, sclerotization of fungous masses which, with further treatment, are absorbed. Cold abscesses may develop, and should be evacuated and treated with cupping glasses. Considerable time is required, nine months or even longer. Those who wish quicker results must submit to amputation. The treatment is so simple that it can be applied by the patient himself. It is unfortunately inapplicable to the hip joint, and in the knee joint additional measures are necessary. The best results occur with the ankle, elbow and wrist. The exudative form (hydrops) is never treated by hyperemia. Cupping glasses are frequently used in combination with the elastic band.

15. **Accessory Sinuses of the Nose and Eye Symptoms.**—Posey considers contiguity of tissue adequate to account for ocular troubles consequent on nasal conditions. Mere congestion of a sinus may result in eye symptoms. The optic nerve is also affected, through contiguous tissue, in all degrees between simple edema and active retrobulbar inflammation. Edema of the lids is very frequently encountered. Pre-lachrymal abscesses, i. e., the swellings that form at times above the internal palpebral ligament, externally to the lachrymal sac, may be due to sinusitis. Orbital cellulitis of marked intensity may be occasioned by sinusitis resulting from necrosis of ethmoidal sinus walls or suppuration of frontal cells. He also describes an interesting unusual condition, apparently depending on nasal causes, viz., that of a man with a blind spot which appeared in the center of the side of the left eye, in a high wind and freezing weather. There was no sinus trouble or pus center in the nose, but the erectile tissue of the turbinates was exceedingly sensitive, swelling even under routine examination.

17. **Evolution of Life.**—Wright criticises Bastian's recent book on "Archebiosis." While modern science has little to say to plausible theories or *a priori* arguments, some of Bastian's experiments seem without flaw in their plan. As the demonstration of one set of conditions under which spontaneous generation may occur is all that is necessary in order to prove the probability of its occurrence in others, the only way to refute these experiments lies in their repetition, with a demonstration of errors of technic.

18. **Paranoia.**—Ferris lays stress among the manifestations of this disease on systematization of the delusions. A fixed idea becomes a central fact, unchangeable in character. The patient firmly believes in his illusions, which possess an apparently logical, though unreal, character. Reactions are certain and intense, false interpretations frequent, and an intellect comparatively unimpaired, though dominated by a delusion, may be preserved for years. Expansive delusions and a sense of self-importance are common; hallucinations, especially of hearing, are present. It must be remembered that a paranoiac may possess a perfect memory and unimpaired intellect for years, save in regard to the absurdity of his fixed idea, may seem plausible and convincing to the layman, lucid on everything unconnected with his delusion, and capable of carrying on business and conducting himself in social life like sane persons, except in matters in which his delusion is involved. Even here he sometimes realizes that his delusions will be disbelieved and is able to refrain from giving expression to them.

19. **Intussusception.**—Bradshaw, in considering operations in children, emphasizes the following points: 1. The great importance of supplying heat to an infant under one year of age while undergoing so serious an operation as a laparotomy, should be borne in mind. 2. The infant should be well supplied with hot-water bottles all the time while on the operating table. 3. It is well, if the patient is a nursling, to let it take the warm mother's milk as soon as it has come out from the anesthetic. 4. Regular nursing is the best heart stimulant it can receive. 5. When, as in the second case reported, there is profound shock with sepsis, the plan suggested by Murphy for the treatment of general septic peritonitis, of giving hot saline by slow continuous rectal irrigation is distinctly lifesaving. Its effect in washing out the toxins and thereby raising the opsonic index and of increasing the amount of urine secreted, of relieving thirst and changing the dry tongue and the whole septic face of the patient is little short of magical.

The Lancet-Clinic, Cincinnati.

August 17.

21 Treatment of Syphilis. J. C. Paine, Peoria, Ill.
22 *Primary Nasal Tuberculosis. W. Thrasher, Cincinnati.

22. **Primary Nasal Tuberculosis.**—Thrasher reports a case of the hyperplastic variety of apparently primary nasal tuberculosis in a girl aged 15. The nares were completely occluded with tumors of cauliflower appearance, pale gray color, with an abundance of mucopurulent secretion, and springing from the turbinals of both sides and from the bony section. The bulk of the pharynx was filled with similar growths. The microscopic structure consisted of small round cells, scattered among which were numerous giant cells surrounded by epithelial cells; areas of coagulation necrosis and cheesy degeneration were present. Removal and cauterization with lactic and trichloracetic acid were practiced and constitutional treatment was given. A recurrence four years later was treated in the right manner. Seven years later the patient was in excellent health. The prognosis in primary nasal tuberculosis is generally good.

Annals of Ophthalmology, St. Louis.

April.

23 *Rarer Ocular Lesions Associated with Gout or General Lithemia. C. S. Bull, New York.
24 *Papilloma of the Caruncle. C. Loeb, St. Louis.
25 *The Real Cause of Myopia. C. Schulin, Billings, Mont.
26 Case of Alexia in Boy of Fifteen. M. V. Ball, Warren, Pa.
27 Case of Amaurotic Family Idiocy. M. Buchanan, Philadelphia.
28 Two Fatal Cases of Orbital Cellulitis. H. F. Hansell, Philadelphia.
29 Proliferative Uveitis. W. Zentmayer, Philadelphia.
30 Retinitis, Proliferating in Character, in Detached Retina of Traumatic Origin. W. T. Shoemaker and C. M. Hosmer, Philadelphia.
31 Ophthalmic Picture of Intraocular Tumors. J. Fejer, Budapest, Hungary.

23. **Eye Lesions and General Lithemia.**—Bull considers that it is a mistake to regard gout as directly responsible for the vascular lesions in the eye, in gouty patients. The true view he considers to be that the nitrogenous products of metabolism are the cause of both the arterial degeneration and the gout. He deals with conjunctivitis, edema of the eyelids, chorioiditis, retinitis, optic neuritis, and affections of the ocular muscles as manifestations of the lithemic condition, which are often forerunners of an acute explosive inflammatory attack elsewhere in the body, after which the hitherto obstinate eye lesion promptly gets well.

24. **Papilloma of Caruncle.**—Loeb records a case with microscopic examination, because of the rarity of the condition. So far as he has been able to discover, the literature shows only 12 cases reported by Roselli, Veasey, Posey and Shumway, Hirschberg and Birnbacher, Weeks, Parasotti, Testellin, Terrien, Secondi, Kubli and Franke. A probable case is also reported by Desmarres as *encanthis fongueux.*

25. **Myopia.**—Schulin points out that in all the theories of the origin of myopia that have been advanced only the mechanical side of the process has been dealt with, and the fact has been ignored that the general health of the child may have a share in its causation. As a consequence of the examination of over 5,000 individuals during 15 years, he arrives at the conclusion that myopia originates in the general health, being dependent on an autointoxication produced by unhygienic conditions in childhood.

Ohio State Medical Journal, Columbus.

August 15.

32 *Recent Advances in Cardiac Pathology and Diagnosis. G. W. McCaskey, Fort Wayne, Ind.
33 *The Pulse in Diagnosis and Therapeutics. J. B. Ballinger, Bradford.

34 Charlatanry in Treatment of Female Disease. E. Holbrook, Lebanon.
35 The Future of Pediatric Science. W. W. Pennell, Mount Vernon.
36 Conservative Treatment of Tuberculous Arthritis in Children. W. S. Stern, Cleveland.
37 Acute Endometritis. W. K. Rodgers, Columbus.
38 Study in Charlatanry. A. S. Barnes, Columbus.
39 *Difficulties Met with in Demonstrating Spirochæte Pallida. B. R. Leroy, Athens.

32. **Cardiac Pathology and the Pulse in Diagnosis.**—McCaskey in his paper lays great stress on the necessity, in all cases of marked weakness and irregularity of the heart, of a careful study, by graphic methods, of the synchronicity of the different cardiac events, and on a study of the blood pressures, both diastolic and systolic, as a routine procedure in all cases of cardio-vascular disease.

33. **Pulse in Diagnosis and Therapeutics.**—Ballinger emphasizes the importance of the *tactus cruditus,* and urges that we should train our sense of touch to measure the pressure within the artery, and to estimate the thickness and resiliency of its walls.

39. **Spirochæta Pallida.**—Leroy says that by the following method the *Spirochæta pallida* will be found in great numbers, from five to eight in a field, as a constant factor in primary syphilis:

1. All instruments and slides must be scrupulously clean.

2. Do not use mercurial washes on the initial sore as a means of preparation, but rather wash the sore with sterile water.

3. Scarify gently with a knife the surface of the chancre or mucous patch, permitting the blood to "well up" in a good-sized drop. Let stand for some minutes, until the serum is clear; then with loop place serum on slide, using care not to take up many red blood cells. Spread even. Dry in air protected from dust.

4. Fix in pure methyl alcohol for twenty minutes.

5. Stain with Giesma's (Wellcome's tabloid) and at once add an equal amount of distilled water and let stand twenty minutes.

6. Flood stain off with distilled water; dry in air and examine in oil in a good light.

Even now, on examination one may fail to find the organism, for this minute germ "pops" into and out of focus with remarkable quickness, and much depends on careful adjustment. Many microscopes have the "fine" adjustment somewhat too coarse for the ordinary worker; hence the many failures.

Bulletin of Johns Hopkins Hospital, Baltimore.

June-July, 1907.

40 Organization of the Laboratories in the Medical Clinic of Johns Hopkins Hospital. L. F. Barker, Baltimore.
41 Occurrence of Howell's Nuclear Particles in Experimental Anemia of the Rabbit and in Human Blood. R. S. Morris, Baltimore.
42 Blood Formation in the Liver and Spleen in Experimental Anemia. R. S. Morris.
43 Measurement of the Coagulation Time of Blood and Its Application. F. Hinman and F. J. Sladen.
44 Wright's Method of Measuring Alkalinity of the Blood. S. Strouse, Baltimore.
45 *Treatment of Gonorrheal Arthritis by Vaccines. R. I. Cole and J. C. Meakins, Baltimore.
46 *Tuberculo-Opsonic Index and Treatment by Tuberculin. P. C. Jeans and A. W. Sellards.
47 *Study on Opsonins. W. L. Moss, Baltimore.
48 Opsonins in Typhoid Immunity. H. Klien, Leipzig.
49 *Studies on Specificity of Opsonins in Normal and Immune Serum. F. F. Russell, U. S. Army.
50 New Method of Fixation of Complement in Diagnosis of Meningococcus and Gonococcus Infections. J. C. Meakins, Baltimore.
51 Diversion of Complement in Hemolysis. J. C. Meakins, Baltimore.
52 Production of an Agglutinating Serum for Blood Platelets. R. I. Cole.
53 Blood Pressure and Pulse Form. A. D. Hirschfelder, Baltimore.
54 Variations in Form of Venous Pulse. A. D. Hirschfelder, Baltimore.
55 Rapid Formation of Endocarditic Vegetations. A. D. Hirschfelder, Baltimore.
56 Calcium, Magnesium, Phosphorus and Nitrogen Metabolism and Organic Acidity of the Urine in Case of So-called Phosphatic Diabetes. L. F. Barker and C. Voegtlin, Baltimore.
57 Study of Metabolism in So-called Arthritis Deformans. J. H. King, Baltimore.
58 Method of Preparing Romanowsky Stain. N. M. Harris. Chicago.
59 Operative Treatment of Subdeltoid Bursitis. W. S. Baer, Baltimore.

August.

60 Report of First Two Years' Work in Phipps Dispensary for Tuberculosis of Johns Hopkins Hospital. L. Hamman, Baltimore.
61 *The Home Factor in Tuberculosis. H. H. Hazen, Baltimore.
62 Early Diagnosis of Pulmonary Tuberculosis. L. Hamman and S. Wolman, Baltimore.
63 Crusade Against Tuberculosis. L. F. Flick. Baltimore.
64 The Tuberculosis Situation in Maryland. H. B. Jacobs, Baltimore.
65 Intestinal Obstruction. J. C. Bloodgood, Baltimore.
66 The Purple Island by Phenias Fletcher. A. G. Pohlman, Indianapolis, Ind.

45. **Vaccine Treatment of Gonorrheal Arthritis.**—Cole and Meakins consider gonorrheal arthritis a most suitable condition for treatment by vaccines, if Wright's opsonic theory and method are correct, because phagocytic or opsonic immunity may play a prominent part in the case of those infections due to the group of cocci to which the gonococcus belongs; because the present treatment of the condition is not very satisfactory, and because the arthritis is a local metastatic infection of prolonged cause situated in a position in which the blood supply is not very abundant, and in which, therefore, stimulation of the general mechanism of immunity is probably not very active. They describe the formation of the vaccine and report fifteen cases in which it was used. While they realize that many patients with gonorrheal arthritis recover completely under other forms of treatment, they are under the impression, on the whole, that the vaccine treatment has been of distinct value.

46. **Tuberculo-Opsonic Index.**—Jeans and Sellards, as the result of a study of nine cases (reported), consider a continuation the method of treatment justified. In regard to diagnosis, they have employed the opsonic method in a considerable number of cases without obtaining a satisfactory result, and further, the diagnostic method described by Wright, of heating the serum for the detection of immune opsonins, has also not proved of value in five cases in which they have tried it.

47. **Opsonins.**—Moss summarizes his conclusions as follows: 1. No high degree of opsonic immunity such as is possible in antitoxic and bactericidal immunity, can be produced in rabbits by ordinary inoculation procedures with *Staphylococcus aureus.* 2. None of the present methods of estimating the opsonic content of the blood seems sufficiently accurate to be of practical value. It seems important that further effort should be expended in finding a reliable technic for clinical purposes rather than in continuing to pile up statistics which are so inaccurate as to be misleading.

49. **Specificity of Opsonins.**—Russell, from experiments which have been repeated a number of times, draws the following conclusions: 1. Following injections of bacterial vaccines, the increase of opsonins is probably due to the formation of immune opsonins which react specifically. 2. In saturation experiments with normal sera we are dealing with normal or common opsonins, and these are not specific, since they can be removed by saturation with any one of a considerable number of bodies. 3. In saturation experiments with immune sera we have both the immune and the common opsonin present; the former is quite specific, while the latter is not. 4. *B. pyocyaneus* is susceptible to spontaneous phagocytosis.

61. **Home Factor in Tuberculosis.**—Hazen reports results of an examination instituted by the Phipps Dispensary, Baltimore, into the home life of tuberculosis patients. Eighty-three families were studied, with a total of 534 individuals. Results show that in 63 per cent. of their cases there was no tuberculosis in the immediate ancestors; 43 per cent. of those exposed to marital infection became infected, while only 38 per cent. of those exposed to parental infection developed the disease. Only three individuals of tuberculous stock developed lung trouble when not in association with their families. There were eleven well-marked instances of house infection. In view of these facts Hazen can not help believing that infection acquired by long continued and intimate association plays the only rôle in the transmission of pulmonary tuberculosis.

Cleveland Medical Journal.

August.

67 Summary of One Thousand Cases of Appendicitis, with Observations on Diagnosis. G. Crile, Cleveland.
68 *Case of Vaginal Cesarean Section. F. S. Clark, Cleveland.
69 Surgical Lesions of the Central Nervous System. C. H. Frazier, Philadelphia.
70 Criminal Abortion. R. H. Grube, Xenia, Ohio.

68. **Vaginal Cesarean Section.**—Clark reports a case of vaginal Cesarean section in the case of a primipara aged 26, with convulsions, and urine nearly solid with albumin at the seventh month. He summarizes the indications for vaginal Cesarean section as follows: 1. Certain cases of eclampsia when the cervix is not obliterated and is very rigid and unyielding. 2. Cases of heart disease under the same condition when rapid delivery is demanded. 3. All cases of separation of a nor-

mally implanted placenta. 4. It may be rarely indicated in placenta prævia when the hemorrhage is profuse and the cervix is not obliterated and is very rigid, a condition not frequent in placenta prævia. 5. In the above conditions it is preferable to abdominal section because, while it is nearly as quickly performed, it does not cause so much shock, is not so objectionable to friends of the patient, and is not so likely to result in rupture of the uterus in subsequent pregnancies.

Journal of the South Carolina Medical Association, Greenville.

July.

71 Responsibility of the Physician in Carcinoma of the Cervix and of the Breast. L. Guerry, Columbia, S. C.
72 Cancer of the Uterus—Our Responsibility to Woman. A. B. Knowlton, Columbia, S. C.
73 *Modification of Gilliam's Operation for Backward Displacement of the Uterus. L. Peters, Columbia, S. C.
74 Suprapubic Lithotomy or Cystotomy. D. M. Crosson, Leesville, S. C.

73. **Modification of Gilliam's Operation.**—Peters first gives the procedure of Gilliam's operation for backward displacements of the uterus as described in The Journal A. M. A., June 15, 1901, page 1692. He points out that the round ligaments are simply pulled over toward the middle line and drawn with their overlying peritoneum through a perforating wound in the fascia, near the incision, where they are secured by sutures, thus producing a pocket of peritoneum in which there is a chance that a knuckle of gut may become fixed and strangulated. The chances of hernia are also increased. He modifies Gilliam's operation as follows and reports satisfactory results in four cases: After the abdominal incision has been made the round ligament of one side is seized with tenaculum forceps one and one-half inches from the uterus and drawn up into the incision. The peritoneum over the round ligament is incised for from 0.5 to 1 cm. at the point where it is grasped by the tenaculum. The round ligament is then drawn into the abdominal cavity through this little incision in the peritoneum and a stout silk thread looped about the round ligament and clamped, but not tied. The other round ligament is similarly treated. Then one-half inch from the incision a curved artery forceps is made to pierce the aponeuroses and fasciæ obliquely outward, as described by Gilliam, but instead of perforating the peritoneum and thus entering the abdominal cavity an inch to an inch and a half from the incision, the point of the forceps is forced onward between the peritoneum and fascia until it is made to emerge into the abdominal cavity through the little opening in the peritoneum over the round ligament at the point where the silk was lopped around it. The blades of the forceps are then separated and made to grasp both ends of silk thread which is looped over the round ligament; the forceps is withdrawn, bringing with it the thread, and traction on the thread brings with it a loop of round ligament without peritoneal covering. The loops of ligament are then secured and the operation is completed according to Gilliam's method.

Journal of Cutaneous Diseases, New York.

August.

75 *Two Cases of Raynaud's Disease with Ocular Symptoms. G. H. Fox, New York.
76 Results in Experimental Inoculation of Syphilis. C. M. Williams, New York.
77 Chancre of the Cheek Following a Bite. J. Kingsbury, New York.

75. **Raynaud's Disease.**—Fox reports two cases of Raynaud's disease, in both of which there was a sudden paroxysmal impairment of vision. Another point of interest in the first case was the involvement of so many lesions, including the fingers, toes, nose, ears, cheeks, chin, tip of tongue and nipples. The second case was also interesting on account of its complication with scleroderma, an association of diseases which has been made the subject of an inaugural thesis by Favier.

The Physician and Surgeon, Detroit.

March.

78 Infant Feeding. J. L. Morse, Boston.
79 Effect of Rœntgen Rays on Blood-Forming Organs. A. S. Warthin, Ann Arbor.

Virginia Medical Semi-Monthly, Richmond.

July 12.

80 *Treatment of Extrauterine Pregnancy. A. P. Heineck, Chicago.
81 *Successful Treatment of Galistones without Surgery. C. S. Webb, Bowling Green, Va.
82 Treatment of Coxitis. P. A. McIlhenny, New Orleans, La.
83 Is Eyestrain the General Prevailing Cause of Migraine? S. Harnsberger, Catlett, Va.
84 Principles of Surgery. (Continued.) S. McGuire, Richmond.

July 26.

85 *Pure Drugs. H. W. Wiley, Washington, D. C.
86 *Uterine Decidua as a Diagnostic Sign in Extrauterine Pregnancy. A. P. Condon, Omaha, Neb.
87 *Amenorrhea. R. R. Smith, Grand Rapids, Mich.
88 *Plea for Operative Cure of Hernia. G. P. LaRoque, Richmond, Va.
89 Diagnosis of Cardiac Disease. T. Ragau and S. L. White, Ruston, Iowa.
90 Principles of Surgery. (Continued.) S. McGuire, Richmond.

80.—Practically the same article appeared *in extenso* in *Surgery, Gynecology and Obstetrics,* February, 1907.

81.—The substance of this article was abstracted in The Journal, Nov. 17, 1906, page 1675, from Webb's original paper, as presented to the Medical Society of Virginia, Sept. 9, 1906.

85.—This article also appeared in the *Monthly Cyclopedia of Practical Medicine*, June, 1907.

86.—Abstracted in The Journal, June 8, 1907, page 1982.

87.—Abstracted in The Journal, July 13, 1907, page 180.

88. **The Cure of Hernia.**—LaRoque makes an earnest appeal to the general practitioner to take more interest in his hernia cases, with a view to having the patients submit to operation for radical cure. He lays stress on the decreased usefulness and earning capacity of the hernia subject and enumerates the dangers and inconveniences of the truss palliative method, and of injections, etc., into the sac, and then shows by statistics, especially those of Coley and DeGarmo, that under modern operative methods the mortality is practically almost *nil* and the radical cure positive.

The Laryngoscope, St. Louis.

June.

91 The Mouth of the Esophagus. G. Killian, Freiburg, Germany.
92 Loss of Voice in Singers. W. J. Henderson, New York City.
93 Advantages of Intranasal Route over Radical Operation in Treatment of Chronic Symptoms in Antrum of Highmore. R. C. Myles, New York.
94 *Tuberculosis of Accessory Sinuses of the Nose. J. W. Gleitsmann, New York.
95 Acoustics of the Mouth and Relation of the Individual's Voice to Hearing. D. B. Kyle, Philadelphia.
96 Subperiosteal Squamo-mastoid Abscess. S. Oppenheimer, New York.
97 Four Mastoid Cases. N. H. Pierce, Chicago.
98 Case of Foreign Body in the Larynx for Two Years. S. Rosenheim, Baltimore.
99 Case Reports—Epithelioma of Larynx; Sarcoma of Pharynx. C. F. Theisen, Albany, N. Y.
100 Case of Otosclerosis. G. E. Shambaugh, Chicago.
101 Formidin in Affections of the Ear, Nose and Throat. O. J. Stein, Chicago.
102 Action of New Iodin Preparation in Nose and Throat Work. F. Menge, Chicago.
103 Instrumental Aids to Bronchoscopy and Esophagoscopy. C. Jackson, Pittsburg, Pa.

94.—Abstracted in The Journal, Aug. 3, 1907, page 419.

Journal of the Missouri State Medical Association, St. Louis.

July.

104 Tuberculosis a Communicable Disease. J. M. Allen.
105 Sanitation and Tuberculosis. G. Homan, St. Louis.
106 Early Diagnosis of Tuberculosis of the Lungs. L. M. Warfield, St. Louis.
107 Duty of the General Practitioner in Tuberculosis. W. S. Allee, Olean, Mo.
108 Consumption and Civilization. R. O. Cross, Kansas City, Mo.
109 Need of Local Organization in Fight Against Tuberculosis. F. Devilbiss, Eugene, Mo.
110 Civic Responsibilities. W. Porter, St. Louis.
111 Local Anesthesia. R. D. Haire, Clinton, Mo.
112 Acute Bronchitis During the Nursing Period. J. J. Rice, Kearney, Mo.

Detroit Medical Journal.

July.

113 Diagnosis and Treatment of Suppurative Kidney Lesions, with Special Reference to Pyelonephritis. F. W. Robbins, Detroit.
114 Office Treatment of the Commoner Rectal Diseases. L J. Hirschman, Detroit.

Chicago Medical Recorder.

July.

115 Metabolism as Affected by Disorders of the Stomach and Intestines. R. W. Webster, Chicago.
116 Intravenous Therapy. W. F. Bernart, Chicago.
117 Epilepsy. G. C. Shockey, Chicago.
118 Fractures of the Sternum and Ribs. E. Friend, Chicago.
119 Treatment of Acute Rheumatic Fever. S. R. Pietrowicz, Chicago.

Journal of Nervous and Mental Diseases, New York.

July.

120 Unilateral Paralysis Agitans Occurring After Hemiplegia. J. Sailer, Philadelphia.

121 Study of Reflexes of the Lower Extremities in 60 Cases of Paresis. A. Gordon, Philadelphia.
122 Sensory and Motor Disturbances in Parts Above the Distribution Involved by Definite Organic Lesions of the Spinal Cord. T. H. Weisenburg, Philadelphia.
123 Korsakoff's Psychosis Superimposed on Melancholia. J. W. Stevens, Amityville, L. I.

Southern California Practitioner, Los Angeles.

July.

124 Hypertrophic Pyloric Stenosis in Infancy. W. A. Edwards, Los Angeles.
125 Pathology of Ptomain Poisoning. S. P. Black, Los Angeles.
126 Three Cases of Fatal Ptomain Poisoning. C. Sheppard, Ontario, Cal.
127 Fracture of the Forearm. F. M. Bruner, San Diego, Cal.
128 The Vision Splendid. N. P. Conrey, Los Angeles.
129 Medicine, Ancient and Modern. E. E. Major, Redlands, Cal.
130 Duty of the School Toward the Child at School. S. A. Knopf, New York.

Vermont Medical Monthly, Burlington.

July.

131 Etiology and Treatment of Epilepsy. A. Morton, St. Albans.
132 Trichinosis. C. H. Beecher, Burlington.

Western Medical Review, Omaha, Neb.

July.

133 Metabolism in Causation of Epilepsy. J. M. Aikin, Omaha.
134 Disease of the Maxillary Antrum and Secondary Infection of the Brain. P. H. Salter, Norfolk, Neb.
135 Present Tendencies in Obstetric and Gynecologic Practice. I. C. Philbrick, Lincoln, Neb.

New York State Journal of Medicine, Brooklyn.

July.

136 *Study of Blood Pressure. H. L. Elsner, Syracuse, N. Y.
137 *Classification of Blood Pressure Cases. L. F. Bishop, New York.
138 *Aural Inspections and Functional Tests in Healthy Individuals. W. S. Bryant, New York.
139 *Syphilitic Lesions of the Eyelids. F. J. Parker, New York.
140 The Physician as an Educator. S. A. Mercness, Oneonta, N. Y.
141 Personal Hygiene. F. D. Reese, Cortland, N. Y.
142 Local Anesthesia for Major and Minor Operations. M. B. Tinker, Ithaca, N. Y.
143 History of the Medical Society of the State of New York. (Continued.) J. J. Walsh, New York.
144 Relief of Symptomatic Disturbances During Pregnancy. S. H. Monell, New York.

136, 137.—Abstracted in THE JOURNAL, March 2, 1907, page 823.

138.—Abstracted in THE JOURNAL, Feb. 9, 1907, page 534.

139.—Abstracted in THE JOURNAL, Feb. 23, 1907, page 720.

Pennsylvania Medical Journal, Athens.

July.

145 *Relations of Thyroids and Parathyroids. A. J. Smith, Philadelphia.
146 *Roentgen Treatment of Tuberculous Glands. G. C. Johnston, Pittsburg.
147 Surgical Tuberculosis. G. W. Guthrie, Wilkes-Barre.
148 *Acute Stage of Bone Tuberculosis. H. A. Wilson, Philadelphia.
149 *Relation of the Cardiac Muscle and Valves to Arterial Tension. W. B. Stanton, Philadelphia.
150 Diagnosis of Brain Abscess. J. W. Boyce, Philadelphia.
151 Pathology and Treatment of Stricture of the Urethra. A. C. Wood, Philadelphia.

145.—Abstracted in THE JOURNAL, Oct. 6, 1906, page 1130.

146, 148.—Abstracted in THE JOURNAL, Oct. 13, 1906, page 1221.

149.—Abstracted in THE JOURNAL, Oct. 20, 1906, page 1323.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

August 3.

1 *Science in Its Application to National Health. H. Davy.
2 *Plea for Accuracy of Thought in Medicine. W. H. White.
3 *Contagion of Cancer in Human Beings. H. T. Butlin.
4 *Case of Acute Enteric Intussusception with Apparent Reduction by Irrigation. W. Templeton.
5 *Iodin and Typhoid. D. Walsh.

1, 2 and 3.—The papers were discussed editorially in THE JOURNAL, Aug. 10, 1907, p. 498.

4. **Enteric Intussusception.**—Templeton reports a case of acute enteric intussusception, in a boy 3 years of age, which disappeared completely three times after administration of an enema of warm water. The last time, when the boy was on the operating table, the invagination was easily reduced on operation. The patient recovered well and passed a distinctly fecal motion, but collapsed thirty-six hours later and died.

5. **Iodin in Typhoid.**—Walsh speaks highly from personal experience of administration of one minim of carbolic acid, and 2 minims of tincture of iodin in a tumbler of water, drank as the patient wished. Rapid cleaning of the tongue, lowering of temperature, and cessation of diarrhea followed in his experience.

The Lancet, London.

August 3.

6 Science in Its Application to National Health. H. Davy.
7 Plea for Accuracy of Thought in Medicine. W. H. White.
8 Contagion of Cancer in Human Beings. H. T. Butlin.
9 *Mobile Kidney with Description of Operation for Anterior Nephropexy. E. S. Bishop.
10 Study of Conditions Producing Anomalous Reaction Met with in Testing Urine for Sugar with Fehling's Solution. F. W. Pavy.
11 *Iodin as an Antidote in Carbolic Acid Poisoning. J. Maberly.
12 *Case of Addison's Disease in a Negress. R. Scheult.
13 Case of Tuberculous Cerebrospinal Meningitis. S. Hodgson.

9. **Movable Kidney.**—Bishop discusses with great completeness the subject of movable kidney, its importance, diagnosis and treatment. He has been unable to obtain satisfactory results with any appliances. With regard to the operation, having in view the preponderating occurrence of the condition on the right side, he considers that to attack the organ from the front, instead of by the extraperitoneal route, best fulfills the following requirements: The requisite support to the kidney, in the most effective direction, namely, the lower part; closure of the opening to the postperitoneal cavity, formed by the kidney itself; certain replacement of wandering kidney accurately in its original site, without dragging of vessels or kinking of ureter; support given as is most needed in upright position; no introduction of foreign material as a nucleus for calculi into substance of kidney and no dependence on friable tissues for the sutures. A new *point d'appui* for the fibers continued into the posterior longitudinal band is also an advantage, preventing return by removal of the old drag on the kidney.

Bishop uses Morison's cholecystotomy incision, an obliquely transverse one, through the muscles of the abdominal wall outside the rectus, from a point corresponding to the chondral tip of the tenth rib backward to one midway between the sternum and spine, one inch below the border of the rib. Admirable access is thus gained to the renal fossa. The liver being lifted, the stomach drawn inward, and the hepatic flexure of the colon depressed by broad retractors or flat sponges, the kidney and usually the renal veins are visible and palpable beneath the posterior peritoneum. In the displaced condition of the kidney, these veins are seen through the semitransparent peritoneum, lying obliquely with their renal extremities much lower than the spinal. On pushing up the kidney they glide upward and become transverse, forming a guide both to the correct position of the kidney, in which it should be fixed, and to the point of entrance of the first fixating suture. The parietal peritoneum being divided transversely over the lower fourth of the kidney, and the peritoneal edges held apart, a curved incision with the concavity upward and outward is made in the proper capsule, and the lower segment of the capsule loosened from the anterior renal surface, to a thinner and lower extremity, the capsule remaining attached to the posterior surface of the organ. The flap turned downward and inward leaves the raw surface of the kidney exposed for a corresponding distance; two or three sutures attach this loosened edge of the capsule to the fascia beneath, and the peritoneum is again sewed up with catgut. The anterior surface of the lower leaflet of the true capsule is now in contact with the posterior abdominal wall, the posterior surface of the peritoneum lying on it, and on the bared lower anterior renal tissue. The correct position of the kidney being now accurately determined, it is held there by the three outer fingers of the left hand, while the left forefinger is placed on the inner side immediately below the ureteric insertion. A long straight needle, armed with iodized or chromicized catgut, is pushed directly backward at this point until its point emerges behind, and another needle carrying the opposite end of the same thread in like manner 1 cm. below the first; the thread is then tied over the muscular layer behind the peritoneum; the capsule and posterior tissues are united on the inner side of the lower pole of the kidney. Another pair of needles are placed in a similar manner so as to carry a loop of catgut below the inner lower angle; two or three more pairs carry loops below the kidney, and if deemed necessary, around the lower and outer side of the organ. All these pass through the peritoneum, capsule, subperitoneal connective tissues and muscles. When they are drawn tight and tied it will be seen that the kidney is supported by a row of sutures which do not penetrate its substance, but effectually fix it and close the cavity beneath it, while the union of the capsule and peritoneum has formed a somewhat stronger Toldt's fascia than normally exists on the opposite side. Any communicating fibers between the kidneys and the colon are pinned down to the posterior abdominal wall, to which henceforth any downward pull is transferred. The skin may then be divided behind between the protruding needle points, and this incision carried down to the muscular layer over which each suture is tied; or preferably, a curvilinear incision may first be made in the line which would be produced by the protruding points. If this is done, it greatly facilitates the passage of the needles, and in later operations Bishop has always done this; in any case, the penetrating sutures are tied and buried by a catgut suture through the skin and subcutaneous tissues. The closure of the abdominal wall in tier fashion completes the operation.

The passage of the fixating loops through the fibrous capsule renders fixation more solid and complete. Bishop has performed this operation nine times since February, 1906, with no mortality and no relapse, save in the first case in which the fixating needles were passed only through the peritoneum.

11. **Iodin for Carbolic Poisoning.**—Maberly reports three cases in which he administered successfully tincture of iodin internally, as an antidote when carbolic acid had been swallowed. In the case of an adult, a small teaspoonful of the tincture in a teaspoonful of water was drunk slowly. In two young children five drops of tincture in a teaspoonful of water were given and repeated at four-hour intervals. Relief to dysphagia and dyspnea was prompt, and a speedy cure followed. Experiment leads the author to the conclusion that iodin and phenol in equal quantities neutralize each other.

12. **Addison's Disease in Negress.**—Scheult of Trinidad reports the case of a negress, 55 years of age, in whom the intense and increasing blackness of the face and backs of the hands and fingers, and other irregularly defined areas of pigmentation on the skin and mucous membranes, led with other symptoms to a diagnosis of Addison's disease, which was confirmed at autopsy. This is only the second case of Addison's disease that has been recorded in the colony.

The Clinical Journal, London.

July 10.

14 Mucomembranous Colitis. R. Hutchison.
15 Mechanical Appliances in Surgical Treatment. J. Poland.

July 17.

16 Salivary Calculi. C. B. Lockwood.
17 Malignant Disease of the Mediastinum. C. Bolton.

July 24.

18 Abdominal Catastrophes. W. Turner.
19 Management and Treatment of Infantile Eczema. J. M. H. Macleod.

July 31.

20 Intrathoracic Aneurisms and Tumors. F. Taylor.

Medical Press and Circular, London.

June 26.

21 Disorders of Micturition in Women. P. Horrocks.
22 *Value of Widal Reaction in Diagnosis of Typhoid. W. J. Wilson
23 Conservative Surgery in Abdominal Operations. C. B. Keetley.

July 3.

24 Organic Consequences of High Blood Pressure. L. Williams.
25 Treatment of Typhoid. E. Stadelmann.
26 *Rhinorrhea in Faucial Diphtheria. J. D. Rolleston.
27 *Uremia. A. E. Russell.

July 10.

28 Intra-Abdominal Adhesions. E. P. Paton.
29 The General Practitioner—His Outlook. J. L. Taylor.
30 *Diagnosis and Treatment of Fractures of Shaft of Femur. T. Myles.

July 17.

31 Treatment of Carcinoma of the Great Intestine. S. Pringle.
32 The General Practitioner —His Claim to Recognition. J. L. Taylor.
33 Friedreich's Ataxia and Syphilis. G. Pernet.
34 Choice of Gelatins for Bacterial Culture Media. T. T. Baker.
35 Cancer and Its Treatment. J. A. Shaw-Mackenzie.

July 24.

36 Disorders of Sleep. P. Stewart.
37 The General Practitioner—His Practical Needs. J. L. Taylor.
38 Poor Law and Sanitary Administration in Ireland. C. A. Cameron.

July 31.

39 *Value and Fate of Belated Ovaries. J. Bland-Sutton.
40 Headaches and Their Causes. F. Pineles.
41 *Improvements in Notification of Diseases. J. C. McWalter.
42 Anti-putrescent Medication by Specially Selected Lactic Organisms. M. Dufour.

22. **Widal Reaction.**—Wilson analyzes 230 cases of the Widal test, with a view to establishing its trustworthiness. One hundred and twelve were positive, 118 negative. Taking the Widal test to indicate that the patient either was suffering or had suffered from typhoid, this was indicated in 109 of the 112 cases, giving a positive reaction, the laboratory diagnosis corresponding with the clinical course of the disease in 97.3 per cent. Of the 118 negative results, 108 patients had not had typhoid, while 10 had previously had it. This gives a percentage for correctness of 91.5. Wilson has also examined the blood in 20 cases of cerebrospinal fever, with reference to its action on the typhoid bacillus in dilutions of 1 to 50, and upward. Reaction was negative in 15, positive in 5 cases.

26. **Rhinorrhea in Faucial Diphtheria.**—Rolleston summarizes his article as follows: 1. A large percentage of all patients with faucial diphtheria admitted to hospital have a history of rhinorrhea. 2. In a certain number of cases, which clinically are purely faucial, rhinorrhea is an early symptom, subsequently disappearing without treatment. 3. The frequency of this early and transitory rhinorrhea bears a direct relation to the mildness and an inverse relation to the severity of the faucial attack. 4. Faucial cases which are also clinically nasal are more severe than those which are clinically faucial only. 5. Faucial cases which are also clinically nasal as a rule develop the nasal discharge at a later date than those which are clinically faucial only. 6. Early and transitory rhinorrhea is relatively more common in laryngeal cases than in those that are purely faucial.

27. **Uremia.**—Russell reconsiders the old and abandoned hypothesis of Traube in the light of recent experimental and clinical work on conditions of increased intracranial tension with their associated alterations of blood pressure. He arrives at the conclusion that there is evidence to show that the cerebral manifestations of uremia are dependent on cerebral anemia, produced by an increase in intracranial tension resulting from cerebral edema. This view lends support also to the theory that epilepsy is produced by sudden cerebral anemia, since the convulsions of anemia and of idiopathic epilepsy may be absolutely indistinguishable. The practical application drawn from the above is that lumbar puncture should be performed in cases of uremia, whether coma, convulsions, or merely severe headache be the predominant feature. The presence of high blood pressure would be helpful as indicating the advisability of lumbar puncture.

30. **Fractures of the Shaft of the Femur.**—Myles finds the following constant factors: Invariable shortening due to overlapping. Invariable displacement of lower fragment. Invariable rotation of lower fragment, which is never in perfect alignment and can not be so. It is absolutely impossible to decide by the unaided eye, touch or measurements what the actual displacement of the fragment is. The author considers the three methods, simple wiring, the Park Hill method, and the use of screws, and concludes with the following advice applicable whichever method be used: 1. Find out as much as possible regarding the exact condition of the broken bone at the seat of the fracture by a series of x-ray photographs. 2. Think out very carefully beforehand which method is likely to give the best result. 3. Drill the bone with a Morse drill set in a brace. 4. If using the Park Hill screws see that the tap for cutting the screw thread in the bone is of exactly the same size as the screw to be inserted later, and is but little larger than the Morse drill. 5. Never try to hurry the tap, let it cut its own way into the bone. 6. When the ends of the fragment are exposed, measure their diameters and mark the screws at a point from their buried ends, exactly equal to this depth, so that they may not project through the bone

and perhaps injure the vessels. 7. If using the Park Hill method, remember that the wooden faces of the clamps taken from the boiler wet will shrink as they dry, and the screws holding them in position must be tightened in an hour or so. 8. Take an x-ray photograph the next day from two points 90 degrees apart to insure that the position is maintained. 9. Remember that to pass a ligature around the bones, a very large and powerful needle must be used, as the tough tissues about the linea aspera offer a considerable obstacle to the passage of the needle. Lastly, practice the operation on a cadaver before trying it on the living subject.

39. **Belated Ovaries.**—By this term, Bland-Sutton means ovarian tissue left behind after the removal of the uterus, etc. [This expression does not strike us as felicitous, inasmuch as in common parlance "belated" implies rather lateness in arrival, not merely an overstaying. Would not residual or residuary more aptly express what is meant?—Ed.] Bland-Sutton in 1897 reversed Tait's procedure in the case of fibroid, by removing the uterus and leaving at least one ovary, a procedure which, while violently opposed at first, has now become common. His further experience confirms the value of this procedure, particularly in the case of women under 40 as being of service in securing freedom from flushing, promoting domestic happiness and conserving nubility notwithstanding sterility.

41. **Notification of Diseases.**—McWalter asks if it is worth while to have the vast machinery of notification only to hear of a few cases of typhoid or scalatina or diphtheria. He suggests that the notification system be extended to diseases of every class so that all diseases should be reported to the sanitary authorities at regular intervals, but that the individual names be not disclosed except in those cases in which they are already required. This would give a far better picture of the state of public health and lessen the public mistrust of notification, when confined solely to communicable diseases.

Annales de l'Institut Pasteur, Paris.

43 (XXI, No. 5, pp. 321-399.) Trypanosomiases of the Upper Niger. (Tryp. du Haut-Niger.) A. Laveran.
44 Trypanosomiases in Animals in French Guinea. (Trypanosomiases animales de la Guinée française.) G. Martin.
45 Mechanism of Antianaphylaxis. (Mécanisme de l'anti-anaphylaxie.) S. Besredka and E. Steinhardt.
46 Human Myiasis Caused by *Oestrus ovis L.* ("Thim'ni" d'Algérie.) E. Sergent.

Annales d. Mal. d. Org. Gén.-Urin., Paris.

47 (XXV, No. 1, pp. 1-79.) Study of Phenomena Consequent on Downward Displacement of the Right Kidney to the Third Degree. (Accidents provoqués par l'abaisement du rein.) P. Aiglave.
48 Unusual Hematuric Kidney Affection. (Aff. rénale hém.) D. Taddei.
49 (No. 2, pp. 80-160.) Gonorrheal Joint Affections. (Le rhumatisme blennorrhagique et son traitement.) A. Robin.
50 Cocainized Oil as Lubricant for Urethra. (L'huile cacainée chez les urinarics.) R. Bonneau.
51 Three Cases of Bladder Tumors without Hematuria. (Tumeurs de la vessie.) B. Guizy.
52 (No. 3, pp. 161-240.) Epithelial Cancers of the Prostate. (Canc. epith. de la prostate.) B. Motz and F. Majewski.

Presse Médicale, Paris.

53 (XV, Nos. 44-47, pp. 353-384.) *Normal Resistance of Blood Corpuscles to Hemolysis. (Résistance globulaire normale.) Chauffard and H. Rendu.
54 Incarcerated Hernia in Infants. (Engouement henniaire chez le nourrisson.) A. Broca.
55 Massage and Ionization in Joint Affections. (Massage et ionisation dans les affections articulaires.) Durey.
56 Gymnastics of the Scapula. (Gymn. de l'omoplate.) P. Desfosses.
57 *Simple Treatment of Certain Dermatoses and Disfigurements of the Face. (Traitement simple de certaines dermatoses, etc.) L. Jacquet.
58 Radioscopic Diagnosis of Dilatation of the Stomach. Radioscopie gastrique.) G. Leven and G. Barret.
59 Intermittent Form of Pneumonia. (Pneumonie à forme intermittent.) A. Martinet.
60 So-called Syphilitic Stricture of the Rectum. (Rétrécissement dit Syph.) E. Schwartz.
61 Rôle of Infection in Severe Anemias.) (Rôle de l'inf. dans les anémies graves). L. R. Dumas and Poisot.

53. **Normal Standard of Resistance of Blood Corpuscles.**—The importance that has been acquired by the hemolytic blood test renders indispensable some normal standard of the resisting powers of normal blood corpuscles, Chauffard and Rendu propose to use as a standard test solution of physiologic salt solution, containing 7 parts per 1,000 NaCl. They give a table showing the figures corresponding to thirty-one test tubes, the first containing 68 drops of physiologic salt solution, the second 66, the third 64, and so on down to 8 drops. Addition of blood to these tubes in turn shows the point at which the corpuscles begin to be dissolved, the fluid in the tube turning pink. The resistance is estimated by the number of drops of salt solution in the tube in which this is observed. They give examples of the findings from a number of cases of various affections. In some the hemolysis occurred abruptly in one or two tubes, in others it showed a more indistinct and gradual course. The average for slight hemolysis was tube 42; for distinct hemolysis, tube 38, and for pronounced hemolysis, tube 12, that is, the tubes containing these numbers of drops.

57. **Treatment of Dermatoses and Cutaneous Disfigurements of the Face.**—Jacquet describes the mechanism by which—through the intermediation of the vagus and sympathetic—irritation is transmitted from the stomach to the nerves of the face. He believes that the face is the reflection of the stomach far more than the tongue. Irritation from the stomach, he asserts, affects the trigeminal and first cervical nerves and they in turn act on the tissues, distending the vessels, heating and making the face shiny from the hyperfunction of the over-stimulated glands. In time, this more or less constant irritation and hyperfunctioning leads to exhaustion of the glands and tissues. There is no need, he declares, to invoke the work of bacteria or toxins, the hyperirritation from the stomach alone being sufficient to explain the greasy, pimply, thickened aspect of the skin. He ascribes the whole trouble to irritation of the stomach mucosa from defectively chewed and more or less hastily swallowed food, citing several examples from his experience in which the patients confessed to bolting their food. He usually puts his patients on a fractioned milk diet as the best means to spare the stomach mucosa and to break up the habit of rapid eating. When this is accomplished—and not before—he massages the face, taking up the tissues through the entire skin and squeezing them between his fingers for several minutes. He then kneads the skin alone, proceeding systematically from the center to the periphery, the whole, a gradual mechanical excitation, commencing gently and increasing the force until, at the end of a week or two he is applying his entire strength. With these simple measures he states that the dyspeptic disturbances are banished and the face is rejuvenated.

Archiv f. klinische Chirurgie, Berlin.

62 (LXXXII, No. 4, pp. 955-1213.) *Importance of Abnormal Renal Vessels in Origin of Hydronephrosis. (Entstehung Hydronephrose.) G. Ekehorn.
63 *Forty-one Prostatectomies. (Exstirpation der Prostata.) H. Kümmell.
64 Lipomatosis of Bladder with Non-Traumatic Rupture. (Lipomatosis der Harnblase.) G. Hedren.
65 Incarceration of a Duodeno-jejunal Hernia in Connection with a Meckel's Diverticulum. (Einklemmung einer Hernia; etc.) Borchard.
66 Removable Suture for Radical Operation for Inguinal Hernia. (Neue Nahtmethode.) E. Martini.
67 *Total Extirpation of Bladder with Bilateral Ureterostomy. (Total Exstirpation der Harnblase, etc.) T. Rovsing.
68 *Retention of Food in Stomach Twelve Hours After a Test Meal Always an Indication for a Laparotomy. (Magenretention und deren Bedeutung.) E. Nyrop.
69 *Surgery of the Lungs. (Chirurgie der Lungen.) P. L. Friedrich.
70 *Favorable Influence of Preliminary Saline Infusion on Chloroform Anesthesia. (Einfluess der Kochsalzinfusionen auf die Chloroformwirkung.) L. Burkhardt.
71 *New Technic for Gastroenterostomy. (Neue Methode der Gastroenterostomie.) A. N. Simin.
72 Combined Drill and Plane Trephine. (Stoll's Rhychanotrepan.) S. N. Delitzin.
73 Pneumotomies in Russia. (Pneumotomien in Russland.) A. A. Opokin.

62. **Hydronephrosis Caused by Anomalies in the Kidney Vessels.**—Ekehorn's patient had suffered for six years from recurring right kidney colic, which had grown more frequent and intense since the last pregnancy. The only possible cause that could be discovered was an accessory artery, entering about the center of the lower half of the kidney. The ureter had to turn back on itself to pass over this artery. All disturbances ceased when the artery was severed. He reviews twenty-four somewhat similar cases from the literature, showing that anomalies in the kidney vessels are not rare, and that they are liable to cause trouble, especially if the kidney becomes even slightly displaced. The attacks of pain in his case had

always been relieved by pressure on the abdomen, which probably acted by pushing up the kidney and thus straightening the ureter to some degree. A resistant tumor was palpated in the right kidney region, giving the impression of an enlarged, sensitive kidney, somewhat lower than normal. The bladder was normal and the urine from the left kidney was physiologic, while the right urine was very thin but aseptic, containing no formed elements except epithelium from the renal pelvis. There was no pus or fever. The proportion of sodium chlorid was 4.5 per thousand and of urea, 5 per thousand. The tumor proved to be the swollen and tender kidney, but the pathologic conditions were not too far advanced for apparently complete restitution.

63. **Prostatectomy.**—Kümmel's experience indicates that cancerous degeneration of the prostate is of more frequent occurrence than is generally supposed, and that removal of the prostate in these and other cases may prove permanently successful. The dangers of prostatectomy by the perineal or bladder route are about equal, he says. If the prostate protrudes deep into the rectum and the abdomen is corpulent, the perineal route should be preferred, but if the prostate protrudes more into the bladder, the transvesical route is best. Cystoscopy generally decides the question. The technic of suprapubic prostatectomy is simpler and easier, the time required for healing is shorter, and there is less danger of incontinence and of fistula formation. Age is not a contraindication to prostatectomy, but advanced arteriosclerosis, diffuse bronchitis, insufficiency of the kidneys which it is impossible to remedy, and entire loss of the contracting power of the bladder, as well as severe impairment of the general health, should contraindicate such an extensive operation except on suspicion of cancer. Chronic, incomplete and complete retention of urine should be treated first by the permanent catheter in case introduction is easy and there are no complications. If this does not answer the purpose, and if the patient is compelled to use the catheter constantly, operative treatment should be advised.

67. **Total Extirpation of Bladder.**—Rovsing discusses the various methods of after-treatment when the bladder has been removed, dwelling on the inconveniences of each, and then describes a technic which has proved entirely satisfactory in three cases in which it has been applied. He removes the bladder unopened, as a cystic tumor is shelled out. His incision is in the shape of an arc, with the convexity down. The adherent peritoneum is removed with the bladder if it can not be readily detached. The ureters are divided with the cautery, between two ligatures, about 1 cm. above. In women the neck of the bladder is then loosened and 1 or 2 cm. of the urethra. The latter is then seized in a small angiotribe and severed back of it. In males the prostate and bladder must be loosened from the rectum before the urethra can be reached and divided above, a small forceps applied below. The entire bladder can thus be removed without hemorrhage. The peritoneum is sutured together again if it had to be opened. The cavity left by removal of the bladder is lined with a gauze veil and filled with strips of gauze brought out through the center of the wound. He moistens the gauze with a 1 or 2 per cent. solution of silver nitrate. A short incision is then made in the lumbar region on each side, extending from the margin of the erector spinæ outward. The ureter is then hooked up with the forefinger, close to the kidney, the lower part is cautiously loosened, and the whole brought out. In this way the ureters are brought out through the small incision about 8 cm. from the median line. Funnel-shaped retraction is liable to occur if the ureter is fastened directly to the skin. For this reason he does not fasten the ureter, but leaves it hanging from the wound, at symmetrical points on each side, enclosed in a glass vessel, after introducing a No. 12 rubber catheter in such a way that it just passes through the abdominal wall. The projecting part of the ureter is protected with a perforated rubber cot. The outer end of the exposed portion dries up and shrivels for 2 or 3 cm. By the end of a week, when the sutured wound has entirely healed, the necrotic end of the ureter is cut off while the living part above is left to project like a small beak-shaped urethra, standing out above the skin. It soon becomes coated on the outside with epidermis. After this the catheter is removed and the flow of urine is controlled with an ingenious apparatus of which an illustrated description is given. It consists of an elastic belt. Two silver plates are sewn in the belt in the lumbar regions. Each plate has a round hole in the center in which fits a shallow silver cup with rubber on the edge, the cup extending below into a short tube connected by a rubber tube with the urinal below. Bands at the side of the belt pass under the thighs, and the belt buckles in front and laces behind. The rubber bag serving as the urinal is suspended just below the pubic bone. The silver cups are inserted from within the belt, and the pressure of the latter holds them tight against the skin. A woman of 34 has been wearing this belt for eleven months, day and night, and it has worked to perfection, with no leakage of urine. The advantages of the technic described are claimed to be that the bladder can be removed without danger of infiltration of urine or contamination with feces, and there is no danger of secondary infection which is almost inevitable, he declares, when the ureters are implanted in the intestine or vagina.

68. **Clinical Importance of Retention of Food in the Stomach.**—Nyrop is assistant in Schou's surgical service at Copenhagen. He reviews the evidence on record in regard to operative treatment of stomach affections. He has collected 156 cases in which laparotomy was done for gastric affections, about equally divided between malignant and non-malignant. He classifies and studies these from various points of view. All conclusions point, he affirms, to the supreme importance of retention for diagnosis and differentiation. Retention may be the result of a malignant or harmless affection, and it may be of functional or organic origin, and in the latter case may be the result of some obstacle to the evacuation of the stomach or to weakness of the stomach musculature. But whatever the cause, it indicates operative treatment. He pleads for tests for retention in every stomach and intestinal affection, from the mildest to the severest, without exception, as also in all abdominal affections accompanied by gastric symptoms. The test recommended is the Bourget test meal, consisting of eight or ten stewed prunes, meat and bread. Nothing is eaten after this meal, taken at 7 p. m., and the next morning, about 7 a. m., the contents of the stomach are withdrawn and the stomach is rinsed out. The findings in 202 cases are tabulated, with the diagnosis and course. The results show that the discovery of remains of meat and prunes in the stomach, twelve hours after their ingestion, is always a sign of some notable disturbance in the functioning of the stomach, and that this discovery indicates laparotomy. In 75 of the 202 patients examined the rinsing fluid was always free from remains of the test meal, and although there were marked evidences of a gastric affection in these cases, yet the absence of retention showed the spasmodic character of the trouble, and its subsidence during sleep, or else that the stomach was able to overcome the obstacle during repose. In some cases it is better to make the test in the morning, giving the test meal at 8 a. m. and examining the stomach contents at 8 p. m. He expatiates on the terrible responsibility of the general practitioner who wastes time on internal measures while waiting for a palpable tumor. Many cases are cited from personal experience and the literature as examples proving the necessity for the rule: "Retention, no matter how slight, twelve hours after a Bourget test meal, is always an indication for laparotomy." It is comparatively immaterial, he asserts, whether the underlying trouble is malignant or not.

69. **Surgery of the Lungs.**—Friedrich's article was delivered as an address at the last German Surgical Congress. Several new instruments are described and illustrated, and the present status of operative treatment of pulmonary affections is reviewed. The benefits of the pneumatic cabinet for varying the atmospheric pressure are emphasized as of invaluable assistance in surgery of the lungs. Any one who wishes to undertake lung surgery, Friedrich states, should first familiarize himself with the over-pressure and under-pressure technic and have extensive personal experience with operations on animals before attempting to operate on the human lung.

70. **Injection of Saline Solution Before Administration of Chloroform.**—Burkhardt states that the injection of saline solution before administration has a favorable influence in reducing the toxic action of the chloroform. He considers that this is the effect of the dilution of the blood by the salt solution, the coefficient of the absorption being reduced while the blood pressure is kept high; at the same time the vagus remains more sensitive to stimuli. By this preliminary dilution of the blood, he claims, the organism can tolerate much larger amounts of chloroform without signs of intoxication. The infusion must be given just before the operation and must be as abundant as possible. Besides the lesser reduction of the blood pressure, he asserts that the rapid recovery after the anesthesia is especially striking. Owing to the lesser absorption of the chloroform, a larger proportion is eliminated by the lungs. The disagreeable by-effects, vomiting, headache, etc., are slight or entirely absent. These favorable effects of preliminary infusion of salt solution were so unmistakable in his experiments on animals that the method was introduced into the clinic at once. Each patient about to undergo a major operation received an infusion of from 1,500 to 2,000 c.c. from a quarter to a half an hour beforehand. The results were satisfactory. No by-effects from the infusion were observed. The patients all presented the same phenomena as the animals experimented on, namely, lessened tendency to lower blood pressure and the rapid recovery after the anesthesia. It was remarkable to observe the good pulse, even after prolonged general anesthesia, and the absence of headache, vomiting, or nausea. These preliminary infusions seem to be indicated most for patients with dubious heart and kidney action and in case of much debility and low hemoglobin percentage. In extensive operations on the urinary passages, he states that the infusion gives a certain feeling of security in regard to avoidance of the dangers inherent in protracted chloroform anesthesia. Infusion after the operation seems to have little effect in mitigating the toxic action of the chloroform.

71. **New Method of Gastroenterostomy.**—Simin takes up a slanting fold in the anterior aspect of the stomach, and incises the edge, pulling it out lengthwise and down as far as possible. He then sutures the upper half of the fold, the result being a tube-like projection from the lower part of the anterior aspect of the stomach, the end flaring, the whole, with the greater curvature of the stomach, resembling a narrow-necked pitcher nearly upside down. His description is illustrated as he has performed the operation on dogs, without any clinical experience to date. The technic and results proved excellent in his experiments.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

74 (LXXXVII, Nos. 4-6, pp. 313-572.) *Extensive Resection of Small Intestine. (Zulässigkeit ausgedehnter Dünndarmresektionen.) Storp.
75 *Operations on Stomach for Non-Malignant Stenosis. (Magenop. bei benignen Leiden.) E. Nyrop.
76 Successful Technic for Operating in Case of Double Harelip with Snout-Like Protusion of Premaxillary Bone. (Haseuscharte.) H. Lorenz.
77 Nature of Inflammation. (Wesen der Entzündung.) E. Joseph.
78 *Gastric Ulcer Perforating into Open Abdominal Cavity. (Akut in die freie Bauchhöhle perf. Magengeschwür.) Federmann.
79 *Disinfection with Iodin and Benzin. (Jod-Benzin-Desinf.) Heusner.
80 Anomalies in Urachus. (Urachusanomalien.) M. Draudt.
81 *Chronic Interstitial Pancreatitis. (Pankreatitis.) A. Martina.
82 Retrograde Intestinal Incarceration. (Retrograde Incarc. des Darmes.) A. Jäckh.
83 Two Cases of Injury of Thoracic Duct. (Ductus thor.) A. Bohne.
84 Two Cases of Kidney Tumors in Children. (Nierentumoren.) F. Mekus.
85 Operative Technic for Retrobulbar Tumors. (Retrobulbare Tumoren.) Tavel.
86 Retrorectal Epigastric Hernia and Other Internal Hernias. (Innere Bauchbrüche.) M. v. Arx.

74. **Extensive Resection of Small Intestine.**—Storp gives the details in tabulated form of 22 cases in which from 192 to 520 cm. of the small intestine were resected for various reasons. The patients did not seem to be incommoded by the loss of such a stretch of intestine, and all were in good health at last accounts, except for a tendency to diarrhea in a few cases and the death of one patient three weeks after removal of cancer with metastases. In a personal case described, on account of sarcoma of the root of the mesentery, he removed the entire ileum and part of the jejunum, a total resection of 510 cm. or 17 feet of the small intestine. The stumps were united by a primary circular suture, and the patient gained 12 pounds in three months, with normal stools, but the malignant disease recurred after five months and the patient, a blacksmith of 21, was dismissed as incurable. No metastases were detected at the primary operation. The good functional results in all these cases justify, he asserts, resection of two-thirds or even more of the small intestine at need, and resection far into sound tissue.

75. **Operative Treatment for Non-Malignant Affections of the Stomach with Stenosis.**—Nyrop relates the experiences at Copenhagen with operative treatment of 56 cases of non-malignant affections of the stomach. The mortality was 3.7 per cent., and he ascribes the fact that any of the patients died to the waste of time on internal measures before the case was referred to the surgeon. He discusses methods of improving the record for gastroenterostomy and the indications for jejunostomy in case of non-malignant gastric affections, citing the opinions of various surgeons and gastrointestinal authorities. He advocates resection for chronic ulcers and early intervention, regarding the slightest retention twelve hours after a copious meal as an indication therefor. He adds that the best "early operation" for cancer of the stomach is the removal of a chronic ulcer before it has had time to turn into a cancer.

78. **Sixteen Cases of Perforating Gastric Ulcer.**—Federmann states that 11 of the 16 patients with acute perforation of gastric ulcer were operated on; the others were moribund when received. Of the 11 patients operated on, only 4 were saved, and in these the operation had followed the perforation in the first 12, 24 or 48 hours. The patients who recovered were all men, the sexes being about equally divided in the total cases. Gastric disturbances had been noted from childhood in all, and in three there had been recent severe trouble in the stomach. Intense initial pain in the upper abdomen is the most constant symptom of perforation, the entire abdomen becoming more or less tender, special pain on pressure in the flanks and pouch of Douglas. The abdominal wall becomes rigid at once, and persists thus from 12 to 24 hours, when the abdomen becomes distended. Initial vomiting is sometimes observed and the areas of dulness may simulate appendicitis. Temperature and pulse were normal during the first 12 to 24 hours, but hyperleucocytosis of from 16,000 to 28,000 during the first 24 hours was frequently observed. All the patients with leucocytosis under 15,000 succumbed. The outcome was decidedly more favorable in the cases in which no attempt at irrigation was made.

79. **Iodin-Benzin Disinfection.**—Heusner reiterates his recommendation of a mixture of iodin and benzin as superior to all other measures for disinfection of the hands. He adds 10 gm. of tincture of iodin to 750 gm. of benzin and 250 gm. of paraffin oil. The mixture is no more inflammatory than the same amount of ether or alcohol. He pours half a pint into a porcelain dish and scrubs his hands with it, and uses the same amount with a sponge to disinfect the field of operation. The mixture does not irritate the hands, the only drawback being a slight discoloration, which soon vanishes. It compels the surgeon to wash his hands thoroughly after the operation, and is an index of the penetrating power of the iodin. He states that no washing is required before the operation, and this statement is enough to condemn the technic in the mind of any thinking surgeon.

81. **Chronic Interstitial Pancreatitis.**—Martina reports the cure of a patient with chronic interstitial pancreatitis clinically cured by an operation which merely incised the adherent peritoneum for a distance of 10 cm. over the enlarged pancreas. An iodoform wick was inserted for drainage and the abdomen sutured. The patient was a woman of 33 who for four years had presented symptoms suggesting possible pancreatitis. After the operation she gained rapidly in weight; the pancreas can no longer be palpated, and now, nearly three years since the operation, the woman seems to be in perfect health. Martina is convinced that this form of pancreatitis is more common than malignant disease in the organ. The prognosis is

better, he says, with hypertrophy of the pancreas, except in case of multiple small cysts.

Münchener medizinische Wochenschrift.

87 (LIV, No. 23, pp. 1113-1160.) Preparation of Formaldehyd for Disinfection of Apartments. (Autan, ein neues Raumdesinfektionsmittel.) H. Hammerl.
88 *Erosions in Stomach Mucosa. (Magenerosionen.) C. Berger.
89 Sensitiveness of Testicle to Pressure a Sign of Stone in Kidney. (Druckschmerzhaftigkeit des Hodens bei Nierensteine.) A. Bittorf.
90 Affections of Trachea and Bronchi Diagnosed by Bronchoscopy. (Tracheo-Bronchoskopie.) M. Mann.
91 Mechanism of Hand-Walking in Acute Spinal Paralysis. Handgang infolge spinaler Kinderlähmung.) O. Kalb.
92 Variations in Structure of Normal Endometrium and in Chronic Endometritis. (Bau des Endometrium.) A. Theilhaber.
93 Diagnostic Value of Agglutination Test in Insurance Business. (Diagn. Wert der Gruber-Widalschen Reaktion bei Prüfung der Versorgungsansprüchen.) Knauth.
94 Acute Poisoning with Citrophen. (Citrophenvergiftung.) A. Goldschmidt.
95 Simple Apparatus for Testing Viscosity of Blood. (Blutviskosimeter.) Determann.
96 Influence of Cholin and of Roentgen Rays on Course of Pregnancy. (Einfluss des Cholins, etc.) F. Neumann and O. O. Fellner.
97 *Abdominal Arteriosclerosis and Allied Conditions. (Angina abdominis.) F. Perutz. Commenced in No. 22.
98 Study of Reflex Vestibular and Optic Movements of the Eyes and Their Importance for Tropical Diagnosis of Paralysis of the Eye Muscles. (Reflekt. Augenbewegungen und Augenmuskellähmungen.) R. Barany.

88. **Erosions of the Stomach.**—Berger gives the details of two cases of an affection of the stomach characterized by pains immediately after eating, weakness and emaciation, with hemorrhages into the stomach. No benefit was derived from the usual treatment for gastric ulcer, and autopsy confirmed the clinical diagnosis of erosions of the gastric mucosa. Nothing in the history or in the clinical and pathologic history suggested any other affection as causing, accompanying or following the erosions, and no eroded vessel could be discovered on the closest inspection of the stomach. This proves that surgical interference would have been useless. The only treatment that seems applicable in such cases, Berger says, is treatment as for ulcer, with bismuth. Benefit seemed to follow in the first case described, as the hemorrhage did not recur during the five days before the patient succumbed to pulmonary embolism.

97. **Abdominal Arteriosclerosis.**—Perutz describes in detail several cases of what he calls angina abdominalis, the sclerotic condition of the abdominal vessels causing at times violent painful spasms in the abdomen, sometimes merging directly into an attack of the latter. He ascribes the attack to spasmodic contraction of the vessels of the intestines, and the resulting local rise in blood pressure. The pains are probably located, he asserts, in the sympathetic and the mesenteric plexuses. Besides the anatomic changes in the vascular apparatus, functional disturbances, as from the influence of nicotin and other poisons, are liable to induce such spasms. Differentiation is frequently difficult and seldom possible until after prolonged observation. The diagnosis is aided by the prompt benefit generally derived from drugs which act on the vascular system. In one of his patients a gastric ulcer was first diagnosed, the predominant symptoms being tenderness in the epigastrium, pains in the stomach after eating, vomiting and backache. There was also considerable enlargement of the heart with a presystolic, systolic murmur at all the orifices. The pulse was fast but regular. A course of treatment for the assumed ulcer brought no improvement and the attacks of pain recurred, starting in the stomach region and radiating to the back, with dyspnea and anguish. The attacks were generally brought on by physical exertion and were accompanied by vomiting. Roentgenoscopy revealed an aneurism of the ascending aorta, and considerable improvement followed administration of remedies to act on the vessels and heart. Several patients had long been under treatment elsewhere for assumed gastric catarrh or nervous dyspepsia. In two cases a cancer in the stomach was surmised. After meals the stomach became distended and relief was sometimes obtained by eructations, at other times the dyspnea was extreme. The pulse was at time irregular after the attack, but nothing pathologic could be detected in the circulatory system and there was no occult blood in the feces. All kinds of dietetic and medicinal measures addressed to the stomach failed to afford relief. No benefit was derived from any measures until drugs useful in arteriosclerosis were tried, when improvement at once became manifest. The attacks recurred later at times, but were promptly dispelled by digitalis, nitroglycerin, etc. In two other cases there had been hematemesis before the patients came under treatment, and only the failure of measures addressed to the stomach differentiated the abdominal affection at last. In two cases on record the symptoms suggested intestinal occlusion and neither patient survived the laparotomy. Autopsy revealed in one case extensive sclerosis of the abdominal aorta and in the other old thrombosis of the superior mesenteric artery with partial compensation by collaterals. The cause of death in this case was a recent hemorrhage and infarct which had developed in consequence of the altered blood pressure during the operation. In another case on record, the apparently indicated laparotomy for a surmised chronic affection of the cecum was postponed on consideration of the abuse of tobacco, the existing myocarditis and the signs of arteriosclerosis elsewhere, and the prompt benefit from drugs acting on the blood vessels confirmed the diagnosis of arteriosclerosis of the intestinal vessels. One of Perutz's patients was a man of 47 whose stomach had been sensitive for years. Of late, on lying down after dinner the pulse became small, with anguish, dizziness and cold sweat. The stomach region was distended and so sensitive that the patient fainted when it was palpated, as also when the contents were aspirated. The condition improved somewhat under massage, etc., but a marked change for the better was noted as soon as digitalis and valerian were given. Extrasystoles were still occasionally observed, but they finally vanished after the patient visited the seashore. Cautious evacuation of the intestines and regulation of the diet, with massage, sometimes give excellent results, without the necessity for drugs, or at most, only potassium iodid. Perutz believes that vasomotor disturbances in the splanchnic region are a frequent accompaniment of the obstinate spastic atony of the intestines observed in young persons presenting general myasthenia. An abnormally irritable condition of the vessels and nerves, he states, is a frequent accompaniment of this condition, and urges that more attention be paid to the anatomic and functional circulatory disturbances accompanying sluggish bowel action and meteorism.

Archivio per le Scienze Mediche, Turin.

99 (XXXI, No. 1, pp. 1-98.) *Experimental Study of Osteomalacia and Rachitis. (Osteomalacia e rachitide.) B. Morpurgo.
100 *The Hypophysis (Pituitary Body) and Acromegaly. (Ipofisi e acromegalia.) G. Cagnetto.
101 Amino-Acids in Urine and Other Organic Fluids in Certain Pathologic Conditions. (Ricerca degli amino-acidi nelle liquidi organici.) F. Micheli.

99. **Experimental Study of Osteomalacia and Rachitis.**—Morpurgo states that in 1899 an epidemic of osteomalacia developed among his laboratory animals, in a certain isolated group of white rats. None of the other animals was affected, although the conditions seemed to be identical for all. A coccus was isolated from the dead animals and inoculation of 193 other animals was followed by development of osteomalacia in 105, with dubious findings in 24. The others were not affected. The findings in the positive cases confirmed the assumption that the infection in question was able to induce osteomalacia and rachitic changes in the skeleton. The processes of the osteomalacia were identical with those of typical rachitis.

100. **The Hypophysis and Acromegaly.**—Cagnetto reports a case of a tumor as large as a hen's egg in the recess of the pituitary body. The patient was a man of 44 who committed suicide on account of intense headache and encroaching blindness. Cagnetto analyzes 4 other cases from his own and 3 from the experience of others. In 4 there was no sign of acromegaly, while in the other 4 it was present in a pronounced form. He is inclined to ascribe merely a passive rôle to the hypophysis in the genesis of acromegaly, which he thinks is probably a primary autointoxication, as this seems to be the only theory which does not conflict in some way with the anatomic findings.

Beiträge zur Klinik der Tuberkulose, Würzburg.

102 (VII, Nos. 1-4.) *Administration of Old Tuberculin by Inhalation and by Mouth. (Stomachale und inhalatorischer Darreichung von Alttuberkulin.) E. Huhs.
103 Etiology and Therapy of Pulmonary Tuberculosis. (Lungentuberkulose.) A. Dünges.
104 *Isolation of the Tuberculous and the Crusade Against Tuberculosis. (Isolierung d. Tuberkulösen u. d. Kampf gegen d. Tuberkulose.) L. Bourgeois and F. Blumenfeld.
105 *Demonstration of Antituberculin. (Nachweis v. Antituberkulin.) H. Lüdke.
106 Physical Variations in Lung Apices. (Physikalisches Verhalten beider Lungenspitzen.) F. Seufferheld.
107 *Tuberculin in Pulmonary Tuberculosis. (Tuberkulinbehandlung d. Lungentuberkulose.) Hammer.
108 *Pulmonary Phthisis and Induced Abortion. (Phthisis pulmonum u. Abortus provocatus.) P. J. de B. P. van Amstel.
109 *Curability of Tuberculosis and Tuberculin in Children. (Heilbarkeit d. Tuberkulose u. Tuberkulin im Kindesalter.) Engel.
110 Familial Tuberculosis and Its Relation to Infection and Hereditary Transmission. (Familiäre Belastung d. Tuberkulose). W. Weinberg.
111 Method of Obtaining Cow's Milk Free from Bacillus Tuberculosis and Other Bacteria. (Gewinnung einer lebenden Tuberkelbazillen u. anderen Keimen freien unveränderten Kuhmilch.) Waele, Sugg and Vandevelde.
112 Id. H. Much and P. H. Römer.
113 Tuberculosis of Middle and Internal Ear. (Tuberkulose d. mittleren u. inneren Ohres.) H. Herzog.
114 *Relations of Bony Thorax to Lungs and Their Significance to Recovery from Pulmonary Phthisis. (Beziehungen d. knöcheren Thorax z. d. Lungen u. ihre Bedeutung d. Genese d. tuberkulösen Lungenphthise.) C. Hart.
115 Bronchophony of Whispering Voice. (Flüsterstimme.) E. Masing.

102. **Old Tuberculin by Mouth and by Inhalation.**—Huhs studied the effects of the administration of old tuberculin by mouth in thirteen cases, and by inhalation in two cases, and found that in the former, even when large doses of tuberculin were administered, no reaction, either local or general, occurred. In the latter, in which the tuberculin was administered by inhalation, a typical general and local reaction occurred, but the results were by no means so reliable as in cases in which tuberculin is administered by injection. Huhs is of the opinion, therefore, that these two methods of administering tuberculin are of no value from the standpoint of therapeutics.

104. **Crusade Against Tuberculosis.**—Bourgeois and Blumenfeld discuss the treatment of tuberculosis in its various stages, in the dispensary, in the hospital and in the sanatorium. The paper is the report of Bourgeois as a member of the council of surveillance of the *Assistance Publique* of Paris.

105. **Antituberculin.**—As the result of experiments on animals and observation of clinical cases, Lüdke believes that antituberculin is formed in the tissues, and is taken up by the blood. The results of his findings are set forth in detail in eight tables, and the report of twenty clinical cases.

107. **Tuberculin in Pulmonary Tuberculosis.**—Hammer reports 50 cases in which tuberculin was used. These cases represent all stages of the disease and the results obtained lead the author to say without equivocation that tuberculin may be used in the treatment of all cases of pulmonary tuberculosis, even the most severe.

108. **Pulmonary Phthisis and Abortion.**—Van Amsdel says that the pregnancy influences unfavorably an existing pulmonary phthisis; that the offspring of a tuberculous mother possess diminished resistance and a hereditary predisposition to tuberculous processes, and especially pulmonary phthisis; that in such persons pregnancy often is the exciting cause for the development of tuberculous processes. He urges that it is the physician's duty to warn women suffering from pulmonary phthisis against entering wedlock; to point out the necessity and the benefits of a facultative sterility, and in the evènt of pregnancy, to advise its interruption. The earlier the stage of the disease, the more urgent is the indication for the interruption of the pregnancy, although this procedure is always indicated so far as the interests of the mother are concerned. Furthermore, the fact that the offspring will possess little resistance against tuberculosis and that it will be ill fitted to thrive and endure also is taken as an indication for the justifiable production of abortion in such cases.

109. **Tuberculosis in Children.**—Engel claims that it is possible to cure children who have tuberculosis, provided the disease is limited to the lymph glands.

114. **Abnormalities of Thorax.**—Hart attempts to show that any abnormality of the bony wall of the thorax predisposes to pulmonary tuberculosis, and urges as a prophylactic measure, such exercises as will enlarge the thorax and thus increase the excursions of the lung during respiration.

Centralblatt f. d. Grenzgebiete d. Med. u. Chir., Jena.

116 (X, 1-10.) Scarlatina Puerperalis. R. Pollak.
117 Roentgen Treatment of Malignant Tumors. K. H. Schirmer.
118 Neuropathic Affections of Bones. (Neuropathischen Knochenaffektionen.) F. Tedesko.
119 Status of Spinal Anesthesia. (Rückenmarksanästhesie.) E Venus.

Books Received

HYGIENIC LABORATORY BULLETIN NO. 36. Studies on Hypersusceptibility and Immunity. By M. J. Rosenau and John F. Anderson. Paper. Pp. 69. Washington: Government Printing Office, 1907.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT der Universität, Berlin. Herausgegeben von Dr. H. Thoms, Professor und Direktor des Pharmazeutischen Institutes der Universität, Berlin. Cloth. Pp. 340. Berlin: Urban & Schwarzenberg, 1907.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY, Eighteenth Session. Held May 30-June 1, 1906. Edited by L. E. LaFétra, M.D. Vol. XVIII. Reprinted from Archives of Pediatrics, 1906-1907. Cloth. Pp. 307. New York: E. B. Treat & Co., 1907.

THIRTIETH ANNUAL REPORT of the Board of Health of the State of New Jersey, 1906, and Annual Report of the Bureau of Vital Statistics. Cloth Pp. 456. Trenton, N. J.: John L. Murphy Pub. Co., 1907.

PHYSIOLOGY OF ALIMENTATION. By Dr. Martin H. Fischer, Professor of Pathology in the Oakland College of Medicine. First Edition. Cloth. Price, $2.00 net. Pp. 348. New York: John Wiley & Sons. London: Chapman & Hall, 1907.

HACKLEY HOSPITAL, Muskegon, Michigan. Established May 28, 1902. Dedicated and Opened Nov. 17, 1904. Report from Nov. 17, 1904, to April 30, 1907. Paper. Pp. 52.

MONTHLY SUMMARY OF COMMERCE AND LABOR OF THE UNITED STATES. No. 12, June, 1907. Paper. Pp. 230. Washington: Government Printing Office.

NEW PATENTS.

Recent patents of interest to physicians:

861159. Surgical needle. William R. Burch, Chicago.
861231. Surgical ligature. Arthur W. Clark, Conshohocken, Pa.
861019. Therapeutic lamp. Harley E. Coger, Minneapolis.
860906. Stethoscope. Fredrick Dittmar, Philadelphia.
860652. Suspensory. Henry A. Frye, New York.
860862. Fumigator. Menzo R. Fuller, Greenville, Texas.
860659. Soda-fountain syrup pump. F. H. Hecker, Los Angeles, Cal.
860669. Abdominal massage apparatus. J. C. Johansen, Copenhagen, Denmark.
861571. Disinfecting or antiseptic composition and making the same. Henry S. Blackmore, Mount Vernon, N. Y.
861257. Hernial truss. John W. Bunker, New York.
861272. Operating table. James H. Downey, Gainesville, Ga.
861836. Corn and callous shaver. George Havell, Newark, N. J.
861851. Electrical heater for hot water bags. C. V. Hill, St. Louis
861982. Artificial hand. Jacob Hinz, Jr., White Lake, S. D.
861853. Ligature container. B. K. Hollister, Chicago.
861386. Stopper for water bags and the like. John Nuttall, Bridgeport, Conn.
861610. Massage apparatus. Richard S. Sarver, Kansas City, Mo.
861913. Eye-testing instrument. Peter G. Stormer, Johnstown, Pa.
862379. Poison bottle. James Banford, Brooklyn.
862794. Facial bandage. Agnes L. Black, Sacramento, Cal.
862304. Disinfecting apparatus. W. J. Bowerman, Detroit.
862385. Thermometer sterilizer and holder. G. M. Brubaker, Mercersburg, Pa.
862712. Medical instrument. J. S. Collins, Carlinville, Ill.
862619. Surgeon's needle holder. Charles Driest, New York.
862455. Crutch. Mark J. Dunkel, New Bloomfield, Pa.
862737. Atomizer. H. A. Hill and J. A. Lindstrom, Northampton, Pa.
862837. Truss. Thomas E. Martin, Buffalo, N. Y.
862190. Surgical foot-rest. James H. O'Reilly, Louisville, Ky.
862193. Truss. Emery H. Parker, Chicago.
862507. Rectal-injection apparatus. Charles E. Quimby, New York
862763. Medicated bougie. Ludwig Sensburg, Munich, Germany.
862771. Medicine case. Robert L. Taylor, Memphis, Tenn.
862856. Vibrative liquid atomizer and mixer. James W. Tygard, New York.
862857. Santalol carbonate. Hermann Vieth, Ludwigshafen-on-the-Rhine, Germany.
862858. Insipid sandalwood-oil preparations. Hermann Vieth, Ludwigshafen-on-the-Rhine, Germany.
862781. Electrotherapeutic apparatus. Leonidas G. Woolley, Lima, Ohio.
863143. Massage apparatus. Sylvanus F. Bowser, Fort Wayne, Ind.
863144. Flexible massage device. Sylvanus F. Bowser, Fort Wayne, Ind.
862976. Obtaining ammonia, etc. Heinrich Koppers, Essen-on-the-Ruhr, Germany.
863417. Process to utilize the inferior calamins. Francisco S Moyano, Aguilas, Spain.
863127. Soda-water bottling machine. William C. Wood, Baltimore

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Original Articles

SMOKE IN RELATION TO HEALTH.*

A. JACOBI, M.D., LL.D.

NEW YORK CITY.

Up to the year 1000 the German home had its fireplace in the center. The smoke escaped through a big hole above, which was covered by a second roof that kept the rain out. Light got in as best it could. The Westphalian home in which I was born was still of that kind, like a hundred thousand other North German peasant dwellings. In the oldest times a few holes were also cut into the sides of the house. My people, however, had small glass windows, but then I was born in 1830—after Christ, you know. Wood and peat were exclusively used until the end of the twelfth century; coal is mentioned. The first information comes from Lüttich (Liège). In the fourteenth century coal was used in Aix-la-Chapelle; in 1429, about the river Saar. Since that time, but never like the present, was the air filled with carbon dioxid, sulphurous acid, sulphuric acid, hydrochloric acid, and sulphid of hydrogen. An equal annoyance, if not danger, is caused by the unconsumed soot.[1]

Dr. Charles A. L. Reed, chairman of the Committee on Medical Legislation of the American Medical Association, delivered an address[2] on the subject of smoke before the Woman's Club of Cincinnati. On that occasion the medical aspect of the question was not emphasized. But smoke-filled air imposes extra and unnecessary drudgery on the housekeeper. Woman's privilege to wear clean clothing is ruthlessly disregarded by the makers of smoke and the permitting municipalities. Women should, therefore, individually and through their organizations, protest vigorously against the present conditions. Moral dirt also is closely united to physical dirt, and a clean community has the better chance to avoid degeneracy.

The ill conditions are national and not local, so that something more than local effort is needed to combat them. Therefore, he proposes cooperation, national in extent, to create public sentiment, to determine the facts and adjust conflicting interests, to demonstrate plans and appliances for smoke prevention, and to formulate a standard law to secure uniform regulation of the evil all over the country. He suggested a national "antismoke convention" to execute these plans, this convention to be really representative of all concerned interests, and to be instructed by competent specialists, engineers, physicians, sanitarians, manufacturers, attorneys and others. The assistance of the press must be secured.

Such is also the opinion expressed in an editorial of The Journal of the American Medical Association, May 20, 1905, which, moreover, expresses its categoric opinion that "the crusade against unnecessary city smoke is more social than medical, and yet has a real interest for physicians. The direct harmfulness of smoke to the human organism is not wholly clear." Thus The Journal claims or admits that smoke and other products of soft coal semi-combustion vitiate the atmosphere, depress the organism, injure the integuments, cause deficient oxygenization and edemia, mainly among children, and oblige people to seek the country.

It is time we should drop the idea that the smoke question is only social and not medical. If that were so the natural sciences would have little to do with it, and not even the law of the land or of esthetics could ever reach it.

I have availed myself of some opportunities to inquire from medical friends in Pittsburg, Cincinnati and Chicago whether in their knowledge clinical statistics, autopsies or other experience have been gathered with a view of enlightening the medical profession on the smoke nuisance in its sanitary aspects. Only from that point of view can we hope to aid in ridding the community of an anomaly created by the recklessness of modern industry, which is always willing to coin gold out of human corpses of its own making.

Now it happens that The Journal of the American Medical Association, July 7, 1906, arrives at the conclusion, based in part on Ascher's statistics and experiments, that the fighting of the smoke nuisance "should be made part of the general plan of the campaign now in progress against tuberculosis and pneumonia." Since that time the Philadelphia County Medical Society has discussed the problem in its meeting of June 27, 1906, in which Drs. J. Madison Taylor, W. M. L. Coplin, C. G. Grayson, L. Webster Fox and Henry Leffmann took part. That the nose, throat and eyes are directly injured by smoke was admitted beyond doubt, but whether the presence of soot in human lungs is an indifferent matter or an injury was left undecided. It must have pleased the sinning part of the industrial world to hear from a participant in an unprepared and unguaranteed professional, if not medical, discussion the statement that there is little evidence to show that "the presence of smoke in the air increases especially"—what, if you please, is especially?—"the morbidity or mortality of a community."[3] Dr. Henry Leffmann also spoke of the practicability of preventing the smoke nuisance.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, Atlantic City, June, 1907.

[1] While this paper was awaiting publication, Dr. Theodore W. Schaefer had an elaborate essay full of quotations and suggestions in the Boston Medical and Surgical Journal, July 25, 1907, on "The Contamination of Air with Sulphur-Dioxid." London, according to his statements, burns 30,000 tons of coal daily, which gives rise to 300 tons of soot and large quantities of carbon dioxid and sulphur dioxid. This last named gas is converted into sulphuric acid, twenty tons of which are annually brought down in the rain falling in the cities of Glasgow or in Manchester. It owes its origin to the iron pyrites which form 3 per cent. of the coal. When 40 parts of the acid are contained in one million parts of air the vegetation suffers intensely, and the lungs of men—?

[2] Amer. Med., April 29, 1905.

[3] The Journal A. M. A., Aug. 4, 1906.

The sixty-sixth annual report of the registrar general of England demonstrates an increase of the mortality depending on bronchitis and pneumonia in England until the quinquennium of 1891-1895, and a considerable decrease since. In connection with the latter fact L. W. Chubb[4] observes that eighty cities—London, Liverpool, Manchester, Sheffield, etc.—report a decrease of smoke since that time. Brodie, the meteorologist, points to the diminution of London fog which is occasioned by the absorption of atmospheric water by sulphur dioxid with its specific gravity of 2.25. His colleague, Rollo Russel, reports a marked effect of the compulsory prohibition by law of smoke.

According to Mr. James River, the medical officer of Manchester, the fog days and the mortality from acute pulmonary diseases have become less. There were in Manchester during each of the five years from 1896 to 1900, inclusive, 36.8 fog days; in the five years from 1901 to 1905, inclusive, 23.4; and of 1,000 deaths there were in the former quinquennium, among all ages, 5.04 per cent., in the second 4.28 per cent.; among infants under 1 year 33.53 and 31.10 deaths, respectively. In the same report Primrose[5] publishes the results of investigations made in Glasgow on rain, which prove the decrease both of acids and of soot.[6]

His method of a chemical examination of the atmosphere resembles that which W. L. Russell followed in London and Angus Smith before him.[7] After them J. B. Cohen, the professor of organic chemistry in Leeds, suggested an efficient, mostly new, examination both of the rain and the air, in a book of his own: The Air of Towns, reprinted from the Smithsonian Reports of 1895, Washington.

The experience gathered in England has suggested a number of rules which are vigorously enforced in a number of towns. In London and Manchester no factory chimney may expel a black smoke for more than a minute every hour. In Professor Harvey Littlejohn's report on the causes and prevention of smoke from manufacturing chimneys (city of Sheffield, 1897) are enumerated twenty-two cities which enforce a duration of not more than from one to fifteen minutes in which black smoke may be expelled each hour. Dr. Councilman tells me that the new buildings of the Harvard Medical School do not suffer from smoke at all. In all those reports the important factor of the chimneys of private houses and open fireplaces, however, is not brought into consideration. Altogether, however, the common law declares the expulsion of smoke from chimneys to be a nuisance.

The public health act of 1875, section 91, subsection 7, which is valid for England with the exception of London and a few other cities that have local regulations of their own, demands, however, that the smoke of factories must be consumed as much as practicable by means of the ever improving technical discoveries and inventions, in the following words: "That such fireplace or furnace is constructed in such a manner as to consume as far as practicable (having regard to the nature of the manufacture or trade) all smoke arising therefrom, and that such fireplace or furnace has been carefully attended to by the person having the charge thereof."

The official work of the health boards has been aided by a number of coal smoke abatement societies in London and elsewhere, which employ their own watchers and inspectors alongside those employed by the government. It will not take very long before many manufacturers and engineers cease to object to the compulsory avoidance of smoke, on account of the acknowledged economic advantage due to a saving of coal.

That coal will be replaced by gas, which burns without smoke, appears more probable from year to year. Even we in America, who are notoriously slow in adopting sanitary measures, even theoretically, begin to replace coal by gas for domestic purposes. A cheap gas may be and has been manufactured in South Staffordshire and in London, which, while not fit for illumination, is perfectly so for developing smokeless heat.

In a presidential address before a conference on smoke abatement, during 1906, Sir Oliver Lodge admonished his audience directly not to permit the combustion in cities of coal, but to insist instead on the regular preparation of cheap gas. I am afraid we in America have been too slow even to utilize natural gas as we should have done.

In a book on the influence of smoke on the respiratory organs (Stuttgart, 1905) Dr. Louis Ascher arrives at the following conclusions: Since 1875 acute inflammations of the respiratory organs have increased in Germany, England and America.[8] This increase was studied in a possible connection with the diminution of the power of resistance and with possible climatic or infectious causes. Neither of these factors could be charged with producing the increase of acute inflammatory respiratory ailments.

Carefully collected facts prove a higher mortality from these diseases both in towns and country, in the regions of the Rhine and in Silesia, where much smoke is produced. That is mainly so in the coal mines of the Ruhr river district in Westphalia. Here, where the air is always black, the mortality from inflammatory respiratory diseases among men is greater by 135 per cent. than among the Prussian males of equal age; of those so suffering the majority were those born in that region; the minority consisted of such as had come from distant country districts. Altogether it appears statistically certain that smoke causes a disposition for acute pulmonary diseases and accelerates the course of pulmonary tuberculosis.

It was also found that in a humid atmosphere coal dust was aspirated in larger quantities and in less time than in dry weather. Tubercular animals that were made to inhale moderate quantities of smoke through a period of ten hours died sooner than those which inhaled less of it. The question whether the inhalation of a moderate amount of smoke causes a disposition for acute respiratory inflammations had to be answered affirmatively, for inhalation of smoke followed by that of aspergillus acclerated the causation of inflammation, when compared with the animals not so exposed to the fungus.

Further and final conclusions are as follows: The mortality from acute inflammatory pulmonary diseases is on the increase, mainly that of children and old people. The cause is to be sought for in the contamination of the atmosphere by smoke. In industrial districts the mortality of nurslings was six times larger than in agricultural communities. It was found that dense smoke districts had a larger mortality than other industrial centers, for instance, the textile industries. The mortality of coal miners surpasses that of the rest of the male population by 130 per cent.; the indigenous suffer more than the immigrant workmen. Animals infected with aspergillus without having been previously exposed to smoke inhalation did not contract pneumonia like those which were forced to inhale smoke.

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[4] Report on returns by local authorities with regard to the carrying out of their powers and duties in the matter of smoke abatement, London, 1905, Conference on Smoke Abatement.

[5] A plea for a systematic comparative analysis of the air in towns.

[6] Ascher (L.): The Fight Against Smoke in England and Germany, D. Viertelj, f. öff. Ges., xxxix, 2, 1907.

[7] Monthly weather report for April, 1884, London, 1884.

[8] Klebs: Amer. Med., vi, No. 24.

Bartel and Neumann, in their work on experimental inhalation tuberculosis of the guinea-pig,[9] found that such guinea-pigs as had inhaled a moderate amount of smoke on account of their being kept in a large city died of pulmonary tuberculosis in less time than those which showed smoke-free lungs.

A serio-comic contrast is furnished by the opinions of those who assert that soot in the lungs prevents tuberculosis. On that theory the metal grinders of Sheffield had until twenty-five years ago the habit of going into places filled with coal dust after having been in metal dust all day. What was called "grinder's asthma" was and is tuberculosis. There were few that escaped. I understand the use of respirators is not common even to-day. If here and there little tuberculosis is found it is because very strong and healthy persons are preferred for that kind of work. But even M. Mendelsohn[10] met many persons dying of tuberculosis whose symptoms never showed themselves until they worked in coal dust and smoke.

By what road will smoke and coal dust get into the lungs? Its invasion may be either by inhalation or by the absorption from the intestinal tract and the lymph apparatus. Dr. Julius Arnold, professor of pathologic anatomy in Heidelberg, wrote a classical book in 1885 with the title: Researches on Dust Inhalation and Dust Metastasis. He admits the presence of carbon during his experiments, in the interior of the intestinal tract, but never in the wall of the tract or in the chyle vessels and mesenteric glands except in rare instances when a few stained cells only might be found in the tissue of the intestine and in the mesenteric glands. Villaret had suggested, in 1862, the probability of an intestinal origin of pulmonary anthracosis, but Arnold's results were too positive to be denied. It appears, however, that the frequent recent discussions in reference to the invasion of pulmonary tuberculosis, either by inhalation or by deglutition, tempted Vansteenberge and Grysez[11] to resume experiments relating to the same subject. They watched the progress of coloring matter introduced into the intestinal canal and the peritoneum. Contrary to what is known to be a fact, viz., that granular material circulating in the blood passes the lungs and is deposited in the liver, spleen, bone marrow and the lymph bodies, they asserted to have found that coloring material passed from the intestinal tract and the peritoneum through the lymph circulation into the lungs as a copious deposit. They met with this affirmative result preferably in adult animals, overlooking perhaps the fact that a certain degree of anthracosis is noticed in every animal that has passed its life in contaminated city air, but not in the very young, simply because the latter has not respired so long.

So Aschoff,[12] W. H. Schulze,[13] Mironesco,[14] M. Cohn[15] and finally a few weeks ago H. Beitzke[16] have demonstrated that Chinese ink, introduced into the abdominal cavity, is absorbed into the lymph ducts of the mesenteric lymph bodies and of the diaphragm, the sub- and supra-diaphragmatic glands, the thoracic duct, the vena mammaria interna and the blood. From here it enters the bone marrow, the spleen, the liver, but not the lungs. These experiments were very numerous and their results uniform. All of which proves that anthracosis of the lungs is directly caused by inhalation, and that smoke enters the lungs directly from the contaminated atmosphere, either through the mouth or through the nostrils, which exert their protecting influence to an insufficient extent only.

Meanwhile Section 96 of the Sanitary Code of the New York Health Department, in consequence of a decision "handed down" by Mr. Justice Dickey of the Supreme Court, has been emasculated so as to read:

"The owners, lessees, tenants, occupants and managers of every building, vessel and place in or on which a locomotive or stationary engine, furnace or boilers are used, shall cause all ashes, cinders, rubbish, dirt and refuse to be removed to some proper place, so that same shall not accumulate; nor shall any person cause, suffer or allow smoke, cinders, dust, gas, steam or offensive or noisome odors to escape or be discharged from any such building, vessel or place to the detriment or annoyance of any person or persons not being therein or thereon engaged."

No summary arrests of the evil doers are permitted. Civil actions for the penalty of $250 only are allowed, under Section 1262 of the Greater New York Charter; it takes a delay of one month in the issuing of an order to arrest a violator, during all of which time the nuisance continues and the public suffers; when the same is finally abated the public enemy suffers absolutely no penalty whatsoever and pays merely the few dollars costs of bringing the action to the corporation counsel.

As usual, the laws appear to be made to protect not the people but their enemies.

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[9] Wien. klin. Wochschr., 1906, Nos. 7 and 8.
[10] Traumatic phthisis, Berlin, 1885.
[11] Intestinal Origin of Pulmonary Tuberculosis. Ann. Pasteur, xii, 1905.
[12] Beitr. Z. Klinik der Tuberculose, Vol. 6.
[13] Münch. med. Wochschr., 1906, xxxv.
[14] Soc. Biolog., 61, No. 27.
[15] Berl. klin. Wochschr., 1906, No. 14.
[16] Virch. Arch., 1907, 187.

EDUCATIONAL METHODS IN THE CAMPAIGN AGAINST TUBERCULOSIS.*

LIVINGSTON FARRAND,
NEW YORK CITY.

Fortunately for the initial enthusiasm with which a campaign for the prevention of tuberculosis may be undertaken by any community, there is no difference of opinion as to what the chief task may be. It is the education of the public with regard to a few simple facts. The accomplishment of that task, however, is one which calls for all the ingenuity and skill that expert knowledge can furnish or specific experience can teach.

The organized crusade now under way against this disease is rapidly uncovering the conditions which constitute its stronghold and, while opening up innumerable lines of promising attack, is also making more and more clear the baffling complexity of the work in which we are engaged.

We may start, I presume, with the general proposition that tuberculosis is infectious, that it is preventable and that in its early stages it is curable. It is its preventability which justifies the expenditure of energy now devoted to the campaign and will justify the immensely greater expenditure which will certainly be called for in the immediate future. If we are to prevent we must necessarily deal with the conditions which cause, and those especially subject to such conditions will form the classes most necessary to reach.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

These conditions are, of course, pre-eminently those of the overworked and the badly nourished, of the badly housed and of those who are totally ignorant of the simplest rules of a proper hygiene; of those to whom a higher standard of living may be vaguely desirable as a material or social comfort but not a realized duty to self or to family. Our task then is to carry to these classes, by every possible method, not only a knowledge of the facts, but appreciation of the necessity of action.

The experience of the last few years has shown that to reach results in any community organization is necessary. This is true not only to avoid needless waste of energy and resource, but to insure an effective covering of the field of operation.

The conditions existing in the cities and towns of the United States are so varied that it is impossible to lay down any rule or scheme of organization which will apply to all cases. In certain communities the work can best be undertaken by some existing philanthropic or other organization, while in others it is better for a new society to organize on an independent basis. It is nearly always true that the starting point for effective work is the devoted enthusiasm of some one man or woman who has the gift of communicating this enthusiasm to others of his or her type.

One general postulate can, I think, be laid down, and that is the necessity of cooperation between the medical profession and the laity. This is applicable to all localities. An educational campaign planned and conducted by physicians alone invariably remains dignified and ethical and entirely inefficient, while a crusade by laymen without medical cooperation lacks the authority and conviction which only expert knowledge and the confidence borne of it can provide in any movement connected with disease.

With an organization reached, a definite program of operation is imperative. Here also no great difficulty should be encountered. The main points are:

1. Cooperation with the public health authorities and with all organized movements which can contribute in any way to the diminution of tuberculosis.
2. Agitation for the passage and enforcement of proper legislation, e. g., registration of tuberculosis, anti-spitting ordinances, adequate disinfection, etc.
3. Initiation and prosecution of movements for the establishment of adequate hospital, sanatorium and dispensary facilities for the care of the tuberculous.
4. The education of the public with regard to the facts of the disease.

It is this last item which, brief as is its statement, calls for the real persistence and energy in the campaign. The means of education are varied and can best be discussed under separate heads.

LITERATURE.

The preparation and distribution of suitable literature take, for some reasons, the leading place. Here the first point of consideration is the character of the groups to be reached. There is not, and never will be, any leaflet, pamphlet or book adapted to all types.

(a) Always necessary is some short, pithy, striking statement which can be printed in inexpensive form, preferably on one or two pages, and distributed freely. The preparation of such material affords scope for all the literary, advertising or other ability available in a society. There are now in existence a large number of such leaflets prepared by the various local associations, and each one regards its own as the best. Whatever the wording, the form should be striking and the material durable. Red ink and cardboard are distinct assets and colloquial English is far better than polished rhetoric.

(b) There is also need of a statement somewhat more extended in form which shall give in greater detail the reasons for caution, the principles of hygienic living, rules for consumptives and those living with them, and specific instruction in compact form with regard to everyday life, necessity of medical care, disinfection, etc. This can be best put out in pamphlet form and preferably of a size that can be easily placed in the pocket.

(c) Of more elaborate general books there are a number more or less well adapted to their purposes. There is now under consideration the preparation of a handbook somewhat after the form of that issued by the Charity Organization Society of New York, which shall be written by recognized authorities and issued by the National Association.

(d) Literature for special classes of the community, such as teachers, school children, workers in special trades, etc., is increasing in amount and by constant revision by various committees is gradually adapting itself to its end.

Translations into the many languages spoken in the United States is, of course, an absolute necessity in many communities and does not present any great obstacle. The need of translation is naturally greatest for the small cards and leaflets intended for those of slender education, but they are precisely the ones for whom the information is imperative.

EXHIBITION.

In casting about for new and effective methods of educating the public the exhibition was selected and has proved probably the most valuable single method at our disposal. This is an effort to show in graphic form the same simple facts that the literature mentioned above sets forth. We may as well recognize the truth that the majority of people will not read but will look at a "show" (particularly if it be free), and as a consequence thousands are reached by the exhibition who would never be touched by the printed page.

It is impossible to specify in detail the material available for exhibition purposes, but it can readily be grouped in one of several ways. There should be:

(1) A demonstration of conditions. This can be done by maps and charts setting forth the prevalence of tuberculosis in the United States, in the given states and cities, in different trades, races, etc. Valuable maps and charts for reproduction and enlargement may be found in the admirable paper by Miss Brandt, in the Handbook on Tuberculosis published by the Charity Organization Society of New York City in 1903. The attention of the public can often be caught also by a striking statement of the economic loss to the country or community by the deaths from this disease.

(2) The infectious character of tuberculosis and the conditions which cause it can be shown by pathologic specimens or by colored plates, charts and photographs. More stress, however, should be laid on the housing, social and industrial conditions which favor infection, and here a wide field is open. Enlarged photographs of local conditions may be utilized and will always attract attention, but with the views of dark unventilated homes and workshops and unhealthy environment should always,

if possible, be shown what can be accomplished under similar conditions by hygienic treatment. This phase of the subject shades into

(3) Prevention. Here should come in views of model tenements, playgrounds, the work of various organizations for the betterment of social conditions, the results of proper health regulations, anti-spitting ordinances and the various methods that have been found effective in communities where the campaign has already been undertaken.

Exhibits of the literature and results of successful antituberculosis organizations will prove stimulating and effective.

(4) Treatment and Cure. This aspect is capable of more effective exhibition than any other. Photographs and models of sanatoria, open-air sleeping shacks, tents, etc., may be utilized to whatever extent is deemed desirable. It should always be remembered in this connection that it is the human side which appeals and that the average man, woman or child will notice with interest pictures of patients where ground plans or elevations of buildings will be passed by without attention. Striking photographs of patients' outdoor life in winter, treatment on roofs where better facilities are not available, and other phases of the subject will be found desirable.

There should always be some statement of the evils of "patent medicines" so exhibited that it can not be overlooked even by the casual visitor. A large sign containing some specially drawn-up resolution of a local medical body or some other group of authority is perhaps the easiest method of covering this point. A statement of the ingredients of the patent medicines most in favor in a given community would also invariably prove effective.

In connection with the exhibitions there should be as many lectures or public talks as can be arranged, and more important than all are the informal demonstrations and explanations to groups of visitors by volunteer assistants, young physicians or students who can usually be procured for that purpose.

Lantern slides should be obtained and will do much to draw and hold the audience which it is particularly desired to attract.

Fortunately the cost of a small but effective exhibit is not great. With the facilities available in any community for the reproduction of charts, etc., and the volunteer services which can usually be counted on, the necessary models and photographs for an effective exhibit can be procured for from $100 to $200. The total cost of an exhibition which can be set up in one large room, say 30x40 feet, could probably be brought under a figure of $300. Naturally the more money available the more attractive can the material be made, and experience is showing that money so devoted is well spent.

In our largest cities it is desirable that an exhibition of fairly comprehensive scope should be made permanent and shown continuously. This is already being done in a number of places with extraordinary results.

Every state should also have an exhibition which can be readily transported and sent to the smaller towns and communities where a permanent exhibition would probably not be called for. Such a state exhibit can be formed and controlled either by a state association, where such exists, or by the board of health when that body is sufficiently advanced to appreciate its responsibility.

A most important factor in this connection is the place of exhibition. Esthetic surroundings should be sacrificed to convenience of access, and it is much better to choose a vacant store on one of the busiest streets of a city than the imposing rooms of a public library or museum which can often be more easily obtained.

It can be laid down as a truth that the effect of an exhibition is measured by the degree of its publicity. This can best be accomplished by placing the exhibit in such a situation that it can not be overlooked.

LECTURES AND MEETINGS.

The third method of education of importance comparable to the two already discussed is that of the public lecture. Possibly this should logically take precedence of literature and exhibition. In small communities it is often not only the easiest to arrange, but the quickest in its results. The real difficulty in this connection is in procuring enough speakers of force and effectiveness to insure a systematic series of meetings. It is too often the case that intense interest in this work will be aroused for a single evening or a single week and then be allowed to lapse for lack of organized plan and persistent energy. Where effective medical men can be secured for public lectures they should always be utilized. The authority with which they speak impresses the public in a way which the enthusiasm of a layman can never rival.

A systematic division of any community into groups for the purposes of public lectures is not only desirable but necessary. Special talks adapted to special classes should be arranged and a definite plan followed during the year. The school teachers, school children, churches, women's clubs, Y. M. C. A.'s and, above all, the trades unions, should be met and the facts concerning tuberculosis in their relation to the particular conditions of the group in question presented in a clear and effective way. This is often, of course, difficult to provide for, but none the less a necessity.

If a systematic campaign of public meetings, public exhibitions and persistent circulation of selected literature be carried through in any except our very largest cities it will be found possible to reach practically every individual.

It was said a moment ago that the effect of an exhibition is measured by the amount of publicity attending it. This statement could also be made of all the methods which are employed or can be devised. It is, therefore, of prime importance that the cooperation of the public press should be secured in all cases. Fortunately this is seldom a difficult matter. The newspapers will print whatever the public demands, and with the interest in tuberculosis which is now manifesting itself in every center the difficulty is not to procure publication of prepared articles, but to prepare articles of a suitable character.

An experiment tried this last year by the New York committee of sending regularly each week to a long list of newspapers throughout the state a short article on tuberculosis and its prevention has proven unexpectedly successful. A large number of these papers have welcomed the contribution and have joined in the campaign with encouraging enthusiasm. There is no reason except that of expense why this plan should not be extended until it includes all the cities of the Union.

Every now and then a novel method of reaching the public is discovered in some one community and becomes available for others.

A little over a year ago in Yonkers, where a most intelligent and resourceful campaign has been carried on for the last two years, the committee in charge hit on the plan of an open-air stereopticon exhibition. Slides were prepared which contained pithy sentences regarding tuberculosis, its infectious character, methods of prevention, pointed advice, etc. During the summer months, in an open-air square in the city, evening exhibitions were regularly held and crowds of people gathered and were not only entertained but instructed by the views thrown on a wall adapted to the purpose. Views and scenes of general interest are shown and interspersed between the tuberculosis slides.

The idea was taken up by the New York Board of Health, and last summer it was employed with great success in some of the smaller public parks in the crowded quarters of the city. The dwellers in the tenements gathered by thousands, and while interested and amused, were at the same time given wholesome information and instruction.

This same resourceful committee of Yonkers has also obtained permission to place notices on all the telegraph and telephone poles in the city, a plan which could probably be followed in many of our communities. A full report of the methods employed in that city was presented at the last meeting of the National Association for the Study and Prevention of Tuberculosis and will soon appear in type.

Another admirable device is that employed by the New York committee through the courtesy of one of the largest commercial houses in the city which owns the advertising rights on the backs of street car transfers. On certain days this firm has allowed the committee the space, and on the backs of all transfers issued on that day appears a statement regarding tuberculosis and its prevention.

Since the object of the campaign is publicity, concentration of effort is often desirable, and in one or two cities it has been found possible to gain the cooperation of practically all the churches of the community so that the subject of tuberculosis and its prevention can be presented to the congregations on a given Sunday. This requires some preliminary negotiations, but where it can be carried out insures not only an immense audience but still greater publicity through the press reports which will invariably be given on the following Monday.

A short time ago in Providence, R. I., a meeting was called which may possibly be more fruitful in its effects than any other attempt thus far made. Through the energy of one or two individuals deeply interested in the crusade representatives of a large number of manufacturing companies met and formally discussed what the employer could do to prevent tuberculosis among his employés. While it is too soon to forecast the results of this meeting, yet as a symptom of awakening responsibility its importance can not be overestimated. We recognize that it is in the home and shops where the bulk of our people live and work that tuberculosis has its stronghold, and if we can gain in this crusade an intelligent cooperation of labor and capital an enormous advance will have been made.

It is impossible to rehearse in detail the methods which have been found effective in this campaign of ours. We are still in the experimental stage and each day realize more clearly the magnitude of the task which is presented.

With the number of organizations now in existence and constantly being formed in all parts of the country, new lines of attack are being uncovered and new methods devised which are applicable to other centers than those in which they find their origin. It is a far easier matter for a newly-formed society to take up its work promptly and efficiently to-day than it was three years ago, and the program and method is becoming clearer daily.

The National Association stands ready to cooperate with suggestion and aid to the extent of its ability, and with the extension of system and organization the efficiency of the campaign can be counted on to advance with a rapidity equal to that of the interest and enthusiasm which is making the crusade against tuberculosis the most striking aspect of the present world-wide movement in the direction of preventive medicine.

105 East Twenty-second Street.

PUBLIC PROVISION FOR ADVANCED CASES OF TUBERCULOSIS.*

EDWARD O. OTIS, M.D.
Visiting Physician at the Massachusetts State Sanatorium.
BOSTON.

From the activity now manifested in this country by state and municipal authorities and by private philanthropy it seems assured that in the near future the incipient cases of pulmonary tuberculosis will be measurably well provided for. Sanatoria for such cases are now springing up in the various states with increasing rapidity, and one can prophesy with considerable assurance from what has already been accomplished that in no distant future the majority of the states will have one or more sanatoria for incipient cases.

The outlook is not so hopeful, however, with regard to the advanced, the hopeless cases. Provision for them is sadly lacking, and yet they are the most numerous, and probably the most dangerous, to the community and to their immediate neighborhood.

"It is admitted on all hands," says Phillip,[1] "that it is the advanced or dying cases of consumption which constitute the greatest source of infection to a community. Among the poorer classes this is emphatically the case, where, it may be, one room is shared by half a dozen persons, one or more of whom may be afflicted with tuberculosis. The segregation of such cases is a most important move in preventive medicine."

If the tuberculosis crusade is to go on, and it will, adequate accommodations must be provided by the public for the advanced cases, who can not be properly or safely cared for at their homes. The dangerous consumptive must be isolated.

The problem is too vast a one to be undertaken and satisfactorily solved by private or local effort. The state and municipality (I refer more particularly to the large cities) must lend their aid and undertake the work, or at least initiate and finance the movement. It will be, moreover, an economic step on the part of the public authority from the standpoint of prevention. The state now recognizes as one of its legitimate functions the prevention of disease, not only for the welfare and protection of its people, but as an economic measure.

The time is at hand, I believe, when, through efficient compulsory notification, all cases of tuberculosis existing in town or city will be made known to the health authorities, and the next logical step is to furnish such authorities adequate accommodations for the isolation of such cases of advanced tuberculosis as, in their judgment, are a menace to the other members of the household and to the immediate community.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] British Journal of Tuberculosis, i, p. 18.

This, I believe, must be accomplished by state or county consumptive hospitals, or, in the case of the larger cities, by municipal hospitals of the same nature, as New York, Boston and other cities have done. As it is now such accommodations as are afforded by most cities and states—and these are very inadequate—are by the state or municipal almshouses. It is an evident injustice to the poor but worthy consumptive that he should be subjected to the stigma of pauperism simply because he is unfortunate enough to be afflicted with this disease. "Excluded from general hospitals, considered 'incurable' by most sanatoria, the advanced and dependent consumptive has practically no haven of refuge save the much dreaded workhouse infirmary."

State hospitals, in number according to the population, should be provided, and each community be assessed for a part or the whole of the maintenance of the consumptives received from its locality.

It is obviously not so important to select the sites of such hospitals with regard to the most favorable climate and situation as in the case of sanatoria. They should rather be located near the thickly-populated centers so that they may be easily accessible.

Neither is it necessary to construct them on the elaborate plan of the sanatorium. Simple one- or two-story wards, connected by a corridor with an administration building, would satisfactorily serve the purpose, for the principal object of such institutions is to isolate the consumptive and make him comfortable.

Of course some of the advanced cases will show such improvement that they can properly be given the regular open-air treatment, which can be done by either transferring them to the sanatorium or at the hospital by means of tents, shacks or piazzas, or one of the wards can be reserved for this purpose. On the other hand, cases in the sanatorium which go badly and become advanced and hopeless can be transferred to the hospitals, and thus one institution will supplement the other very much as is done by the great Brompton Hospital in London and its sanatorium at Frimley.

Large cities would naturally require one or more consumptive hospitals of their own, and the city purse is able to establish and maintain them. Boston has recently appropriated $150,000 for such an institution and it is already under way.[2] New York has done the same thing, and some other cities, I believe.

It has been urged that this problem of the care and isolation of advanced cases can be solved by adding or appropriating wards of already existing hospital plants, particularly as so many cottage hospitals have now been established throughout the country. Even if this could be done in every case, such provision would still be very inadequate to meet the requirements of the state at large, the smaller communities where no general hospital existed, the manufacturing towns, etc. And no state, I am sure, is so impecunious as to be unable to establish one or more consumptive hospitals of the inexpensive kind I have referred to, when it is borne in mind that the expenditure will eventually be returned in the saving of life, which has a money value to the state, through the removal of sources of infection.

The tuberculosis dispensary is now acknowledged to be an essential factor in the tuberculosis crusade, and should be in intimate relation with the consumptive hospital, on the one hand, as well as the sanatorium on the other. The trustees of the consumptive hospital of the city of Boston have established such a dispensary in the heart of the city which will be open evenings as well as during the day. The tuberculosis dispensary will, among other uses, serve as a clearing house from which tuberculous individuals can be directed to the proper institution or be supervised and treated at home through nurse and physician, if they so desire, and can do so, in the judgment of the health authorities, without danger to the other members of the household.

Eventually, I believe, everybody will, either of their own free will or through compulsion, undergo an examination of the lungs; and, as at present, a certificate of vaccination is required of school children and of others before entering certain occupations or assuming certain positions, so will there be a similar requirement regarding tuberculosis. And why should not this be so when one considers the prevalence of the disease and its communicability? For such examinations the municipal or public tuberculosis dispensary will naturally be the place just as the municipal vaccination depots exist for public vaccination. As Phillip says:[1] "The dispensary will constitute for every town or district the developmental center and uniting point of other agencies." It should keep a register of all tuberculosis institutions and activities: sanatoria, hospitals, infirmaries, private boarding-houses for the tuberculous in health resorts, parochial hospitals, tuberculosis associations, etc., and a list of all known cases of tuberculosis in the city or district.

In connection with state or municipal consumptive hospitals I would suggest maternity wards for tuberculous pregnant women, where, before and after their confinement, they can receive the hygienic and dietetic treatment, a suggestion made by Dr. Knopf with regard to maternity hospitals, but I think the plan could equally well be carried out in connection with the consumptive hospital. Furthermore, accommodations for tuberculous and scrofulous children might be afforded either in an annex to the consumptive hospital or sanatorium or in a separate institution, a branch of the consumptive work so well recognized and executed in France through the instrumentality of the various associations for the protection of infants and the care of tuberculous children.

The "day camp," now an established feature of the tuberculosis work, would find its proper place in the grounds of the consumptive hospital, for the hospital being situated near a thickly-settled center could be easily reached by the day camp colony. This has already been done in connection with the Boston Consumptive Hospital, which can be reached from the city by a five-cent fare.

The legislature of Massachusetts, at its session of 1906, appointed a commission "to investigate measures for the relief of consumption and sites for state hospitals for consumptives," and in their report to the present legislature the commission recommended the erection of three hospitals "which should be devoted principally to the treatment of cases in the advanced stages of the disease," and the creation of state medical inspectors "to assist both the medical profession and the laity in fighting consumption." It goes on to say:

> A law should be enacted arbitrarily dividing the state, for purposes of medical inspection, into twelve or more districts, and providing for the appointment of a physician of consid-

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[2] Since the above was written another considerable appropriation has been made for the completion of this object.

erable learning and experience, a resident of the district, as state medical inspector. It should be his duty to inform himself as to the prevalence of tuberculosis in the district; to devise ways and means of combating the disease; to disseminate knowledge as to the best methods of preventing its propagation; to make or cause to be made microscopic examinations of sputum, free of expense; to examine all persons in said district desiring to enter the state sanatorium at Rutland, or other tuberculosis hospitals which the state may erect; to keep a record of the dwelling-place, occupation and physical condition of all persons in said district who have been inmates of such hospitals; from time to time to forward to each hospital for consumptives a report of the condition of the persons who have been treated in said hospital; and also to perform such other duties as may be imposed on him by the State Board of Health.

These inspectors might be able to enlist the aid of philanthropic persons in establishing tuberculosis classes or day camps such as have been mentioned. They should be able at least to interest employers within their districts so as to prevent any employé suffering with tuberculosis from imperiling the lives of his fellow workmen by spitting carelessly. It is believed that if the attention of all the manufacturers is brought to the way in which the prevention and cure of tuberculosis among operatives is being carried out in Rhode Island and in a few places in this state, many others will be quite as ready to help those in their employ who are sufferers from the disease.

The state medical inspectors, in performing their various duties, will need the assistance of visiting nurses, a work which young woman not otherwise occupied will perhaps volunteer to do without expense to the state; but, if volunteer nurses are not forthcoming, then the state should employ women of some experience, under the direction of the inspectors, to visit needy patients who for any reason can not be admitted to a state hospital. Such work ought to be given to those who have recovered from the disease, because they will better understand the essential elements of the treatment.

These inspectors should keep in touch with the state institutions by frequent consultation with the trustees or superintendents. They should be responsible, however, to the State Board of Health, and should make annual reports to that board, or more frequent reports if called on; and, if the office force of that department or its appropriation are insufficient to provide for their supervision, further legislation should be enacted, in order to cover this additional expense.

The commission is strongly of the opinion that by means of state medical inspectors great good can be accomplished in the fight against tuberculosis.

These recommendations have been favorably reported on by the committee of the legislature and a bill framed appropriating $25,000 for such inspectors and $300,000 for the three consumptive hospitals, and there is every reason to believe that these bills will be shortly passed by the present legislature.[3] Thus Massachusetts will be the first state, so far as I am aware, to provide hospitals for advanced cases as she was the first to establish a state sanatorium.

CONCLUSIONS.

It is evident from the present agitation that the public is determined to control and eventually to eradicate tuberculosis, and we now possess sufficient knowledge of the disease and its prevention to intelligently work with this end in view. An efficient and complete plan for public execution in the pursuance of this object would, in my judgment, be as follows:

1. Compulsory registration and disinfection.
2. Free examination of sputum.
3. State or municipal law against promiscuous spitting.
4. Sanatoria for incipient cases.
5. Hospitals for advanced cases, with maternity wards for tuberculous pregnant women.
6. Tuberculosis dispensaries.
7. Farm colonies for those discharged from the sanatoria.
8. Sanatoria or hospitals for tuberculous and scrofulous children, preferably situated on the sea-shore, as France, England and other countries have done.
9. Efficient school inspection by physician and nurse with special reference to tuberculosis.
10. Factory and workshop inspection with the same purpose in view.

The majority of these measures are already in operation in a number of cities and states. None is more urgent or will contribute more to prevention than consumptive hospitals with sufficient accommodations for advanced or hopeless cases. We must isolate the dangerous, hopeless consumptive; the community has a right to demand it and should take steps to enforce it.

[The Symposium on Tuberculosis will be completed next week by the papers of Drs. Browning and Paquin and the discussion.]

GLYCOSURIA IN ITS SURGICAL RELATIONS.*

ALBERT E. HALSTEAD, M.D.

CHICAGO.

In presenting this subject no attempt will be made to follow any classification of the different forms of glycosuria nor to distinguish by any close differentiation between glycosuria and its more advanced stage, generally termed diabetes. This is done because at the present time the question of the etiology of diabetes is unsettled, and it is only by observing any individual case of glycosuria for some time that it is possible to determine to what class it will ultimately belong. Another reason for not separating these cases by sharp differentiation into the groups commonly given by the internist is that to the surgeon the mere presence of sugar in the urine is of considerable importance from a standpoint of prognosis.

My object will be to show what causal relation exists between traumatism and certain surgical diseases, and the presence of sugar in the urine, and to point out what influence this type of glycosuria has on the progress of the injury or disease that has called it into existence. I will also consider the effect of operative procedures on the course of diabetes, particularly the effects of anesthesia on diabetics, and to what extent an existing glycosuria should modify the treatment of surgical cases. Lastly, I will deal briefly with surgical complications depending on a well-established diabetes.

TRAUMATIC GLYCOSURIA.

In 1859 LeCoq called attention to the frequency with which head injuries are followed by sugar in the urine. Since that time many cases have been reported by other observers, among whom may be mentioned Recklinghausen, Fischer, Seegen and Redard. The latter, in 1885, presented a paper before the French Surgical Congress, in which he reported twenty-eight cases of traumatism of various kinds and surgical affections that were considered to be the exciting cause of glycosuria. In his report he cites not alone head injuries, but fractures and various other traumatisms that were followed by what he termed an ephemeral glycosuria. This lasted from one to eight days, as a rule, and was not associated with the other symptoms that are commonly found in diabetics.

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[3] These bills have been passed by the legislature, the inspectors have been appointed and trustees to erect the hospitals.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

In three of Redard's cases glycosuria followed simple fractures. In one, a fracture of the radius, sugar was found immediately after the injury and persisted for five weeks. In a second, 0.2 per cent. of sugar was found after a fracture of the clavicle, but disappeared within one week. Redard's paper caused considerable discussion; many regarded his cases as examples of intermittent glycosuria, the accident merely determining a relapse of an antecedent condition.

Hadke, in order to determine the frequency of glycosuria after simple fractures, examined the urine in twenty-five cases. In no case was a spontaneous glycosuria found, although in 60 per cent. an alimentary glycosuria from one day to one week could be demonstrated.

In 1894 Kausch reported eleven cases of glycosuria following trauma. Of these, 9 were simple fractures and 2 contusions of the soft parts without fracture. In all, glycosuria immediately followed the injury. The amount of sugar excreted in each case was below 1 per cent., and in none were there any other evidences of diabetes. The duration of the glycosuria was less than eight days, except in one case. In this it reappeared after the administration of an anesthetic on the tenth day, but subsequently the urine was found free from sugar. Kausch also found by studying his cases that the tolerance of those suffering from ephemeral traumatic glycosuria for carbohydrates rapidly increased from day to day until generally within a week it reached its normal point.

I have examined during the last three years fifty cases of fractures of various kinds to determine the status of sugar metabolism after injury. Of these, 44 were simple fracture without any other injury than the contusion of the soft parts commonly found in these cases, six were fractures of the vertebra, one complicated by a compound fracture of the femur, and one by crushing injury of the foot demanding amputation.

Of the forty-four simple fractures other than fractures of the vertebra there were:

Pott's fracture	10	Fracture of shaft of humerus	3
Fracture of radius	5	Fracture of both bones of leg	4
Fracture of both bones of arm	4	Multiple fracture of scapula	1
Fracture of clavicle	12	Fracture of the pelvis	1
Fracture of shaft of femur	4		

In six of these forty-four simple fractures sugar was found in the urine. In all cases the urine was examined within twenty-four hours after the accident, in most of them within a few hours. Daily examinations of the urine were made up to the fourteenth day after the injury was received. Sugar was found on the first day in four, fracture of the pelvis, fracture of the clavicle, fracture of both bones of the leg and fracture of the shaft of the femur. On the second day in one, fracture of both bones of the leg; on the fifth day in a case of fracture of the scapula with severe contusions of the back and head. In none of these could any history pointing to a previously existing glycosuria be elicited. The quantity of sugar excreted varied from 0.2 to 1 per cent. In five the urine was free from sugar at the end of the second week. In one it was present on the sixteenth day after the injury. Later examination could not be made as the patient left the hospital. In all the presence of the glycosuria was the only evidence of a disturbed sugar metabolism. In none did its existence exert any influence on the healing of the fracture. Of the six cases of fracture of the vertebra, one, a fracture of the fifth cervical, died on the second day; a second, a fracture of the lower dorsal with a crushing injury of the foot, died on the third day. In both of these cases sugar was found immediately after the injury. In one of the four remaining cases (that complicated by a compound fracture of the femur) there developed a glycosuria which continued until the death of the patient on the twelfth day after the injury. No sugar was found in the urine of the remaining three patients, all of whom lived longer than two weeks.

The chief significance of these observations lies in the light thrown on the etiology of traumatic glycosuria. To me they point to shock, particularly concussion of the cerebrospinal axis, as the principal etiologic factor. The relatively large percentage of cases, although the number is small, in which sugar was found in injuries of the vertebral column and in the more severe injuries associated with fractures of other bones, confirms this view. Kausch believes that, in addition to the mechanical concussion of the body, the psychic effect of trauma plays an important rôle. He believes that mental shock may determine a glycosuria in the absence of any bodily injury.

Outside of the possible indication of injury to the central nervous system the presence of glycosuria should be considered as to its influence on the healing of fractures, and to the possible course of treatment pursued in dealing with injuries requiring operative procedures. From my experience and that of others who have reported cases of glycosuria resulting from trauma, I would say that ephemeral glycosuria does not influence in any way the union of fractures. Neither should it constitute a contraindication to any operative treatment that may be deemed imperative. Nevertheless, I should postpone any operation that is not imperative until the sugar has disappeared from the urine. It is possible, by the additional shock of an operation, or by the influence of a general anesthetic, to convert a mild transitory or ephemeral glycosuria into a more severe type. Again, when the glycosuria becomes well established the possibility of having a non-union is greatly increased. It is well known that fractures occurring in diabetics sometimes result in delayed or imperfect union. Bellingham Smith cites five cases of simple fractures, three of which united after from three to five months, and two remained unhealed.

TOXIC GLYCOSURIA.

It is well known that a glycosuria, usually ephemeral in character, frequently follows the administration of certain drugs. With the exception of that following chloroform or adrenalin, these are of little interest to the surgeon. We also recognize as toxic glycosuria that type which results from the absorption into the circulation of the poisonous products of bacterial invasion of living tissue or that results from the decomposition of dead tissue from infection with the saprophytes. Glycosuria mostly follows infection with the ordinary pus micro-organisms. Here we find it in carbuncle, phlegmon and gangrene, representing generally mixed infections, and in erysipelas, when we have an infection with the streptococcus alone. We also find it in ulceration, particularly in foul ulcerating surfaces, where the saprophytes are also present.

The importance of recognizing the possibility of a secondary glycosuria from infection presenting these clinical characteristics is evident when we recall that these same varieties of infection frequently are found in diabetics, their existence depending on the changes in the tissues due indirectly to the presence of sugar in the blood. These transitory glycosurias which result from infection are to be distinguished from the glycosuria antedating these conditions, and which may be the cause of the infection, by its mild character, and generally ephemeral existence. We also note in these cases a relation between the amount of sugar found in the urine from day to day and the intensity of the infection. The percentage of sugar generally increases immediately after a fresh invasion of tissue, as shown by a rise of temperature. We also find that as soon as the infection begins to subside, or immediately after free drainage is instituted, the sugar disappears from the urine. In secondary glycosuria none of the other symptoms of diabetes are in evidence. In a few cases polyuria has been reported. Generally we find that any marked increase in the quantity of urine is of but short duration. Polyphagia, thirst, etc., are not common. The significance of a secondary toxic glycosuria, in surgical infectious diseases, rests on the question of its influence on the progress of these diseases. In Redard's report he found that in fourteen cases of toxic glycosuria albuminuria was also present. He regarded this as warranting a guarded prognosis in every case, and considered the presence of albumin of greater importance than the defect in sugar metabolism. As regards the effect on the progress of carbuncle and phlegmon, from the cases reported it would seem as if the presence of a transitory glycosuria did not greatly affect the prognosis in these cases. Bellingham Smith cites eleven cases, all of which recovered.

I believe that in all the cases in which there exists a transitory secondary glycosuria we should endeavor to free the urine from sugar as rapidly as possible by instituting proper surgical treatment and by due attention to the diet. All major surgical operations should, in my judgment, be postponed, if possible, until this is accomplished. The presence of sugar, however, should not constitute a contraindication but rather an imperative indication for carrying out minor surgical procedures, such as incision and drainage of abscesses and abscission of gangrenous tissue. These operations should be done under local anesthesia. In long-continued suppuration the possibility of a secondary glycosuria becoming permanent must ever be kept in mind.

In erysipelas the presence of sugar in the urine must always be regarded as of serious prognostic moment. The mere existence of a glycosuria is not of itself the cause of the high mortality, but it indicates a severe type of infection. The quantity of sugar generally bears a direct relation to the severity of the infection. With a large surface involved and a correspondingly high temperature the sugar may reach as high as 6 to 7 per cent. Permanent glycosuria has followed erysipelas.

In Redard's report a number of cases are mentioned in which glycosuria supervened on the development of rapidly-growing neoplasms. This occurred in those in which sloughing and ulceration were present, and probably was the result of the toxemia from infection rather than that due to the growth of the tumor.

OPERATIONS IN DIABETES.

In dealing with this phase of the subject I will consider, first, those operations that are imperative, such as operations for intestinal obstruction or traumatic cases demanding immediate relief. In such cases the added dangers incident to the complicating diabetes must be taken into consideration, yet be risked. The only conditions that the diabetic complications impose on the surgeon are that he should reduce the surgical interference in every case to a minimum and select, where a choice is admissible, that operation that may be completed in the shortest time and that which will insure the least risk of infection.

As example, in acute appendicitis, in a diabetic, everything considered, an early operation will entail the least risk to the patient, because it can be done more expeditiously in the early stage of the disease and with a minimum risk of infection. On the other hand, if, as a consequence of the diabetes, we treat the case expectantly, the risk of an unfavorable termination is greatly increased by the added danger of abscess or general infection of the peritoneum, which, in turn, are strong predisposing factors in exciting a fatal diabetic coma.

In determining the propriety of an operation that is not at the time imperative but that will ultimately be required we must take into consideration the age of the patient, the stage of the disease, the toxic ingredients of the urine and the quantity of sugar eliminated. A marked degree of cachexia, as well as a coincident chronic alcoholism, will also influence one in determining the time of an operation.

As regards the age, the younger the patient the greater the risk of a diabetic coma supervening on any operation, particularly if a general anesthetic is employed. As a general rule, patients suffering from diabetes and a concomitant surgical lesion are past middle age. In these, particularly if the glycosuria has existed for some time, arterial sclerosis and trophic nerve degeneration resulting from the excess of sugar in the blood determines a lowered resistance of the tissues, which may result in infection or delayed healing of operation wounds. While these conditions do not obtain in the young diabetics, yet the danger of an acid intoxication terminating in coma resulting from the shock of an operation is very great and should always be given the most careful consideration.

In deciding the question of operation, the amount of sugar in the urine and the effect of medical treatment as influencing the quantity excreted is taken by many as the best guide in determining the expediency of an operation.

Tuffier is emphatic in pronouncing against operative procedures if, after a fair trial, medical treatment has not caused the sugar to disappear or to be materially decreased. This opinion is not shared by all. Many take the extreme view of not considering the quantity of sugar at all in determining on the operative treatment of any surgical case. The consensus of opinions, as gathered from a review of the literature, may be stated as follows: If the surgical lesion is such that it will permit of delay sufficient to allow of a thorough course in dieting and medical treatment, this should always be carried out. If the sugar disappears or diminishes quickly and the other toxic substances common in the urine of diabetes diminish correspondingly, any operation not entailing an unusual degree of shock may be attempted with confidence in the belief of favorable outcome. It must be remembered, however, that the disappearance of sugar from the urine even for a considerable time will not always be a guarantee against coma following a surgical operation.

In a case cited by Smith and Durham coma supervened on an operation in a patient whose urine had been free from sugar for two years. In every case the presence of acetone and oxybutyric acid and ammonia, even in the absence of sugar, should be regarded as of far greater prognostic significance than any amount of sugar. When these substances are found any operation would best be postponed until by proper medical treatment they may be eliminated or reduced to a harmless quantity. Phillips believes that any considerable increase over the normal in the excretion of ammonia forebodes coma after an operation.

My conclusion concerning this question is, therefore, that we can not always rely implicitly on the quantity of sugar excreted as constituting a guide in determining the safety of any operation in diabetes. Yet I believe that a high percentage of sugar should call for a thorough course of treatment before any operation of magnitude that may be postponed is attempted. The disappearance of the sugar from the urine, if there remain other substances, the result of the disturbance of sugar metabolism, such as acetone, diacetic acid, excess of ammonia, etc., should not be permitted to lull us into a sense of security. These latter substances indicate a far greater danger from coma than does the presence of any quantity of sugar alone. An absence of these last named toxic substances, with a decreasing quantity of sugar, under medical treatment permits us to operate on diabetics providing we eliminate the possibilities of infection without any serious risk that can be charged up to the existing glycosuria.

It should be mentioned in passing that some observers consider the condition of the reflexes, particularly the patellar reflex, as of great value in determining the advisability of operating on diabetics. Bouchard first directed attention to this point. He reported sixty cases, in 29 per cent. of which the patellar reflex was absent. Of these 31.5 per cent died, while in the remaining cases where the reflex was retained only 4.5 per cent. succumbed. Regnier also considers that the condition of the reflexes favors a bad prognosis and strongly advises against any surgical interference in these cases. It may be said of this that diminution of the activity of the reflexes or their loss generally bears a direct relation to the quantity of sugar excreted, and, therefore, indicates an advancing stage of the disease and thus unfavorably influences the prognosis. That the absence of the reflexes in any individual case without relation to other symptoms should constitute a contraindication to the operative treatment of any surgical lesion occurring in a diabetic does not seem to be proved by the cases reported.

COMPLICATIONS. DELAYED HEALING AND INFECTION.

The question that first arises after operations on diabetics is, what influence the disturbed sugar metabolism will have on the healing of the wound. As a result of the presence of an excess of sugar in the blood, as the disease progresses there is a constantly increasing arterial sclerosis, which, if continued, will ultimately terminate in an obliterating process, principally confined to the smaller arteries. Secondary to this arterial change we find nerve degeneration affecting the trophic nerves. This degeneration is due to the disease of the artery supplying the nerve. From these two elements, defective blood supply and disturbance of nutrition through degeneration of the trophic nerves, there results a lowered activity in the process of repair. A third cause of defective nutrition is thrombosis of the larger arteries or veins, which is a common sequence to the changes mentioned above.

These various changes in the blood vessels are most marked in the lower extremities and thus account for the frequency of gangrene in lower, and its rarity in upper extremities. In long-standing cases of diabetes, particularly in alcoholics, the condition of the arteries of the lower extremity should always be ascertained before any operation is attempted. If the circulation in the principal vessels is absent or markedly deficient, no operation below the point where active pulsation ceases should be considered. Another factor in determining a delay in healing of wounds in diabetics is the added risk of infection, which is directly due to the presence of sugar in the tissues and indirectly to the defective circulation. The experiments of Nicholas, Kalinski and Ferron have shown conclusively that the presence of sugar up to a certain quantity in the tissues greatly increases the pus-producing qualities, while it diminishes the virulence of most of the micro-organisms found in infected wounds.

This influence on the growth of pus-forming micro-organisms should always be considered in determining the advisability of operation, from the nature of which an aseptic course can not be expected. Elective operation on the rectum, about the genital organs, and in the aural or nasal cavities should be avoided, when possible, in advanced diabetes. In suppurations occurring in these regions prompt surgical interference is demanded because of the rapid spread of infections.

Concerning the question of healing of operation wounds in diabetics it may, therefore, be stated that every wound, when aseptic conditions are maintained, will heal promptly in diabetics excepting in the lower extremities. In wounds not of these locations that become infected the dangers incident to infection, of which delay in healing is one, are all greatly enhanced by the presence of an excess of sugar in the blood. Operations that can be avoided should not be considered.

By many surgeons the danger of hemorrhage, either at the time or after the operation, is considered a contraindication to operative procedure on diabetics. From a review of the literature and from my own experience in operating in diabetes I should say that, excepting as far as the additional risk of suppuration increases the risk of a secondary hemorrhage, that this danger does not exist. In order to forestall the expected hemorrhage in many of the cases reported the cautery was employed as a hemostat at the time of the operation. This undoubtedly accounts for the frequency of secondary hemorrhages.

Effects of operations on the glycosuric condition are evidenced in many cases by an increase in the quantity of sugar eliminated, and in a few by the onset of coma resulting from an overwhelming increase in the blood of toxic products that result from the disturbed sugar metabolism. In many cases in which, for some time previous to the operation sugar had been absent from the urine, and no other evidences of diabetes were present, after an operation or an injury sugar reappeared in far greater quantities than before.

Redard reports one case in which trauma aggravated an existing glycosuria. The sugar increased from 10 to 25.2 gr. per one thousand liters, and then diminished again after fifteen days to 12 gr. Coincident with the increase in the sugar there may develop an acetonuria in subjects of glycosuria in whom previous to the operation or trauma the urine had been free from acetone, β-oxybutyric acid, etc. This is more likely to occur in young individuals and in extremely septic cases. In the latter cases the coma is probably frequently more the result of septic intoxication than of the acid intoxication.

In order that we may avoid the dangers of coma following surgical operations too much stress can not be placed on the necessity of thoroughly preparing patients by instituting a rigid course of medical treatment as a preliminary measure in all surgical operations. In addition to the enforcement of a strict diet, the administration of large and frequently repeated doses of soda bicarbonate should be employed to neutralize the acid products of incomplete metabolism that are the cause of coma.

As previously stated, it is only after disappearance of these acid bodies and ammonia from the urine that we are justified in attempting any but the most urgent operations.

In addition to the administration of soda by mouth in extreme cases, it may be given subcutaneously or intravenously. Kausch and Schwartz also recommend the use of glykon acid in doses of 70 grs., in one-half liter of water, neutralized by soda bicarbonate. If coma develops, the free use of soda (150 grs. in twenty-four hours) offers about the only hope of saving the patient. The probability, however, of recovery after coma has once developed is remote. Our treatment should be more directly prophylactic.

ANESTHETICS IN DIABETES.

The use of inhalation narcosis is generally to be avoided, if possible, in diabetes. Therefore, for diagnostic purposes, and in minor operations, they must not be employed under any circumstances when there is a well-established glycosuria. In cases in which no other means of producing analgesia will fulfill the indications of the case we must select the one least harmful. Experimentally and in clinical cases it has been proved without any question that ether should be the anesthetic of choice. It has been demonstrated by the observations of Abrams and others that in non-diabetics postoperative acetonuria of some degree develops in about 66 per cent. of the cases when chloroform is employed. This is the result of an intense parenchymatous degeneration, involving especially the liver. This being true in the non-diabetic, healthy person, it must follow that it is most dangerous in diabetic subjects, and its use under all circumstances should be condemned.

Frequent narcoses following each other at short intervals should never be permitted, even where a minimum quantity of sugar is found in the urine. The quantity of anesthetic of any kind, as well as the duration of the narcosis, influences the prognosis in surgical operations in diabetics and should be reduced to a minimum.

Narcosis from nitrous oxid gas has recently been extolled as harmless in these cases. This anesthetic is not free from danger, as experience has shown that a persistent glycosuria may develop in a previously healthy individual after the prolonged use of nitrous oxid.

Whenever it is possible, some of the generally accepted methods of producing local or regional anesthesia should be chosen. As the greatest danger in the use of general anesthetics is from postoperative coma, a preliminary treatment with bicarbonate of soda, as heretofore indicated, should be instituted in every case where it is possible. Kausch lays stress on the advantage obtained in operating on diabetics after a minimum period of starvation. The nutrition after the operation should also receive attention, as should the use of bicarbonate of soda, administered in sufficient quantities to maintain an alkaline urine.

GANGRENE IN DIABETES.

As a result of a lowering of the resistance of the tissues against infection by the presence of an excess of sugar in the fluids of the body and from diminished blood supply depending on changes in the blood vessels, gangrenous processes frequently result from diabetes. That arterial sclerosis and obliterating endarteritis are important etiologic factors in the development of gangrene of the extremities has been shown by Senator, Israel, Koenig, Winniwarter and Heidenhain. The chief vascular change found in limbs amputated for diabetic gangrene is arteriosclerosis. This is found not only in the terminal divisions, but in the main trunks of the arteries. Endarteritis obliterans of the small terminal branches has also been found frequently by Heidenhain and Gussenbauer in both gangrene and perforating ulcer in diabetes.

Thrombosis, generally secondary to arterial sclerosis, at the points of division of the main arterial trunks has been noted in many cases by Küster and others. Thrombosis of the veins, although common, plays a secondary rôle in determining the onset of a gangrenous process. Besides, the effect on the nutrition of tissues, from the arterial changes, direct, we have also in long-standing diabetes a trophic nerve disturbance resulting from a similar change in the vessels supplying the nerve trunks. The influence of this trophic nerve lesion in the form of a parenchymatous neuritis was first pointed out by Ebstein.

Gangrene occurring in the upper extremities, and the surface ulceration and gangrene of the trunk can not be attributed to the vascular changes mentioned above. In these the lowered resistance of the tissues and the accidental traumas and consequent infection play the most important etiologic rôle.

Age also has a bearing on the development of gangrene in diabetes. In the great majority of cases this complication occurs in persons past 50. The advanced age favors arterial sclerosis, which in turn is the principal cause of defective blood supply of the extremities. Etiologically there is a close resemblance between the gangrene of diabetes and that due to senile changes in the blood vessels. Although the anatomic changes are practically identical in each, clinically the course varies greatly. In that occurring in diabetes the facility with which the tissues become infected and the rapid and fatal course of such infections call for a more guarded prognosis and more prompt and energetic surgical interference.

In the treatment of gangrene of diabetes it goes without saying that the prophylaxis is of vast importance In all cases when diabetes is recognized, particularly in persons beyond middle age, warning against the possible serious outcome of slight abrasions and infections should be impressed on the patient. Corns, warts and calluses of the lower extremities should receive the most careful attention and be treated only under the most rigid antiseptic conditions. In one-half of a series of sixty cases of gangrene reviewed by Bellingham Smith gangrene started from some insignificant lesion, such as a corn or an abrasion of the skin of the foot.

Impending ischemia, evidenced by loss of muscular power, pain, cramps, coldness of the surface, and loss of pulsation in the terminal arteries of the extremities, calls for rest, with administration of remedies that will improve the circulation to the part. Abrasions and cutaneous lesions of the extremities should be protected from the danger of an accidental infection by a dry antiseptic dressing.

When gangrene of the lower extremities has developed the question when and where to amputate is one of great importance. Generally speaking, local interference in the way of cutting operations on the sloughing tissues is to be avoided. The necrosed part should be kept dry and free from infection if possible. In cases where the gangrene is of the moist variety the infection may be limited by hardening the sloughing tissue by the use of alcohol or formalin dressings applied so as not to further impair the vitality of the adjacent parts.

When the gangrene is limited to one or two of the toes and the circulation in the posterior tibial and dorsal pedis is unimpaired, amputation of the gangrenous toes alone is indicated. If pulsation in the dorsal pedis is absent and that in posterior tibial remains full, amputation below the knee may be considered. When the gangrene has reached the dorsum of the foot, amputation above the knee should always be advised. In these cases obstruction of the popliteal at its bifurcation will in a large percentage of the cases be found, and will constitute an imperative indication for a thigh amputation.

Küster's experience points to the importance of high amputation in diabetic gangrene. Of thirteen cases of amputation below the knee, two of the wounds healed after sloughing of the flap, two patients died after gangrene of the stump had developed, and in nine a second amputation had to be performed. Of seventeen patients in which an amputation above the knee was the primary operation eight died, but without extension of the gangrene, three wounds healed by primary union, three with slight marginal necrosis of flap and three after reamputation for gangrene of the flaps. In my experience necrosis of the flaps, even in thigh amputations, has invariably followed when thrombosis of the veins of the flap was found at the operation. In these cases a higher amputation through tissue in which the vessels are not thrombosed must be made.

In amputations of the lower extremities in diabetics a general anesthetic is unnecessary in most cases and should not be administered. Analgesia by means of spinal cocainization is the method that in my experience insures the least risk to the patient. In the exceptional cases in which unconsciousness is to be desired ether should be the anesthetic of choice. Conservation of the vitality of the tissues is to be attained by rapid operating, with the minimum amount of handling of the tissues and the avoidance, if possible, of circular elastic constriction of the limb. Following amputation, as after every operation, the glycosuric condition should be treated by generally accepted methods, including the most rigid regulation of the diet.

DISCUSSION.

Dr. Henry S. Stark, New York, pointed out that all writers on the surgical aspect of diabetes are a unit in advocating that the main features are to avoid shock and hemorrhage and to prevent coma, but they do not say how to prevent the coma. Surgeons are told to be as expeditious as possible and to avail themselves of every advantage which is to be derived from surgical asepsis; make an incision as small as possible, and operate early in the day, when the patient's constitutional condition is at its best; and to avoid pressure as much as possible, because in diabetics nerve degeneration is apt to ensue. But, he asked, are not all these factors just as applicable in the case of patients who are not diabetics? In all cases it is just as necessary to avoid shock, hemorrhage and coma; so that there are at present no definite data on which the surgeon can act. For example, when the system is below par as the result of a chronic nephritis, or from a chronic inflammation or disease of the liver, surgeons ought to bear in mind all of these points, just as they do when operating on a diabetic. Some authors state that if the excretion of urea per day reaches a certain amount, 3 grams, or that if the blood shows a condition of hyperglycemia, then there is an added danger in operating on a diabetic. But, unfortunately, not many surgeons are able to make the physiologic tests to determine the presence of a hyperglycemia. It is also stated that in case there is a large output of acetone bodies, in other words, when the patient is in a condition of acid toxemia, there is additional danger in operating on such patients. But, again, no definite data are given by which one can determine these things and also overcome the excessive excretion of acetone bodies. Besides, an acidosis is a not infrequent accompaniment of other diseases than diabetes. Dr. Stark said that it is deplorable that physiologic chemists have failed to discover any methods available for the general practitioner to determine the acidity of the urine, and he ventured to say that very few surgeons ever make any tests to determine the quantitative alkalinity of the urine so that many of these points are still in the theoretical stage. One point Dr. Stark mentioned that was not emphasized by the author was the question of gangrene. Is there, he asked, such a distinct pathologic entity as "diabetic gangrene?" He thought not. Pathologists say that the gangrene so common in diabetics merely follows an arterial sclerosis which in itself produces an obliterating endarteritis, and latterly a gangrene which is prone to microbic infection, as are all lesions in diabetes. In a paper read before one of the sections, the author claims that there is no distinction pathologically between diabetic gangrene and the gangrene of Raynaud's disease and erythromelalgia. Regarding the glycosuria, many patients excrete much sugar and yet their general condition is good. Many patients excrete small quantities of sugar and their general condition is very bad. Therefore, it is impossible to determine the patient's condition by the mere estimation of the amount of sugar excreted. Many say that operation ought to be deferred until the system can be freed from sugar. That is not true in every case. Dr. Stark thought that surgeons ought to divide operations on diabetics into two classes: Those done for lesions directly due to the diabetes, such as gangrene, and carbunculosis; and those done for lesions not due to the diabetes.

Dr. A. J. Ochsner, Chicago, believed it is wrong to allow the statement to pass as the opinion of the Section that there is no difference between gangrene due to diabetes and that due to endarteritis or any other cause. Although pathologically there is no difference, there is a very decided and definite difference clinically. The difference is this: If in diabetic gangrene one disposes of the diabetes, the tendency of the gangrene to spread subsides at once. On the other hand, if one does not dispose of the diabetes, there is a progression of the gangrene. In something over 30,000 operative surgical cases that have come under his observation clinically Dr. Ochsner has encountered relatively a large number of cases of diabetes, so that he was speaking from practical observation. In making these observations he had an abundance of opportunity to demonstrate this clinical fact that in gangrene which is due to old age although there is some possibility of changing this tendency by hygienic and dietetic measures, there is not the possibility that there is in gangrene which is due to diabetes. He has now under observation a case that fourteen years ago had diabetic gangrene. By dietetic treatment the diabetes subsided, the gangrene healed and the patient is well, having lost but two toes.

Dr. Ochsner especially emphasized the point that we place these cases in the care of physicians who know how to treat diabetes because surgeons are accustomed to getting through with the patient, while the man who properly treats a diabetic patient treats him personally. By placing the patient in the hands of one who prescribes a diet on which the patient can live with comfort indefinitely, the patient will be satisfied and will remain free from his diabetes, and there will not be a recurrence of the gangrene.

THE TREATMENT OF TRAUMATIC RUPTURE OF THE KIDNEY,

WITH REPORT OF TWO CASES OBSERVED WITHIN EIGHTEEN HOURS.

EDMUND A. BABLER, M.D.
Associate Surgeon, St. Louis Skin and Cancer Hospital.
ST. LOUIS.

GENERAL CONSIDERATIONS.

When Simon, in 1869, removed by lumbar incision the kidney of a woman who had a ureteral fistula opening on the abdominal wall above the pubes, he succeeded not only in proving clearly the erroneousness of Lawrence's contention, that "the kidney, fortunately, was beyond the reach of the surgeon," but also in demonstrating the vital fact that a single kidney is, in many instances at least, capable of performing the duties of itself and mate. Simon's researches created a surgery of the kidney.

Previous to 1878 traumatic rupture of the kidney was regarded of very rare occurrence; Maas could find only 71 cases recorded in the literature. To-day, owing to the advent of the many methods of rapid transit, combined with the increased number of dangerous occupations followed by mankind, the kidney is more frequently ruptured than in former years. Ninety-four per cent. of the patients are males. During childhood we find that the proportion of males drops to 80 per cent., with a corresponding rise in the number of females to 20 per cent. Females are the less exposed, owing to their mode of life and dress and by anatomic differences.

The kidney may be ruptured by either a direct or an indirect blow. Campbell cites a very interesting and instructive case in which the lesion was due to a girl, 14 years of age, doubling up her body forcibly to the left in jumping a hedge. She immediately experienced severe pain with collapse and the passage of bloody urine.

The pathologic findings are variable, ranging from a more or less extensive bruise of the kidney without any distinct tear of the capsule or solution of the kidney reaching the surface to a pulpification of the organ. In Rutherford's remarkable case, operation showed the kidney fractured across and separated from the ureter and blood vessels. Herzog has found that in falls and blows on the lumbar region the hilus of the kidney is usually torn and that retroperitoneal hemorrhage occurs.

In crushing trauma from in front, the kidney is torn anteriorly and crushed; hemorrhage takes place usually into the general peritoneal cavity. Intraperitoneal rupture of the kidney occurs more frequently in childhood than in adults because of the late development of perinephritic fat. Usually the rupture is transverse to the longitudinal axis of the kidney. This is due to anatomic causes. In Phelps' very instructive case the rupture occurred in the longitudinal diameter. Masius believes that the anuria following kidney injury can be explained by the fact that the vagus and splanchnic supply the renal vessels; irritation of the former causes contraction and hence suspension of excretion of urine. Interstitial nephritis in the opposite kidney may follow kidney rupture.

The three principal dangers attendant on renal injury are hemorrhage, anuria and sepsis. In former years sepsis was responsible for a very large percentage of the fatal cases. Complete obstruction of the ureter causes an atrophy of the kidney, while partial obstruction favors the development of renal abscess, a pyo- or a hydro-nephrosis, or a cystic kidney. In many of the cases of renal injury there is only partial obstruction of the ureter; hence the frequency of abscess. In one of Fenger's cases, observed one year after the accident, there was a renal and a hepatic abscess, as well as a collection of pus both below and above the diaphragm.

SYMPTOMS.

Hematuria is one of the most frequent symptoms. Charteris and others have cited cases of complete rupture of the kidney in which hematuria was absent. This was due to obstruction of ureter by means of bloodclot. Newman attended a patient in whom the hematuria following a blow on the abdomen was due to papilloma of the bladder. Neither the persistency of the hematuria nor its severity are reliable criteria of the severity of the lesion. A clot of blood plugging the ureter may be associated with an alarming extra-peritoneal hemorrhage. McPheeters cites a case in point.

Pain of a severe and radiating character is almost always present. In some cases it is referred to the testicle; the latter may be swollen and very tender to palpation. The pain may at first be so slight that the patient refuses medical attention; later it may be excruciating in character. The mere passage of a clot of blood from the kidney into the bladder oftentimes induces great pain.

Prolonged shock is indicative of either peritoneal soiling or, especially if of increasing severity, severe peritoneal hemorrhage. The patient may partially recover from the primary shock, then be seized with excruciating abdominal pain and increasing pallor. This secondary shock is almost invariably indicative of severe peritoneal soiling.

A tumor is not always present; at times it will be overlooked. Its detection is of great import. The temperature may be subnormal. Usually it ranges between 100 F. and 103 F. The pulse is, at times, very misleading. It may be very slow. Dodge pins considerable faith to rigidity of the muscles of the back and flank. He regards them as characteristic of renal rupture.

DIAGNOSIS.

The difficulty of diagnosis lies in those cases in which hematuria is absent or delayed and in those complicated with injuries to other viscera. Even in the apparently difficult cases a careful study of the history of the accident and of the clinical picture as a whole will enable the medical attendant to recognize those cases in which surgical treatment is urgently called for. The character of the injury, the site of impact, the severity and persistency of the collapse, the expression, the character and severity of the pain, the rigidity, the palpable mass, the hemorrhage and the picture in general will almost invariably guide correctly. In every abdominal injury or fall from a height the patient's urine should be examined. This is especially true where the patient sustains a fracture of the lower ribs.

PROGNOSIS.

The prognosis depends materially on the character and severity of the injury and the time and character of the treatment. Many patients recover without the true nature of the lesion having been suspected. In the graver cases the patient succumbs to hemorrhage or sepsis unless operated on. When the injured kidney is the only one possessed by the patient the prognosis is practically hopeless. It seems probable, however, that even in these latter instances it may be possible to bring about recovery, provided the fracture does not involve the renal pelvis. In 22 of Keen's cases, nephrectomy was performed, with a mortality of 36 per cent. Primary nephrectomy yields a larger percentage of renal rupture cures than can be obtained by secondary nephrectomy. Early recognition of the severe cases and early incision will reduce the mortality to below 10 per cent. in uncomplicated cases. Possibly the fatal anuria may be circumvented by enemata of warm saline solution and free diaphoresis.

TREATMENT.

The secret of success in the treatment of traumatic rupture of the kidney lies in the elimination of the "mortality of delay." The first essential question presenting in every case of renal injury refers to the severity of the lesion: Is there profuse hemorrhage or a perirenal collection of urine and blood or a soiling of the peritoneal cavity? When we can, after a careful consideration of the history of the accident, and study of the clinical picture presented, etc., feel confident that prompt exploratory incision is not necessary, the treatment is palliative. The shock is treated according to its severity.

With exploratory incision comes the question of nephrectomy. Before determining whether simple lumbar incision, packing and drainage, or prompt excision of the lacerated kidney is preferable, we must ascertain the condition of the injured organ, the possibility of partial nephrectomy, and the presence or absence of a second kidney. When lumbar incision shows that the large vessels are intact and that the rupture does not involve the renal pelvis, suture and drainage, or packing and drainage, are indicated. The fact that simple packing may produce intestinal obstruction by pressure must not be forgotten. It is worthy of mention that Keetley in 1890 succeeded in excising the pulpified portion of a human kidney. In 1891 Bardenheuer removed one-third of a kidney. These researches necessitate that every inch of the kidney be saved. When a median incision has enabled the surgeon to find a healthy functionating kidney, and when the hemorrhage from the injured organ has been severe, it is safer by far to perform primary nephrectomy than to resort to packing and drainage—measures that may prove inefficient to prevent a secondary hemorrhage, or, eventually, death from sepsis.

In so far as I can determine by a review of the available literature, the credit of performing the first nephrectomy for renal injury belongs to Brandt. The operation was performed in 1873 and the patient recovered. Dodge advocates the McBurney incision. He begins the skin incision at the outer border of the erector spinæ muscle and extends it along the free border of the rib to the anterior axillary line. I have found the technic quite satisfactory. The pseudo-hydronephrosis following renal injury is, in my opinion, best treated by lumbar incision. Aspiration may bring satisfactory results, but the uncertainty of the procedure condemns it.

REPORT OF CASES.

Case 1.—About 8:10 p. m., Aug. 24, 1906, patient was seen in consultation with Dr. A. S. Bleyer, to whom I am indebted for the following data:

"*History.*—August P., fresco-painter; age 24; German; convalescent from an attack of typhoid fever. At 6:40 p. m., while riding north on a motor-cycle, he ran into an automobile which was going south and had suddenly turned east. The mud-guard struck him a severe blow in the left lumbar region; he clung to the mud-guard of the automobile and was carried, on his cycle, a distance of about fifty feet. He was lifted off the automobile and cycle and carried to the curbing, from whence he walked to office—a distance of 150 yards.

"*Examination.*—On my arrival, half an hour later, the patient was lying, undressed, on a couch. He was deep in shock; color, ashen; lips, pale; expression distressingly anxious; pulse 108 and weak; respirations 32, and purely thoracic; pupils equal and reacted to light; temperature 97.5 F.; left rectus very rigid; absence of intestinal peristalsis; catheterization showed large amount of blood in the urine. Patient complained of severe pain of paroxysmal character in the left abdomen; there was also severe pain in the region of the right kidney, radiating to the testicle. Neither flatus nor feces had been passed since the accident. After the administration of warm saline enema, and atropin sulphate, and the application of hot bottles, the shock seemed somewhat lessened.

"*Diagnosis.*—Rupture of the left kidney, and of intestines. A messenger was sent to notify the patient's friends. Dr. Babler was telephoned for, and an ambulance called."

Subsequent History.—After going over the case with Dr. Bleyer, I was confident that his diagnosis was unquestionable. Dr. Bleyer accompanied the patient to the hospital. One hour later I again went over the case with him, and we again urged immediate operation, but the patient remained firm in his decision to die rather than to be operated on. At this time his condition was decidedly worse; pulse 122; respirations 38; shock deeper; abdominal pain increased; frequent passage of bloody urine; nauseated; very restless.

We saw the patient at intervals of one or two hours until after 1 a. m. We tried repeatedly to reach his physician, but without success. It was very discouraging to be compelled to go away that morning knowing only too well the fate that would surely follow the unfortunate fellow's refusal. At 5:30 a. m. the condition of the patient was decidedly worse. The features were pale and distressed; the pulse was 148; respirations were now 44, and thoracic in character; the abdomen was markedly distended, and the recti were rigid; the bowels had not moved and flatus had not been passed; nausea and vomiting were prominent; the urine showed no signs of clearing. The abdominal pains were very severe and of a paroxysmal character. The poor fellow remained firm in his decision. Several hours were spent in trying to reach the family physician, and we were eventually successful. The consultation was held at noon. The opinion that immediate operation was absolutely necessary, was unanimous. The patient continued to refuse operation, and was persuaded by his wrongly-directed friends to be removed to a far-distant hospital, where operation confirmed our diagnosis. The patient died, so I am told, the same night.

Case 2.—My second patient was seen about 1:30 p. m. Aug. 25, 1906, through the courtesy of Dr. Louis W. Ehrlich of 1831 S. Ninth St., to whom I am indebted for the following data:

"*History.*—About 9 p. m., Aug. 24, 1906, Bernard H., a schoolboy 10 years of age, fell from a porch to the brick pavement, a distance of 12 feet. In the descent the lad's right thigh struck the sharp portion of the top of a whisky barrel, thereby forcing his body forward and to the right; the top of the barrel then came in contact with the lower ribs, forcing the latter upward and backward.

"*Examination.*—On my arrival, the patient was found in moderate shock; pulse 98; temperature 97.5 F.; respirations 22 and of an abdominal type; pupils equal and reacted to light; palpation revealed absence of abdominal rigidity, but presence of marked tenderness in region of right kidney. No evidences of lumbar tumor of palpable size; catheterization showed urine free from blood. A deep and long laceration was found on outer and upper surface of right thigh. Flatus was passed since accident. The lad complained of more or less severe pain in the region of the right kidney, and along the course of the right ureter. The wound was then dressed, and instructions given to notify me promptly in case of appearance of unfavorable symptoms. Owing to the nature of the accident the probability of renal injury was seriously considered. On the following morning the lad's condition was not improved. In fact, the temperature was 99.5 F., pulse 100, urine contained considerable blood, and there was marked tenderness and palpable swelling in right lumbar region. Within an hour thereafter the pulse reached 110 and temperature 100.2 F. There were radiating pains along the course of right ureter, and the right testicle was retracted and tender. Renal rupture was diagnosed, and Dr. Babler was called in consultation."

When Dr. Ehrlich and I reached the patient's bedside the pulse was 130, temperature 100.5 F., but the brave little lad did not complain of severe pain in the abdomen. On careful examination I confirmed Dr. Ehrlich's diagnosis, and advised prompt operation. The pelvic mass, which was found on rectal palpation, diminished in size when the patient was catheterized, and since the clinical findings did not indicate a bladder lesion, we concluded that the mass was the bladder, partially filled with blood clots.

Operation.—The patient was sent to the Lutheran Hospital and prepared for immediate operation. Under ether anesthesia, a median incision revealed the presence of the left kidney in apparently normal condition; a large, tense, fluctuating mass in the region of the right kidney; and along the entire course of the right ureter was a column of blood and urine apparently two inches in diameter. The peritoneum was now closed, and gauze pads placed over the parts, while the bladder was exposed extraperitoneally, and a small incision made through its anterior wall. At least a quart of clotted blood was evacuated; the bladder was then irrigated thoroughly, and closed by means of catgut sutures. A very small drain was placed in the lower end of abdominal incision and the wound closed in layers, and then dressed. Turning the patient on the left side, a McBurney incision was then made. About three pints of urine and blood escaped; the kidney was found ruptured transversely in three places. The fracture in the middle third of the kidney extended into the renal pelvis. It seemed useless, owing to the condition of the organ, the condition of the patient, and the dangers attendant on probable infection, to attempt to repair and replace the kidney. Nephrectomy was performed. All drains were removed by the third day. Both wounds were healed at the end of a week. The lad left the hospital on the twelfth day. Dr. Ehrlich told me at the time of writing that the lad is in excellent condition.

CONCLUSIONS.

1. Careful consideration of the nature of the accident, combined with due appreciation of the clinical findings, render an early diagnosis fairly easy.

2. Hemorrhage and sepsis are responsible for a very large percentage of the mortality. The elimination of this "mortality of uncertainty and delay" by means of early diagnosis and proper treatment will reduce very materially the number of deaths following traumatic rupture of the kidney.

3. The severity of the lesion, the presence or absence of a second functionating kidney and the condition of the patient regulate the character of the treatment.

4. Warm saline enemata administered every hour or so yield surprisingly good results.

5. The secret of success in the treatment of renal rupture lies in determining not only the necessity of operation, but also the preferable technic.

6. When blood has clotted in the bladder, the clots should be evacuated through an extraperitoneal incision, the bladder flushed with warm salt solution and then sutured.

4826 Delmar Boulevard.

Aqueous Lotions in Acute Skin Diseases.—Never use aqueous lotions in acute vesicular or erythematous eczema, for water will always irritate the lesions and intensify the pathologic process. Protection is the indication, and pastes or powders are useful in such cases.—Aronstam, in *Medical Fortnightly.*

INVOLVEMENT OF THE CORNEA AND BULBAR CONJUNCTIVA IN THE SECONDARY STAGE OF SYPHILIS.

BROWN PUSEY, M.D.
CHICAGO.

Involvement of the cornea in the secondary stage of syphilis is not referred to in the literature as a possibility. Its neighboring structure, the conjunctiva bulbi, in a few instances, has been found involved in the secondary manifestations of this disease, but such involvement is of the greatest rarity, a careful search of the literature revealing records of only a few such cases. Recently, in my service at the Cook County Hospital, I had a case showing secondary syphilitic pustular eruptions involving the cornea and the conjunctiva of the globe and lids.

Patient.—T. O., aged 22, male, a porter by occupation, was admitted to the dermatologic division of Cook County Hospital April 19, 1905, where the diagnosis of syphilis in the secondary stage, which was made at the receiving room, was confirmed by the attending dermatologist, Dr. William Allen Pusey. On the following day, because of the eye conditions, the man was transferred to my service. Little of interest is obtained from his former history. He has been frequently exposed to venereal infection and has had gonorrhea several times. The present trouble was first noticed about six weeks ago when he "broke out" over the body, limbs and face.

Examination.—When admitted the general condition of the man was much below par and he said that he had lost a good deal in weight. Temperature was 100. There was a generalized macular eruption with some papules and pustules. The eruption was abundant, symmetrical and universal. The mucosa of the mouth was involved. There was a general adenopathy, the posterior cervical glands being much enlarged. About two weeks previously the knees became tender and swollen and when admitted there was considerable fluid in both joints. He walked with a limp. The patient said that so far as he knows he has not had any recent sore on his penis or any suspicious sore anywhere else; there is no question of his being exposed frequently. No scar of a primary syphilitic sore can be discovered on the penis. The eyes had become involved about four weeks before admission. The conjunctivæ of the lids and globe of both eyes were the seats of pustular eruptions. In the left eye several of these pustules were located on the ocular conjunctiva, and three on the margin of the lid; in the right eye there was one large pustule a little removed from limbus at the outer side, three on the margin of the lid, and a pustule a little above the center of the cornea. The pustules varied in size; those at the margin of the lid of the left eye had a diameter of 3 mm. or 4 mm.; the one on the cornea had a diameter of about 1.5 mm. They were covered by a yellowish exudate and had a somewhat punched-out floor. The conjunctivæ of both eyes were diffusely hyperemic, and the vessels of the limbus region of the right eye were engorged. There was lachrymation and the patient complained of photophobia. He said that at first the left eye was the worse, and that it had become better; at the margin of the cornea to the outer side there is a scar which possibly represents a part of the present process—a healed ulcer.

Treatment.—The man had had no treatment. He was put on protoiodid of mercury, ½ grain, and 20 grains of potassium iodid, three times a day; after five days the mercury was increased to ¾ grain. Locally the eyes were irrigated three times daily with boric acid solution, which was followed by the application of a drop or two of 10 per cent. solution of protargol. At first atropin was used. Within three or four days the man was markedly better; the eyes began to clear up, the fluid in the knee joints disappeared, he had a good appetite and felt decidedly better. By the fifth day only a grayish scar was left to mark the seat of the corneal ulcer, and in two weeks his eyes were entirely quiet.

The literature on the subject of secondary syphilides of the bulbar conjunctiva may be said to begin with the report in 1845 of Smee.[1] In 1861 John F. France[2] reported three cases and says:

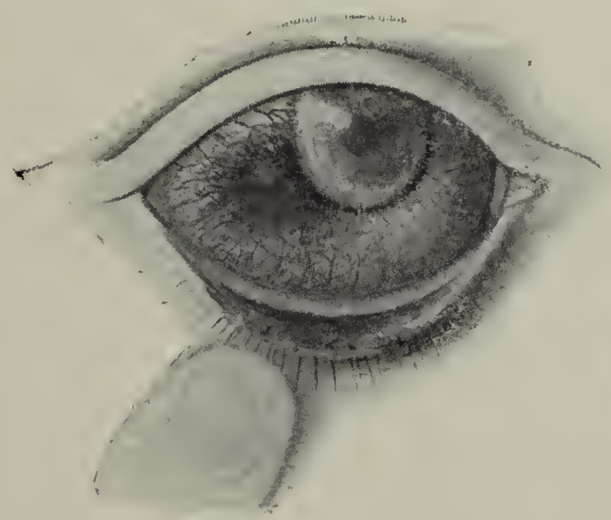
> This form of disease presents itself as a limited and well-defined discoloration of the mucous membrane of the globe, which within the affected area is slightly thickened and raised, but not conspicuously, if at all, more than the neighboring surface. There does not seem to be any disposition to ulceration as when the margin of the lid is attacked with syphilis; there is no pain and no morbid discharge.

France gives Smee the credit of priority in the observation of these cases. Desmarres,[3] in 1855, recorded a case of secondary syphilid of the conjunctiva bulbi. In 1876 Savy[4] recorded two cases of syphilitic papular eruption of the conjunctiva bulbi, and in 1880 Sichel[5] recorded a case. The diagnosis in Sichel's case was confirmed by Fournier and Ricord and in Sichel's article is found the interesting statement from Fournier that Sichel's case was the second of the kind that he had seen in his extensive experience. From 1881 to the present time Dor,[6] Fialkowsky,[7] Lang,[8] Trapesnikow,[9] Fromaget,[10] Herter,[11] Terson,[12] Gutmann,[13] Rothschild,[14] Staelin,[15] v. Michel,[16] Wolff,[17] Lavagna,[18] Schreiber (2),[19] Schrapringer,[20] and Enslin[21] have reported such cases. This sums up, including my case, twenty-seven cases.

I have been prompted to collect these cases and they are noted here because of the diverse statements that I met in the first study of my case. In the most recent work of reference, the Graefe-Sæmisch "Handbuch der Gesammte Augenheilkunde," 1904, p. 751, one finds in the consideration of syphilitic diseases of the conjunctiva the statement from Groenouw: "Syphilitic papules of the conjunctiva were formerly held to be rare; probably, however, they were frequently overlooked, since they usually cause no subjective disturbances." And on page 752, in speaking in general of the condition, he says: "Located frequently on the conjunctiva of the bulb." In contrast to Groenouw's consideration of the subject, where one, as regards the frequency of the condition, can only get the impression that involvement of the bulbar conjunctiva is not rare in secondary syphilis, are the reports of Schreiber and v. Michel. Schreiber wrote from the clinic of Lang in the *Allgemeinen Krankenhaus* in Vienna—surely an authoritative source—and emphasized the rarity of the condition. Prof. v. Michel recorded his case as one of great rarity. The result of my effort in collecting recorded cases, as was noted, is twenty-seven cases, which confirms the views of Schreiber and v. Michel, and warrants certainly the statement that involvement of the bulbar conjunctiva in secondary syphilis is rare.

Involvement of the cornea in the secondary stage of syphilis must be extremely rare, for, as was said at the beginning of the report of this case, such involvement is not mentioned in the literature as a possibility. In the case here recorded, involvement of the cornea existed along with involvement of the conjunctiva, and such a combination would seem most likely. In going over the records of the conjunctival cases this idea has been borne in mind.

In a foregoing paragraph I quoted from the description given by France of his case. This was done primarily because the written description—barring the copper color, which, by the way, is of uncertain quantity—and the pictures remind one somewhat of vernal conjunctivitis. No emphasis is necessary to point out the possibility of confusing this condition with phlyctenulæ. Another condition which may have to be considered in differential diagnosis is an eruption of herpes zoster in the region of the trigeminus, as was true in v. Michel's case in which at the first view of the patient a zoster eruption was thought of.



Secondary syphilid of cornea and bulbar conjunctiva.

Locomotive Built by Metric System.—The opponents of the introduction of the metric system into America, says the *Scientific American*, have asserted that its use would involve endless confusion in our mills in which the operators have been accustomed all their lives to the English measurements. It has been claimed that the change would thoroughly disorganize the working forces, and involve many months of time and a great loss of money. The Baldwin locomotive works, however, has proved that in this case, at least, "an ounce of fact is worth a ton of theory;" for they recently built twenty locomotives for a French railroad, entirely from drawings made on the metric system. The successful execution of such a large order is a strong indorsement of the system as tried under American shop conditions. The *Scientific American* is informed that not only have the locomotives fulfilled strictly the requirements of the specifications, but that the officers of the company were favorably impressed with the working of the new system.

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[1] Case of Copper-Colored Syphilitic Eruption Affecting the Conjunctiva. London Medical Gazette, 1844-45, i.

[2] Syphilitic Blotch of the Conjunctiva. Guy's Hospital Reports. Third Series, 1861, vii, 109.

[3] Affections Syphilitiques de la conjonctive. Traite des Mal des Yeux. Paris, 1855, p. 213.

[4] Contribution a l'etude des eruptions de la conjonctive. These de Paris, 1876.

[5] Ein Fall von Conjunctivalsyphilid. Centralle f. p. Augenhk., 1880, p. 145.

[6] Papules syphilitiques de la conjonctive palpebrale et bulbaire. Rapport de la clin. Lyon, 1881.

[7] Ein Fall von papuloser Syphilis der conjunctive bulbi. Wratsch, 1881, p. 73.

[8] Vorlesungen über Pathologie und Therapie der Syphilis. Wiesbaden, 1884-86. p. 322.

[9] Ein Fall von Schleimhautpapeln auf der Augenbindhaut. Wratsch, 1891, p. 777.

[10] Syphilis secondaire de la conjonctive bulbaire. Gaz. hebd. des sc. med. de Bordeaux, 1893, No. 32, p. 382.

[11] Syphilitische Schleimhautpapeln der conjunctiva bulbi. Klin. Monatsb. f. Augenhk, 1894, xxxii, p. 200.

[12] Les papules syphilitiques de la conjonctive. Gazette Med. de Paris, 1894, No. 17, p. 196.

[13] Papuloser Syphilid der Conjunctiva bulbi. Deutsche med. Wochschr., 1895, p. 138.

[14] Syphilide papuleuse de la conjonctive, pres du bord de la cornée. Rev. Generale d'opht., 1895, p. 99.

[15] Syphilitische Schleimpapeln der conjunctiva. Monatsb. f. prak. Dermatologie, 1895, xx, p. 20.

[16] Klin Beiträge zur Kenntniss Seltener Krankheiten der Lidhant u. Bindehaut. Arch. f. Augenhk., 1900, xlii, p. 8.

[17] Weber Syphilitische Papel der Augapfelschleimhaut. Berl. klin. Wochschr., 1900, p. 57.

[18] Sulla sifilide oculare. Bollet d'Ocul., 1902, xxi, p. 17.

[19] Ueber, Zwei Fälle von Syphilitische Papeln der Conjunctiva bulbi. Arch. f. Augenhk., xlii, p, 259.

[20] Plaques muqueses der Augapfelbindehaut. New York Med. Monats., 1902, xlv, p. 34.

[21] Stereoskopischen Med. Atlas v. Neisser Plate 611.

LUPUS ERYTHEMATOSUS.*

M. L. HEIDINGSFELD, M.D.
Dermatologist to Cincinnati Hospital.
CINCINNATI.

The etiology of lupus erythematosus remains to the present day an unsolved dermatologic problem, in spite of the somewhat commonplace character of the affection, and the large number of careful and painstaking researches in that direction. Its frequency, notwithstanding its world-wide distribution, is variously estimated. From the records of the American Dermatologic Association it occurs once in three hundred dermatologic cases in the United States, with marked fluctuations with respect to locality. Voirol[1] reports only one case in every 833 cases of a dermatologic nature in Berlin; Crocker reports one in every 55 cases in private practice in London, and Jadassohn[2] one in every 66 cases (in private practice in Berne), and one in every 78 cases in dispensary and hospital practice.

This seeming disparity is probably more dependent on factors pertaining to personal observation, particularly the case with which the acute disseminated forms, and mild chronic circumscribed types can be mistaken for obscure types of eczema, simple dermatitis, seborrheic eczema, psoriasis, etc., rather than epidemic influences or anything pertaining to locality, clime, altitude, vocation, and allied conditions. My personal experience in private practice for the year 1906, shows that it occurs one-third as frequently as acne vulgaris, as frequently as acne rosacea, slightly more frequently than psoriasis and scabies, seven times as frequently as lupus vulgaris and constitutes 34 per cent. of all dermatologic cases. The relative far greater frequency of tuberculosis cutis makes lupus vulgaris from statistical records a much more frequent affection in Europe than lupus erythematosus, whereas the converse is true in America.

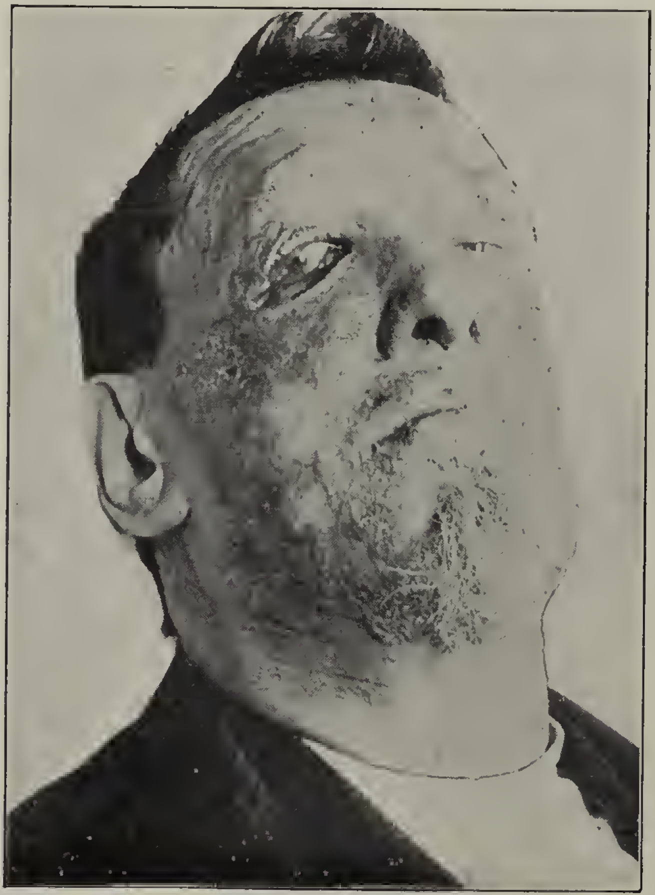

Fig. 1.—Case 1: Lupus erythematosus of unusually severe type involving the entire right portion of the face, right eye, forehead, nose and a portion of the left cheek, taken at time when patient first presented himself.

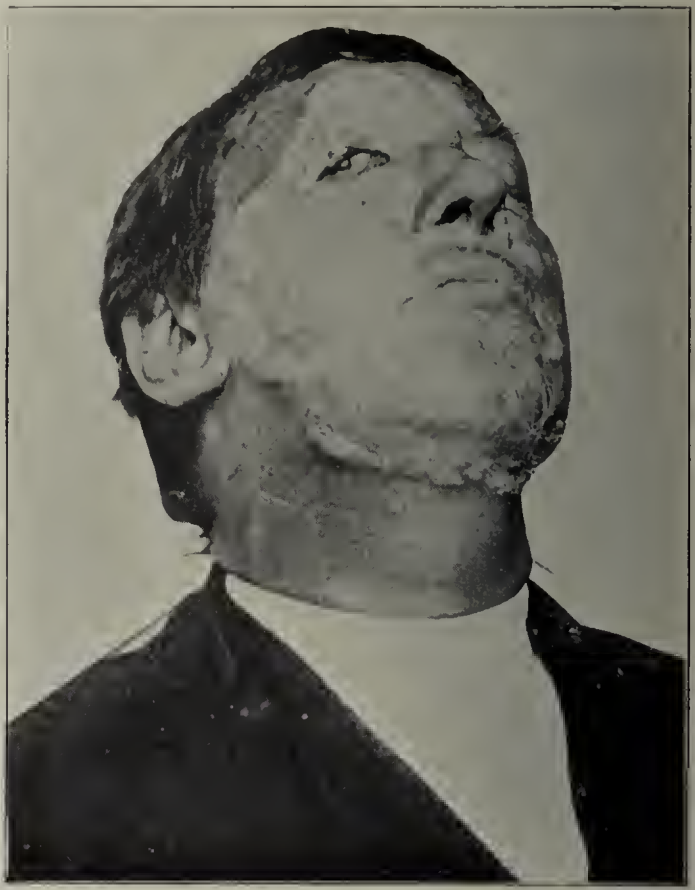

Fig. 2.—Case 1: Taken three months after favorable treatment. Central areas for the most part healed; border actively spreading at all points.

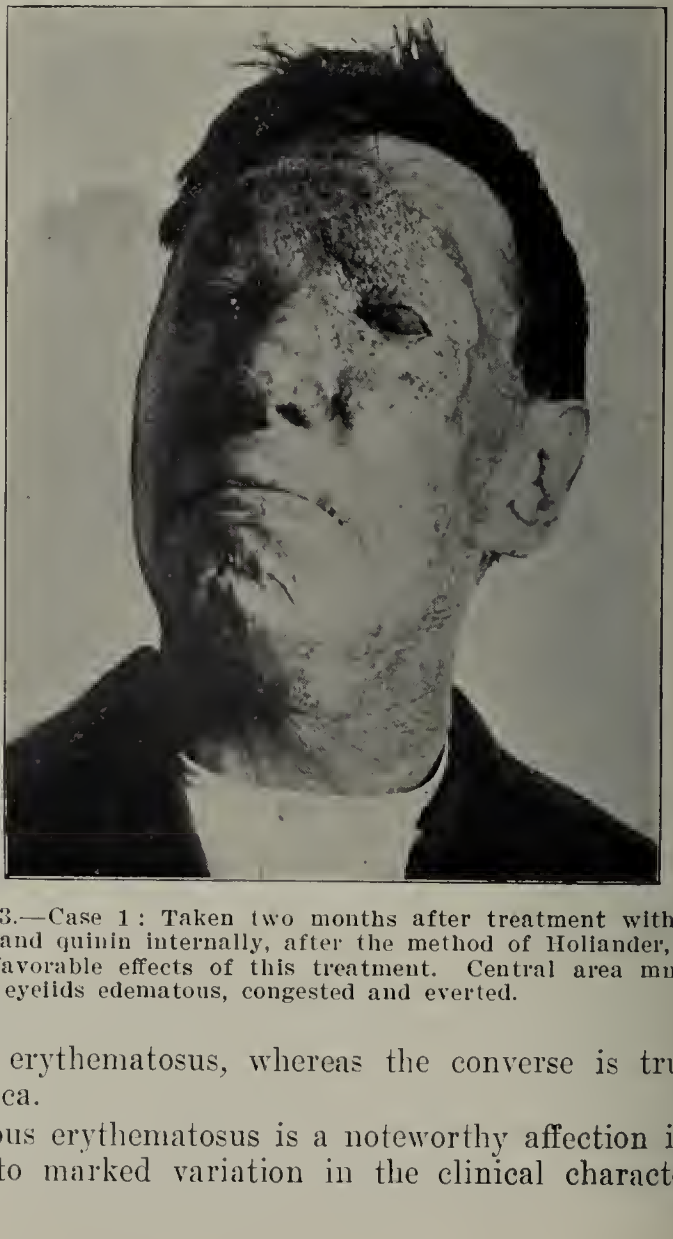

Fig. 3.—Case 1: Taken two months after treatment with iodin locally and quinin internally, after the method of Hollander, showing unfavorable effects of this treatment. Central area much inflamed, eyelids edematous, congested and everted.

Lupus erythematosus is a noteworthy affection in regard to marked variation in the clinical character of the chronic types. Kaposi's[3] convenient and generally accepted division of the affection into the acute and chronic forms, requires no special comment, and inasmuch as the acute form represents a separate and distinct type, whose direct relationship to the chronic forms remains, as Jadassohn states, one of the most difficult questions with which dermatology has yet to deal, this paper will be devoted purely to the consideration of the chronic forms. Jadassohn describes the average case of chronic type as follows:

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* Read in the Section on Cutaneous Medicine and Surgery of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907. Some of the illustrations accompanying this article, for lack of space, have been omitted; they will appear in full in the Transactions and in the author's reprints.

[1] Deutsche Med., 1903.

[2] Mracek Hand-Book, 1904, iii, 385. (This handbook contains a complete bibliography.)

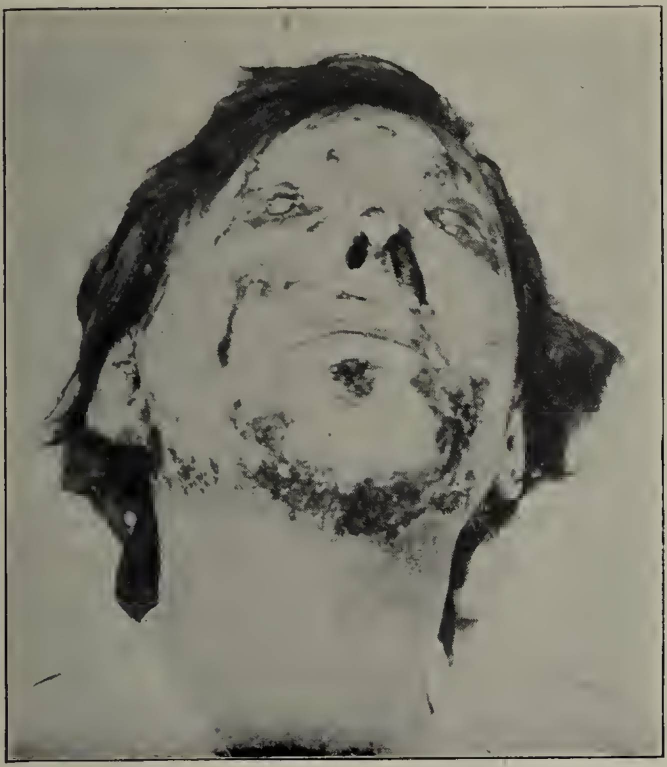

Fig. 4.—Case 1: Taken a year and a half after the Hollander treatment; patient blind and presenting horrible disfigurement.

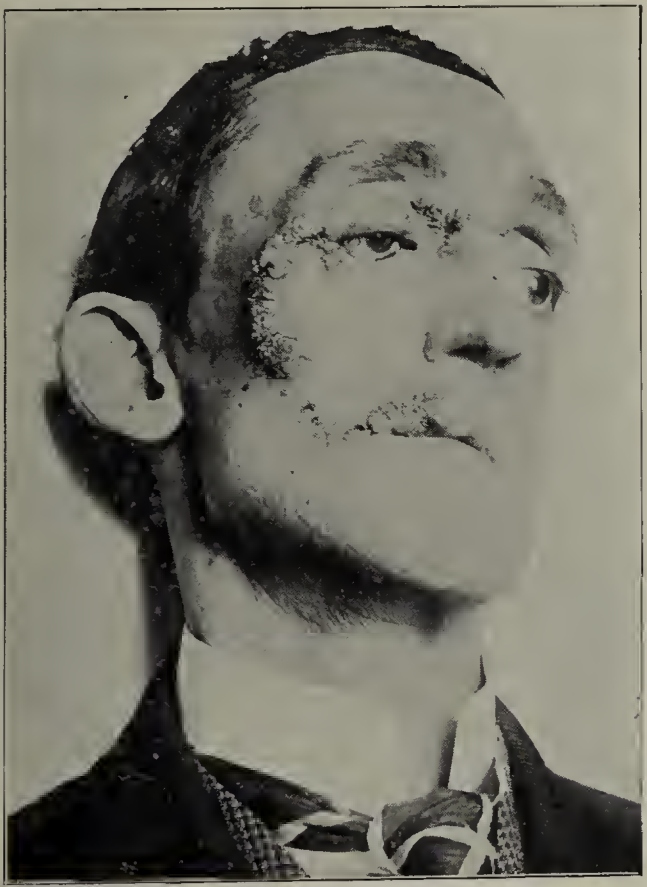

Fig. 5.—Case 2: Lupus erythematosus of same type as Case 1; taken when a portion of the actively spreading border has been surgically removed. Right eye involved as in Case 1.

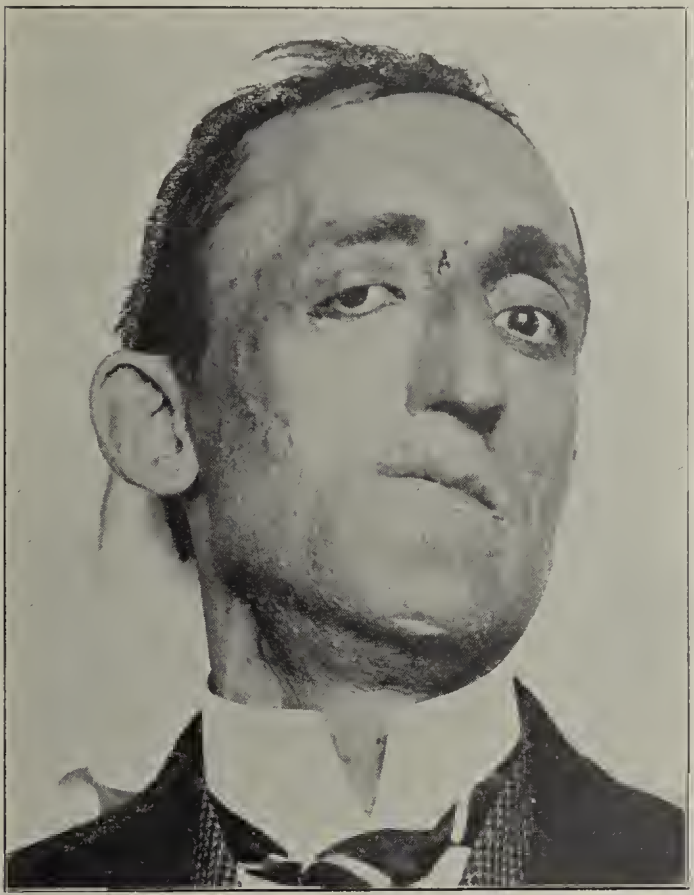

Fig. 6.—Case 2: Showing active border entirely removed by surgical extirpation, with cicatrized center; patient well.

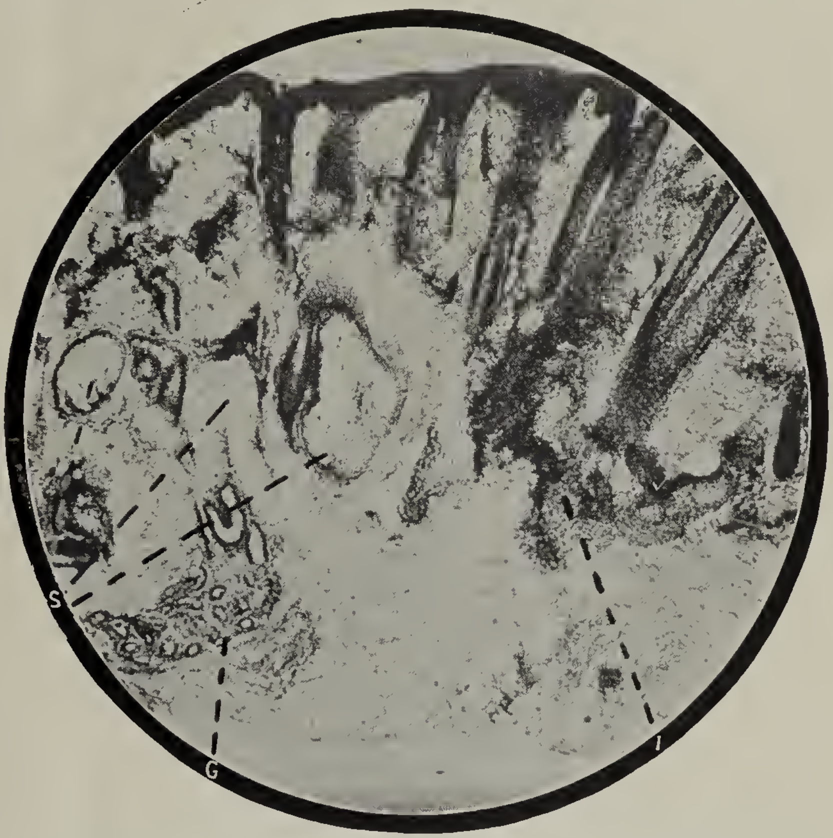

Fig. 7.—Early stage of lupus erythematosus, showing hypertrophy of the sebaceous glands (S), of the sweat glands (G), and hair follicle surrounded by a mild degree of reactionary infiltration (I).

Lupus erythematosus usually begins as a small light red non-infiltrated macule, with little or no elevation, desquamating early, and presenting after a longer or shorter period of time a differential shading of center and border. The center fades, becomes somewhat depressed, and takes on a whitish, brownish or purplish red discoloration. Its surface becomes smoother, and covered with a scale, whose under surface may contain plugs, which conform to depressions on the surface from which it has been removed. This lesion enlarges slowly and equally in all directions; the center and border differentiate themselves more sharply; after a period of time the lesion assumes a round, flat character, lupus erythematosus discoides, with a faintly depressed flat center, and a more or less broad, sharply circumscribed light or bluish-red border. This border is slightly elevated and perceptibly though superficially infiltrated. The surface is either smooth, or the follicular orifices are the seat of larger or smaller depressions, and are filled with whitish, sometimes blackish masses, which in the most typical cases resemble comedones. Sometimes the border is covered with a dry whitish, or a greasy yellowish or greenish mass of scales, whose under surface is covered with the same characteristic plugs. Pressure with a small, dull instrument produces an impression, and is evidence of an associated localized edema; sometimes the epidermis ruptures to slight pressure, as in lupus vulgaris, and free hemorrhage results. These variations form a series from the most superficial changes with light red discoloration, to the deep infiltrated nodular forms; with desquamation of the mildest type to thick crust formation; with light red to deep blue, and brownish-red discoloration; with faint atrophy to deep scar-like contractures; with telangiectasis of the finest capillaries to vessels of considerable size; with follicular orifices filled with a faint whitish plug; to comedo-like masses. And all these variations may be combined in a single case temporarily, or exist singly for a longer, or shorter, or sometimes an indefinite period of time.

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[3] Arch. f. Dermat., 1872, p. 36.

CLINICAL REPORT.

With this brief review I wish to present for clinical consideration two cases of unusually severe nature of almost intractable character, with complications on the part of the conjunctival mucous membranes.

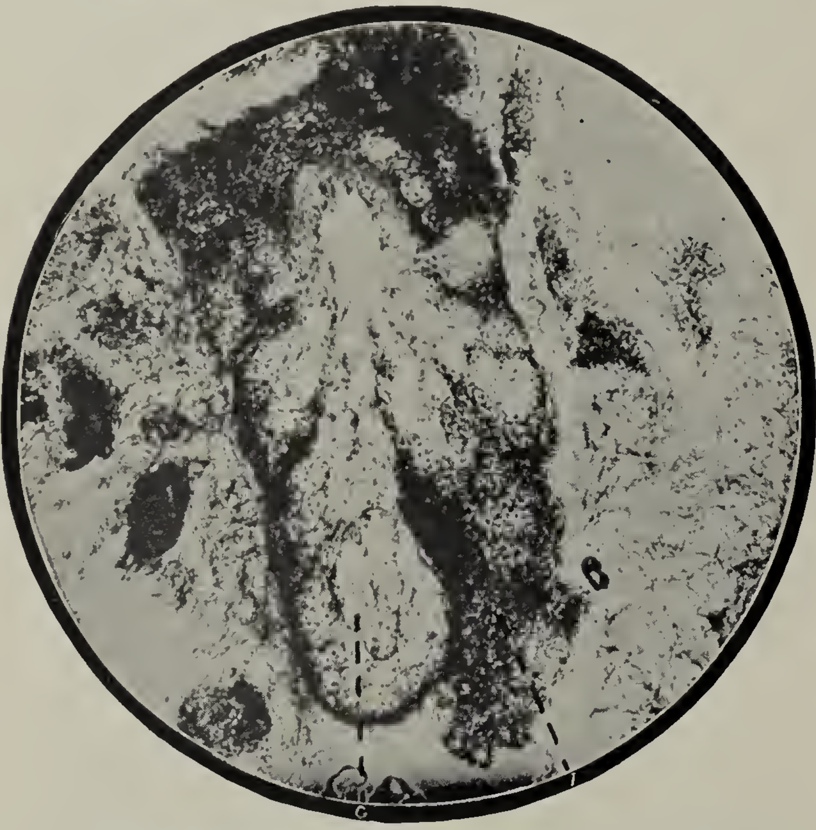

Fig. 9.—Sebaceous gland (G), hypertrophied and enveloped with a mass of inflammatory exudate (I). Intermediate magnification.

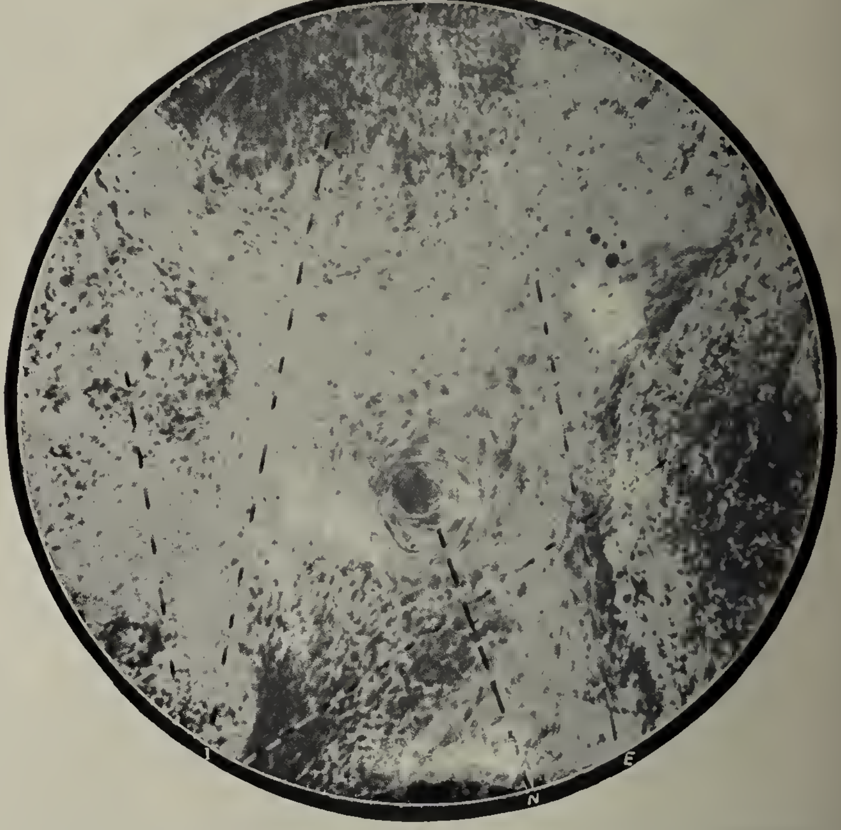

Fig. 15.—Lupus erythematosus, showing epithelial overgrowth (E), surrounded with inflammatory infiltrate (I) and containing a nest (N) simulating epithelioma.

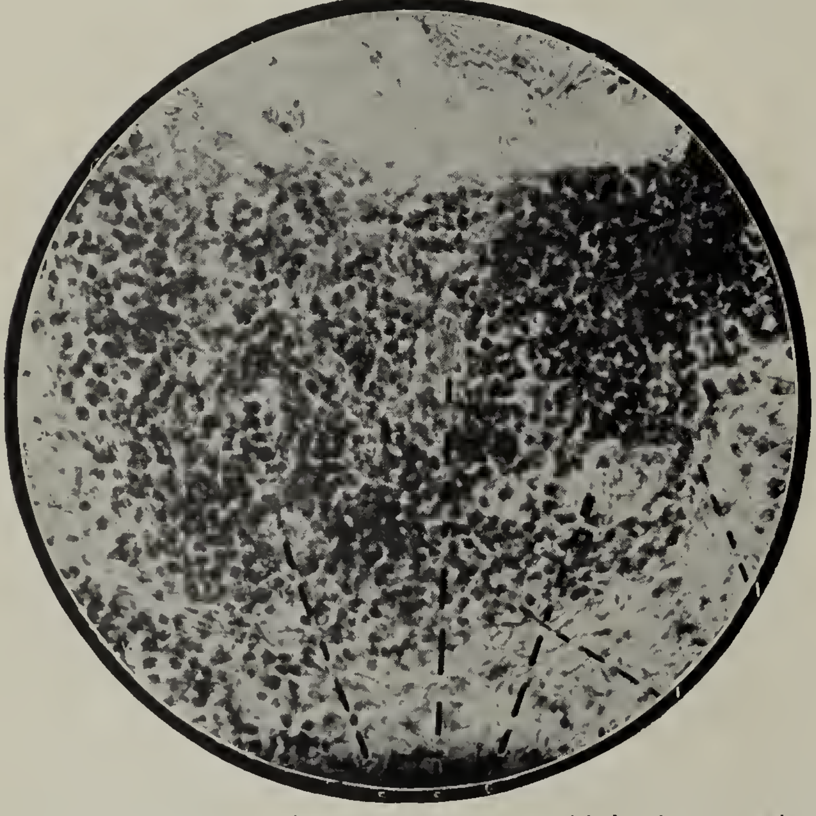

Fig. 10.—Remnants of previously hypertrophied sebaceous gland (S) (G) completely enveloped and almost entirely destroyed by inflammatory exudate (I); under high power.

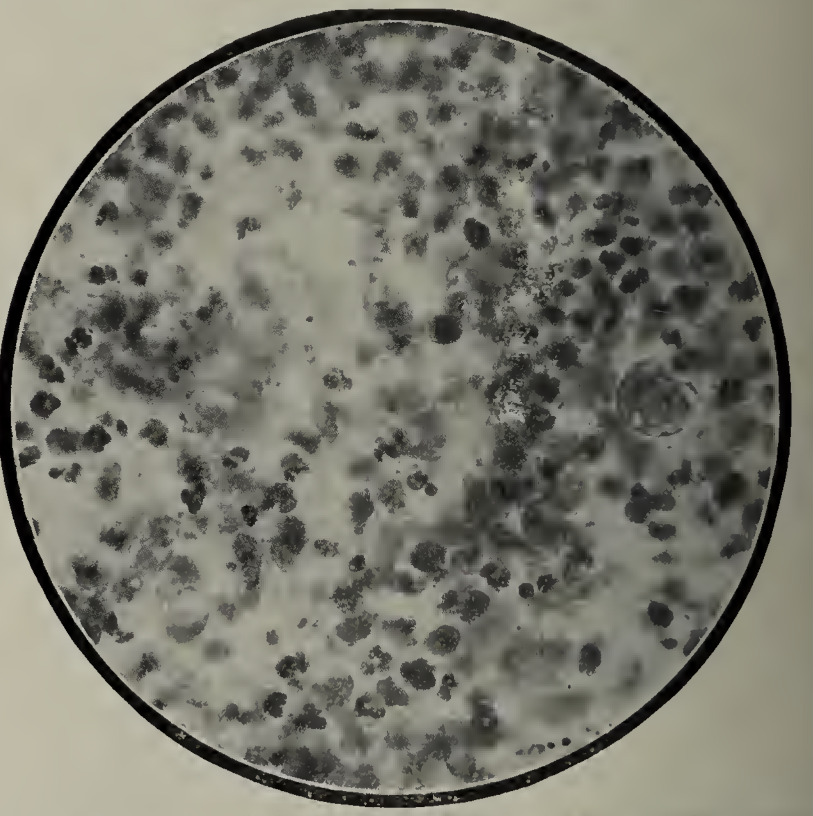

Fig. 19.—Characteristic cellular exudate of lupus erythematosus of deeply stained mononuclear cells containing a large double contoured body simulating blastomycosis.

Although the direct transgression of lupus erythematosus from cutaneous surface to mucous membranes has been clinically observed for many years, but little attention has been directed to this phase of the affection until recent years. The mucous membranes most commonly involved are those of the lips, cheeks and palate, and more rarely of the gums, tongue, nose, tonsils, pharynx, larynx and uvula. In a review of some of these cases Jadassohn justly states that correctness of the diagnosis in many is open to serious question. Involvement of the conjunctival mucous membrane is exceedingly rare, the literature revealing but a single instance, a case which is reported by Lustgarten,[4] as occurring in a 20-year-old Russian, of 12 years' duration, involving cheeks, scalp, lips and conjunctiva of the lower eyelids. This case was presented to the New York Dermatologic Society, May 25, 1897, and the pecu-

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4. Jour. Cut. Dis., 1897, p. 529.

liarity of the cicatrices led Klotz to remark that the case bore a deceptive resemblance to lupus vulgaris. Lustgarten describes the lesion of the eye as a conjunctivitis, which Jadassohn believes could have been a mere coincident, as in the case of hypopyon, and inflammation of the lids observed in Abraham's case of lupus erythematosus involving the hand and face.

CLINICAL REPORT.

Case 1.—*History.*—Mr. C. P., watchmaker, aged 66 years, married, presented himself for examination March 22, 1904. He was born in Switzerland, served in the army and field, has always been robust and well; his family history was excellent. He came to America and married in this country at an early age, and had never had any venereal disease; his wife, aged 64, is robust and well, and the only children born to them, two married daughters, were in excellent health. His present ailment dates back eight to nine years, and began on the chin and nose in the form of two small red patches, and spread thence perceptibly to the left and right cheeks.

Examination.—Physical examination and inspection showed the patient to be in excellent health, and bearing no evidence of any associated or previous form of ailment. The entire right cheek, nose, chin, and a broad area entirely encircling the right eye, extending well over the lower half of the right forehead, was the seat of an active area of inflammation, with a sharp, circumscribed, well defined, slightly but superficially infiltrated border, somewhat elevated above the surrounding normal skin and the fading central portion of the lesion (Fig. 1). The slightly elevated border sloped gradually towards the fading center, which in areas was smooth, white, glistening in appearance, and free from hair, scales and inflammatory products. The remainder was covered with adherent scales, whose under surface on removal was studded with numerous slender, sharp-pointed plugs, with a distribution corresponding to their insertion into the patulous orifices of ducts and hair follicles. The border was covered with yellowish-red and grayish-black greasy concretions soft and edematous to pressure, somewhat painful and prone to hemorrhage on removal. The inflamed area was studded with many comedo-like bodies. The left cheek was the seat of a smooth depressed atrophic-looking cicatrix, evidence of former activity and presenting signs of recurring activity in the form of small, circumscribed, freshly inflamed areas. The hair of the mustache and beard had almost entirely disappeared with the exception of a small tuft on the chin. The mucous membrane of the upper and lower lip, and the orifice of the nose was involved by the direct extension of the process and was reddened and inflamed, granular in appearance, and covered with bran-like scales. The mucous membrane of the right eye was congested in color, irregularly eroded, granular and edematous in appearance and markedly ectropic. Both upper and lower lids of this eye and the lower lid of the left eye were the seats of active lesions. The eyelashes had entirely disappeared from the right eye and nearly all the hairs from the right eyebrow.

Treatment.—From March 22 to June 11, 1904, patient was subjected to the Roentgen ray exposures, supplemented with topical applications of the following formula:

℞.	gm.		
Resorcin	10	0	ʒiii
Gum tragacanth	2	0	grs. xxxv
Glycerin	5	0	fl. ʒiss
Distilled water	100	0	fl. ℥iv

During this brief period of time showed the greatest degree of improvement ever manifested. The central area became smooth, paler in color, and all evidence of active inflammation disappeared save from the border, and a few small circumscribed points, over the chin, lips and eyelids. The inflamed, infiltrated border became greatly narrowed, less inflamed, infiltrated, elevated and crust covered. The patient felt greatly relieved and less annoyed with the previous intolerable itching and burning, except for increased irritation on the parts of the eyes. The border, however, steadily advanced in circumference, and transgressed to the upper eyelid of the left eye, and well beyond that of the right eye to the border of the scalp (Fig. 2). This treatment was continued without material change with the same degree of improvement until Oct. 25, 1904, when iodin was applied locally and quinin administered internally after the method of Hollander,[5] reported at the time to possess almost specific properties. This iodin-quinin treatment was promptly followed by an intense and painful reaction, first manifested by an increased redness, and painful swelling of the inflamed borders, the small patch on the chin, and the muco-cutaneous border of the nasal orifices, accompanied with pronounced itching, burning and pain (Fig. 3). This treatment was continued in spite of its increased unpleasant effects until November 16, when the extreme discomfort of the patient, the increased inflamed condition of the border, and an inflammatory reaction on the part of the cicatrized areas, discouraged further therapeutic attempts in this special direction. Immediately following the suspension of this treatment two-thirds of the area originally involved became intensely inflamed, in spite of the free use of antiphlogistic remedies in the form of lotions, ointments and cold compresses, and covered with scales, crusts and studded with painful fissures and small abscesses. Severe conjunctivitis of both eyes, and an iritis of the right eye were added to the list of unpleasant complications (Fig. 4). This inflammation improved slowly under prolonged treatment, but the condition never regained the former degree of improvement attained by the use of the *x*-ray with local applications of resorcin. Other measures which were subsequently more or less unsuccessfully employed were Lassar paste, mercurial plaster, high frequency, ethyl chlorid, and the ultra-violet rays from a mercury quartz lamp. The eyelids of each eye were edematous, ectropic and eroded with granular ulcerations for more than a year after they became primarily involved. Later they became cicatricially contracted, and the eyes inflamed from prolonged exposure and irritation. Blindness occurred in the right in 1905, and in the left eye in October, 1906. Blindness and weakness following the prolonged irritation to which the patient has been subjected, have confined him to his bed since October, 1906. March 17, 1907, the disease was still active, chiefly at the ever-spreading border, which had advanced behind the right ear, an inch or more into the scalp, and to the middle of the neck. The intervening area was atrophic and cicatrized, covered with loosely adherent scales, and the nose and ears pinched and distorted by irregular cicatricial contraction, and studded with small patches of relapsing inflammation. Nodules have always been absent, and patient has never responded to a tuberculin reaction.

Case 2.—*History.*—H. D., aged 38 years, carriage designer, presented himself March 2, 1907. Two years prior to the date of his first visit patient noted a small red patch on the right cheek, below the eye. It soon became covered with yellowish scales and soft greasy crusts, and steadily increased in size with a fading center and with increased inflammation at the borders, in spite of painstaking attention on the part of the patient and his physicians.

Examination.—On the date of the first examination the patient presented a striking similarity to that originally presented by Case 1. The entire right cheek was the seat of a smooth depressed cicatricial-like atrophy, surrounded by a slightly elevated, infiltrated, inflamed border, involving the lower eyelid, the inner and outer canthus of the right eye, and it extended in an irregular circle over the cheek, upper lip, to the right ala of the nose; the other end of the imperfectly closed circle extended from the inner canthus of the right eye to the bridge and for a short distance over the crest of the nose. The mucous membrane of the upper lip and lower eyelid were reddened, edematous, and studded with granular ulcerations. Numerous comedo-like bodies studded merely that portion of the bridge and crest of the nose which was the site of the inflamed and actively spreading border. The receding edges of the rest of the border was the seat of numerous loosely adherent scales, which on removal were covered on their under surface with numerous characteristic plugs. The border was covered with yellowish and greenish crusts, irregularly fissured by numerous crevices, and rather firmly adherent to the underlying soft mushy edematous tissue. Patient experienced no symptoms with exception of occasional itching, most marked over the lower eyelid of the right eye. The case bore a striking resemblance to Case 1 and showed a similar degree of activity, inflammation and distribution.

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[5] Monatschr. f. Prak. Dermat., xxxv, p. 105; Dermat. Ztschr., 1901, p. 42.

Treatment.—Inasmuch as it gave every indication of ultimately inducing the same degree of involvement, and producing the same unfortunate sequelæ, prompt, active and stern measures were deemed necessary to cope with the situation. In view of the fact that all signs of active inflammation had disappeared from the center, measures were directed chiefly to the inflamed and actively spreading border. March 3 about one-sixth of the spreading border on the outer lower aspect of the cheek was freely excised and the edges carefully sutured with silkworm gut and horsehair. Union by primary intention was promptly obtained. On March 15 a second similar area was likewise excised with similar results. The friable character of the inflamed tissue, which had the consistence of moist brown paper, offered the only difficulty to these operations, and rendered its careful extirpation irksome and tedious. The extirpation of the border seemed to arrest effectually the progress of the disease at these points. March 21 the spreading border at the inner canthus of the right eye, and over the right half of the bridge of the nose was excised in order to arrest promptly the spread of the disease to the left eye; this proved to be a very irksome and tedious procedure, because of the tension from the wide area removed, and the soft mushy character of the surrounding tissues, the free edges could not be well approximated, and a large area was left to close by granulation, which was successfully accomplished in 14 days' time. A fourth area, involving the upper lip, was surgically removed March 25, and by April 18 the disease seemed effectually arrested at all points save over the eyelids and near the external angle of the right eye. At these points the disease had steadily progressed, the border had become heavier and broader, and had advanced from the lower to the upper eyelid. Although the case bore no clinical or pathologic resemblance to lupus or tuberculosis, 10 minims of 1 to 1,000 sol. tuberculin was given as a test injection March 10 with negative results.

Case 3.—*History.*—B. C., aged 27, lumber agent, was selected for clinical and pathologic study as a moderate type of lupus erythematosus discoides with a non-fading center, of relatively short duration. The lesion on the occasion of patient's first visit, March 10, 1907, was elliptical in outline, situated near the center of the right cheek and covering an area about the size of a silver dollar. The center of the lesion was well covered with a mass of greenish-brown and grayish-white scales, elevated slightly above the level of the surrounding skin, and studded here and there with comedo-like points. The scales on removal showed characteristic plugs on their under surface, and the corresponding follicles of the skin were widely patulous. The border was slightly inflamed, well defined and actively spreading. The duration of the process was scarcely six months.

Treatment.—Ethyl chlorid and a lotion containing potassium sulphuret and zinc sulphate were first applied without apparent benefit, and on March 20 the posterior third, and on April 4 the anterior third were freely excised; both operations were followed by union by primary intention and with marked improvement; by April 20 the intervening third alone showed activity, and in attenuated form.

Cases 4, 5, and 6.—These were selected as well defined types of moderately severe lupus erythematosus, with fading and partially cicatrized centers; Case 4, a female, aged 37, with three lesions around the mouth of four years' duration, following an attack of herpes labialis; Case 5, a female, aged 41, with lesions of twelve years' duration, having a characteristic bat-wing distribution over nose and cheeks; and Case 6, a male, aged 38, with a lesion of six years' duration the size of a silver dollar over the left cheek. Small areas were extirpated in each of these cases, usually from the actively spreading border, merely for pathologic study, the distribution and involvement precluding a radical extirpation of the diseased area. The patients were variously treated for periods of six months to two years, with the *x*-ray, ultra-violet light, pyrogallic pastes and solutions, ethyl chlorid spray, resorcin, salicylic acid, green soap, mercurial plaster, etc., with moderate improvement, and with indifferent and varied results.

THERAPY.

Lupus erythematosus possesses, in all probability, the most complex therapy of all dermatologic affections, and therefore like all affections which possess a host of remedies there is probably not a single measure of specific character or of unfailing efficacy among the number. It would be insuperable and useless to enumerate all the measures thus far tried and recommended. They comprise all forms of internal, external, local and general measures in the form of alteratives, tonics, eliminants, regulation of diet, changes of scene, altitude, climate and almost every physical and chemical therapeutic agency, in single and combined form, known to dermatologic science. My personal experience leads me to believe that many of the measures recommended possess some favorable therapeutic influence in limited measure and in favorably selected cases.

The acute disseminated types, with sudden onset, febrile disturbance, general malaise, intolerable itching and burning, offer probably the greatest difficulties to successful management during the incipiency and earlier stages of the affection, yield more favorably to bland palliative measures, and end usually in complete recovery in relatively short time. The next more favorable class for treatment are the more chronic, circumscribed types of lupus discoides, characterized by a milder incipiency, with a faintly active and mildly spreading border and fading center. This is the class in which good results are often secured from the host of favorably recommended remedies. These forms often undergo spontaneous recovery; but recurrences with and without treatment are not uncommon.

The least favorable classes are the chronic discoid forms, which show a crust-covered, scaly, inflamed, nonfading center, or a border that is edematous infiltrated, elevated above the level of the surrounding epidermis, which continues to advance steadily and involve adjacent structure and tissues, uninfluenced to any appreciable degree by repressive measures. These are the forms in which the total of all measures have thus far availed little, and have effectually depressed our drooping hopes in what little success has thus far attended every new measures in selected cases.

The futile character of the therapy in special cases and the apparent local nature of the process, impelled me to resort to surgical extirpation, in order to arrest effectually its progress and to spare the surrounding tissues and avoid the serious complications incurred in past experience. This treatment appealed to me as rational and expedient, and was undertaken without the knowledge that Rosenthal,[6] as early as 1892, and B. Merrill Ricketts,[7] independent of Rosenthal in 1893, carried out similar measures, which in more recent times have been advocated by Leredde,[8] Hallopeau and Neisser. In cases in which the lesions present a fading center, in other words, where the duration of the process is self-limited, the removal of the ever actively spreading border seemed alone required. Removal of the border from lesions with active centers does not suffice to arrest the further progress of the disease; these lesions, when sufficiently severe in nature and favorably situated, should be removed in their entirety, if not at one fell stroke, at least by successive steps. My personal experience does not permit me to judge the value of curettement, or the superficial removal of affected area by means of a razor after the method of Ehrmann.

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[6] Dermat. Ztschr., ix.

[7] Trans. Pan.-Amer. Con., 1893, ii, and N. Y. Med. Jour., 1893, ix, 23.

[8] Ann. de Dermat., 1898, p. 262; 1901, p. 548.

ETIOLOGY.

The etiology of lupus erythematosus in the absence of the discovery of a specific cause, is still a problem for further solution. Opinion is fairly well divided as to whether it possesses a direct or indirect etiologic relationship to the toxemias from tuberculosis, gastrointestinal disturbances, or, in spite of the apparent non-contagious character, it is an infectious disease *per se,* and entirely independent of the former, save for their possible predisposing influences.

I concur with Jadassohn that, in spite of the absence of positive bacteriologic proof, the burden of evidence is in behalf of its infectious nature and external and local character. The character of the lesions, the sharply defined, inflamed spreading borders, the fading centers, their tendency to relapse and multiply, to yield to local measures and surgical intervention, to follow on the heels of slight injuries and abrasions (herpes labialis, furunculosis, burns, etc.), these and many other features speak strongly for its local and infectious nature and external source.

PATHOLOGY.

The pathology of lupus erythematosus in the absence of a special recognized cause and in the presence of a large number of incongruous investigations, forms an interesting study. Unna[9] states that "we can look in vain for a characteristic histologic entity which reflects the clinical characteristics of the affection." The reports (for the most part they are the earlier and later, in point of time) are chiefly at variance with each other in regard to the location of the primary pathologic disturbance; the former impart to the pathology an epidermal character in line with its clinical manifestations; the latter would make a form of granuloma with a distinct focal character emanating from the blood vessels of the corium and give secondary consideration and importance to the associated changes in the epidermis and adjoining tissues. Any obscurity in the pathology of the affection rests chiefly on this dual interpretation, for in other respects, except in some minor details, the findings are uniformly constant and characteristic. The disparity which at present exists in the reports of various investigators depends, I believe, not as Stelwagon[10] states, to the stage and character of activity of the various lesions in question, but to the opposed situation of these viewpoints.

The earliest recognizable changes are in the adnexa of the epidermis, the hair follicles, sebaceous and sudoriferous glands, when these are present, otherwise in the epidermis proper, as can be readily determined by the histologic examination of the spreading border of an active lesion, to its point of gradual transition into normal tissue. Holder[11] states that "so predominant are the changes in the seborrheal glands in the early lesion that it is not surprising that the older observers look on them as the probable starting point of the disease. Had it not been for the fact that the lesion appeared on the palms where sebaceous glands are absent (these views) might have remained unmodified. . . . Kaposi's theory embraced sweat glands as well."

The hair follicles show active mitotic changes, the orifices are filled and distended with keratotic material and form early histologic evidence of the characteristic plugs of later clinical stages. The stimulus promptly exerts its hypertrophic influence on the hair follicle and its sebaceous glands, which increase in circumference and depth. It is not uncommon to observe masses of sebaceous glands hypertrophied to and beyond the layer of coil glands. The latter show endothelial proliferation, cystic dilatation and keratotic plugging of their orifices.

The next step in the pathologic change is a reaction on the part of the tissues, in the form of a plasma cell exudation, which issues for the most part from the immediate vessels of the corium, grouped and collected in character and directed against the abnormal follicles, sebaceous and sudoriferous glands. This circumscribed exudation of small round mononuclear, deeply stained, closely crowded cells, irregularly distributed in groups, immediately arrests the attention of the observer and gives the affection its most characteristic pathologic features. It is almost distinctive of the affection, and for these reasons it has probably been given primary rather than secondary importance. These cells, though undergoing occasional individual degenerative changes, preserve for a long time their original character, and do not show the ordinary cellular changes which are currently observed in tuberculosis, syphilis and simple inflammation. In the next stage of the process the cells begin to crowd closely around the glandular elements, completely envelop them, and gradually effect their disintegration and destruction.

In the more moderate cases the disease expends its energy on the glandular elements, and the process then resolves itself by simple inflammatory change. In the more severe types, in the active relapses over cicatrized areas, surfaces of mucous membrane and over areas which are devoid or poor in glandular elements, the affection expends its energy on the epidermis. The earliest changes show active mitoses in the lower layers of the rete and an active acanthosis. A commensurate plasma exudation follows from the superficial layers of the corium, which directs itself against the proliferating epidermis, which often shows extensive down-growth between the elongated papillæ in finger-like masses, with its cells arranged in nests and whirls, closely simulating an epithelioma. The plasma cells crowd in dense masses to the very tips of the papillæ, and these when cut obliquely give them the appearance of epidermal abscesses.

Both the pathologic and clinical resemblance of these well-defined cases of lupus erythematosus to some of the cases of blastomycetic dermatitis reported in the literature, is striking, and the analogy is more complete from the fact that they frequently contain well-defined, double-contoured bodies. These large double-contoured bodies are frequently observed in the plasma exudate of lupus erythematosus (Neumann,[12] Veiel, Morrison[13] and others). Unna states that "rarely one finds a cell which exceeds in circumference the plasma cells, but with vacuolated (bläschen-formig) nuclei." A moderate polymorphous leucocytic invasion occurs among rete-cells and their interstices.

The remaining pathologic changes noted were chiefly of a secondary nature and are for the most in accord with the findings of other investigators. The elastic fibers are as normally preserved and as abundantly present as the general character of the inflammatory changes would permit an approximate estimate. Some slight change can be noted in some of the fibrils distributed to papillary portion of the corium, but, unlike Schoonheid,[14] I am unable to attach any special significance to such a feature. Dilated capillaries and lymph spaces, and occasional endarteritis was frequently observed, but not more than could be currently expected in chronic inflammation of equally severe and prolonged type.

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[9] Histopathol., p. 1090 and 1097; Monatschr. f. Prak. Dermat., 1890, ii, 134.

[10] Med. News, 1893; Text-Book, 1903, p. 712.

[11] Jour. Cutan. Dis., 1897, p. 207.

[12] Wien. klin. Wochschr., 1898, lxviii, 1137.

[13] Arch. f. Dermat. u. Syph., 1886, p. 619.

The prolonged congested and edematous character of the lesions and their exceedingly friable nature readily accounted for the numerous thin-walled capillaries and spaces, which were congested with red corpuscles, in various stages of preservation in the superficial layers of the corium, and also probably accounted for some of the irregular spaces, cavities and artefacts (canalization of Unna), which were also observed. No thrombi were observed in any vessels of the corium, as observed by Fordyce and Holder,[15] and nothing was noted which could in any way lead me to infer that the vessels of the corium were the seat of the first pathologic change.

Diffused hemorrhages in various stages of preservation were frequently observed in the upper layers of the corium, and many thin-walled capillaries gorged with one or more columns of well-preserved red corpuscles. The orifices of hair follicles and sudoriferous glands were almost invariably the seat of an extensive endothelial proliferation which filled their cavities to a considerable depth with dense keratinized plugs, or when accidentally or mechanically removed left them widely patulous and imparted a honey-comb appearance to the stratum corneum. The plugging of the sweat ducts was not altogether unlike that observed in porokeratosis. In some of the more severe cases of rather long duration, well-defined giant cells were occasionally observed among the plasma exudate,[16] which in themselves do not differentiate the affection from lupus and syphilis, as frequently stated. The pathologic differentiation of the affection from syphilis and lupus is facile without this distinction. My personal efforts to establish a specific cause by bacterial investigation were attended by uniformly negative results.

SUMMARY.

1. Lupus erythematosus, in the absence of bacteriologic proof, appears to be a local infectious diseases.

2. The course of the disease varies with the special clinical types, and the severe forms do not yield readily to the present complex and inadequate therapeutic measures. The severe types, when favorably situated and sufficiently well circumscribed, should be extirpated; merely the border if the center is undergoing visible signs of retrogression and cicatricial atrophy, otherwise the entire lesion.

3. The conjunctival mucous membrane may become involved by direct extension of the process, and in severe cases blindness may become a complication. The primary pathologic focus appears to be in the epidermis and its adnexa, rather than in the vessels of the corium. The earliest changes are observed in the hair follicles and sebaceous glands when they are present, in the form of an active proliferation of the cellular structure.

4. These in turn call forth a focal exudation of plasma cells from the immediate capillaries, which imparts to the affection a characteristic pathology, and is often accorded primary rather than secondary importance. The sweat glands share in the same process. The process is accompanied with free superficial keratinization and plugging of the orifices. In the absence of hair follicles and glandular elements, the stimulus is primarily directed against the epidermis, resulting in its down- and over-growth, and the resulting plasma exudation is more superficially placed and directed against the lower layer of the epidermis. The inflammatory change ultimately calls forth a connective tissue degeneration.

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[14] Arch. f. Dermat. u. Syph., liv, 163.

[15] Med. Record, 1900, p. 41.

[16] Hyde and Montgomery (Text-Book 1904, p. 687) state that there are no giant cells in lupus erythematosus as in lupus. Schoonheid (Arch. f. Derm. u. Syph., liv, p. 16) states that "Riesenzellen waren niemals vorhanden."

ABDOMINAL PAIN.

ESPECIALLY PAIN IN CONNECTION WITH ILEUS.*

K. G. LENNANDER, M.D.
[LL.D., Hon. F.R.C.S., Lond. and Edin.]
UPSALA, SWEDEN.

From my published works it may be gathered that I have not been able to find any abdominal organ, innervated only by the vagus or the sympathetic nerves, which is provided with the sense of pain. Sensations of pain within the abdominal cavity are, according to my experience, transmitted only by the phrenic nerve, the lower six intercostal, the lumbar and the sacral nerves.

My former pupil, M. Ramström,[1] professor of anatomy at Upsala, has given us the first exact description of the course of these nerves within the diaphragm and the peritoneal lining of the anterior abdominal wall. He has shown that some of the older descriptions of the distribution of these nerves are incorrect. For instance, he has not seen any branches of the phrenic nerve running down from the diaphragm to the anterior abdominal wall, nor has he been able to trace a single branch of the phrenic nerve through the suspensory ligament to the capsule of the liver. Similarly he has been unable to find any twigs from the intercostal nerves of the diaphragm which extend to the capsule of the liver.

These anatomic observations of Ramström agree with my own experience in regard to the sensitiveness of the liver. Even a strong faradic or galvanic current applied to the surface of the liver above the gall bladder does not excite pain. In some cases in which the position of the liver was low I have separated the attached surface of the gall bladder as far as the cystic duct without causing any pain, whereas the patient complained as soon as I tilted the liver or dragged on the common bile duct, thus putting the cerebrospinal nerves of the abdominal wall on the stretch. Not only the sense of pain, but also the other modalities of sensibility—pressure, cold and heat—are absent from the liver and gall bladder as well as from the stomach and intestines.

We have often been able to ascertain that viscera involved in disease are quite as insensitive to operative measures and to electric stimuli as are sound ones. Thus the old theory defended by Flourens has been destroyed.

After many investigations—some of which have been attended by the well-known physiologist, Hj. Öhrvall, and several by Professor Ramström as recorder—we had come to the conclusion that the parietal peritoneum of the anterior abdominal wall possesses only the sense of pain, not the senses of pressure, cold and heat. (In most cases it is the peritoneum behind the recti muscles from a point 4 to 5 cm. above the umbilicus to a point midway between the umbilicus and the symphysis pubis which has been examined.) Should this view of ours prove correct, it speaks decidedly in favor of the specific character of the nerves of pain. In other words, it goes to prove that the entire parietal peritoneum is provided only with nerves of pain—a condition previously known to exist in the cornea alone.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Untersuchungen über die Nerven des Diaphragma. Aus den anatomischen Heften, Fr. Merkel und R. Bonnet, 1906, xxx, 92.

It is my opinion that all painful sensations within the abdominal cavity are transmitted only by means of the parietal peritoneum and its subserous layer, both of which are richly supplied with cerebrospinal nerves around the whole of the abdominal cavity, possibly with the exception of a small area in front of the vertebral column lying below the crura of the diaphragm and between the two chains of sympathetic nerves. Here, as far as I am aware, no cerebrospinal nerves have as yet been demonstrated,[2] and on a few occasions I have observed that within this area the patient does not respond to hard pressure with a finger or with an instrument, nor, furthermore, does he experience any sensation when a small portion of the mesenteric attachment at this point is put on the stretch.

The opportunity is given during operations of observing that the manipulations which cause pain are those which occasion stretching of the parietal peritoneum as well as of the parietal attachments of the mesenteries. For example, pain is occasioned by the placing or removal of gauze compresses between the viscera and the parietal peritoneum, by the dragging forward of the cecum, of the vermiform appendix, or of any other organ whose normal attachment to the abdominal wall is put on the stretch; and the same principle applies to the stretching of any abdominal adhesions which may connect the viscera with the abdominal wall. On the other hand, should a compress lie between the viscera without coming in contact with the abdominal wall the patient experiences no sensation when it is removed. Similarly no sensation attends the stretching or breaking up of adhesions which have no connection with the abdominal parieties. As far as I can judge from my observations, the parietal peritoneum along the thoracic aperture and around the foramen of Winslow is especially sensitive to stretching, displacement, etc.

A slow and gradual stretching of all the layers of the abdominal wall by ascites or meteorism occasions distress rather than pain, although a high degree of meteorism may be attended by great discomfort. If in a severe case of paresis of the bowel one succeeds in emptying the intestine by means of a typhlitic, a jejunal or gastric fistula, the procedure is followed by such evident relief that the great distress of the previous condition is emphasized. That a maximal degree of rapidly-forming meteorism is an extremely painful condition and one which may rapidly endanger life I have witnessed in the case of a young student who had a coincident volvulus of the ileum and acute dilatation of the stomach. Four hours and a quarter after the appearance of the first symptoms he was pulseless from intense pain attended with a sensation of bursting.[3]

Infectious processes involving the abdominal viscera (ulcerations, acute inflammations, etc.) are attended by lymphangitis and lymphadenitis of the mesenteries. The infection spreads along the lymph-vessels to the subserous tissue of the abdominal wall, and inasmuch as the lymph-vessels follow the course of the arteries the lymphangitis very soon reaches the sides of the aorta, along which it then may continue up to the thoracic cavity. A lymphangitis of the parietal subserous connective tissue greatly increases the sensitiveness (excitability) of the cerebrospinal nerves to any manipulation which occasions pain even under normal circumstances.

All that we know of lymphangitis and lymphadenitis attending affections of the mouth, of the pharynx, of the extremities, etc., applies equally well to corresponding processes within the abdominal cavity. We know, for example, that the severity of pain attending a lymphangitis and lymphadenitis of the above-named regions varies according to different infections, and the same thing is true for the abdominal cavity.

The irritability of the nerves of pain of the parietal peritoneum is much increased even by a slight peritoneal inflammation. In the case of a serous peritonitis (*peritoneale Reizung*) the boundaries of the hyperemic zone of the parietal serosa can be mapped out almost to the centimeter by gentle palpation of the abdominal wall. With further increase of the hyperemia and of the inflammation the sensitiveness is at first almost proportionally increased. The fact that so many infectious processes within the abdominal cavity begin with diffuse abdominal pain may be explained by (1) an increased sensitiveness of a large portion of the parietal peritoneum owing to the lymphangitis or peritonitis, (2) a considerable increase and irregularity of peristaltic action which, in addition to pain, often produces a feeling of sickness, vomiting and one or more actions of the bowels at the commencement of these illnesses. On account of the increased sensitiveness the movements of the stomach and intestines against the parietal peritoneum and the stretching of their respective mesenteries are felt as severe pains. In most cases, however, the general peritoneal irritation soon passes off. Only the part more especially infected remains in a condition of inflammation, and the abdominal pain will become localized at this spot. In those cases where the infection spreads over a large portion of the peritoneal cavity, thus giving rise to a more or less general peritonitis, the pain will diminish as soon as the bowel becomes paretic and the nerve endings of the parietal peritoneum have been more or less destroyed by the severe inflammation.

PAIN IN CONNECTION WITH PERFORATION.

In case of visceral perforation or of an abscess which ruptures into the free abdominal cavity the primary pain is caused by the contents of the organ, or of the abscess, coming into contact with the parietal peritoneum. The severity and character of the pain depends on the nature and quantity of the escaping fluid, the extent to which it immediately comes into contact with the parietal peritoneum, and, lastly, on the intensity of the contractions of the stomach and bowels brought on by the irritation of the peritoneum.

Many clinical observations are explicable if one bears in mind the fact that only the parietal peritoneum can transmit painful sensations. For example, the primary pain occasioned by a duodenal perforation may be referred to the iliac fossa. Again, the paroxysmal pains in connection with a gastric ulcer are elicited by the movements of the stomach, that is to say, by its dragging on a parietal serous membrane which is hyperesthetic on account of a lymphangitis from an infected ulcer. If the stomach is put at rest by the aid of a jejunostomy the pains cease. Further, in the case of a patient with an inflammatory focus surrounded by small intestines and covered by a thick omentum, pressure on the abdomen will disclose no tenderness, whereas palpation per rectum may cause pain.

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[2] Here we find only more or less transversal running nerves uniting both sympathetic chains, and no immediate cerebrospinal nerves.

[3] Recovery after Gastrotomy, Reposition of the Ileum, Jejunostomy, Gastrostomy, and Later Gastro-Jejunostomy, Deutsche Zeit. f. Chir., 1906, lxxxv, 151.

THE HYPOTHESES OF NOTHNAGEL AS REGARDS COLIC.

In human beings suffering from intestinal fistulas and to whom no anodyne has been given, sensation of pain can not be evoked by means of chemical, thermic, mechanical or electrical stimuli applied to a portion of the gut lying outside the abdominal cavity as long as the stimulus or contractions which it causes only affect the bowel. When, on the other hand, the contracting bowel drags on adhesions connecting it with the abdominal wall, it at once produces pain.

Both theories of Nothnagel are hereby disproved, for the colicky pain can not be due to pressure on the nerves of the bowel wall in consequence of a tonic spasm of its muscular coat, since the intestinal wall can be crushed with a strong pair of forceps without eliciting any sensation whatsoever. Further, the pain can not be due to anemia of the intestinal wall due to a spasm of its muscular coat, since it is possible by means of electric stimulus to produce so powerful a contraction of the bowel that it becomes of tumor hardness and assumes a yellowish-white color from anemia, without the patient experiencing any sensation even of being touched.

Wilms, in an article[4] and later in his splendid work on ileus (1906), tried to show that all those pains which we are accustomed to term "intestinal colic" are entirely due to stretching of the mesenteric attachments. In my first publication (1901) I made the statement that every distension or contraction of a gut which is attended by a pull on its attachments to the abdominal wall is necessarily painful, as it involves a stretching of the cerebrospinal nerves of the parietal serous and subserous layers. With regard to the duodenum, the duodeno-jejunal flexure, the three flexures of the large intestine, and the most distal part of the ileum, it goes without saying that these portions of the bowel can not contract on their contents in front of an obstruction without giving rise to a powerful dragging of their mesenteries and at the same time a painful stretching of the nerves of sensibility of the parietal serosa. In similar fashion powerful intestinal contractions are bound to involve a painful stretching of the parietal serosa in case the bowel has become fixed to the abdominal wall by adhesions and there exists at the same time some obstruction at this point.

The pains in connection with ileus, due to kinking, volvulus, etc., were thus easy to understand. On the other hand, it was my opinion that the stretching of a high and free mesentery of the small intestine or of the transverse colon could not account for the pain attending a stricture of these parts of the bowel when the stricture has not become adherent to the abdominal wall or in some way fixed, because I could not think that a contraction of the bowel around its contents in front of the stricture could drag on the parietal serosa and subserosa by that high and free mesenterium. Wilms also accounts for the pain in these cases as being only the result of the stretching of the mesentery proximal to the stricture. He considers that a loop of bowel, contracting on its contents at the proximal side of a constriction, endeavors to assume a straight form in the same way as does the gut in sausage-making. The mesentery, however, prevents the bowel from assuming the shape of a straight cylinder. The result is a stretching of the mesentery, and this is what causes the pain. In this connection an observation was made a year ago in a case in which I had to resect more than one meter of the ileum, together with the cecum and a large portion of the colon, this portion of the intestine having been excluded some months previously by means of an ileo-colostomy, on account of multiple fistulas and adhesions which could not be loosened.

Under local and a short ether anesthesia the excluded portion of the bowel was completely freed from all adhesions, only the normal mesenterial attachment being left; the patient being awake, a piece of the ileum about 40 cm. long was clamped and inflated with air. The bowel straightened, the mesentery got stiff and assumed a fan-shaped form. While in this position, standing out from the vertebral column, the patient complained of pain, but this passed off as soon as the bowel was emptied of air and the mesentery was allowed to resume its normal position. The experiment was repeated with a considerably shorter piece of bowel. The result was the same, for the mesentery again became tight and stood out from the vertebral column, occasioning pain. Lastly a piece of the intestine only 5 or 6 cm. long was shut off. Although it was inflated *ad maximum,* causing the serous membrane to burst and the bowel to sink between the two layers of the mesentery for fully 1 cm., the patient felt nothing. As soon, however, as the mesentery was stretched for a few moments with the fingers pain was felt. These observations are in full accordance with the above mentioned view of Wilms as regards the stretching of the mesentery, a view which I believe to be correct.

The pain in connection with a volvulus of the intestine or of an ovarian cyst naturally increases in proportion as the twisting comes on quickly and more parietal peritoneum is drawn into the pedicle.

PAIN CAUSED BY DISPLACEMENT OF THE SEROUS MEMBRANE OF THE ANTERIOR WALL.

On many occasions when performing a laparotomy I have passed into the abdominal cavity a finger covered with a thin, smooth India rubber glove dipped into saline solution and exerted a slight pressure on the anterior abdominal wall. Of this the patient has no perception, but as soon as the serous membrane is displaced against the muscles or aponeuroses of the abdominal wall the patient has a feeling sometimes of touch, more often of pain, according to lesser or greater sensitiveness of the individual, and according to the degree of pressure and displacement employed. When asking the patient, "Have you ever felt anything like this?" I have usually received answers such as these: "It feels like colic;" "It feels as if the bowel is being expanded by wind;" "It's like bad griping pains;" "It is worse than gripes."

Such sensations are occasioned by displacing a small, limited area of the serous membrane at nearly any point of the anterior abdominal wall. On account of these observations I believe that a displacement of the serous lining takes place and gives rise to pain as soon as a loop of intestine contracts on its contents, hardens, rises and presses against the parietal peritoneum. According to my opinion, these pains occur not only in connection with ileus, but also in connection with temporary irregularities of the peristaltic movement of the bowels in people not suffering from abdominal diseases. I have myself felt these griping pains and I have been strongly inclined to localize the same at the anterior abdominal wall, most often to the left lower quadrant. As a rule I have attributed them to the contractions of the sigmoid flexure.

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[4] Münch. med. Wochschr., 1904.

Here I may mention a case illustrating the displacement of the serous membrane of the anterior abdominal wall at the thoracic aperture. It was brought about by a subserous myoma of the fundus uteri of about the size of a mandarin, in a woman eight or nine months pregnant. She had suddenly been taken ill with severe pains, vomiting and inability to pass flatus. A diagnosis was made by her medical attendant of a twisted ovarian cyst. As soon as the myoma had been removed under local anesthesia all symptoms disappeared. The ovaries were normal. The pregnancy went on to its normal termination. I have record of another patient who had a small subserous myoma of the uterus and in whom, after the seventh month of pregnancy, abdominal pains were produced by any movement. They were felt as a very painful friction and disappeared as soon as the tumor was removed.

If the bowel wall on the proximal side of an obstruction is considerably thickened and the serous coat rough the *Darmsteifung* is naturally attended by a much more extensive displacement of the parietal peritoneum than in the case of a normal intestinal wall. Contrary to Wilms, I consider this factor also to be the cause of the colicky pain which attends intestinal obstruction. I have consequently come to the conclusion that "gripes" are due partly to a stretching of the parietal attachments of the bowel and partly to a displacement of the serous lining of the abdominal wall.

REFLEX RIGIDITY OF THE ABDOMINAL MUSCLES.

The normal response of the abdominal muscles to an acute sensation of pain which originates in the parietal peritoneum or subserous tissue lies in a reflex contraction (*défense musculaire*). In cases of violent and very extensive peritoneal irritation (hyperemia, slight edema) the abdomen assumes a board-like rigidity and the respiration becomes costal in type, for the abdominal muscles and the diaphragm are in a state of tonic contraction. In this way the range of movement of the abdominal organs is greatly diminished and consequently the abdominal pain is greatly lessened. Compare with this the endeavor of patients suffering from severe abdominal pains to get relief by lying on the "belly" or by fixing something tightly round the abdomen. The extension of the reflex muscular rigidity corresponds closely to the area of peritoneal irritation of the parietal serosa. We know little as yet about *défense musculaire* in connection with a mechanical ileus before the onset of peritonitis. It is necessary to observe with care every case of severe colicky pain attending an intestinal obstruction in order to see whether a tonic contraction of the abdominal muscles and diaphragm takes place with the object of diminishing the movements of the bowels and indirectly the severity of the pains.

In acute inflammatory diseases of the abdomen I have not observed the presence of cutaneous hyperalgesia so often as one might expect, especially in consideration of the *"triade douloureuse"* of Dieulafoy (1899) which he regarded as necessary for the diagnosis of an acute appendicitis—cutaneous hyperalgesia, reflex muscular rigidity, tenderness on pressure. Before applying Head's theory of cutaneous hyperalgesia to a given case one ought to consider the question whether in that special case an infectious lymphangitis along the posterior abdominal wall and around the vertebral column might not cause a hyperesthesia of the sensitive nerve trunks and spinal ganglia of that region. It will, of course, be clear to every one that this is only a working hypothesis. In those few cases of acute appendicitis with cutaneous hyperalgesia which have come under my care since I began to pay more attention to this matter I have observed co-existing tenderness on deep pressure in the angle between the twelfth rib and the erector spinæ or somewhat lower down at the border of this muscle.

When considering the *pains connected with infectious diseases of the liver and gall bladder* one has to remember that well-known embryologic facts, as well as my own researches and the investigations of Ramström, all lead to the assumption that the liver, the gall bladder and the extrahepatic bile passages do not possess nerves of pain. One has further to consider the distribution of the lymph vessels from these organs to the posterior abdominal wall and diaphragm as well as their anastomoses with the lymphatics of the duodenum and pancreas. One can then easily understand that infectious diseases of the liver and gall bladder are apt to be followed by spasms of the diaphragm and that the movements of the common bile duct, the duodenum and stomach may be attended by pain. When the gall bladder contracts spasmodically in order to expel its contents there results a stretching of the cystic and common bile ducts and consequently a displacement of the parietal peritoneum and the extremely sensitive retroperitoneal connective tissue around the common bile duct. If a tube has been fixed (water tight) into the gall bladder in a case of cystostomy for cholecystitis, 100 c.c. or more of saline solution may be made to pass from the gall bladder into the duodenum (the biliary passages being free) without the patient feeling anything so long as the solution is being slowly injected into the gall bladder. If the injection is made with a little greater force the patient almost immediately complains of colicky pain in the back.

With a shrunken gall bladder and a very wide common bile duct biliary colic due to the stretching or distension of the common bile duct is inconceivable.

It is quite necessary to consider carefully the account which the patient gives of his pain. Lately a patient of mine suffering from an acute hemorrhagic pancreatitis stated that the attack of pain began with a sensation as if the large blood vessel at the back had burst near the pit of the stomach. The autopsy showed, in addition to the pancreatic hemorrhages, a large retroperitoneal extravasation around the celiac artery and the aorta. One must never forget how difficult it is to localize pain and to how great an extent a correct interpretation of the site of painful sensation is a matter of practice.

SUMMARY.

In estimating abdominal pain, and especially in connection with illnesses giving the symptoms of "ileus," we must bear in mind, briefly, that:

1. Pains do not originate within the abdominal organs which are supplied only by sympathetic fibers and the vagus nerves.

2. All pains originate in the abdominal wall, more especially in the parietal serous membrane and subserous connective tissue structures which are innervated by the cerebrospinal nerves.

3. Stretching of the parietal (mesenteric) attachments of the stomach and intestines, as well as of string or band-like adhesions to the abdominal parietes, invariably elicits pain.

4. The same thing holds true for the displacement of the parietal serosa from its normal relation to the muscles or aponeuroses of the abdominal wall.

5. Most of the diseases connected with ileus are, at their commencement, attended by increased and, as a rule, irregular peristalsis.

6. Chemically different substances, such as the contents of the stomach, gall bladder, intestine or abscesses, give rise to severe pains when they come into contact with a healthy or hyperemic parietal peritoneum (pain due to perforation).

7. Even that form of acute peritonitis which goes under the name of peritoneal irritation (*peritoneale Reizung*) greatly increases the sensitiveness of the parietal serous membrane.

8. The sensitivenss of the parietal peritoneum at first increases *pari passu* with the inflammation, but later decreases again when the inflammation has reached a certain high degree, and in many cases may ultimately cease altogether. (Compare herewith erysipelas of the skin, more especially the gangrenous kind.)

I believe, finally, that we are on the way to completely understand the pains of ileus, though a great amount of work still remains to be done. I consider it to be a very happy thought to bring together anatomists, physiologists, physicians and surgeons for the discussion of this question, and I feel not only greatly honored, but also deeply grateful for the invitation to contribute this introductory paper.

PHYSIOLOGIC OBSERVATIONS ON EXPERIMENTALLY PRODUCED ILEUS.*

W. B. CANNON, M.D., and F. T. MURPHY, M.D.
BOSTON.

In his discussion of ileus, Nothnagel divides the condition into two classes: 1, Mechanical ileus, in which there is occlusion of the intestine; 2, dynamic ileus, in which there is a syndrome of occlusion of the bowel, without, however, closure of the lumen. The second class of cases occurs whenever the intestine becomes paralyzed, paretic or spastically stenosed.[1] Since an earlier paper in this discussion is concerned with intestinal obstruction, we shall not repeat here our observations, already published,[2] on certain physiologic changes following mechanical closure of the bowel. In that publication we raised the question as to the location of dynamic ileus. Is it of central or peripheral origin? In this research an attempt is made to answer that question.

In dynamic ileus we are dealing directly with a failure of normal peristalsis. True peristalsis, according to Bayliss and Starling, is a coördinated movement dependent on this local reflex. The reflex has its seat, as Magnus has shown,[3] in Auerbach's plexus. Although the alimentary canal can perform its motor functions for some weeks almost normally, when wholly disconnected from the central nervous system,[4] yet, according to Magnus, all spontaneous and reflex movements cease when Auerbach's plexus is removed. Consequently anything which would injure this myenteric plexus would necessarily result in a cessation of peristalsis.

The extrinsic innervation of the stomach and intestines has recently been much clarified by the investigations of Bayliss and Starling and by men working with them and with Langley.[5] It seems fairly certain now that the splanchnic nerves, acting through the sympathetic, are purely inhibitory nerves for the intestine. Concerning the effect of these nerves on the stomach, there is still controversy, but one of us has observed inhibition of gastric peristalsis during emotional excitement when the only connection between the stomach and the central nervous system was the splanchnic supply.[6] Strong impulses through the splanchnic nerves, therefore, may be regarded as another cause of gastric and intestinal inactivity.

From physiologic studies, therefore, we should expect failure of peristalsis to follow inhibitory impulses through the splanchnic nerves, or to result from injuries or disturbances to the myenteric plexus, or from trauma to the muscles themselves. In other words, the cause of dynamic ileus may be general, by way of the central nervous system, or it may be local, in the inefficacy of Auerbach's plexus or the muscles which that plexus controls.

DYNAMIC ILEUS THROUGH THE CENTRAL NERVOUS SYSTEM.

The Effects of General Asthenia.—When the nervous connections between the alimentary canal and the central system are intact, nothing is more remarkable than the responsiveness of the canal to conditions of general asthenia. In the asthenia of animals afflicted with "distemper," for example, food will lie in the stomach or intestine all day without the slightest sign of a peristaltic wave passing over it. There is total stoppage of the motor activity of the digestive organs.

The condition is quite different when the canal is disconnected from the spinal cord and brain. In such a state, with the stomach and small intestine entirely deprived of their extrinsic innervation, these organs have been observed exhibiting their normal activities, although the animal was to the last degree exhausted and toneless. In one instance an animal, very limp and apathetic, was fed by stomach tube 25 c.c. finely divided lean beef mixed with 5 gm. subnitrate of bismuth, reduced to a mush by the addition of water. Inspection by means of the Roentgen rays at intervals of an hour for five hours revealed normal peristalsis of the stomach and normal motor activity of the small intestine at each observation. At the end of five hours, although the animal was moribund, gastric peristalsis was still prominent. At the end of the sixth hour the animal was dead. Autopsy revealed a deep septic process in the muscles of the neck.

If the nervous connections with the cord and brain had been intact in this case, the persistence of the activity of the alimentary canal, according to our experience, would not have been seen. The general bodily condition, therefore, may affect the canal unfavorably through the nervous system. The pathway of these unfavorable influences is probably the splanchnic, for normal activities have been observed in the state of asthenia when only splanchnic nerves had been severed and the vagi were still intact.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

* From the Laboratory of Physiology in Harvard Medical School.

[1] Nothnagels Diseases of the Intestine and Peritoneum, English translation, Philadelphia, 1904, p. 377.

[2] Cannon and Murphy: Ann. of Surgery, 1906, xliii, 512.

[3] Magnus: Archiv. f. die gesammte Physiol., 1904, cii, 362.

[4] Cannon (W. B.): American Jour. of Physiol., 1906, xvii, 429.

[5] Jour. of Physiol., 1899, xxiv, 99; 1901, xxvi, 125; May, 1904, xxxi, 260: Elliott and Barclay-Smith, 1904, xxxi, 272.

[6] Cannon (W. B.): American Jour. of Physiol., 1905, xiii, xxii.

The Effect of Splanchnic Reflexes.—Nothnagel reports a case of dynamic ileus resulting from inflammation of an undescended testicle and states that inflamed hydrocele, contusions of the testicle, operations on piles and suppurations in the abdominal region have all been known to produce symptoms of occlusion of the intestine. Kocher, on the contrary, seems inclined to discredit the idea that dynamic ileus is a purely functional disturbance. "Little mechanical obstacles," he declares, "lie at the bottom of the majority of cases of so-called dynamic ileus."[7]

It is possible to prove the existence of reflex dynamic ileus by means of experiment. Male animals (cats) were chosen for observation. They were treated exactly as described in a former series of experiments[2]—in general, etherized for a half-hour, and within an hour after stopping the anesthetic given 25 c.c. mashed potato mixed with 5 gm. bismuth subnitrate. The discharge of food from the stomach and its passage through the small intestine were then determined by Roentgen ray observations at the end of the first half-hour and at hourly intervals for six hours. As described in the earlier investigations, the rate of passage from the stomach was judged from the total length of the shadows of the food in the small intestine at the regular times of observation. The passage through the small intestine could be judged from the first appearance of a shadow in the large intestine.

In testing experimentally reflex dynamic ileus, the testicles were crushed during the half-hour of etherization. In order to learn the effect of this procedure it is necessary to compare the results of observations in these cases with the results of observations after the animals were merely etherized for a half-hour. In the following figures are presented in centimeters the aggregate length of the food masses in the small intestine at the regular times of observation, after a half-hour's etherization, and after the same period of etherization during which the testicles were crushed. These are typical cases.[8]

	Time in Hours.						
	½ cm.	1 cm.	2 cm.	3 cm.	4 cm.	5 cm.	6 cm.
Etherized half hour.......	3	11	17	21.5	22.5	13.5	12
Etherized ½ hour, testicles crushed	0	0	0	0	0	8	15

It will be noted in this comparison that, although the discharge from the stomach was not entirely checked, the operation plus the etherization retarded the exit for a number of hours. Furthermore, the discharge under these circumstances was characteristically slow. The movement through the small intestine was likewise very sluggish; in the condition of etherization alone, material reaches the large intestine in four or five hours; in the condition of etherization plus injury to the testicles, in only one case out of ten did the material pass the small intestine within six hours. How much more time was required for the passage was not determined.

It may be contended that the condition presented by these animals was not true ileus paralyticus; that, although the food was moving slowly from the stomach and through the small intestine, yet it was moving. The initial failure of peristalsis for a number of hours must, however, be regarded as indicative. These animals were vigorous animals; the injury done them was done under ether when nervous conduction may be much depressed. Doubtless if the operation were superposed on a state of bodily weakness, or were performed without anesthesia, or were long continued as in states of inflammation—thus simulating common conditions in human beings—the results would have been even more pronounced.

As previously stated, recent physiologic investigations make it probable that reflex inhibitions of peristalsis are mediated through the splanchnic nerves. The question as to whether these nerves are in the cases above described the pathways of inhibitory impulses can be tested experimentally. Animals were operated on aseptically, and the splanchnic nerves cut on both sides of the body. After recovery from this operation, usually within a week, the animals were again etherized and the testicles crushed. The motor activities of the alimentary canal were then tested in the manner already explained. The following figures offer a comparison between the results when the testicles of the normal animal are crushed and when they are crushed in an animal with splanchnic nerves severed. These figures, from typical cases, represent in centimeters the aggregate length of the food masses in the small intestine at the regular times of observation:

	Time in Hours.						
	½ cm.	1 cm.	2 cm.	3 cm.	4 cm.	5 cm.	6 cm.
Ether, testicles crushed....	0	0	0	0	0	8	15
Splanchnics cut, ether, testicles crushed.........	16	29	33	27	22	10	4

Evidently the severing of the splanchnic nerves has entirely obviated the inhibition of activity due to crushing of the testicle. Indeed, the results typically secured in these cases compare very favorably with the results from normal unetherized animals, as the following figures show:

	Time in Hours.						
	½ cm.	1 cm.	2 cm.	3 cm.	4 cm.	5 cm.	6 cm.
Normal (average, 4 cases).	10	31	43	25	21	13	8
Splanchnics cut, ether, testicles crushed (average 4 cases)	13.5	28	34	28	24	15	10

The discharge from the stomach is thus made practically normal by cutting the splanchnic nerves. And the passage through the small intestine is also reduced to two or three hours (approximately the normal rate for potato in these animals) merely by abolishing splanchnic impulses.

From the observations above recorded we may conclude that not only can ileus paralyticus be produced without mechanical changes in or about the intestinal wall, but that the condition is one of inhibition, an inhibition conveyed to the stomach and intestines through the splanchnic nerves.

THE QUESTION OF LOCAL PARALYSIS.

In an earlier research,[2] duration of etherization, exposure of the stomach and intestines to the air, cooling and handling these organs, were studied as possible factors in the production of postoperative paralysis. Etherization, either one-half or one and one-half hours, was found not to delay to any marked degree the discharge of food from the stomach; exposure to the air and unusual cooling of the gut likewise caused no noteworthy delay; but most striking effects were seen after handling the digestive organs. Even when the stomach and intestines were handled most gently, either under warm salt solution or within the peritoneal cavity, no movements of the stomach were seen and no discharge into the intestine for three full hours after the feeding. And after the first departure of food from the stomach the discharge continued very slowly. The passage through the small intestine was also retarded; in only one case did the food (potato) appear in the large intestine before the end of seven hours of observation.

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[7] Mittheilungen aus dem Grenzgebieten der Med. und Chir., 1899, iv, 201.

[8] Once a female cat was used; the abdomen was opened during the half hour of etherization and the ovaries crushed. Results tallied closely with those observed after crushing the testicles.

When the organs were removed from the abdomen and handled gently in air, the movement of the food was retarded to a greater degree than when they were fingered in the peritoneal cavity or under warm normal salt solution. So great was the retardation that in one case not all the food had passed into the large intestine from the ileum even twenty-six hours after feeding. Indeed, the condition then was that reached normally in about five hours.

Rougher treatment in air, such as stripping the gut between the fingers, resulted in increased inertia of the stomach and extreme sluggishness of the small intestine. In one case of harsh manipulation no food had left the stomach at the end of seven hours. And in another case the food had not yet reached the large intestine twenty-four hours after the feeding (the food used, as already noted, begins to appear there normally at the end of two or three hours); only a slight amount of food was in the small intestine, and the stomach was still well filled.

It should be remembered that the subjects of these observations were vigorous normal animals. Doubtless the factors which act to check the movements of the alimentary canal must have a greatly increased effect when the strength has been sapped and the bodily vigor lost.

Manipulation of the stomach and intestine, therefore, even gently and under the most favorable circumstances, produced in our experiments much greater effect in the direction of postoperative inactivity than any other of the factors under control during operation. Whether manipulation produces its effects directly on the mechanisms in the wall of the canal or indirectly through reflex inhibitions from the central nervous system was left undetermined.

The question of the source of this postoperative inactivity can be put to experimental test. If it is due to reflex inhibition, manipulation after the splanchnic nerves are cut ought to have no effect, since the pathway for inhibitory impulses is destroyed. On the other hand, if after severance of the splanchnics manipulation still produces inactivity, the result can be attributed to local disturbance.

Animals in which the splanchnic nerves had been severed aseptically several days before were treated in the same manner as the normal animals on which the earlier observations were made. They were etherized a half-hour and during that time the abdomen was opened and the stomach and intestines, under aseptic precautions, were stripped between the fingers, i. e., roughly handled. Within an hour after etherization ceased the animals were given 25 c.c. potato plus 5 gm. subnitrate made at the regular intervals after the feeding.

In one animal there was no discharge from the stomach during seven hours of observation, though the next day the stomach was largely empty. Another animal vomited the gastric contents after the first hour. In a third case nothing left the stomach during the first six hours, and then the outgo was slow. In still another instance food began to pass the pylorus at the end of an hour, but the exit was very slow, and at the end of seven hours no food had reached the large intestine. These results correspond closely to the results following manipulation of the stomach and intestines of normal animals. In both there is a marked retardation of the discharge of food from the stomach and a sluggish condition of the small intestine. The effects of handling, therefore, are not necessarily the consequence of reflex inhibitions from the spinal cord, but can be entirely explained as disturbances of the local mechanisms in the wall of the gut.[9]

DISTINCTION BETWEEN LOCAL AND SPINAL ORIGIN OF DYNAMIC ILEUS.

From the foregoing evidence it is clear that in any case of dynamic ileus a distinction must be made between the inactivity due to inhibitory impulses from the central nervous system and inactivity due to local disturbances in the gastrointestinal wall. It is of the first importance to determine the source of the inactivity. For example, in our experiments stretching of the gut by forcible injection causes a prolonged inhibition of movement. Section of the gut and suture likewise cause a local blocking, the food is for some time not forced into the region of the operation. Peritonitis may be accompanied by total cessation of gastrointestinal activity. In these various cases where is the seat of the trouble? Is it local or imposed from the spinal cord? Unfortunately our experiments have not proceeded far enough to give us definite answers to these questions.

The practical importance of the distinction between intrinsic and extrinsic inhibition of the alimentary canal will be recognized in considering the possibilities of treatment. As already made clear, the normal stomach and intestine are capable of carrying on their motor activities quite independent of the central nervous system. Consequently, if the inhibition is extrinsic, any agent that will check the delivery of inhibitory impulses from the cord to the canal would permit the canal to resume its normal functioning. If, on the other hand, the inactivity is the direct result of local disturbance this same agent would have no effect in promoting the restoration of peristalsis. It is questionable, indeed, whether the canal, inactive from local cause, can be made to exhibit normal peristalsis by the application of any agent until there has been at least a partial recovery of the normal condition.

In our experiments some attempts have been made to stimulate the bowel to move normally after local disturbance. The stomach and intestines were manipulated in the manner usually resulting in paralysis. After recovery from etherization the animals were given the same amount of potato mixed with bismuth subnitrate as was given in other cases, but the mixture was moistened with 4 c.c. tincture of aloes. Tincture of aloes has recently been shown to be a particularly effective agent in promoting peristalsis in the cat.[10] In these animals with manipulated gastrointestinal tract no improvement of peristalsis could be ascribed to the aloes. The figures obtained at the regular times of observation corresponded closely to those obtained from animals in which the canal was merely handled and no drug was given with the food.

On the other hand, when the inhibition is imposed from the spinal cord it should be possible to start the movements of the canal by depressing the action of the cord or by blocking the impulses from the splanchnics. As maintained by Craig[11] and others, salicylate of physostigmin acts favorably as a remedy for postoperative paresis in clinical cases. In all probability its usefulness is restricted to cases in which the paresis is of central origin, for its physiologic action includes depression of the functions of the spinal cord and powerful stimulation of the stomach and intestines[12]—precisely the requirements for obviating reflex inhibition of the alimentary canal.

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[9] Recently Meltzer and Auer (Proceedings of the Society for Experimental Biology and Medicine, 1907, iv, 39), have shown that cecal peristalsis of the rabbit is inhibited by dissecting the skin over the abdomen. This is reflex inhibition, for it does not occur if the spinal cord is previously destroyed. On the other hand, previous destruction of the cord does not prevent the direct inhibition of peristalsis observed when the abdomen is opened. These observations ard our own are in perfect agreement.

[10] Pfaff and Nelson: The Journal A. M. A., 1906, xlvii, 1819.

We have tested the action of physostigmin salicylate experimentally on animals. A sixtieth of a grain in a freshly-prepared solution was given subcutaneously at various times with relation to the etherization and crushing of the testicles—two hours before etherization, an hour before etherization, during the anesthesia, and subsequently while the food was stagnant in the stomach. In our experience giving physostigmin at any time before the operation or during the anesthesia resulted in no perceptible improvement of the passage of food through the alimentary canal. But when the drug was given afterward during the period of stagnation there resulted a very marked, but only temporary, increase of peristalsis. In the following figures a comparison is presented between the amount of food in the small intestine in two typical cases, one in which the testicles were crushed, the other in which the testicles were crushed and a sixtieth of a grain of physostigmin administered about two hours after the feeding. The figures give in centimeters the aggregate length of the food masses in the small intestine at the times indicated:

	Time in Hours.						
	½ cm.	1 cm.	2 cm.	3 cm.	4 cm.	5 cm.	6 cm.
Ether, testicles crushed....	0	0	0	0	0	8	15
Ether, testicles crushed, physostigmin at two hours...	0	0	0	32	38	41	37

It is clear from the figures for the third hour that the administration of the drug at the second hour had produced suddenly a very abundant discharge from the stomach into the intestine. Nor was gastric peristalsis alone stimulated; intestinal peristalsis was also remarkably active—lively movements of the food masses in the intestinal coils were seen on all sides. But at the fourth hour and thereafter all was quiet again. As shown by the figures, the discharge from the stomach did not continue to be abundant and the food in the intestinal coils lay almost entirely quiescent; at the end of six hours no food had reached the large intestine. The physostigmin, therefore, although given in an amount sufficient to cause the cat's muscles to twitch, had only a temporary effect. Within two hours this action had apparently ceased. These results raise a question as to the reasonableness of attributing great efficacy to a single dose of physostigmin in clinical cases, when the passage of feces occurred from eight hours to three days after the administration of the drug. It would seem as if physostigmin, because of its relatively brief action, could not properly be held accountable for the results. Be that as it may, however, there is no doubt that, temporarily at least, the salicylate of physostigmin will destroy reflex inhibition of the alimentary canal and cause the normal movements to proceed.

In conclusion it should be stated that the present report of our work is preliminary and that many features need still to be made clear. The point we wish to emphasize is the distinction between dynamic ileus of spinal origin and dynamic ileus of local origin in the wall of the gut. The various conditions which affect one or the other of these causes of inactivity have not yet been experimentally studied, but on such a study depends the possibility of rational judgment in any particular case.

THE SYMPTOMS AND DIAGNOSIS OF STRANGULATION OF THE INTESTINE.*

JOHN B. ROBERTS, A.M., M.D.
Professor of Surgery in the Philadelphia Polyclinic.
PHILADELPHIA.

The development of the operative surgery of the abdomen has created in the minds of surgeons such an assurance of success that they are liable to neglect the study of diagnosis and to resort too cheerily to exploratory investigation of lesions in this cavity. Physicians, on the other hand, being more or less unfamiliar with the innocuousness of aseptic inspection of the abdominal contents, lose valuable time in fruitless efforts to overcome mechanical impediments to peristalsis. Patients would have a fuller measure of scientific aid in their dire extremity, if surgeons could profit by frequent opportunity to see cases of intestinal obstruction early enough to study initial symptoms. On the other hand, many lives would undoubtedly be saved, if physicians realized the futility of wasting time in the effort to settle diagnostic problems, when the fecal current and perhaps the blood circulation are stopped by mechanical causes, demanding instant manipulative removal.

Such conditions demand the best consideration of philosophical minds, alert to appreciate the importance of both medical and surgical skill. Good "team" work on the part of a physician and a surgeon, or the services of a practitioner who has had both medical and surgical training, will give the suffering patient the best chance for recovery. Some of us, who now practice surgery as a specialty, would often be most unhappy, if we did not possess, through previous experience in internal medicine, some ability to weigh our own surgical opinions and even to review critically the judgments of our medical colleagues.

The symptoms of intestinal obstruction and intestinal strangulation are necessarily similar, because strangulation is usually a complication of obstruction. It is an interference with the vascular and lymphatic circulation in the wall of the bowel and in the mesentery. It may occur as an incident in the history of acute or chronic obstruction. In the former the strangulation may arise coincidently with the obstruction. In both it may arise only after the obstruction has existed for a considerable time. Occasionally, as in some hernias, a portion only of the wall of the intestinal tube may be strangulated with no real occlusion of the caliber of the gut. Yet the influence exerted on the muscular coat of the bowel produces, as a rule, very promptly a symptom-complex practically identical with that of obstruction. These symptoms usually continue until the strangulation is relieved or the patient dies; sometimes, however, local gangrene occurs, an artificial anus is formed and the patient recovers.

Ignorance of the causes of the symptoms formerly termed ileus, or iliac passion, no longer compels the use of such indefinite terms. The Greek verb εἰλεῖν, from which comes εἰλεός, is practically equivalent in a medical sense to the Latin volvo. The term ileum, therefore, should be restricted to that lesion of the bowel in which the intestine is rolled, twisted or knotted, so as to produce symptoms of obstruction. Ileus and volvulus should be synonymous terms. The word volvulus was formerly rather loosely employed, though it is not now.

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[11] American Jour. of Obst. and Dis. Women and Children, 1904, xlix, p. 449.

[12] Cushny (A. R.): Pharmacology and Therapeutics, Philadelphia, 1901, 317, 319.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Inspection of English medical dictionaries will be convincing as to the need for this restriction of the use of the word ileus or its complete elimination from medical nomenclature. A number of mechanical disarrangements of the intestinal tube may cause colic, constipation and vomiting, but there is no good etymologic or other reason for classing them all under the name ileus. As hernia, from ἔρνος, a sprout, should be applied to a protrusion, so ileus, from εἰλεός, should be applied to twisting, and to twisting only, of the bowel. The word should not be applied to intestinal obstruction, strangulation or colic from any other cause.

It is often difficult to make a differential diagnosis between intestinal obstruction and such conditions as lead colic, flatulent colic, arsenical poisoning, acute enteritis, Asiatic cholera, acute pancreatitis, perforated ulcer of the stomach, thrombosis and embolism of the mesenteric arteries, torsion of the great omentum, inflamed undescended testicle, paralysis of the intestinal muscles, hysteria, acute appendicitis and peritonitis. The examination of the patient should be repeated from hour to hour, in order that no one of the rapidly developing diagnostic points be overlooked. It is only in the earliest stages of the affection that an exact diagnosis between the different forms of obstruction is likely to be feasible. The development of tympanites as a symptom or of peritonitis as a secondary condition often destroys the possibility of an accurate investigation except by exploratory investigation.

Strangulation not only closes the caliber of the bowel, so as to prevent the movement of the fecal current and the gaseous contents, but it also severely irritates the nerves in the mesentery and in the gut and compresses the blood and lymph channels in those structures. The result is that grave arterial anemia and venous hyperemia are produced, and gangrene and perforation may occur. It is a more or less elastic construction and may be defined as obstruction plus circulatory interference.

An external hernia at the inguinal, femoral or umbilical opening may become strangulated. So may a hernia through one of the more unusual orifices, such as the obturator foramen, the sciatic notch, and the small openings occasionally found in the linea alba, between the navel and the ensiform cartilage. The medical attendant should never neglect to explore these recognized seats of external hernia whenever intestinal obstruction is under consideration. A small femoral hernia may be concealed by enlarged, overlying lymph nodes. In children a scrotal hernia may be translucent and suggest hydrocele. The rectum must always be examined with the finger or proctoscope, to exclude the existence of impaction of feces or stenosis of the lower bowel from tumor. Thomas Bryant called attention years ago to a ballooning, or dilatation, of the rectum, when stenosis of the lumen of the descending or sigmoid colon exists. This symptom may lead to the discovery of an occlusion from carcinoma or other cause too high to be felt with the finger inserted through the anus.

The results of strangulated gut are practically the same, whatever the anatomic lesion causing the constriction. It makes little difference in the general aspect of the case whether the strangling be due to compression by, entanglement in, or twists, kinks or knottings from omphalo-mesenteric vestiges or peritonitic adhesions; to incarceration in congenital or acquired apertures or fissures; to internal hernias in the foramen of Winslow, the paracecal fossæ, the intersigmoid space, the duodeno-jejunal region, or through diaphragmatic openings; or to an external hernia incompletely reduced or not reduced at all. A mere tear in the parietal peritoneum may afford an opportunity for the intestine to slip under it and become strangulated.

The symptoms do not in the main vary much from the characteristic complex when the strangulation arises secondarily to a chronic obstruction of the bowel. Here, however, there is usually discoverable a history of a series of antecedent events pointing to stenosis or obturation.

The diagnosis of probable strangulation, primary as well as secondary, must rest on the sudden onset of great pain, vomiting, absolute stoppage of feces and gas, and intense prostration or collapse. These symptoms may arise immediately after the receipt of a blow on the abdomen, or their advent may follow sudden violent muscular exertion, straining at stool or active purgation from diarrhea or a cathartic.

The pain is generally the first symptom. It is violent, continuous and occasionally increased by paroxysmal colic. It is practically always a part of the symptom-complex, unless gangrene has occurred and the patient has gone into collapse and stupor. It may be localized at or near the site of strangulation and may be relieved somewhat by pressure. In volvulus the pain is likely to be more diffused than in internal strangulation by a band or the like. This initial pain may in time be followed by the secondary pain which comes from the development of peritonitis, provided that peritonitis develops ere the death of the patient or his relief by treatment. The pain of peritonitis is not relieved by pressure. It is possible that a slight degree of tenderness on pressure may be present from increased sensitiveness of the bowel, when no peritonitis has as yet developed. This is probably due to the violent contractions of which the muscular tunic of the bowel has been the seat.

The advent of pain is quickly followed by vomiting, due probably to the traction on the peritoneum at the point of strangulation. The vomiting under rare circumstances may precede the access of pain. It usually occurs within the first twenty-four hours and persists until death, though it may cease shortly before that issue. It is accompanied in very many instances by nausea, hiccough and eructations of gas. The vomitus is at first the contents of the stomach; then the intestinal fluids, colored by bile so as to be brownish, yellowish or pea-soup-like, are ejected, and finally fecal vomiting is established. Fecal vomiting need not occur. The seat of the obstruction may be too high in the intestinal canal or the patient may succumb to shock before it has appeared. The time of its appearance may vary from two to five or more days. Death is not uncommon in two or three days, though there are cases that run a more chronic course.

The complete obliteration of the caliber of the gut and the reflex influence exerted by strangulation induce absolute constipation. This obstipation appears as soon as the strangulation occurs and no discharge whatever of feces or flatus takes place. Even when the strangulation affects the ileum the contents of the large bowel are not expelled. There are but very few exceptions to this rule of absolute constipation. Peristalsis below the site of the lesion seems to be inhibited by reflex action. The contents of the rectum and lower colon may be washed out with enemas, but there is as a rule no spontaneous evacuation of intestinal gases or of feces. This constipation may be difficult to differentiate from the paralytic intestinal inertia, which may follow incision of the abdominal muscles and manipulation of the bowels during the operative treatment of various abdominal and pelvic lesions. Such inhibition of peristalsis may occur without the existence of postoperative peritonitis.

Coincident with this more or less characteristic symptomatic triad of strangulation a most profound collapse occurs. This prostration is evidenced by a frequent small pulse, pallor of the skin, low temperature, anxious facies, sunken eyes and the congested internal viscera of shock. Death may take place as a result of this condition, which is probably due to the reflex inhibition of the heart's action and a consequent lowered blood pressure. The immediate cause of the fatal issue is probably anemia of the nervous centers. Similar profound depression of the vital forces occurs in other forms of acute intestinal obstruction, but it is especially noticeable in instances of obstruction with strangulation. The exact form of the strangulation does not seem to exert much difference in the degree of shock. In this form of shock, as in surgical shock from other lesions, the patient remains conscious except in the agony of death.

The severity of symptoms depends on the degree of the strangulation and the amount of bowel and mesentery deprived of its normal circulation. The tighter the strangulation and the greater the extent of bowel involved the more urgent the symptoms. Death from shock, from general exhaustion, caused by the pain and vomiting, or from peritonitis is to be expected early in severe cases. Death is likely to occur before gangrene and perforation take place.

Tympanites occurs only to a moderate degree, as a rule, in strangulation from hernia and bands, but is apt to be marked in volvulus. When, however, peritonitis has developed as a secondary complication the distension becomes general and may be very great. The meteorism is localized at first in the involved loop of bowel and the portion of intestine just above the strangulation. It should be remembered that an extremely distended gut does not give a tympanitic note on percussion, but a low note more like that obtained when the chest is percussed over normal lung.

If no localized tympanites is seen it is probable that the strangulation is incomplete or that the intestinal gases are escaping through minute perforations in the bowel wall. It is the venous stagnation in the bowel from the interference with circulation that causes the localized meteorism due to unabsorbed gases. This localized tympanites differs from the distension that arises from putrefaction of stagnating intestinal contents, and occurs more promptly than the latter.

The locally distended bowel in strangulation changes the shape of the abdomen; hence the least asymmetry should be carefully studied. The bulging of the flanks laterally, the puffing up of the umbilical region in which lies the small intestine, or the distended outline of the colon or of the sigmoid flexure may give a hint, if the surgeon sees the case early and is alert. The strangulated loop is anchored in one spot, and as it becomes distended changes the aspect of the abdominal surface. The rigid loop may be detected by palpation, because it feels tense and hard. General anesthesia may, by relaxing the abdominal muscle, aid in enabling this fact to be discovered by the examiner's hand.

A study of the urine, feces and blood may perhaps aid in establishing a diagnosis of the existence of obstruction, if not in actually helping the surgeon to a conclusion as to the occurrence of actual strangulation. The discovery of a large amount of indican in the urine during the first two or three days seems to indicate either acute peritonitis or occlusion of the small intestine. Hence when the other symptoms exclude acute peritonitis, intestinal obstruction may tentatively be assumed to exist in the small bowel, if collateral evidence points to interference with the permeability of the intestinal tube. According to Hammeter, peritonitis, multiple stenosis in both small and large intestine, and a chronic stenosis in the large bowel may show excessive indicanuria. These possibilities, therefore, modify the value of this symptom. If excessive indicanuria is absent, acute general peritonitis is probably not present. A deficiency in the amount of urine excreted is considered by some writers to be attributable to tightness of the constriction of the caliber of the gut. Others maintain that it simply indicates that, in a case of obstruction, the stenotic lesion is high in the small intestine. Albuminuria and hematuria have little diagnostic significance.

It is unfortunate that little can be learned by inspection of the feces, except occasionally in obstruction in the rectum or the descending and sigmoid colon, when the shape of the fecal masses may be of aid. Blood and pus in the stools, especially the former, have a limited significance. Small amounts of blood are discharged from the rectum in some cases of volvulus, but not in internal strangulation unconnected with volvulus, malignant disease or invagination. In invagination bloody stools are often a marked characteristic.

Leucocytosis is of possible value, when markedly developed within forty-eight to seventy-two hours after the beginning of obstructive symptoms. Its occurrence in various suppurative abdominal conditions without obstruction destroys its value, when found only at a later period.

Fever occurring early in a suspicious case tends to make logical the diagnosis of peritonitis rather than obstruction or strangulation. Its development later may be due to an incidental peritonitis complicating strangulation or any other form of obstruction, but it should be recollected that peritonitis may occur without fever.

The diagnostic value of peritoneal fluids obtained by aspiration, of intubation and inflation of the colon, of auscultation of the abdomen, of the antiperistaltic progress of minute particles from the rectum to the stomach, where they are found by lavage, and of the use of the x-ray to locate masses of dammed up feces made demonstrable by bismuth subnitrate should be tested in appropriate cases.

The diagnosis of obstruction is always a matter of supreme importance, because the patient must be relieved spontaneously or by treatment. Otherwise death will occur. Prompt relief is necessary in all cases, but promptness is absolutely essential in the crisis caused by strangulation. Often the diagnosis can only be made by a process of exclusion. If accurate diagnosis is unattainable, operation must be at once undertaken. Exploratory operation is frequently a confession of ignorance, but such confession is an evidence of sincere concern for the welfare of the patient.

Let it be remembered that there may be more than one point of obstruction or strangulation, especially in cases secondary to former attacks of peritonitis. Do not forget that visible intestinal peristalsis with paroxysmal rigidity and stiffening of definite loops of intestine, after percussion of the abdominal wall, are absent in volvulus (axial rotation) and internal hernia with strangulation, unless these conditions are engrafted on chronic obstruction. This symptom may be of diagnostic value, however, to establish the presence of intestinal obstruction in chronic forms of occlusion, where the muscular coat has become hypertrophied.

Recollect the absence of peristalsis and the possible occurrence of adynamic obstruction in appendicitis, renal and biliary colic, and peritonitis, which are due to inhibition of power in the musculature of the intestine. In these instances pain and sensitiveness may prevent the passage of feces along the intestinal canal and simulate obstruction. There is perhaps a sort of neurotic constipation here, such as may occur in healthy persons who have not access to decent toilet facilities.

When the surgeon has concluded that strangulated intestine is causing the symptoms, he should endeavor to make up his mind as to the location of the trouble and the character of the strangulating process.

The most common site of strangulating lesions, not associated with internal hernia, is the right lower quadrant of the abdomen. The lower portion of the ileum and the cecal region, therefore, should be inspected first. Volvulus, however, is most apt to occur in the sigmoid colon, especially in the aged. Intussusception is not particularly common in the ileocecal region, but it is perhaps most frequently found in some portion of the colon. It is the more frequent disease of the young. Strangulative lesions, being usually acute, are more difficult of differentiation than those other obstructive lesions which are chronic.

The change in contour of the belly, due to tympany, will sometimes aid in settling the site, as has already been stated. In obese patients this determination becomes a matter of increased difficulty. It must be recollected that the sigmoid colon twisted on its axis may fill from distension the abdominal cavity in an astonishing way and extend even to the right hypochondrium. In such cases, however, the left flank also is apt to be convex from distension. The upper lumbar region, on both sides behind, will give on percussion, it is said, a long deep note instead of the normal high and flat note, when the obstruction is in the sigmoid or descending colon. This change in percussion note in the back will be found only on the right side, when the occluding lesion is in the transverse colon or at the splenic flexure. This sign seems to have some value.

The pain is less severe in volvulus than in strangulation by omphalo-mesenteric remains, or bands; and sometimes the pain of volvulus may be referred to the back. In volvulus high up in the small bowel there may occur frequent evacuations from the bowels. This is unlike internal hernia-form strangulation and strangulation from bands, which are accompanied by absolute constipation. Occasionally a little blood may be passed with the feces in cases of volvulus, especially of the sigmoid flexure. Rectal tenesmus is an indication of volvulus being the cause of the obstruction, rather than strangulation from other causes. Fecal vomiting is not common in volvulus, but it is common in strangulation from entanglement under bands and in openings. Volvulus is more apt to be preceded by habitual constipation, and causes less intense collapse than strangulation from bands.

A previous history of peritonitis would point rather to strangulation by bands, or kinks or knots, than to strangulation from volvulus, were it not a fact that peritonitis may cause narrowing of the mesentery from infiltration and cicatricial changes which tend to make axial rotation (volvulus) occur more readily.

The differential diagnosis is farther obscured at times by the circumstance that volvulus of the small intestines and strangulation by bands and cords may bo coexistent.

My final word is: If the diagnosis can not be established with a fair degree of certainty within twenty-four hours, or at most forty-eight hours, open the abdomen aseptically and inspect its contents.

313 South Seventeenth Street.

[THIS SYMPOSIUM ON ILEUS TO BE CONTINUED. THE DISCUSSION WILL FOLLOW THE LAST PAPER.]

THE OCCURRENCE OF TYPHOID BACILLI IN THE STOOLS OF TYPHOID PATIENTS,

WITH A DISCUSSION OF THE PATHOGENESIS OF TYPHOID FEVER.*

DRS. J. H. PRATT, F. W. PEABODY AND A. D. LONG.
BOSTON.

The view is generally held that the intestinal contents in typhoid fever are swarming with typhoid bacilli. The fact that many investigators have often had difficulty in isolating *Bacillus typhosus* from the stools of undoubted cases of typhoid fever has been attributed to imperfect technical methods. Some observations made by one of us seemed to indicate that the reason typhoid bacilli were not obtained from the stools during the height of the disease might be due, not to faulty bacteriologic methods, but to the fact that the typhoid micro-organisms were either absent from the feces or present in extremely small numbers.

The studies here presented extend over two years. About 75 per cent. of the patients had fever at the time of the examination. All were clinically typhoid fever. In only one instance was the agglutination test persistently negative. It is probable that this was a case of infection with *Bacillus fæcalis alkalingenes*. Each day the sickest patients to be found in the wards were selected for the examination. For the opportunity of making this study we are indebted to the visiting physicians of the Massachusetts General Hospital.

When Gaffky[1] reported, in 1884, that he had cultivated on artificial media the specific micro-organism of typhoid fever, he made no claim that he could isolate it from the intestinal contents. In 13 cases he obtained the typhoid bacillus from the spleen and in one case from the liver. Pfeiffer,[2] in 1885, was the first to assert that typhoid bacilli were present in the stools. As he knew nothing about *Bacillus coli* and did not fully

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* From the Laboratory of Clinical Pathology, Harvard University (Director, Prof. R. H. Fitz). This investigation was begun in the Laboratory of Bacteriology. The facilities of the bacteriologic department were available through the courtesy of Prof. H. C. Ernst.

1. Mitt. a. d. Kaiserlich. Gesundheits, 1884, ii, 372.
2. Deutsche med. Wochschr., 1885, p. 500.

identify the bacilli he isolated, his results can not be accepted. Merkel and Goldschmidt,[3] Karlinski[4] and Wiltschaur[5] claimed they could demonstrate typhoid bacilli in the stools without difficulty. Karlinski,[4] in 1889, stated that he obtained positive results in all of the 21 cases he examined. As none of these investigators differentiated the micro-organisms they obtained from *Bacillus coli*, their observations are of no value. It is interesting to note that Wiltschaur[5] was the first to state that the number of typhoid bacilli in the stools is very small. Wathelet[6] showed that the methods of the earlier investigators were inadequate. He made a bacteriologic examination in 12 cases of typhoid fever, and reported that he was able to isolate the typhoid bacillus in only 4 of them. He studied about six stools from each patient. He examined in all 600 colonies that developed on ordinary gelatin and only 10 of these were typhoid colonies. Even his results can not be accepted, as he did not state how he identified the micro-organisms he isolated as typhoid bacilli. G. Roux, writing in Bouchard's *Traité de Pathologie* as late as 1896, stated that it was impossible to isolate *Bacillus typhosus* from the intestinal contents owing to the constant presence of large numbers of colon bacilli. The first trustworthy work dates from the introduction of the glucose fermentation tests and the use of litmus-milk for differentiating colon and typhoid bacilli. Since 1897 the agglutination test has been generally employed.

The first practical medium for separating typhoid from colon bacilli was the iodine-potato-gelatine of Elsner.[7] The publication of his paper, in which he stated that by this new method he had isolated *Bacillus typhosus* from the stools in 15 out of 17 cases attracted much attention. His method was used and indorsed by Brieger,[8] Grawitz,[9] Lazarus[10] and Sterling[11] in Germany, by Pollak[12] in Austria, Jemma[13] in Italy, Chantemesse[14] in France, Horton-Smith[15] in England and Mark Richardson[16] in America. Pollak,[12] Brieger[8] and Lazarus[10] obtained positive results in all the cases they studied. The published reports of these investigators seemed to demonstrate the truth of the old theory that typhoid bacilli developed in enormous numbers in the intestinal contents of typhoid patients. The theory advanced by Metchnikoff and Sanarelli[17] in 1894 seems to have attracted little or no attention. They held that the typhoid bacilli only occasionally wandered from the spleen and mesenteric lymph nodes into the intestines. The work of Brieger,[8] Chantemesse,[14] Lazarus[10] and Sterling[11] must be rejected, however, as these investigators did not clearly differentiate between typhoid and colon bacilli.

Although the method of Elsner[7] in the hands of some investigators yielded excellent results, other bacteriologists found it unsatisfactory and failed to cultivate the typhoid bacillus in many undoubted cases of typhoid fever.

The paper of Hiss,[18] in this country, and the monograph of v. Drigalski and Conradi,[19] in Germany, seem to indicate that the failures of many earlier investigators to isolate typhoid bacilli from the stools were due to the lack of satisfactory methods. Of 19 febrile cases at the New York Hospital, the typhoid bacillus was isolated by Hiss from the stools in 17, that is, 89.5 per cent., by his method. Often the bacilli were present in large number. Higley[20] obtained positive results in 20 out of 21 cases by the use of Hiss's medium. v. Drigalski and Conradi[19] cultivated the typhoid bacillus from the feces by their litmus-lactose-agar method in every one of the 50 cases of typhoid fever they examined. The results of these bacteriologists must be accepted, as they fully identified the micro-organisms they isolated as typhoid bacilli. v. Drigalski,[21] in a later paper, stated that he subsequently examined cases in which he could not demonstrate typhoid bacilli in the stools even at the height of the disease. Klinger[22] was able to isolate *Bacillus typhosus* from typhoid stools in only 25 out of 75 febrile cases (33.3 per cent.) by the v. Drigalski-Conradi method. Krause and Stertz[23] in 33 out of 44 cases, Lipschütz[24] in but 1 out of 17 cases, and C. Cole[25] in 2 among 21. All used the v. Drigalski-Conradi method.

Malachite green media check the growth of colon bacilli, while they allow the development of most strains of typhoid bacilli. Klinger,[22] using malachite green agar as an enriching medium, isolated *Bacillus typhosus* in 26 out of 43 cases. He examined 35 stools during the febrile period by four methods: the v. Drigalski-Conradi, the Endo, the caffein with biologic precipitation, and the enriching malachite green agar. He succeeded by the simultaneous employment of all four methods in cultivating *Bacillus typhosus* 28 times from 35 stools, or in 80 per cent. of the cases.

Before attempting to reconcile the good results that early investigators obtained with imperfect methods and the comparatively poor results of Klinger, Krause and Stertz, Lipschütz and others with improved methods, a summary of our own work will be presented.

METHODS.

We have used for isolating *Bacillus typhosus* from the stools the v. Drigalski-Conradi litmus-lactose plates, Hiss's media and malachite green enriching methods. The medium of v. Drigalski and Conradi permitted a sharp differentiation of typhoid and colon colonies. The typhoid colonies were always bluish and usually small and translucent, looking like drops of dew. Sometimes, however, the first generation of typhoid colonies grown from the feces were large (3 to 4 mm. in size) and opaque. Colon bacilli formed large, opaque, red colonies. We have prepared the v. Drigalski-Conradi medium many times, and the different lots have presented a uniform appearance, and typhoid and colon colonies have always grown in a typical manner.

The failure of many bacteriologists to obtain a satisfactory medium depends on the fact that they did not use the right litmus. We have employed only Kahlbaum's litmus solution, which is made according to the formula of Kubel and Tiemann from specially treated litmus stock. This was the preparation of litmus that v. Drigalski and Conradi employed. With no other, according to Bassenge,[26] is there such a sharp differentiation of the color between typhoid and colon colonies. During the early part of this investigation Petri plates of ordinary size were used, later the large plates (15 to 20 cm. in diameter) as recommended by v. Drigalski and Conradi, Hiss's method in our hands was far less satisfactory than that of v. Drigalski and Conradi.

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[3] Centrbl. f. klin. Med., 1887, p. 393.
[4] Centrbl. f. Bakt., 1889, vi, 65.
[5] Centrbl. f. Bakt., 1890, vii, 279.
[6] Ann. de l'Institut Pasteur, 1895, ix, 253.
[7] Ztschr. f. Hygiene, 1896, xxi, 25.
[8] Deutsche med. Wochschr., 1895, xxi, 835.
[9] Centrbl. f. Bakt., 1892, xii, 729.
[10] Beliner klin. Wochschr., 1895, xlix, 1068.
[11] Centrbl. f. Bakt., 1897, xxii, 334.
[12] Centrbl. f. innere Med., 1896, p. 785.
[13] Münch. med. Wochschr., 1897, xxxiii, 911.
[14] Comp. rend. de la Soc. de Biol, 1896, p. 215.
[15] Lancet, 1899, p. 1346.
[16] Boston Med. and Surg. Jour., 1903, cxlviii, 152.
[17] Ann. de l'Institut Pasteur, 1894, viii, 193.
[18] Med. News, 1901, lxxviii, 728.
[19] Ztschr. f. Hygiene, 1902, xxxix, 283.
[20] Med. News, 1902, lxxx, 585.
[21] Centrbl. f. Bakt., 1904, xxxv, No. 6.
[22] Inaug. Disser., Strassburg, 1904; republished in Arb. a. d. Kaiserlich. Gesundheit., 1906, xxiv, 35.
[23] Ztschr. f. Hygiene, 1903, xliv, 469.
[24] Centrbl. f. Bakt., 1904, xxv, 798.
[25] Amer. Med., 1906, xi, 480.

Klinger[22] was able to isolate *Bacillus typhosus* from the stools in a much larger percentage of cases when he used the enriching malachite green method of Lentz and Tietz[27] than when he employed the blue agar of v. Drigalski and Conradi. Our attention was not drawn to the work of Klinger and Lentz and Tietz until the research as originally planned had been completed. It was then decided to make another series of observations, employing malachite green media in addition to the v. Drigalski-Conradi method. Lentz and Tietz's agar was tried and also a new enriching method devised by Peabody and Pratt. The malachite green methods failed to yield as good results as that of v. Drigalski and Conradi. This was probably due to the fact that the strains of the typhoid bacillus present in the intestinal contents of most of our cases were more susceptible to the inhibitory action of malachite green than our stock culture and the typhoid bacilli present in the cases studied by Klinger.

For example, a large v. Drigalski-Conradi plate inoculated November 27 from the feces of the patient Regan showed about 450 typhoid colonies. This particular strain of *Bacillus typhosus,* although present in the feces in large number, failed to develop on the malachite green agar or in the malachite green bouillon. There were nevertheless many bacteria in this specimen of feces that developed luxuriantly on the malachite green agar. On the Lentz and Tietz agar plate at the end of twenty hours were about 250 discrete colonies of nearly uniform size, averaging about 2 mm. in diameter, and a great multitude of minute colonies.. A v. Drigalski-Conradi plate made from this green plate failed to show a single typhoid colony. It is possible that the negative result in this case was due less to the inhibitory action of malachite green on the typhoid bacilli than to the presence of an unusually large number of fecal bacteria capable of developing on malachite green media. Their growth may have choked the typhoid bacilli.

When typhoid bacilli are found in the stools the possibility that they came from urine voided during defecation must be borne in mind. Precautions should always be taken to avoid this source of error.

RESULTS.

1. Pratt in 1905 isolated *Bacillus typhosus* in 6 out of 43 cases—14 per cent.
2. Pratt and Peabody in 1906 isolated *Bacillus typhosus* in 4 out of 31 cases—12 per cent.
3. Pratt and Long in 1906 isolated *Bacillus typhosus* in 7 out of 26 cases—27 per cent.

Total *Bacillus typhosus* isolated in 17 out of 100 cases—17 per cent.

Twenty-one of the cases were examined during convalescence only. All of them were negative. If the febrile cases alone are considered, then the percentage of positive results is increased from 17 to 21 per cent. The results in the first two series of examinations given above were obtained by the v. Drigalski-Conradi method. Pratt and Long used, in addition, the malachite green method. Employing the same medium with which v. Drigalski and Conradi obtained positive results in 100 per cent. of the 50 cases they examined, we succeeded in isolating the typhoid bacillus in only 17 out of 79 febrile cases. Failure to isolate *Bacillus typhosus* from the stools is usually attributed to a faulty method or to poor technic. Our personal experience has convinced us that our low percentage of positive cases is due to the fact that in a great majority of the cases of typhoid fever that we studied the typhoid bacilli were either entirely absent from the stools or present in small number.

In 51 cases 1 stool examined.
In 23 cases 2 stools examined.
In 12 cases 3 stools examined.
In 8 cases 4 stools examined.
In 3 cases 5 stools examined.
In 2 cases 6 stools examined.
In 1 case 12 stools examined.

Total number of stools examined, 206. The typhoid colonies were rarely present on the plates in large number. In the case in which twelve stools were examined the first six were negative. The following is a summary of the bacteriologic tests made in this case:

Sadie F.—November 7. (Sixth week of disease.) v. Drigalski-Conradi plates negative.

November 10. v. Drigalski-Conradi negative.

November 14. v. Drigalski-Conradi negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 16. Malachite green bouillon negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 17. Malachite green bouillon negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 19. Malachite green bouillon negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 20. Temperature 98.8. Malachite green bouillon negative. Lentz and Tietz positive; only three or four blue colonies: *Bacillus typhosus.* v. Drigalski-Conradi negative.

November 22. Malachite green bouillon negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 23. Malachite green bouillon negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 24. Malachite green bouillon negative. Malachite green agar negative. v. Drigalski-Conradi negative.

November 27. Temperature 103.6. Lentz and Tietz negative. v. Drigalski-Conradi positive; seven blue colonies: *Bacillus typhosus.*

In all, 34 examinations were made by the three methods. Only two of these were positive, once the Lentz and Tietz method and once the v. Drigalski-Conradi. Although thousands of colonies grew on the blue plates inoculated from these twelve stools, not over ten or eleven were typhoid colonies. The examinations were made from fresh stools except in a few instances when the specimens were passed twelve to twenty-four hours previously. In only one of our cases did typhoid bacilli persist in the stools in considerable number. At the first examination made November 12, all three methods were negative. The four subsequent examinations were all positive. The detailed report is as follows:

Banks.—November 12. (End of second week.) Malachite green broth negative. Lentz and Tietz negative. v. Drigalski-Conradi negative.

November 15. Temperature 102.8. v. Drigalski-Conradi positive. About twenty-seven blue colonies: *Bacillus typhosus.* Malachite green broth negative for typhoid.

November 16. Temperature 102. Malachite green broth negative. Lentz and Tietz negative. v. Drigalski-Conradi plate shows fifty blue colonies; positive: *Bacillus typhosus.*

November 25. Temperature 100.2. Malachite green broth typhoid. Lentz and Tietz negative. v. Drigalski-Conradi positive; two hundred red colonies to seventy-five large blue colonies: *Bacillus typhosus.*

November 27. Temperature 101. Lentz and Tietz negative. v. Drigalski-Conradi positive; about thirty blue colonies: *Bacillus typhosus.*

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26. Deutsche med. Wochschr., 1903, xxix, 675.
27. Münch. med. Wochschr., 1903, xlix, 2139; Klin. Jahrb., 1905, xiv, 495.

Typhoid bacilli may be present in large number in one tool and absent in another stool passed a few hours ater. This was well shown in one instance after intestinal hemorrhage. A black formed stool which was hown by the guaiac test to contain blood was examined. Typhoid colonies made up from 70 to 90 per cent. of the otal number that developed on three v. Drigalski-Conadi plates. We have never seen such a preponderance of typhoid bacilli in any other stool. The next movement of the bowels consisted of formed masses which were brownish-black externally and yellow internally. Four v. Drigalski-Conradi plates were made. Not a single blue colony developed. Observations made in this case show how quickly typhoid bacilli can disappear from the intestinal contents and also that they develop readily when a favorable culture medium, such as blood, s present.

All but one of our positive cases were still febrile at he time the typhoid bacillus was recovered from the stools. It was found in all stages of the disease from the second to the thirteenth week. Only one case was examined during the first week, as the patients almost invariably enter the hospital later in the disease. Singularly enough, contrary to the theory expressed by Lipschütz[24] and others, no connection could be traced between diarrhea and the presence of typhoid bacilli. It should be stated, however, that typhoid bacilli are present as often in normal solid movements as in unformed feces. Some cases with marked enteritis, as indicated by the passage of fluid stools containing considerable mucus, occurring in small masses intimately mixed throughout the specimen, were examined with negative result.[28]

We have demonstrated repeatedly that the number of typhoid bacilli in some stools must be very small if the micro-organism be present at all. For this purpose fresh stools were taken from cases at the height of the disease and an unusually large number of plates inoculated. In one case twenty v. Drigalski-Conradi plates were made from a thick fluid movement containing much mucus obtained from a patient with high fever. Not a single blue colony developed on any of the plates. Eleven plates containing Hiss's medium were also negative. Eighteen blue plates from a single stool of another undoubted case of typhoid were likewise negative. Dr. Orton at the Boston City Hospital examined fifteen stools from one typhoid patient by Hiss's method without finding *Bacillus typhosus.*

The fact that typhoid bacilli grew abundantly in the stools of one of our cases while they were absent in the majority of the cases may have been due to differences in the strains of the typhoid bacilli. It is now known that different races of typhoid bacilli vary considerably one from another. Our patients came not only from Boston, but from many towns in this part of the state and a few from distant places. The patient in whose stools the greatest number of typhoid bacilli was found lived in Boston, but, of course, he may have been infected with a different strain of typhoid bacilli than any of the other patients.

Through the kindness of Dr. J. Homer Wright we have been able to study the intestinal contents after death in one case. Four days before death the stools were examined by the v. Drigalski-Conradi method and no typhoid bacilli found. At autopsy a blue plate was inoculated with a drop of bile and several hundred typhoid colonies developed, while two large plates inoculated with material from the first part of the jejunum did not yield a single typhoid colony. Material from near the ileocecal valve as well as from the ileum 60 cm. above the cecum was likewise negative. Typhoid bacilli were obtained from the spleen, but not from the heart's blood.

PATHOGENESIS.

Typhoid fever must be regarded as a primary septicemia. Schottmüller[29] pointed this out in 1902. The bacillus has been found in the blood repeatedly by the fourth day of the disease. Kayser[30] cultivated the micro-organisms from the blood with his bile medium in 100 per cent. of the 21 cases he examined during the first week. Working with the Strassburg typhoid commission, Brion and Kayser had the opportunity to make several examinations during the incubation stage, and in no instance recovered *Bacillus typhosus* from the stools. The typhoid bacilli quickly pass from the blood into the bile. When the typhoid bacilli were injected into the ear vein of a rabbit we recovered the micro-organism the following day from the gall bladder. Dörr[31] obtained *Bacillus typhosus* from the bile in less than eight hours after it had been introduced into the circulation. Pratt[32] reported, in 1901, that the typhoid bacillus was cultivated from the gall bladder in 21 out of 30 cases of typhoid fever that came to autopsy at the Boston City Hospital.

The micro-organism becomes widely disseminated throughout the body. In one case Pratt recovered it from the heart's blood, the spleen, the liver, the kidney, a mesenteric lymph node, the gall bladder, the urinary bladder, the right middle ear, and the bone marrow. It has been isolated from the urine in about 25 per cent. of all cases examined (Jacobi,[33] Munch[34]). Petruschky[35] calculated that in one of his cases each c.c. of urine contained 172,000,000 typhoid bacilli, and Gwynn[36] estimated that 500,000,000 per c.c. were present in a case he reported. A number of recent investigators have found typhoid bacilli more often in the urine than in the stools. Among 98 convalescents studied by Herbert,[37] only three showed typhoid bacilli in their stools, while they were present in the urine of eighteen. He found they occurred in the urine in large number, in the stools only in small number. The presence of the typhoid bacilli in rose spots is well known. It has been found repeatedly in the sputum when bronchitis was associated with the typhoid infection (v. Stühlern,[38] Richardson,[39] Dieudonné,[40], v. Drigalski,[21] Jehle[41] and Rau[42]). Dieudonné recovered typhoid bacilli from the sputum seven weeks after fever had disappeared. Undoubted cases of typhoid fever without intestinal lesions have been reported (Opie and Bassett[43]).

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[28] To answer the inquiry of Dr. W. H. Park made when this paper was presented (see discussion at end of the paper), the effect of diet has been studied and found to have little influence on the occurrence of typhoid bacilli in the feces. There are two medical services in the Massachusetts General Hospital. Patients in the wards of the "East" service are allowed a liberal diet, while on the "West" side the ordinary milk diet is given. Nearly an equal number of positive cases were obtained from the two services, nine from the "East" side and eight from the "West."

29. Münch. med. Wochschr., 1902, xlix, 1561.
30. Münch. med. Wochschr., 1906, liii, 823.
31. Wien. klin. Wochschr., 1905, xviii, 884.
32. Amer. Jour. Med. Sci., 1901, cxxii, 584.
33. Deutsch. Arch. f. klin. Med., 1902, xxii, 442.
34. Semaine Méd., 1904, xxiv, 121.
35. Centrbl. f. Bakt., 1898, xxiii, 577.
36. Johns Hopkins Hosp. Bull., 1899, x, 109.
37. Münch. med. Wochschr., 1904, xi, 472.
38. Centrbl. f. Bakt., 1900, xxvii, 354.
39. Boston Med. and Surg. Jour., 1897, cxxxvii, 433.
40. Centrbl. f. Bakt., 1901, xxx, 481.
41. Wien. klin. Wochschr., 1902, xv, 232.
42. Ztschr. f. Heilkund, 1904, xxv (Inn. Med.), 385.
43. Johns Hopkins Hosp. Bull., 1901, xii, 198.

Jehle[41] observed a case in which there were no characteristic changes in the intestine, and yet the sputum contained typhoid bacilli. Rau isolated *Bacillus typhosus* from the sputum when cultures from the stools were negative.

Baumgarten years ago stated that the typhoid ulcers in the intestines should be regarded as metastases rather than as primary lesions. This theory was revived in 1902 by Schottmüller.[29] If the intestinal lesions were due to the action of typhoid bacilli in the intestine it is difficult to explain the absence of intestinal changes in cases of so-called primary typhoid cholecystitis.[44] In these cases, in spite of the discharge of enormous numbers of typhoid bacilli into the intestine with the bile, there are no intestinal manifestations. Not only are there no intestinal symptoms, but in a fatal case reported by Burlew[45] there were no typhoid ulcers in the intestine, although bile containing typhoid bacilli entered the duodenum freely. In chronic typhoid bacillus carriers, although the typhoid bacillus may be the predominating micro-organism in the intestinal contents, no intestinal disturbances are produced and health is maintained.

It is interesting to note in this connection that in a study by Wennagel[46] in Krehl's clinic, infiltration of the lymphatic tissue of the intestine was found not only in the second, but also in the third, fourth and even fifth week. Necrosis and sloughing of the swollen Peyer's patches were observed as early as the second and as late as the seventh week. He concluded that the characteristic typhoid symptoms are not the result of the intestinal lesions, but the two are co-ordinate. Typhoid fever is thus a general infection in which intestinal alterations can occur. Not only are there cases of typhoid fever without intestinal lesions, but Velich[47] has observed severe typhoid ulceration of the intestine without any disturbance of the health; in other words, without typhoid fever.

In cases of infection during intrauterine life the portal of entry for the typhoid bacilli must have been the umbilical vein. Yet in a case studied by Blumer[48] typhoid bacilli were found in the intestines.

It is probable that the typhoid bacilli in the intestinal contents come chiefly from the bile. There is no evidence that they are thrown off in large numbers from the ulcers as was formerly taught. If so, one would expect to find an increased number in the lower part of the ileum, but Forster and Kayser,[49] as well as v. Drigalski,[21] showed they were less abundant in the lower than in the upper portion of the small intestines. Furthermore, v. Drigalski was often unable to cultivate typhoid bacilli from the surface of the ulcers when they were present on the surrounding mucosa. Councilman[50] says that he has not infrequently been unable to demonstrate bacilli in sections through the base of typhoid ulcers. Mallory[51] found that histologically the lesions were diffuse and bore no intimate relation to the typhoid bacilli.

Typhoid bacilli may be present in the intestinal contents in the usual number when the ulcers have entirely healed, as in a case reported by Jürgens.[52]

The mesenteric and other lymph nodes exhibit hyperplasia and necrosis. Curschmann[53] states that the bronchial lymph nodes are not infrequently markedly swollen in typhoid fever. Even when intestinal lesions were absent the mesenteric lymph nodes, in some cases at least, have been enlarged. Ulceration of the lymph nodules of the intestine is probably due simply to the exposure of the necrotic tissue to the action of the intestinal bacteria. The lesions in the lymph apparatus of the intestine result, as do the lesions in lymphatic structures elsewhere, from the action of the bacteria or their toxins entering these tissues from the circulating blood and not to the invasion of the intestinal wall from its mucous surface.

The sporadic occurrence of chronic typhoid bacilli carriers indicates that the harboring of typhoid bacilli within the intestinal tract for a long period of time depends on the host, not on a particular variety of the parasite. In the study of typhoid fever in Strassburg, Brion and Kayser[54] found only three typhoid bacillus carriers among 200 typhoid patients. The interesting case reported by Soper[55] of the New York cook who infected twenty-six or more individuals illustrates the same point. If the ability to develop in the intestines depended on a peculiar property of the typhoid bacillus, then the individuals she infected would, in turn, have become typhoid bacillus carriers.

The view that the persistence of typhoid bacilli in the stools is due solely to their retention in the gall bladder can not be accepted for the typical cases studied by v. Drigalski,[21] Friedel[56] and others in which the typhoid bacillus are present in almost pure culture in the feces. Typhoid bacilli, as has been pointed out, are present in the bile in practically every case of typhoid fever, and yet, as we have shown in many cases, they are not demonstrable in the stools. In these typhoid bacilli carriers it would seem that either the normal bactericidal power of the intestinal wall is diminished or there is some other change that enables the typhoid bacillus to develop in the intestinal contents. In some cases the typhoid bacillus has largely replaced the colon bacillus (Friedel).

Attention should be called to the fact that in a hemorrhagic stool we examined typhoid bacilli were present in enormous number. It is evident that the blood shed into the intestine furnished favorable conditions for the growth of the typhoid bacillus. The fact that in the next stool passed the same day no typhoid bacilli could be found supports our conclusion that ordinarily the typhoid bacillus does not develop in the intestinal contents. In this opinion we are not alone. Brion and Kayser's[54] observations have convinced them that the intestine is *"nicht der Vegetationsort"* of the typhoid bacilli. It would seem that the number of typhoid bacilli in the intestinal contents must vary greatly in different epidemics of the disease. This is a reasonable explanation for the divergent results obtained by different investigators who have studied the stools by approved methods. Otherwise it is difficult to understand how Elsner,[7] Higley,[20] Pollak[12] and others were able to obtain positive results in a large proportion of their cases by the use of poor methods, while recent investigators working with superior methods have been able to obtain positive results in only a relatively small percentage of cases. Hayashikawa[57] studied the occurrence of typhoid bacilli in the stools in Halle and in Prague.

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[44] This is probably not a primary condition at all, but secondary to a typhoid septicemia, and represents an instance of typhoid infection in which the chief local lesion is in the gall bladder and not in the intestine.

[45] Medicine, 1903, ix, 734.

[46] Deutsch. Arch. f. klin. Med., 1906, lxxxvii, 551.

[47] Arch. f. Hygiene, 1904, xlix, 113.

[48] The Journal A. M. A., 1901, xxxv, 1674.

[49] Münch. med. Wochschr., 1905, p. 1475.

[50] Personal communication.

[51] Jour. Exper. Med., 1898, iii, 611.

[52] Ztschr. f. klin. Med., 1904, lii, 40.

[53] Nothnagel's spec. Path. u. Therap., 1898, 227.

[54] Deutsch. Arch. f. klin. Med., 1906, lxxxv, 552.

[55] The Journal, A. M. A., 1907, xlviii, 2019.

[56] Ztschr. f. Med. Beamte, 1905, xviii, 61.

[57] Ztzschr. f. Heilkunde, 1903, xxiv (Inn. Med.), 19.

He concluded that in the type of typhoid fever present in Germany more typhoid bacilli are present in the stools than in the cases that occur in Bohemia.

In our fatal case v. Drigalski-Conradi plates made from different portions of the intestine showed that the great number of typhoid bacilli that entered the duodenum with the bile were destroyed so speedily that none could be demonstrated in the upper part of the jejunum. Forster and Kayser[49] noted that there were more typhoid bacilli in the duodenum than in the ileum. A table published with their paper shows that in one case they found typhoid bacilli absent in the jejunum, although present in the duodenum. They made no comment on this remarkable observation. v. Drigalski[21] found in all his cases that the typhoid bacillus occurred in pure culture in the duodenum. Cushing and Livingood[58] demonstrated several years ago that the normal bacterial flora of the human stomach and duodenum was very meager. Rolly and Liebermeister[59] recently showed that the wall of the duodenum in the rabbit has marked bactericidal power.

Although v. Drigalski found typhoid bacilli present on the inner surface of the stomach in every case he examined at autopsy, it is difficult, in view of the bactericidal power of the gastric mucosa, to believe that the portal of entry of the typhoid bacillus is through the wall of the stomach. Curschmann,[53] however, endorses the view of Stern and Hamburger that the typhoid bacilli are so resistant to weak acids that they are probably able to live in the stomach.[60]

It will be seen that these observations harmonize with one another. In the light of this new knowledge, it can readily be seen that the old theory that the intestine is the portal of entry of the typhoid bacilli can no longer be accepted unless additional evidence can be produced in its favor. If the duodenum is able to destroy the great number of typhoid bacilli that enter with the bile, how is it possible that the relatively few micro-organisms contained in the infected food are able to pass through the duodenum alive and gain an entrance into the body through the solitary lymph nodules and Peyer's patches of the lower part of the ileum? In regard to the place and mode of entry of the typhoid bacilli nothing definite is known aside from the fact that some part of the alimentary tract is infected. Forster has suggested that typhoid bacilli may enter the body through the tonsils. Brion and Kayser found paratyphoid bacilli, and v. Drigalski typhoid bacilli, in the tonsils. These observations aid but little in the solution of this problem, inasmuch as typhoid bacilli have been found in many organs of the body. In the instances cited, entrance to the tonsils from the blood can not be excluded.

CONCLUSIONS.

Typhoid fever is a general infection. The typhoid bacillus is an invasive micro-organism. It is able to develop in the blood and the tissue-juices of the body. It does not develop in the intestinal contents except under unusual conditions. It more frequently occurs in large number in the urine than in the feces. The gall bladder is a favorite habitat of the typhoid bacillus and it develops luxuriantly in the bile. The typhoid bacilli in the intestine come in large part from the bile. They are rapidly destroyed in the duodenum and jejunum, and it has recently been shown that the wall of this portion of the intestine has marked bactericidal power. It is probable that destruction of all the typhoid bacilli that enter with the bile rarely occurs in the lumen of the bowels. The number, however, becomes so greatly diminished that their presence can not be demonstrated in the stools of many patients with typhoid fever. Employing the most approved methods for isolating *Bacillus typhosus* from feces we were able to recover this micro-organism in only 21 per cent. of the febrile cases. Usually when present they occurred only in small number. They were found in greatest number in a stool containing much blood. It is not improbable that if there was a method that permitted the bacteriologic examination of the entire stool for typhoid bacilli as has been devised for detecting the presence of cholera bacilli, a few micro-organisms might be found in every stool. This, however, would not affect our conclusion, that the typhoid bacillus does not find conditions favorable for its growth in the intestinal contents. It is demonstrable in the feces in such a considerable proportion of cases because it is eliminated in great number by the bile. It is also not infrequently excreted in the urine and sputum, and it may be found in these secretions when absent from the stools. The portal of entry of the typhoid bacillus is not known. There is no more evidence in favor of entrance through the intestine than through the tonsils or the gastric mucosa.

Statistics Collected from the Literature[*] in Regard to the Occurrence of Typhoid Bacilli in the Stools of Typhoid Patients.

Investigator.	No. of cases examined	Method Employed	No. of cases in which *B. typhosus* was isolated.
Birt	5	Caffein.	0
Clauditz	8	v. Drigalski-Conradi's.	2
Cole, C	21	v. Drigalski-Conradi's.	2
Courmont and Lacomme	8	Caffein.	0
v. Drigalski and Conradi	50	v. Drigalski-Conradi's.	50
Elsner	17	Elsner's.	15
Ficker and Hoffmann	11	Caffein.	11
Gabritschewsky	2	Gabritschewsky's.	1
Gebauer	16	Piorkowski's.	12
Grawitz	3	Elsner's.	2
Hayashikawa	20	Piorkowski's.	12
Higley	20	Hiss's.	20
Hiss	108	Hiss's.	45
Horton-Smith	16	Elsner's.	4
Jemma	33	Elsner's.	30
Klinger	[†]75	v. Drigalski-Conradi's.	25
Klinger	75	Endo's.	38
Klinger	43	Lentz and Tietz's malachite green.	26
Krause and Stertz	44	v. Drigalski-Conradi's.	23
Lentz and Tietz	205	Lentz and Tietz's malachite green.	150
Lipschütz	17	v. Drigalski-Conradi's.	1
Mackenna	8	Piorkowski's.	3
Piorkowski	4	Piorkowski's.	4
Pollak	20	Elsner's.	20
Richardson	13	Elsner's.	10
Schütze	5	Piorkowski's.	5

DISCUSSION.

Dr. W. H. Park, New York, said that it is a very simple thing and yet a very important one to have proper materials for the medium. Dr. Park and his co-workers started with malachite green and added all sorts of green and then came back to the malachite until they got their methods right. He does not feel that the old media would fail to give the typhoid bacillus when the Rogalsky media will. When a man knows his medium, he can work with that better than with any other. In his laboratory they work a dozen different cases with different media and come out the same because each one knows the medium he is working with. Dr. Park said that in the first place the laboratory man must get the feces early. If six hours elapse one will not get the bacilli. It shows how the feces in a short time destroy the bacilli. Milk makes the bowel contents more suitable for the preservation of the typhoid bacilli until passed externally. He said that different results are often obtained in different epidemics. Dr. Park's theory has been that the bacilli are in the mesenteric glands and Peyer's patches, from which they passed through into the blood and remained in the blood a certain time before dying, because very few of them are found in any cubic centimeter of blood. He thinks that it is rare to find five or six or ten in that quantity. In attempting to make the diagnosis from the feces he and his confrères had results not quite so discouraging as Dr. Pratt. One sample was mislaid and turned up in ten days. It had fermented and run out of the bottle into the paper covering it. Dr. Park examined it and found it almost a pure culture of typhoid bacilli. The feces in that person had been a suitable medium.

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[58] Contributions to the Science of Medicine, dedicated by his pupils to W. H. Welch, Baltimore, 1900, p. 543.

[59] Deutsch. Arch. f. klin. Med., 1905, lxxxiii, 413.

[60] For literature on this subject see Krehl: Pathologische Physiologie, vierte Auflage, Leipzig, 1906, p. 302.

[*] In addition to the references cited elsewhere, the following may be consulted:
Birt: Brit. Med. Jour., Oct. 28, 1905, p. 1111.
Clauditz: Hyg. Rund., 1904, xiv, 718.
Courmont et Lacomme: Jour. de physiol. et de pathol. générale, 1904, xvi, 287.
Ficker und Hoffmann: Arch. f. Hygiene, 1904, xlix, 257.
Gabritschewsky: Ztschr. f. Hygiene, 1900, xxxv, 104.
Gebauer: Fortschr. d. Med., 1900, ii, 21.
Mackenna: Edinburgh Med. Jour., 1899, vi, 399.
Piorkowski: Berliner klin. Wochschr., 1899, p. 145.
Schütze: Ztschr. f. klin. Med., 1899, xxxviii, 39.

[†] Febrile.

Dr. A. L. Benedict, Buffalo, said that in some experiments with typhoid on the theory that the patient should be fed liberally with cereals as well as milk, and also using treatment along the line suggested by Bouchard, giving animal charcoal and antiseptics. The favorable results have made him consider that clinical typhoid is typhoid plus colon bacillus infection of the intestine, and that from a purely clinical standpoint a typhoid patient who is well fed, who is not milk poisoned, so to speak, and whose toxins are absorbed from the canal by charcoal or restrained by an antiseptic, presents a course of about two weeks and a half, is practically never delirious, shows no marked dangerous symptoms at any time and shows no tendency to hemorrhage or lung involvement. Dr. Benedict has not had a large experience with this treatment, but what he has had is sufficient to suggest that it might really be worth while to go over these cases jointly with pathologists and see how much of clinical typhoid is really typhoid and how much of it is color bacillus infection. The fact that cases that appear clinically like typhoid and abort, or proceed through a course typical of typhoid, are shown to be due to bacilli intermediate between the colon and the typhoid bacillus, is significant in this connection.

Dr. H. G. Beck, Baltimore, said that the result of Dr. Pratt's studies naturally suggests the influence that dietetic treatment may have on the development of typhoid organisms in the intestines. In pointing out the relative frequency of typhoid bacilli in the urine as compared to their occurrence in the stools it strikes one that the administration of urinary antiseptics is vastly more important than the administration of intestinal antiseptics. And, furthermore, on account of their more frequent and persistent presence in the urine, it emphasizes the urgent necessity of safeguarding the public by careful instruction to typhoid convalescents, warning them of the danger of spreading typhoid, if they are promiscuous in their habits of voiding urine, or fail to use proper urinary antiseptics.

Dr. J. H. Pratt, Boston, said that the point Dr. Park brings up in regard to the possible relation of diet to the occurrence of typhoid bacilli in the stools is important. It is possible that a strict milk diet may influence the growth of *B. typhosus* considerably. As some patients have been on a strict milk diet and others under the care of physicians who employed Dr. Shattuck's liberal diet, Dr. Pratt thinks that there is a sufficient number of cases to throw some light on this problem. In answer to Dr. Benedict's question, he stated that this study has a direct bearing on the use of intestinal antiseptics in the treatment of typhoid fever. The typhoid bacilli multiply in the tissues of the body, not in the intestines. In only one of their hundred cases were the bacilli found persistently in the feces in considerable number. Through the natural defenses of the body the myriads of typhoid bacilli eliminated with the bile are quickly destroyed in the intestines. In the case of typhoid "bacillus carriers," the attempt to free the stools of this micro-organism by the administration of the so-called intestinal antiseptics has failed utterly. Few undoubted cases of infection of the blood with the colon bacillus in typhoid fever have been reported. Blood cultures which have been employed so extensively in the diagnosis of typhoid fever have shown the rarity of colon septicemia.

Special Article

THE LITERARY SIDE OF A PHYSICIAN'S LIFE —RONALD ROSS AS A POET.

S. WEIR MITCHELL, M.D.
PHILADELPHIA.

"In Exile, by R. R., 1906, Privately Printed," is the wording on the title page of a little book, whose anonymous author says: "These verses were written in India between the years 1891 and 1899, as a means of relief after the daily labors of a long, scientific research."

I am at liberty to say that the author is Ronald Ross, sometime an English army surgeon, and now professor of tropical diseases in the Liverpool University. The story of the years which step by step led to his final and convincing proof of the causal relation of the mosquito to malarial disease, is to be found in his Nobel lecture given at Stockholm. It is a sad account of labor in the terrible heats of India when the sweat from his forehead rusted the screws of his microscope, or when for days the congested eyes of overuse forbade all study.

His lecture tells modestly of the difficulties this amazing research encountered. In any climate and under the most indulgent conditions, what he did would have been remarkable. In India the lack of sympathy on the part of his military superiors, abrupt army orders, limited means and absence of help seemed ever ready at his happiest approach to success to mock him with delays. He must have felt as if, at times, some malign fate stood ready with obstacles over which no energy, no self-assurance of ultimate victory could prevail. I know of no medical story more interesting, no research which so surely found what it exacted, that heroism back of which lay energizing sense of duty.

The story of this adventurous research has yet to be fully told, as Ross will never tell it. In his lecture and essays he does justice to all concerned, but his was the final victory, the convincing proof. I allude to it here only to present Ronald Ross under another point of view. The weary physician, the exhausted laboratory worker has had a variety of ways of resting or relieving his mind. Physical exercise, some fad of collecting this or that may suffice, but it is an almost unnoticed truth that merely to change the mode of use of the mind competently rests and refreshes. The subject is a tempting one. An apt illustration is the fact that Ronald Ross, when half blind or exhausted with work, turned to verse and sought in a difficult field for the relief that change of mental occupation affords, for the making of good verse is not an easy occupation, as several of the greatest poets have confessed.[1]

This little book is an interesting record of moods of mind, of hope, despair, sorrow and final triumph. It gives one a vivid conception of the effects of exile, personal losses and the torment of tropical conditions on a man with an imagination of high order, somewhat lacking for use in verse that which only much technical training can supply.

There are many verses in this book which exacting self-criticism might have altered or left out. There are some easily amended defects of rhythm—verses which are needlessly obscure; but these concern me little. There are many quatrains of virile power, descriptions of eloquent force or notable passages of insight and deep feeling.

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1. Byron, Matthew Arnold and others.

To do justice, quotations should be long, and it is difficult to choose and out of the question to ask the space I should ask in a literary journal. Professor Da Costa wrote years ago an address on the physician in literature and told us, if I am correct in my remembrance, all there was then to say of the physician as a poet. It is fitting that in this, our great journal, there should be recognition of another to whom must be given the double laurel of science and poetry.

The first lines I quote strike the lofty note of very personal verse:

This profit yet remains
Of exile and the hour
That life in losing gains
Perhaps a fuller flower.

For on this desert soil
A blessing comes unsought—
Space for a single toil,
Time for a single thought.

In humble ways I move
Myself to little things;
The heated hands I prove;
I watch the light that springs

Or fades in fevered eyes;
My only solace here,
Not to be rich or wise
But to have done with fear.

God sees the silent space
Where footstep never trod,
And in the lonely place
The listener is God.

An appeal to this alien sea to sing to him of his English home is a passage of poetic beauty too long to quote, and I content myself unwillingly with this apostrophe to the Indian East and its plague of dust:

O silent sepulchre,
Great East, disastrous clime;
O grave of things that were;
O catacombs of time;

Dust—thou art dust, thy sun,
Thy lord and lord of dust,
Doth stamp thee into one
Great plain of dust; and dust

Thy heavens, thy nights, thy days;
Thy temples and thy creeds;
Thy crumbling palaces;
Thy far forgotten deeds—

Infinite dust. Half living,
We clothe ourselves in dust
And live, not to be living,
But only that we must.

The terrors of an East Indian storm, "when great clouds overhead hold high debate of thunder," and at last comes the eagerly desired rain, are so told as to grieve me that I may not quote all of it:

O wilderness of death,
O desert rent and riven,
Where art thou?—for the breath
Of heaven hath made thee Heaven.

I know not now these ways;
The rocky rifts are gone,
Deep-verdured like the braes
Of blest Avilion.

Here where there were no flowers
The heavenly waters flow,
And through a thousand bowers
Unnumbered blossoms blow.

Then follow the verses written on the day when he found the zygotes and the final key which makes it possible to lock the Pandora box of malarial maladies. One envies him this hour of victory:

This day relenting God
Hath placed within my hand
A wondrous thing; and God
Be praised. At his command

Seeking His secret deeds
With tears and toiling breath
I find thy cunning seeds,
O million-murdering Death.

I know this little thing
A myriad men will save.
O Death, where is thy sting,
Thy victory, O Grave!

Before Thy feet I fall,
Lord, who made high my fate;
For in the mighty small
Is shown the mighty great.

Clinical Note

A SIMPLE PROOF OF THE CESSATION OF RESPIRATION.

MARSH PITZMAN, M.D.
ST. LOUIS.

In the receiving room of the St. Louis City Hospital the ambulances bring in many patients dead, or apparently so, and it is my duty to determine quickly and definitely whether or not a patient is still living. These patients are pulseless and there is no visible sign of respiration. They appear extremely pallid, the pupils are dilated and there are the other signs of probable death. For the final proof we turn to the respiration. For some reason our reception room was not supplied with a mirror for the familiar breath test, so I was forced to a substitute.

The mouth is closed by hand and then the anterior nares of both sides are filled and covered with fine soapsuds. If respiration has ceased there is absolutely no movement of the bubbles. As it is evident that a patient can not live without breathing, this test continued for a few minutes is an absolute proof of death.

This test is everywhere possible and is more simple and more reliable than the mirror test.

Medical Treatment of Otitic Pyemia.—A recent communication from Politzer's clinic reports operative treatment in 45 cases of otitic pyemia. The jugular vein was ligated and the thrombosed transverse sinus was exposed and evacuated. The fistula into the jugular allows such good drainage that the danger of meningitis is materially reduced. Thirty-four of the patients recovered, 69 and 78 per cent. in the two series. The exclusion of the jugular vein before the operation on the bone seems to reduce the danger of the dissemination of infectious germs from the ear. The jugular vein is now ligated in the clinic as a routine procedure when pyemic fever and chills suggest the possibility of an otitic sinus affection. It has been found especially useful with thrombi adherent to the walls of the sinus, as there is special danger of the loosening of septic particles from the thrombi and their being swept along into the lungs or elsewhere and inducing metastasis. Even when the sinus is completely obstructed by thrombi, ligation of the jugular vein prevents aspiration of air into the vein. Politzer says that any one can ligate the jugular without trouble after a little practice on the cadaver.

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SATURDAY, SEPTEMBER 7, 1907.

ASEPTIC SUPPURATION IN RELATION TO ACUTE PLEURITIC EFFUSIONS.

We recently[1] called attention to the important studies of Opie on the conditions under which the leucocytes are able to accomplish their digestive functions and the mechanism by which their activity is held in check. Apparently the finely granular leucocytes contain an enzyme (*leucoprotease*) which is quite different from the protein-digesting enzymes of all the other cells of the body, for the leucocyte enzymes act best in an alkaline medium, while the enzymes of the mononuclear leucocytes and of tissue cells in general are active only in slightly acid solutions. These proteolytic enzymes are held in check under ordinary conditions by the action of the blood serum, which contains some substance which effectively inhibits their activity. If, however, there is an excessive accumulation of leucocytes in a localized area the amount of leucoprotease may be greater than can be inhibited by the relatively small amount of serum present in the same area. As a result the leucocytes undergo self-digestion, the fibrin and dead tissue in the same area will also be digested, and the condition of suppuration is provided. Consequently any condition that causes the presence of large numbers of leucocytes in a circumscribed area where there is necrosis will cause suppuration, and pyogenic bacteria are pyogenic simply because they have at one and the same time necrogenic and chemotactic effects. As we previously pointed out, the injection of chemotactic substances, like iodoform emulsion, into necrotic tissues, such as occur in tuberculous infections, may cause an aseptic suppuration which is often erroneously attributed to pus infection through faulty technic.

On the other hand, there may be accumulations of leucocytes without suppuration when there is present also a large quantity of serum to inhibit them. For example, Opie found[2] that the well-known effect of turpentine in producing suppuration when injected subcutaneously is not usually observed when the turpentine is injected into the pleural cavity, because there is here exuded so much serum that the leucocytic enzymes are held in check. By drawing off most of the serum during the acute stage of the resulting inflammation it was possible to leave the balance in favor of the leucocytes of the exudate, so that they were able to cause a suppurative softening of the fibrin adherent to the pleural surfaces.

These experiments are certainly full of suggestion for the clinician, indicating as they do the possibility that removal of the serous fluid from the chest cavity during the acute stage of a pleuritis may convert a simple serofibrinous into a purulent exudate. Is it not possible that empyema following aspiration of the pleural cavity under careful aseptic precautions is due sometimes to such removal of inhibiting serum, rather than to contamination by the aspirating needle? The analogy to the aseptic suppuration of the tuberculous focus injected with iodoform is a close one. It should be added that Opie found that after the acute stage of the pleural inflammation the number of leucocytes is greatly decreased, so that removal of the serum would then not be likely to lead to suppurative changes in the manner described above.

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[1] The Journal, April 20, 1907, p. 1354.

[2] Jour. Exp. Medicine, 1907, IX, p. 414.

THE CEREBROSPINAL FLUID IN PARESIS.

The remarkable amount of work which has been done on the cerebrospinal fluid in the past few years may be imagined when it is stated that Kaupe was able to find references to 487 articles bearing on the subject published during the last three years. It is only since 1901, as Cornell[1] points out, that lumbar puncture has been generally used by the neurologist and the psychiatrist, though the worth of the procedure was pointed out by Quincke ten years previously. It is fair to state, however, that since Quincke's original work considerable modifications in the methods of examination have come into vogue, so that at present an examination of the spinal fluid usually consists of a cyto-count, an estimation of the pressure of the fluid, and a determination of the proteid content. Of these three procedures the cyto-count, which includes an estimate of both the number and variety of cells, is most important. Next in importance comes the albumin determination, and finally the estimation of pressure.

A few words on the technic of the cyto-count may not be amiss, for past experience has shown that imperfections in the technic have been responsible for a lack of uniformity in results. The routine practice until recently has been to centrifugalize the fluid, especially when it is clear, as it is in diseases like tabes and general paresis. It is obvious that the process of centrifugalization introduces serious errors into the computation of the cells, for in order to produce comparable results all observers would have to centrifugalize the fluid for the same period of time and at the same rate of speed. Even if this were possible the subsequent manipulations of decanting and spreading could hardly be made uniform enough to form a fair basis for comparison. Furthermore, the process of centrifugalization produces distinct changes in the cells, altering the shape, and probably the staining reactions, of some, and breaking up the more delicate ones. The more recent method of using the pipette of the blood counter, mixing the undiluted spinal fluid with a staining reagent, and counting in a Türck or specially constructed chamber, does away to a great extent with the disturbing factors inherent in the centrifugal method.

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[1] Amer. Jour. of Insanity, July, 1907.

The value of examination of the spinal fluid in general paresis, provided the proper technic is followed, has been well shown recently by Cornell. The procedure is of value for two main reasons, one being that an increase in the cells of the spinal fluid is practically always present in paresis and usually absent in the conditions which simulate it, the other being the fact that these changes occur early in the disease, at a time when every scrap of evidence bearing on the nature of a doubtful case is of value. Cornell found that while in normal spinal fluid only from 1 to 4 cells per cubic millimeter are present, in paresis from 12 to 200 or more are found. Small lymphocytes are the most common type of cell, and constitute in many instances from 45 to 95 per cent of the total. Polynuclears are found next in frequency and are apt to be especially abundant after convulsive seizures. Usually, therefore, but not invariably, the cyto-count of general paresis shows a lymphocytosis. Spinal fluids resembling those of general paresis, i. e., showing lymphocytosis and a high proteid content, may be found in cerebral lues, some cases of tabes, and in multiple sclerosis, but are not found in arteriosclerotic psychoses, chronic delusional states, alcoholic psychoses, mania, epilepsy, dementia præcox and the psychoneuroses. Here, as in other tests, a negative finding may be as valuable as a positive one, and the absence of an increase in the cells of the spinal fluid, especially if present at several examinations made at intervals, is very strongly against general paresis.

The question of the origin of the cells in spinal leucocytosis is one which has led to much discussion. Doubtless the centrifugal method caused confusion by distorting the cells. This distortion led to the belief that the cells in the fluid did not come from the blood vessels involved in the paretic process. The use of the undilated and uncentrifugalized fluid seems to show that this is a fallacy, that many of the cells in the fluid are similar to those in the perivascular spaces, and that there is generally a correspondence between the leucocytes of the blood and those of the spinal fluid. This is what would be expected.

So far as paresis is concerned, there seems little doubt then that lumbar puncture is of value in early diagnosis. The value of the negative finding, and the early appearance and constancy of the positive one must be borne in mind. But no results are of value unless based on a careful technic. The procedure requires time and the necessary experience, for, after all, though many wish to regard laboratory methods as short cuts to diagnosis, they usually consume much time and are just as capable of correct or incorrect technic and interpretation as ordinary physical signs.

ANTIDIPHTHERIC SERUM AND POSTDIPHTHERIC PARALYSIS.

Since the introduction of the serum treatment of diphtheria the question of the relationship between this therapeutic procedure and postdiphtheric paralysis has been frequently agitated. As is well known, many have charged to the antitoxin treatment a share in the responsibility for the sequel, some claiming that the paralysis is a direct consequence of the deleterious action of the serum, and it has even been asserted that this sequel is more common in patients treated with antidiphtheric serum than in those treated otherwise.

Rosenau and Anderson,[1] with the excellent facilities afforded in their laboratory, attacked the problem from the experimental side, first presenting the views of clinical statisticians to the effect that antitoxin treatment does not make paralysis more liable to ensue. Guinea-pigs were chosen as subjects for their tests, and paralysis apparently identical with that seen in human beings was induced by a partially neutralized mixture of diphtheria toxin and antidiphtheric serum, so adjusted as to leave the toxon or paralysis-producing constituent of diphtheria toxin free to exert its specific action on the nervous system. Of course it must be admitted that this laboratory artifice may not exactly reproduce what happens in spontaneous diphtheric infection in man, notwithstanding the symptomatic identity of the affection. But even with this, the not uncommon allowance when a laboratory device attempts to reproduce Nature's phenomena, the conclusions reached by Rosenau and Anderson are full of valuable suggestions.

It is shown that in the guinea-pig antitoxin can not influence the diphtheric paralysis after the paralysis has appeared, and that it has no influence in preventing postdiphtheric paralysis if injected shortly before the paralysis develops, but given twenty-four hours after the infection it can save the life of the guinea-pig and greatly modify the paralysis. Antitoxin given in a single large dose forty-eight hours after the infection did not modify the paralysis or save life; 4,000 units failed to modify the paralysis or save the life of guinea-pigs weighing about half a pound. Weight for weight, this corresponds to 400,000 units for a fifty-pound child. Antitoxin given in repeated injections beginning twenty-four or forty-eight hours following infection seemed to have a more favorable effect on the subsequent paralysis than a single injection, while a very small quantity (one unit) of antitoxin given twenty-four hours before or at the time of infection prevented the development of paralysis.

In man one would expect more favorable results from the use of antitoxin than the work on the guinea-pig indicates, for here one is dealing with an early and malignant form of experimental postdiphtheric paralysis. This grave variety fortunately is rare in man. Further, the entire charge of the poison is injected directly into the tissues of the guinea-pig, while in man the toxin is doubtless elaborated more slowly. We may assume, therefore, that antitoxic serum, given at a somewhat later period than in the work on guinea-pigs, would exert beneficial effects. The fact that one unit of antitoxin prevents paralysis and saves life when administered early, whereas 4,000 units totally fail when administration is delayed forty-eight hours, emphasizes the importance of using this remedy early.

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[1] Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service, Bulletin 38, June, 1907.

YELLOW FEVER ON THE ISTHMUS OF PANAMA UNDER THE FRENCH REGIME.

Col. W. C. Gorgas, U. S. Army, chief sanitary officer of the Isthmian Canal Commission, publishes some interesting statistics as to the population and deaths from various diseases in the city of Panama from 1883 to 1906 and among the employés of the French Canal Company from 1881 to 1904.[1] The figures are given without comment, and only those relating to yellow fever will be considered here.

In the first place it appears that yellow fever is by no means always present in Panama, at least in a fatal form; thus in the years 1890, '94, '95, '96 and '98 no deaths from that disease were reported, and in 1892 and 1893 only one death each year; in the five consecutive years from 1892 to 1896 inclusive there were only two deaths, and for three consecutive years no death. Among the employés of the French canal companies there were a large number of deaths from yellow fever every year from 1881 to 1889, in which latter year the force employed was greatly reduced. From 1881, when the force was about 1,000, the number of employés steadily increased until it reached a maximum of some 19,000 in 1884, and was maintained at 15,000 to 17,000 until the end of 1888 and the beginning of 1889; the maximum number of deaths from yellow fever in any one year, 308, occurred in 1886. From 1890 to 1895 inclusive the number of employés ranged from 700 to 900; in 1895 it increased to 1,400, in 1896 to 3,700, and was maintained at about that figure until 1899, 1900 and 1901, when it was about 2,000; in 1902 a further reduction to about 1,000 occurred, and this force was maintained until the transfer to the American company in 1904.

Now the interesting point is that notwithstanding the French companies knew nothing about the method of transmission of yellow fever, and the present scientific methods of prevention, there were two periods of six consecutive years each when there were no deaths from yellow fever, 1891 to 1896 inclusive and 1898 to 1903 inclusive; and fourteen consecutive years, 1890 to 1903 inclusive, during which time there were only seven deaths, one in 1890 and six in 1897, and this notwithstanding that there were 454 deaths from yellow fever in Panama in the five years period, 1899 to 1903 inclusive. No explanation of these remarkable figures is given by Colonel Gorgas.

FEW APPLICATIONS FOR THE MEDICAL CORPS OF THE ARMY.

We understand that for the examination held July 29 to fill vacancies existing in the medical department of the Army there were only twenty-six applicants. Of these, twelve withdrew after they had made themselves acquainted with the professional and physical qualifications required; fourteen completed the examination, and of these only three were successful. At the previous examination, held April 29, there were seven successful applicants, thus making a total of ten who passed the preliminary examination and will enter the Army Medical School in October for special instruction required before they receive their commissions in the corps. It thus appears that the experience of last year and the preceding years is only repeated. The number of vacancies occurring each year is greater than can be filled from the list of candidates who present themselves. There is no prospect that this condition of affairs will improve until Congress passes legislation, which has so often been urged, to increase the inducements to young medical men to enter the Army medical service. It is hoped that Speaker Cannon, who is responsible for the defeat of the medical department reorganization bill, will at the next session of Congress see the grave injustice he has done and allow the bill to pass.

NEWSPAPER PRESCRIBING.

Newspaper prescribing obtains in many places, but some of the most shameless examples of it that we remember to have seen are to be found in the *Philadelphia Record.* In a recent issue of that journal this abuse is all the more flagrant in that it follows under the heading "Health and Hygiene," immediately after the official vital statistics, thereby acquiring in the minds of the thoughtless or less well-informed a fictitious authority. Prescriptions are published for twenty-eight applicants, on account of conditions which, so far as may be judged from the crude descriptions of the patients, range from simple "constipation" and "nervousness" to cardiac and other serious troubles. A noticeable feature is the fact that the writer recommends exceedingly potent drugs, which should never be used for self-doctoring or even be ordered by a physician for a patient who is not under his immediate observation; for instance, salts of strychnin are recommended in no less than eleven cases. Fancy ordering a hundred 1/40 grain tablets of strychnin sulphate to be put into the hands of a patient, and that, judging from the composition of his letter, a patient of no extraordinary degree of intelligence or education. Strophanthus, again, is another drug that should not be prescribed except when its effects can be under the observation of the physician. We say nothing of certain proprietary remedies, which appear to have a great place in the prescriber's therapeutic armamentarium. The thing that strikes us most in this connection is the fact that these prescriptions, written for individual cases, must be the work of either a licensed practitioner or a layman. In the latter event, is it not an infraction of the medical law to prescribe for payment for individual patients—for it is to be presumed that the writer in this column is not doing newspaper work for nothing? In the former event, is not a physician who publishes broadcast a prescription presumably intended for the relief of one individual, so that numerous other persons may use it, fancying their own symptoms to resemble those described by the newspaper patient, guilty of unprofessional conduct in a grave degree—the more grave because of the danger inherent in the use of drugs such as those named above? This consideration alone, to say nothing of a most vicious form of contract practice, such as would be involved in a licensed practitioner's prescribing publicly for pay for patients whom he had never seen, surely calls for a protest from the readers of this Philadelphia newspaper.

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[1] Population and deaths from various diseases in the City of Panama, by months and years, from November, 1883, to August, 1906. Number of employés and deaths from various diseases among employés of the French Canal Companies, by months and years, from January, 1881, to April, 1904. W. C. Gorgas, colonel medical corps, U. S. Army, chief sanitary officer. Washington: Government Printing Office, 1906.

CONSUMPTION AND BREACH OF PROMISE.

In view of the dangers of the puerperal condition, for example, and the probably real though not so generally admitted dangers of heredity, it is easy to see that it is inadvisable for those suffering from developed tuberculosis to marry. A recent decision[1] of the Supreme Court of Washington goes rather farther than has usually been the case in making consumption a legal disability. It makes the breach of promise of marriage because of the disease in the woman justifiable, even if the engagement were entered into with knowledge of her condition. This may be considered good public policy, but it is certainly a hardship to the individual. In view of the fact that the condition was known before betrothal, the award of reasonable damages would seem to most persons as just in this case as in most breach of promise suits. A natural outcome of this decision should be the enactment of a law making wilful betrothal with a consumptive, with knowledge of his or her condition, a punishable offense. Considering, however, the fact that a very large proportion of the population is more or less infected with tuberculosis, and the possibility that we owe to this a certain immunity to the fatal forms of the disease, such a law might be difficult to enforce justly. In the meantime we are making the way of the consumptive, like that of the transgressor, hard.

A JUDGE ON PHYSICIANS' FEES.

A Missouri court has decided that a physician's fees can not legitimately be based to any degree on the patient's income. Besides being subversive of a custom of the profession that has prevailed at all times and in all places, the logical result of this decision would be to raise the standard of physicians' fees on ordinary commercial principles to the highest amount ordinarily obtainable, instead of the present custom of placing them at a medium between that and the lowest acceptable. which makes it possible for the physician to exercise a humane charity in the case of the less well-to-do without either pauperizing them or impoverishing himself. The physician's services, it seems, are to have a trade valuation like a loaf of bread or a pound of sugar, so that their value to the patient is in no sense dependent on the latter's economic importance. If that is so, then on what principle, we ask, is it possible to justify a difference in the degree of damages awarded to different persons for the loss of a limb or other disablement, or to their families in the event of their death, through misadventure for which others are held responsible. The law assumes that the economic value of life and limb differs for different people in relation to their earning capacity and other matters. Must not the value of the services rendered by a physician with a view of obviating these disastrous results also necessarily vary correspondingly?

GUSTATORY AUDITION.

A new variety of synesthesia, in which the subject experienced gustatory sensations on hearing sounds such as spoken words or certain non-vocal sounds, has recently been described by Pierce[1] and the case presents some interesting features. The sensations experienced by the young woman under observation included oral perception of temperature, texture and consistency as well as true gustatory perception, but did not include olfactory qualities, as she was anosmic. Pierce feels convinced that this phenomenon was a true synesthesia and not the result of a "lively dramatic fancy." The experience is said to come quite unsolicited, and the patient frequently has some difficulty in finding adequate equivalents to express the idea of the sensation experienced. The best condition for the appearance of the synesthesia seemed to be a state of natural hunger. The impression is distinct from the idea of the object to which it is compared and precedes the conception to the latter; on the other hand, similarity of sound did not necessarily determine similarity of oral sensation and the same gustatory sensation was associated with the most diverse sounds. The sensations are referred to definite locations in the mouth. "Thus the equivalents of *Ethel* and *hall* (tactual) are felt at the tip of the tongue; of *tox* (irritation) at the back of the throat; of *Judith* (salt) at the sides of the tongue," etc. The direction of the experience was always from sound to taste, the reverse being possible only as the connections were remembered. Tests over periods of many months invariably resulted in identical equivalents being elicited by like sounds. There is little evidence one way or the other as to whether or not this phenomenon is to be explained on purely physiologic grounds, depending on a cross circuiting of the association fibers between different brain centers. Pierce makes the interesting suggestion that the slowness of hearing to which the young woman was subject might be due to a deflection of the impulse from the auditory center to the region concerned in the sense impressions of the mouth. So far he has been unable to substantiate this by showing any consistent augmentation of the gustatory sensations with the periods of increased slowness of sound perception. However, there is nothing in the case to refute the so-called "psychologic theory" of such phenomena, which regards them as due to persistent association.

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[1] Grover versus Zook, 87 Pacific Rep., 638.

[1] American Jour. Psychology, July, 1907.

Medical News

CALIFORNIA.

Cleanse County Hospital.—The San Francisco Board of Health has decided thoroughly to cleanse and disinfect the City and County Hospital, and to wage a war of extermination on the fleas and rats in the institution. The buildings will then be thoroughly cleansed and disinfected.

Plague Situation.—From August 12 to 29, inclusive, nine cases of plague have been reported in San Francisco, with six deaths. Two of the patients were sailors from coasting vessels, while the other cases occurred in hospitals and other parts of the city. No new cases have since developed.

Hospital Notes.—The new Siskiyou County Hospital at Yreka is to be erected immediately at a cost of $19,550 for the building alone. The structure will be two stories high and will contain 24 rooms.——Dr. Herbert P. Barton has been granted a permit for the Clara Barton Hospital in Los Angeles.

Vital Statistics for July.—During July there were reported 2,190 births and 2,540 deaths, equivalent to an annual rate per 1,000 of 12.09 births and 14.09 deaths. Of the deaths reported, 380, or 15 per cent., were from diseases of the circulatory system, and 367, or 14.5 per cent., from tuberculosis. There were 240 deaths from diseases of the nervous system, and 184 from disease of the respiratory system. Deaths from epidemic diseases were as follows: Typhoid fever, 54; diphtheria, 34; whooping-cough, 22; measles, 17; influenza, 8, and scarlet fever, 7.

Personal.—Dr. John A. Randolph, Willows, has been appointed health officer of Glenn County, vice Dr. William Thurston, resigned.——Dr. Edwin H. Wiley, Los Angeles, has been appointed assistant police surgeon.——Dr. R. G. Broderick has been appointed warden of the San Francisco City and County Hospital, vice Dr. John V. Hughes.——Dr. J. DeBarth Shorb, Los Angeles, is reported to be seriously ill at the Adler Hospital, San Francisco.——Dr. W. Harriman Jones has been made chairman of the Long Beach Pure Food Commission, and Drs. Albert C. Sellery and Joseph M. Holden have been reappointed members of the commission.

ILLINOIS.

Personal.—Dr. Ernest B. M. Mammen and family, Bloomington, are visiting in London.——Dr. Ora D. Holland and family, Streator, sail for Europe September 11.——Dr. Walter G. Bain, Champaign, state bacteriologist for the water survey department, has resigned and will move, with his family, to California.

Injured.—Dr. Charles V. Moorhouse, Marietta, recently suffered severe injury by a kick of a horse.——Dr. Edward W. Fiegenbaum, Edwardsville, was seriously injured in the left leg in a fall, August 20.——Dr. C. E. Betz, St. Joseph, was operated on for pleurisy with effusion, at Burnham Hospital, Champaign, August 15.

Anti-Vaccination in Aurora.—At a meeting of women in Aurora, August 28, in opposition to the order for compulsory vaccination of children before entering school, Dr. Heman Spalding, Chicago, made a strong argument in favor of vaccination which was ill received by the assembly. As a result of the meeting a committee was appointed to draw up resolutions instructing the city council to order the president of the board of health to rescind his order of compulsory vaccination.

Chicago.

Ophthalmologists to Meet.—The first meeting of the Chicago Ophthalmological Society will be held October 14.

Isolation Hospital.—The health commissioner, it is reported, desires to transform the Isolation Hospital into a hospital where diphtheria, scarlet fever and other contagious diseases may be treated, and to build a new hospital for smallpox at a cost of $25,000, to accommodate 240 patients.

Commencement.—At the annual commencement exercises of the Illinois Medical College, held August 29, a class of nine was graduated. The doctorate address was delivered by Bishop Fallows, who quoted on "Relation of Religious and Medical Science," and the degrees were conferred by Dr. Heman H. Brown, president of the college.

Undertaker's License Revoked.—The health commissioner took drastic measures on August 8 in his endeavor to prevent the spreading of contagious diseases of children, when he revoked the license of C. Bacigalupo, an undertaker, for violation of the burial ordinance in officiating at the public funeral of a child who had died from measles in a public institution.

Early Diagnosis of Tuberculosis.—The Health Department advises that for early diagnosis of tuberculosis, tuberculin will be furnished free to physicians who ask for it, and the department will make the diagnosis. During August, 175 cases of tuberculosis were reported, showing that more physicians are reporting tuberculosis than before, not that the disease is increasing.

Bequests for Charity.—By the will of Henry L. Barney, who died recently, the following bequests were made: Visiting Nurses' Association, $20,000; Chicago Lying-in Hospital, $10,000; Hospital for Destitute and Crippled Children, $5,000; Chicago Home for Incurables, $5,000; Chicago Daily News Fresh Air Fund, $10,000, and Chicago Tuberculosis Institute, $10,000.

Medical Library Transferred.—The medical department of the John Crerar Library has been moved from the Newberry Library and installed in its new quarters. Gen. Alfred C. Girard, the librarian, announces that the reference library is open as usual to practitioners. The collection now consists of about 41,000 volumes, and 389 medical periodicals are regularly received. The new location of the library is on the sixth floor of the Marshall Field building, adjoining the reading room.

Personal.—Dr. Edward V. L. Brown leaves for Europe this month, to be gone seven months.——Dr. Haim I. Davis, superintendent of the Detention Hospital, is visiting eastern cities to inspect the methods employed in the care of insane in incipient stages.——Dr. and Mrs. Filip Kreissl have returned from Europe.——Dr. Stanley Thomas has been appointed assistant at the Minnesota State Hospital for Insane, St. Peter.——Dr. Margaret R. Riley has passed the civil service examination for school medical inspector.

Deaths of the Week.—During the week ended August 31, 616 deaths occurred, equivalent to an annual death rate per 1,000 of 15.24. During the previous week the deaths numbered 684, and the death rate per 1,000 was 16.92, and during the corresponding week of 1906 the deaths were 561, with a death rate of 14.26 per 1,000. Acute intestinal diseases caused 170 deaths: violence (including suicide), 51; pneumonia, 53; consumption, 39 heart disease, 37; nephritis, 36; cancer, 31; typhoid fever, 13; scarlet fever, 10; diphtheria, 6, and measles and whooping cough, each 5.

MARYLAND.

Baltimore.

College Purchases Laboratory Site.—The Baltimore Medical College has purchased a lot 64 by 167 feet with building, at a cost of $30,000. A building for laboratory purposes will be erected on the site.

Deaths of the Week.—During the week ended August 31, there were 214 deaths in Baltimore, an unusually large number as compared with previous years. This mortality is equivalent to an annual death rate of 18.22 per 1,000.

Meeting of State Society.—The Medical and Chirurgical Faculty of Maryland will visit the Jamestown Exposition September 11 and 12. Meetings will be held on the boat on both evenings. At Norfolk, the faculty will be welcomed by a committee from the Norfolk Society.

Personals.—Dr. J. W. Hawkins has recovered from his recent attack of ptomain poisoning.——Dr. Edgar M. Parlett of the B. & O. Relief Department is taking antitoxin treatment for tetanus at the Maryland General Hospital.——Dr. Llewellys F. Barker returned from Europe August 28.——Dr. W. T. G. Whiteford, Parkville, was operated on for appendicitis at the Baltimore City Hospital, August 27.——Dr. John A. Luetscher is reported to be ill.

MICHIGAN.

New Hospital.—The old office of the Michigamme mine is being remodeled as a hospital for Dr. Leon L. Goodnow, in charge of the work at the Ohio, Imperial and American mines. The building is to be provided with three wards, operating room, etc.

State Sanatorium.—The State Sanatorium for Tuberculosis, Howell, was formally opened August 19 with 7 patients. The board has accepted the building now on the ground and arrangements are being completed for the immediate erection of an additional building.

Personal.—The residence and office of Dr. Arthur F. Fischer, Hubbell, were destroyed in the fire which ravaged the village, August 17. Dr. Fischer's loss is estimated at $25,000, about one-third of which is covered by insurance.——Dr. Victor C. Vaughan, Ann Arbor, left for Vienna August 27, to attend the International Congress on Tuberculosis, which opens in that City, September 16.——Dr. Albert P. Ohlmacher has resigned his position in the biologic laboratory of Frederick Stearns & Co., and has resumed private practice in Detroit.

July Mortality.—During July, 2,591 deaths were reported to the department of state, equivalent to an annual mortality of 11.7 per 1,000 of population. In July, 1906, the rate was 12.7 per 1,000. Of the deaths 507 were of infants under one year of age; 625 of children under 4 years of age, and 664 of individuals 65 years of age and over. Among the important causes of death were: Violence, 260; tuberculosis, 227; diarrhea, 147; cancer, 123; pneumonia, 70; meningitis and typhoid fever, each 37; whooping-cough, 18; diphtheria, 15; measles, 10; scarlet fever, 8; tetanus, 7, and influenza, 4.

NEW YORK.

Otisville Sanitarium.—The first municipal sanitarium for the tuberculous now accommodates 90 patients. This institution was opened in June, 1906, at Otisville, Orange County. Light work and nine and a half hours a day rest in bed is required of each patient.

Typhoid Fever.—Typhoid fever is reported to be very prevalent on the north shore of Staten Island. At least 25 persons are being treated at the S. R. Smith Infirmary, Tompkinsville, and at St. Vincent's Hospital, West Brighton. An expert from the New York board of health, who examined the water supply, reports that it is polluted.

Hospital Fire.—At a fire which broke out in the sterilizing room of Thrall Hospital, Middletown, a young orderly was severely burned in his effort to extinguish the fire. Dr. Lillian Morgan, an interne at the institution, also assisted in fighting the fire and rescued the orderly. A few patients were overcome by smoke, but received no serious injury.

Crusade Against Unclean Restaurants.—The health commissioner of Buffalo has been making an inspection of restaurants in the city and found in many cases kitchens unclean and insanitary; ice boxes filthy, and meat tainted. A similar crusade was made a few weeks ago against certain Greek candy stores in the city, which has been followed by excellent results.

Personal.—Dr. John V. Sheppy, Albany, who was convalescent after a compound fracture of the leg, made a misstep August 15, and fractured the leg a second time.——Dr. Otto Pfaff, Oneida, has been appointed resident surgeon for the Oneida Railway Company.——Dr. T. Floyd Woodworth has been reappointed health officer of the Board of Health of the village of Kinderhook.

Use of Unclean Receptacles.—An act to amend the agricultural law relative to prohibiting the use of unclean or insanitary cans or receptacles for the transportation or sale of milk products became effective July 18. During the maneuvers of the Fourth Brigade, N. G., N. Y., at Farnham, the state inspector destroyed several cans of milk intended for the consumption of the guardsmen, because the milk contained was found to be unclean.

Illegal Practitioner Prosecuted.—The Erie County Medical Society is attempting to secure evidence against J. A. Hughson, Buffalo, to convict him of fraud. It is claimed that an electrical engineer was led by this individual to believe that he was in urgent need of medical attendance which would cost him $1,000 and, as he did not have the money, he gave $200 in cash and a note for the balance. He soon discovered that he was receiving no benefit from the treatment, and after consulting with physicians, was convinced that he had no serious ailment. He was willing to lose the cash payment that he had made, but objected to an attempt to enforce payment on the note for $800. In another similar case this individual is said to have returned $600 to the victim.

New York City.

Typhoid Fever.—In Richmond typhoid fever is said now to be under control, as only 10 cases were reported last week. The results of the water analysis have not yet been made public. The disease seems to be confined to the north shore, which is supplied with water from driven wells.

Death Rate.—The mortality for the week ended August 24 was at the rate of 19.48 per 1,000 per annum, against 17.52 for the same week last year. The total number of deaths in the five boroughs was 1,600, as compared with 1,395 in the corresponding week in 1906. During the week 394 children under 5 years died, as compared with 293 in the corresponding week of 1906. Of children over 5, 422 died, as against 318 of last year.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended August 24, 353 cases of tuberculosis, with 149 deaths; 196 cases of diphtheria, with 22 deaths; 170 cases of measles, with 14 deaths; 98 cases of scarlet fever, with 2 deaths; 153 cases of typhoid fever, with 17 deaths; 16 cases of whooping-cough, with 14 deaths; 10 cases of cerebrospinal meningitis, with 9 deaths; 7 cases of varicella, a total of 1,003 cases and 227 deaths.

Croton Water Inspection.—The Croton reservoir was inspected by Commissioner of Health Darlington to determine whether, from a sanitary point of view, it would be safe to deplete other storage places into the Croton reservoir. This reservoir has a capacity of 27,000,000,000 gallons of water, and will soon be filled to the brim. There is no danger of a water famine. The filling of the Croton reservoir has two objects in view, the first to cover the flats and thus prevent accumulation of the germs, and second, to dilute the water so that the germs occasioned by the drought would not have the power for evil.

OHIO.

Tuberculosis Dispensary.—The antituberculosis dispensary of the Health Department of Cincinnati was recently opened at 508 W Ninth Street. The dispensary is in charge of Dr. Clayton B. Conwell and two trained nurses.

School Children Physically Unfit.—It is alleged that 50 per cent. of the school children of Ohio are physically defective. One of every two is said to be a sufferer from disorder of vision, bad teeth, throat affections or other ailments.

Illegal Practitioner Fined.—Edward Pfeiffer, Columbus, charged with practicing medicine without first having secured a license or diploma, is said to have been fined $150 and costs at Lancaster, August 24. He is said to have paid the fine and costs and left town.

Medical Inspection.—The systematic medical inspection of the pupils of public schools of Dayton will be inaugurated under the direction of the Montgomery County Medical Society. The work will be done by a corps of 24 physicians, who will make one visit a week to each school, and more if required.

Personal.—Dr. Darlington J. Snyder, Columbus, has resigned as member of the County Board of School Examiners.——Dr. Frank Winders, Columbus, who has been ill, is reported to be convalescent.——Dr. John J. Beekman, Columbus, suffered severe contusions by being run down by an automobile August 24.

State Society Meeting.—At the annual meeting of the Ohio State Medical Society held at Cedar Point, August 28 and 29, a set of resolutions was adopted denouncing Senators Foraker and Dick and ex-Congressman J. H. Southard for their alleged participation in efforts to defeat pure-food legislation during the last session of Congress. The following officers were elected: President, Dr. Charles Bonifield, Cincinnati; vice-presidents, Dr. David W. Steiner, Lima, James S. McClellan, Bellaire, Dell S. Bowman, Akron, and Henry T. Sutton Zanesville; secretary, Dr. John H. J. Upham, Columbus; treasurer, Dr. James A. Duncan, Toledo; councilor for the Fourth District, Dr. Julius H. Jacobson, Toledo; councilor for the Ninth District, Dr. John E. Sylvester, Wellston; member national legislative committee, Dr. Benjamin R. McClellan, Xenia; delegates to the American Medical Association, Drs. Hugh F. Lorimer, Chillicothe, Rufus B. Hall, Cincinnati, and Charles Graefe, Sandusky, for one year; Drs. Horace Bonner, Dayton, Roland E. Skeel, Cleveland, and William D. Dueschle, Columbus, for two years, and alternates for one year, Dr. Fred W. Lane, Cambridge; Benjamin H. A. M. Blair, Lebanon, and John A. Dickson, Ashtabula, and for two years, Drs. Charles N. Smith, Toledo; A. Melville Crane, Marion, and Hugh A. Hart, Wooster. The society adjourned to meet in Columbus in 1908.

PENNSYLVANIA.

Sanatorium Site Purchased.—Dr. Samuel G. Dixon, Commissioner of Health of Pennsylvania, has purchased the Mountainside Sanatorium, with 57 acres of land adjoining, at Mont Alto Park, from Dr. Joseph T. Rothrock, Westchester, formerly state forestry commissioner. The sanatorium will be made part of the State Camp for the Treatment of Tuberculosis.

Personal.—Dr. Isaac C. Gable, York, has resigned as inspector of York County.——Dr. Milton K. Neiffer, Wyncote, has been made health officer of Cheltenham, and Dr. Harry D. Johnson, Cheltenham, and A. T. Clayton, Ogontz, members of the board.——Dr. Allen Keller, Telford, was recently thrown from his carriage and fractured his leg.——Dr. E. Ziegler Bowen, North Scranton, sustained a compound fracture of the left leg while trying to catch a horse in his pasture recently.

Homes for Insane.—At a meeting of the committee of lunacy of the State Board of Charities, August 29, plans were approved for two new buildings to be added to the State Insane Hospital at Harrisburg, to accommodate 140 patients and to cost $150,000. The committee reports that there is great need for additional buildings for the state's insane, and at the present time there are about 13,000 patients in state and private hospitals and under county care. This number has been increasing at the rate of 200 patients a year, and despite this fact no new hospitals have been erected for ten years.

Philadelphia.

July Vital Statistics.—The report of the division of vital statistics of the bureau of health for July shows that 2,608 deaths and 2,903 births were reported.

Free Treatment for Consumptives.—The order sent out in May that all patients at White Haven Sanatorium for Poor Consumptives would be required to pay $7 per week for their maintenance, has been reconsidered and the doors of the institution are now thrown open to any one unable to pay for treatment.

Hospital Report.—The report of the German Hospital from July 25 to August 22 shows that 3,459 patients were treated in the various dispensaries of the institution. Departments visited were as follows: Medical, 326; gynecologic, 142; surgical, 2,352; eye, 294; ear, 153, and throat and nose, 92. During the same period 1,206 prescriptions were issued.

Cocain Sellers.—Nicholas Larkins, a youth of Philadelphia, is said to have been sentenced to the House of Correction for a year, for selling cocain and other narcotic drugs without a license.——John Grimshaw, charged with selling cocain to boys, was held for trial in $800 bonds, August 24. Three boys confessed to the magistrate that they had become victims of the cocain habit, and said that Grimshaw had showed them how to inhale cocain.

Personal.—Dr. Harold D. Senior of the Wistar Institute of Anatomy has been appointed professor of anatomy in the College of Medicine of Syracuse (N. Y.) University, vice Dr. George M. Price, resigned.——Dr. M. J. Horan, an ambulance surgeon at the Medico-Chirurgical Hospital, was injured in a collision with an ambulance and street car, August 29.——Dr. A. Alonzo Sargent has been elected supreme medical examiner of the Foresters of America.

Health Report.—The total number of deaths reported for the week ended August 31 was 434, as compared with 489 in the preceding week and 407 in the corresponding week of last year. The principal causes of death were: Typhoid fever, 7; pertussis, 9; consumption, 53; cancer, 23; apoplexy, 17; heart disease, 33; acute respiratory disease, 33; enteritis, 68: appendicitis, 10; Bright's disease, 25; congenital debility, 11; suicide, 5; accidents, 14, and marasmus, 13. There were 156 new cases of contagious disease reported, with 11 deaths, as compared with 190 cases and 26 deaths reported in the preceding week.

SOUTH DAKOTA.

Sanatorium Inspected.—The National Sanatorium for Veteran Soldiers, Battle Mountain, Fall River County, was formally inspected by Captain Palmer, superintendent, August 19.

Personal.—Dr. Charles M. Hollister has been appointed physician at the Indian School, Pierre, vice Dr. DeLorme W. Robinson, resigned.——Dr. Rudolph D. Jennings, governor and surgeon of Battle Mountain Sanatorium, has resigned, to take effect September 1, and will enter private practice at Rapid City.

District Society Meeting.—The Fourth District Medical Society of South Dakota will hold a meeting September 11 at Huron, under the presidency of Dr. Oscar R. Wright of that city. The secretary announces that every physician in South Dakota has been invited. A large attendance is expected, as the meeting occurs at the same time as the state fair.

TENNESSEE.

Physicians' Building.—It is reported that a building is to be erected in Nashville, at Eighth Avenue near Church Street, to be used for physicians exclusively.

Removes Diphtheria Sign.—A fine of $25 is said to have been imposed on Mr. E. B. LeMaster, Memphis, August 14, on the charge of violating the health ordinance by wilfully and maliciously tearing down a diphtheria sign from his residence.

Communicable Diseases.—Scarlet fever is reported to be present to a serious extent in Gallatin and Rogana. The health authorities are maintaining a strict quarantine and hope to check a further spread of the disease.——Diphtheria is reported to be spreading in the Holly Creek section of Wayne County. Two public schools have been closed, and three deaths have occurred.

Personal.—Dr. George F. St. John, Petros, has been reappointed physician of the state prison mines, Brushy Mountain.——Dr. Henry F. Alexander, Elizabethton, has succeeded Dr. Edward T. West as chief surgeon of the Mountain branch of the Soldiers' Home.——Dr. Paul F. Eve, Nashville, is taking a trip to the Atlantic Coast.——Dr. William R. Maney, Nashville, is reported to be ill with fever.

Anti-Tuberculosis Posters.—Dr. James A. Albright, secretary of the State Board of Health, has supplied the various railroad companies in the state with copies of the anti-tuberulosis law which must be posted in every passenger coach. The railroads have been granted the privilege of combining the posters issued by the state boards of Kentucky and Tennessee, as most of the roads passing through Tennessee run also through Kentucky.

TEXAS.

Sanitarium Incorporated.—The Baptist Sanitarium of Houston has been incorporated to erect, equip, conduct and maintain a hospital for purely benevolent, charitable and educational purposes.

Excursion Rates Annulled.—The railroads of Texas have indicated that they will obey the ultimatum of the state health officer, issued on account of the prevalence of dengue in Mexico, and have taken off all excursion rates between the United States and Mexico.

Free Transportation for Nurses.—In answer to an inquiry from the railroad commissioner, the attorney general holds that when a wreck occurs on a railroad, and physicians employ persons to attend the injured, such employés shall be entitled to free transportation to the hospital or place where the injured persons are taken, but are not entitled to free transportation for the return trip.

Personal.—Dr. John E. Reeves has resigned as a member of the board of health of Orange.——Dr. Henry K. Leake has been appointed chairman of the board of health of Dallas, vice Dr. Jesse M. Pace, resigned.——Dr. Edward L. Seay has been elected chairman; Dr. William T. Booth, vice president and treasurer, and Dr. Joseph A. Mayes, secretary, of the Denison board of health.——Dr. Adoniram J. Gibbs has been appointed city physician of Denison.——Dr. J. H. N. Huggins, Georgetown, has been appointed health commissioner of Williamson County to fill out the unexpired term of Dr. Edward M. Thomas, Georgetown, resigned.——Dr. John A. McIntosh, assistant superintendent of the State Insane Hospital, San Antonio, has resigned, to become resident physician at the Moody Sanitarium.——Dr. and Mrs. Louis E. Magenat, Amarillo, have returned from New York.

New Medical Board Meets.—At the first meeting of the Board of Medical Examiners for the State of Texas the following committees were appointed:

Rules and Regulations—Thomas J. Crowe, James D. Osborne and Radford O. Braswell.

On Institutions to Make a Study of the Various Medical Colleges—William C. Collins, J. P. Rice, John D. Mitchell, Radford O. Braswell and Ira W. Collins.

Reciprocity—Garland B. Foscue, Edwin P. Becton and J. P. Rice.

To Draft Certificates to be Used—Edwin P. Becton, John D Mitchell and Radford O. Braswell.

The different branches for examinations were distributed as follows: John J. Dial, pathology and histology; James D. Osborne, medical jurisprudence; Thomas J. Crowe, chemistry; John D. Mitchell, obstetrics; Garland B. Foscue, physical diagnosis; William B. Collins, anatomy; J. P. Rice, bacteriology; Edwin P. Becton, surgery; Radford O. Braswell, gynecology; Ira W. Collins, hygiene; Marquis E. Daniel, physiology.

GENERAL.

American Microscopical Society.—At the twenty-seventh annual meeting of the American Microscopical Society held in Boston August 20-22, the following officers were elected: President, Prof. Herbert Osborne, Ohio State University, Columbus; vice-president, Dr. Arthur E. Hertzler, Kansas City, Mo.; secretary, Dr. Fred C. Zapffe, Chicago, and treasurer, Mr. David L. Zook, Chicago. The next meeting will be held either in Cincinnati or in Rochester, N. Y.

Yellow Fever in Cuba.—A telegram regarding yellow fever in Cuba from Governor Magoon on August 23 showed that there were no new cases, either in the camp or in the city of Cienfuegos. A second report later in the day mentions one confirmed and one suspicious case in the city, and states that 381 men are at work. On August 26 the governor telegraphed that Major Kean had returned from Cienfuegos and reported the situation well in hand, although he believes the disease will probably reappear at rare intervals during the next six weeks, but will be eradicated by that time. He says that there is no danger of an epidemic, that all soldiers are cured and discharged from the hospital, excepting one who is convalescent. There are ten cases, all in Cienfuegos, and with the exception of that city, no cases are known to exist in the island.

The Sanitary Situation in Cuba.—The following is from an occasional correspondent who is in a position to know the actual conditions that obtain in Cuba:

An unexpected outbreak of yellow fever among our soldiers at Cienfuegos has called attention to the fact that there still persist several foci of that disease in Cuba, and to the necessity of continued strict vigilance on the part of our medical officers to protect the army of occupation. But "it is an ill wind that blows nobody good," for this outbreak has at last convinced the provisional government of the inefficiency of provincial and municipal authorities in sanitary matters and of determining Governor Magoon to sign the decree—long since under contemplation—centralizing the sanitary service.

The military command stationed at Cienfuegos, unable to secure a hospital for its own independent use, rented half of a private hospital belonging to a Dr. Landa, with the understanding that no patients suffering from infectious diseases were to be admitted. The ward occupied by the soldiers was screened, but apparently not effectually. There was no screening on the Cuban side, nor were the quarters of the hospital corps men, outside the hospital, protected against mosquitoes. It is admitted that yellow fever had existed for some time in Cienfuegos and that the municipal authorities and board of health knew nothing of it. At the first rumor of a suspicious fever in the garrison, Dr. Agramonte, a Cuban expert, colleague of Major Walter Reed on the board which demonstrated the mode of propagation of this disease, was sent down from Havana to investigate. He found eight clear cases of yellow fever at the hospital, all hospital corps men except one, a member of the band, patients in the screened ward. Two other soldier patients in this ward subsequently developed the disease, showing that the screening had been ineffective. In the first known case the patient was taken sick August 4, eight days after his arrival from Havana; the others followed closely on this. All these classes Dr. Agramonte declared to be secondary to one or more previous unrecognized cases, from which must have originated the infection on the Cuban side of the hospital, as well as the hospital corps men's quarters, about the middle of July. The board of health at first denied the occurrence of yellow fever in town, previous to the outbreak at the hospital, but on more careful investigation had to admit their oversight; thus the presence, on July 16, of four cases, all in Spaniards, was established. It seems most probable that scattered cases had existed in Cienfuegos for several months, about which the local authorities were entirely ignorant. By August 19 a total of 12 cases had occurred among our soldiers, namely, 9 hospital corps men and 3 cavalry men, all at the hospital. On that date three had died while others were convalescing. This, it is believed, will be the end of the outbreak. It is needless to say that, as soon as the disease was diagnosed, our men were all removed from the infected hospital and the most stringent measures taken to prevent further infection. The garrison itself, some 200 men strong, is quartered at some distance from the hospital and not in any danger.

It is interesting and gratifying to reflect, in this connection, that only six years ago had our troops been placed under similar circumstances, they would have been promptly removed from the purlieus of the town to some desert brush-covered plain, leaving most of their baggage behind to be burned or disinfected, and being otherwise subjected to unnecessary discomfort and hardships. Now they remain quietly and fearlessly in their quarters, practically as safe as though they were in the country.

In order to appreciate the significance of this outbreak and fix the responsibility therefor, we must bear in mind that when the Cuban republic came to an end, whatever else was changed the sanitary service was left, as it had been, in the hands of provincial and municipal authorities. It is true that there is a superior board of health in Havana with some sort of jurisdiction over the whole island; but this jurisdiction, outside of Havana, is mostly of an advisory character and barren of practical results.

As is well known, yellow fever was prevalent in the city of Havana last summer and fall, while a number of scattering cases were reported from the southeastern part of the province of Havana and from the provinces of Matanzas and Santa Clara. The sanitary situation was becoming serious. Soon after his arrival in Havana, in September, 1906, Mr. Taft, realizing the imminence of the danger, called Major J. R. Kean of the medical department of the Army, to his aid, as sanitary adviser, and gave him full powers. Major Kean had made an excellent record in Cuba during our first occupation, as sanitarian and administrator, and was the man for the emergency. The result of his activity was soon apparent. Before the end of December yellow fever had been stamped out of Havana. Unfortunately, Governor Magoon, in his desire to conciliate the dominant political party and not to interfere with provincial governments, stayed the hands of the sanitary adviser and prevented the extension of the good work beyond the capital. Whenever foci of infection were reported from the interior, with which local authorities were unable to cope, the governor would give special authority for the application of special measures and the expenditure of necessary funds, but no general systematic policy was instituted and carried out. The responsibilty for the Cienfuegos outbreak, therefore, can not be placed on the sanitary adviser or the superior board of health; they had nothing to do with the sanitation of that town, certainly no means of controlling it. It should be noted, in passing, that Governor Magoon has accepted the mosquito doctrine of the conveyance of yellow fever somewhat reluctantly, and that, as stated in his telegram to Secretary Taft, he still believes in the agency of dirt in producing or conveying this disease. It is regrettable that in such matters, so conclusively proved, he should not have entire faith in medical experts.

As was mentioned above, Havana has been entirely free from yellow fever since last January. It was also believed that the infection had been stamped out in the provinces last fall and winter. But the reappearance of cases at various points this summer, notably Cienfuegos, without apparent reintroduction of infection from outside, shows that the work of extermination of infected stegomyia mosquitoes had been imperfectly done and that there must have occurred a succession of mild unrecognized cases about those places until the present time. This means that many of the local boards of health, or sanitary officers, have been ignorant, indifferent and inefficient, neither reporting cases of infectious diseases nor taking measures to prevent their propagation. It is true that those actuated by a desire to do their duty were soon discouraged by the insurmountable difficulties which lack of funds, politics and favoritism placed in the way. Even the recommendations of the superior board of health were generally treated with silent contempt. It is surprising that, under such conditions, yellow fever should not have spread more extensively and made more victims. For, as has already been explained,[1] the problem of dealing with this disease, now, is quite different from what it was during our first occupation of the island, immediately after the Spanish War.

Under such general conditions there was but one remedy, one solution. We know now how vain and futile it would be to expect provincial and municipal authorities to protect themselves and others by taking the necessary steps to stamp out infectious diseases. They know little about it and care less. In fact, it is suspected that some would rather have the threat of yellow fever hang over the heads of foreigners, especially Americans, so as to keep them out of the island and not disturb conditions which are so profitable to native politicians. Therefore, the governor has wisely decided, after long consideration and in spite of active opposition from provincial bosses, to nationalize the sanitary service and give the superior board of health supreme authority over this service in all parts of the island. But it is not enough to issue an edict; its execution should be entrusted to an efficient personnel; the best men in each town must be selected as sanitary officers and inspectors, and here the governor may again expect stout opposition on the part of the dominant political party. But let us hope that he will be swayed by no other consideration than that of insuring to the island a clean and efficient sanitary service.

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[1] The Journal A. M. A., June 22, 1907, 2119.

On the whole, the sanitary outlook is very encouraging in Cuba; there is every reason to believe that, before the end of the year, yellow fever will have been again extirpated from the island and that, under the new law, administered by an efficient sanitary adviser, Cuba will soon be, as it can easily be, one of the healthiest countries in the world.

CANADA.

Infant Mortality in Montreal.—The death rate among infants in Montreal per week, though showing some slight falling off, is still large, 141 having died during the week ended August 24. During that week 95 boys and 77 girls were born in Montreal.

Inspection of Schools in Montreal.—Montreal is again taking up the medical inspection of schools. Forty-five medical men will work till the end of December, at which time it is expected that the city council will appropriate further funds. As far as possible, those medical men who did the work last year will be chosen this year.

Personal.—Dr. H. S. Birkett, Montreal, has returned from several months abroad.——Dr. Harvey Clare, assistant at the Toronto Provincial Hospital for the Insane, has accepted an appointment as assistant superintendent of the New Westminster, B. C., Hospital for the Insane.——Dr. Neil McPhatter, president of the Canadian Club in New York, has been visiting in Vancouver, B. C.——Dr. James B. Goodall, Montreal, has gone abroad for two years' work in gynecology.——Dr. R. A. Reeve, Toronto, past president of the British Medical Association, was made a vice-president for life at the recent meeting at Exeter, England.

FOREIGN.

Honorary Degree for a Lay Investigator.—It is announced that an honorary medical degree has been conferred by the medical faculty at Heidelberg on Baron J. v. Uexküll for his important research on the processes of stimulation in nerves and muscles.

French Congress of Surgery.—The twentieth French Surgical Congress, which will convene at Paris October 7, is to discuss the influence of the Roentgen rays on malignant tumors; transplantation of nerves, muscles and tendons in treatment of paralysis, and tuberculosis and cancer in connection with accidents.

Union of Three French Medical Societies.—Three medical societies of Paris, founded, respectively, in 1796, 1805 and 1808, have recently consolidated, continuing the name of the oldest, the *Société de Médecine.* The union was celebrated by a banquet, at which Dr. Coudray presided and Professor Cornil, the oldest medical journalist present, reviewed the history of the three organizations and outlined the future policy.

Reduction of Malaria Mortality in Italy.—The mortality from malaria has fallen from over 15,000 to 4,700 during the last few years, thanks to the systematic campaign of protection against mosquitoes and the government monopoly and sale of pure quinin at or below cost wherever there is a post-office. The populace is learning to appreciate the benefits of quinin more and more, over 45,000 pounds having been sold in 1906.

Growth of the German Leipziger Verband.—The last annual meeting showed a register of 19,828 members on the books of this association, founded to promote the material interests of the profession in Germany. This is an increase of 1,105 during the last year. About 54,323 letters have been received and 141,865 written, while 4,056 applications for positions were received and 3,374 supplied. The number of medical students in Germany has increased from 6,080 last year to 7,219, and young men were urgently warned to choose some other career rather than the overcrowded medical profession. With regard to contract practice in Germany, an armed peace prevails.

Regulations to Prevent Transmission of Disease in Schools.—The German authorities have issued directions to prevent school epidemics. Chicken pox and ringround are included in the list of 24 diseases which compel precautionary measures. If a case of diphtheria, epidemic cerebrospinal meningitis or scarlet fever has been discovered in a school, all persons who have come in contact with the patient are advised to rinse nose and throat daily with some disinfectant fluid, and, in case of diphtheria, to have a preventive injection of antitoxin. The school rooms must be swept daily and wiped with moist cloths at least twice a week, and it is advised to have the drinking water examined for bacteria at regular intervals. It is urged that the children and their parents should be instructed in the means to prevent and manage transmissible diseases. The full text of the regulations is given in the *Deutsche med. Wochschr.*, August 15.

Endowments for Hospitals and Research.—Prince Ferdinand of Bulgaria has given $800,000 for the construction of a sanatorium for consumptives. An architect in Charlottenburg has bequeathed $100,000 for the construction of a hospital at Halle. Dr. Milschewski has given $15,000 to the university at Greifswald to endow stipends for needy students. Another sum of nearly $3,000 has also been raised by alumni to endow purses for travel for students needing change of air. About $300 has been given to Dr. L. Michaelis of Berlin to aid in his research on the action of ferments. Dr. W. Spielmeyer of Freiburg has also received nearly $400 to further his comparative research on trypanosomiasis and sleeping sickness, on one hand, and syphilis-paralysis and tabes on the other. L. Krehl of Heidelberg has also been granted $600 to aid his study of the elimination of water by lungs and skin at high altitudes. These sums have been awarded from various endowments for scientific research in Germany.

Medicolegal Experts in Paris.—Some time ago the French established a special course of instruction to prepare physicians to serve as medicolegal experts. A class of fourteen has been graduated and received their diplomas, and a recent notice from the president of the civil courts bids the justices of the peace—*juges de paix*—at Paris to select their experts from this list. J. Noir protests bitterly against this discrimination in an editorial in the last *Progrès Méd.*, stating that it is detrimental to the interests of justice and to the 450 physicians who have previously been called on for expert service in these courts. He states that specialist expert testimony is required, an ophthalmologist for questions involving the eye, a neurologist or psychiatrist in nervous and mental affections, and so on. No one human brain can have specialist knowledge in all branches of medicine. He deplores "the cultivation by the medical faculty of a parasitic flora of certificates and diplomas sapping the vitality of the ancient trunk of the old-fashioned medical course still offered by the French medical schools."

LONDON LETTER.

(From Our Regular Correspondent.)

London, Aug. 22, 1907.

Railway Accidents in Great Britain in 1906.

There were far more serious railway accidents in Great Britain during 1906 than is generally the case. The British Board of Trade annual report on railway accidents just issued gives the number of passengers killed last year as 58, while the yearly average calculated over the past thirty years is only 22. However, even the fatality list in England for the last year need cause little alarm even to the most timid, as the number of passengers killed en route works out at only 1 in every 21,000,000. The above figures relate only to passengers killed in accidents to trains. Including casualties of every kind, 1,169 persons were killed and 7,212 injured in 1906.

The Congress on School Hygiene in London.

This congress has certainly brought out more clearly than ever the fact that England is behind most of the civilized countries of the world so far as the management and organization of schools are concerned. For instance, England is not only behind the European countries, but even Chili, Argentina and Servia have passed her in providing for the medical examination of school children. Another interesting point brought out at the congress is the incidence of pulmonary tuberculosis on school teachers. To assist in obviating this danger, so far as possible, the *Lancet*, August 17, suggests editorially that the due instruction of school teachers in the elements of hygiene must be insisted on, not only that they may teach the laws of health to the children, but also that they may practice on themselves. Dr. W. Oldright, professor of hygiene at the University of Toronto, read a paper on the "School Room as a Factor in the Production of Tuberculosis." Judging from statistics collected in Ontario, women teachers are especially susceptible to the disease, and the same facts have been noted in the United States. He stated that in some cases the mortality among women teachers from tuberculosis is as high as in the most dangerous trades, such as those of printers and stone cutters.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Treatment of Burns.

The time-honored classification of first, second and third degree burns, while of use perhaps in describing the condition of probable tissue destruction, is of far less value, even from a descriptive standpoint, than a classification which takes cognizance of the agent which caused the injury. One finds quite a different condition of things in a gunpowder burn than that present in a steam or hot-water burn, and while the treatment of the convalescent condition may be practically identical for all varieties of burns, the first procedures will differ considerably. But before these are considered pain and shock generally call for immediate treatment and usually should be attended to first.

The pain is best controlled by morphin hypodermatically; this drug also acts favorably when, as is commonly the case, the shock is largely psychic. However, there can not be extensive burns without considerable real shock.

First, give hypodermatically ¼ of a grain of morphin, if the patient is an adult, or proportionately smaller if not. Combine with this 1/100 of a grain of atropin if shock is present, but withhold it otherwise, as nothing should be given to aggravate the thirst which is, or shortly will be present.

Remove all clothing with a minimum of disturbance to the patient, cutting it free with shears rather than trying to take it off in the usual way. Next cover the entire body with blankets, leaving exposed only those parts which are injured and require dressings. Place hot-water bottles, hot-water bags or hot bricks outside of these and cover them up to prevent loss of heat. Replace them as often as they cool—dry heat is what is wanted, and plenty of it. If the pulse remains weak and rapid, give hypodermatically 1/30 of a grain of strychnin, followed by 1 c.c. (15 minims) of adrenalin chlorid solution (1 to 1,000) intramuscularly. If it seems necessary to use further stimulation, give hypodermatically a syringeful of a saturated solution of camphor in olive oil every hour, if needed, until such time as the strychnin may be repeated with safety, at which time the atropin may be repeated, if necessary. In any condition of shock these drugs should be administered hypodermatically, if they are required at all.

Systemic treatment having been attended to, the first measures taken to relieve the local injuries should always take into consideration the fact that all burns are primarily sterile and all treatment should be directed toward maintaining this condition. The only exception to this is when there is laceration by flying fragments, in burns accompanying explosions, and even here the wounds are generally aseptic by reason of the missile having been heated to the point of sterilization before it made its wound. The first rule, then, is to handle and treat all burns, whether small or large, superficial or deep, with surgical cleanliness.

If the burns are superficial, it making little or no difference what the cause, there is not much choice between a number of applications; the situation of the burn and immediate availability of the remedy generally governing the decision. The skin about the burn should be cleaned with soap and water, and the burn itself with sterile water or physiologic saline solution (made by dissolving a heaping teaspoonful of salt in a quart of boiled water). Remove carefully all foreign material and puncture all blebs at their lowest points. Express the serum, taking care that the raised cuticle is pressed back into close contact with the underlying tissue. Then apply any of the following treatments, though it may be noted that with various slight modfications picric acid has the greatest number of advocates.

Take strips of folded gauze, not less than six or eight layers, and better ten or twelve, dip them in the following solution, and, having them as wet as possible without dripping, cover up the entire burn. Retain with a gauze bandage snug enough to hold the dressing in place.

℞.	gm. or c.c.		
Acidi picrici	5	or	ʒi
Aquæ	500		Oi

M. Sig.: Use externally as directed.

Hare ("Practical Therapeutics") adds alcohol to the picric acid solution as:

℞.	gm. or c.c.		
Acidi picrici	5		gr. lxxv
Alcoholis	75	or	flʒiiss
Aquæ q. s.	ad 1000		Oii

M. Sig.: Use externally as directed.

Or:

The following may be used in the same manner as the picric acid solution:

℞.	c.c.		
Liquoris alumini acetatis (N. F.)	500	or	Oi

M. Sig.: Use externally as directed.

Or:

℞.	c.c.		
Acidi borici	30	or	℥i
Petrolati liquidi	500		Oi

M. Sig.: Apply externally.

If an ointment is desired the following may be used:

℞.
Petrolati q. s.

M. Sig.: Use externally.

Or:

℞.	gm.		
Bismuthi subnitratis	20		ʒv
Unguenti acidi borici	100	or	℥iii
Petrolati	ad 300		ad ℥x

M. Sig.: Use externally.

Many otherwise excellent preparations contain enough lead to cause, not infrequently, symptoms of poisoning, even to the extent of lead colic, and for this reason are to be avoided. Dr. J. C. Biddle, surgeon to the State Hospital for Injured, at Fountain Springs, Pa., claims, in the *Therapeutic Gazette* of June 15, 1907, to have used the following prescription for twenty-three years without a single case of poisoning. He is inclined to think the failure to absorb is due to the acacia.

℞.	gm.		
Sodii bicarbonatis	6		ʒiss
Pulveris acaciæ	100	or	℥iii
Plumbi carbonatis	250		℥viii
M. et adde:			
Olei lini q. s.			

Fac unguentum molle. Sig.: Spread on lint or canton flannel and apply to the burned surfaces.

(*This subject is to be continued.*)

Dysentery.

Dr. James Cantlie, London, in the *British Medical Journal*, June 22, 1907, states that the best treatment for patients who return to Great Britain from the tropics and develop dysentery is the ipecac and opium treatment. "The Epsom salt treatment in this country (Great Britain) fails, as a rule, and it must be noted that treatment by ipecacuanha is more likely to insure a permanent cure than that by Epsom salts. After having had the stools examined microscopically for ova, or if that is impossible, after the administration of three 4-grain doses of santonin, a dose of castor oil is given. When the bowels are well cleared and the ipecacuanha is to be administered at, say, 10 a. m., proceed as follows: At 9:40 give 20 minims of tincture of opium by the mouth; at 9:50 place a mustard plaster on the epigastrium (these precautions are given to allay the tendency to vomiting); at 10 o'clock give 30 grains of freshly powdered ipecacuanha root in cachets; keep the patient lying down with the head low, with directions to move about as little as possible. Should vomiting occur within a few minutes the dose must be repeated. For three hours it is well to give nothing by the mouth, but if thirst distresses, small pieces of ice may be placed in the mouth occasionally. After three or four hours weak tea or beef-tea may be given, and the regular 'feeds' afterward gone on with. On the following day give 25 grains of ipecacuanha with the same precautions. The dose of ipecacuanha is repeated on successive days in doses of 20, 15 and 10 grains respectively. The smaller doses are to be given even should the first dose bring down a healthy stool. No food should be given for three hours before giving the ipecacuanha nor for three hours after. The tendency to vomit is so slight after the second day that the opium may be withheld and the times of fasting lessened."

The following prescriptions will carry out the above suggestions:

℞. gm.
Santonini .... |60 or gr. x

Fac capsulas amylaceas (cachets) 3. One wafer, with water, every three hours.

[The dose of santonin recommended is large and has caused poisoning.—Ed.]

To be followed by:

℞. c.c.
Olei ricini .... 30| or ℥i

Sig.: Take at one dose in black coffee.

After the bowels have been thoroughly cleared by the oil, give:

℞. cc.
Tincturæ opii .... 25| or ℥i

Sig.: Twenty drops, in water, twenty minutes before the ipecac is administered.

[Many prefer to give morphin hypodermatically.—Ed.]

Ten minutes after giving the opium apply a mustard plaster over the stomach.

Ten minutes later, i. e., twenty minutes after the administration of opium, give the dose of ipecac.

℞. gm.
Pulveris ipecacuanhæ .... 10| or ʒiiss

Fac chartulas vel capsulas amylaceas (cachets) 10. Sig.: Two powders at once on the first day; a little more than one and a half on the second day, preceded by the opium as before; a little less than one and a half on the third day; one on the fourth day. Then:

℞. gm.
Pulveris ipecacuanhæ .... 5| or gr. lxxv

Fac capsulas amylaceas (cachets) 10. Sig.: One wafer a day.

Opium (Morphin, Codein) Poisoning.

The symptoms of toxic action of opium develop in about the following order: There is first drowsiness, then increased sensibility, respirations become gradually slower and slower, the pulse weak and rapid, skin cool, sometimes moist, pupils tightly contracted except just before death, when they often dilate, the stupor becomes a coma until death takes place by paralysis of the respiratory center.

The chemical antidote, if the alkaloids of opium are in the stomach, is tannic acid, 2 grams (30 grs.) stirred up in a glass of warm water and drunk at once. If a tube is not immediately at hand for washing out the stomach (the best method), 1/10 gr. of apomorphin hydrochlorid should be administered hypodermatically, unless mustard water or 2 grams (30 grs.) of zinc sulphate stirred up in water and administered by the mouth has immediately caused vomiting. After the stomach contents have been completely evacuated, if narcosis continues, the stomach should be washed out several times at intervals of an hour, as morphin is excreted into the stomach from the blood. The urine should also be repeatedly evacuated with a catheter. Strong saline cathartics may later be administered.

Whether or not morphin can be antagonized in the blood by an opponent when it is present in toxic doses is a question. Many investigations have been made with its physiologic opponent, atropin, and we may sum up the results of these investigations as follows:

1. There is no doubt that a combination of morphin with atropin administered simultaneously will allow a larger dose of morphin to be administered without toxic effect.

2. When poisonous doses of opium or morphin have been taken and atropin is immediately injected hypodermatically in full physiologic (as 1/100 of a grain) dose, then the toxic effects of morphin may not develop.

3. If toxic symptoms from opium poisoning are in evidence and well established, small doses of atropin may be given for the stimulant circulatory effect, but will apparently have but slight effect on the opium poisoning, and large antagonistic doses of atropin, i. e., doses of atropin that without the morphin in the system would be poisonous, should not be given, as the full action of morphin on the respiratory center does not seem to be dissimilar to the full action of atropin on the same center, consequently one poison is added to another, and the result is more danger to the patient.

4. If atropin is given in safe doses to combat the action of opium in the system, the dose should not be frequently repeated, and the first dilatation of the pupil should be the indicator that sufficient atropin has been administered.

Severe flagellations or strenuous muscle exercise, as walking, in conditions of opium poisoning, should not be used, except only in the mildest cases of poisoning. Many an opium death has occurred from the prostration caused by the severe exercise through which the patient was put, as this exercise may be the last straw to force the patient into fatal collapse, and circulatory depression is one of the causes of death in opium poisoning. It is much safer to use friction to the body, to surround the body with dry heat and to employ artificial respiration as long as it is needed, even if it be for hours.

The best cerebral stimulant to use, and one that will counteract some of the toxic effects of opium is caffein, and perhaps no method of administration is better than strong, clear coffee, both by the mouth and by the rectum, and a number of times repeated. Another cardiac and cerebral stimulant in this condition is camphor in saturated solution in olive oil, a hypodermic syringeful injected intramuscularly every half-hour for several doses. Strychnin may be given hypodermatically in 1/30 of a grain dose and repeated in two or three hours, if needed, but strychnin should not be given in too large doses or too frequently, as it certainly in all collapsed conditions can cause cardiac spasm, and the normal diastole of the heart can not properly take place. If the tension is very low, adrenalin or suprarenalin solution (1 to 1,000) may be administered in 1 c.c. (15 minim) doses intramuscularly, and perhaps best not repeated. The lymphatic and blood vessels gradually absorb a little of this solution at a time, giving a gradual physiologic activity of suprarenal stuff.

The Science of Medicine.—It is often said that medicine is not an exact science, and that we can not hope to make it such. I am inclined to demur to that statement, although, of course, much will depend on the meaning we attach to the term "exact science." If the interpretation is strict, what science is entitled to the designation? They are all liable to err, and all depend to some extent on other sciences for their foundation. Much in medicine is quite as exact as any of the sciences.—Alexander McPhedran, M.D., in the *Canadian Practitioner and Review.*

Pharmacology

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION.]

The following has been submitted to, and its publication approved by, the Council on Pharmacy and Chemistry.

W. A. Puckner, Secretary.

CALCIDIN (ABBOTT).

W. A. Puckner and A. H. Clark.

In the advertising literature of the Abbott Alkaloidal Company it is claimed that Calcidin (Abbott) produces therapeutic effects entirely different from those obtained from iodin in any other form. In view of this and similar extravagant claims, and because the statements made in regard to its composition are vague and confusing, it was considered of interest to determine the nature of this proprietary article. Accordingly an original package of calcidin was purchased in the open market and submitted to analysis, which is printed below.[1]

From this analysis we calculate the composition of calcidin to be:

	Per cent.
"Available" iodin (liberated on acidulation)	9.20
Calcium iodid (CaI_2)	5.71
Calcium oxid (CaO)	18.45
Calcium carbonate ($CaCO_3$)	34.45
Corn starch (anhydrous)	16.13
Iron and aluminum	Traces
Magnesium oxid (MgO)	.35
Water (by difference)	15.71
	100.00

In other words, we conclude that calcidin is essentially a mixture of iodin, calcium iodid, lime and corn starch and that the preparation is made by mixing ordinary iodin, lime and corn starch, the calcium iodid and some calcium iodate being formed by the action of the lime on the iodin in the presence of moisture. The exact amount of calcium iodid found in different specimens of calcidin will vary in accordance with the amount of moisture present and the age of the product.

While it is claimed that calcidin produces "therapeutic effects entirely different from those obtained from iodin in any other form," in reality the introduction of calcidin into the acid stomach contents results in such chemical changes that it corresponds to giving iodin, calcium iodid and calcium chlorid, each 65 mg. (1 grain) of calcidin being equal to about 6 mg. (1/10 grain) iodin, 4 mg. (1/15 grain) calcium iodid and 50 mg. (4/5 grain) calcium chlorid.

As a comparison, the average dose of Liquor Iodi Compositus, U. S. P. (Lugol's solution) is 0.2 c.c. (3 min.), and these 3 minims contain 10 mg. (1/6 gr.) of iodin. The dose of calcidin is given as 1/3 to 2 grains, and this will contain 1/30 to 1/5 of a grain of iodin. In other words, the full dose (2 grains) of calcidin contains a little less iodin than 3 minims of Lugol's solution.

CALCIDIN TABLETS.

Having in mind past experiences, where proprietary preparations put up in different forms have differed more or less in composition, sometimes to the extent that the different forms resembled each other in name only, and also realizing the difficulty of making a mixture of lime and iodin into tablets without serious decomposition, the examination of calcidin tablets was taken up.

This examination demonstrated the fact that calcidin tablets do not have the same composition as calcidin itself, but instead are essentially tablets of calcium iodid. While 1 grain of calcidin is equal to 1/10 grain of iodin, 3 calcidin tablets, which represent 1 grain of calcidin, are equivalent to but 1/83 grain iodin. While the recommended dose of calcidin itself will contain 1/30 to 1/5 grain of iodin, the same amount given in the form of calcidin tablets is equivalent to only 1/250 to 1/40 grain iodin.

ANALYSIS OF CALCIDIN.

[1] Calcidin is a bluish black powder having the odor of iodin. Extracted with water, a clear colorless solution is obtained and a white residue remains. The residue treated with acids liberates carbon dioxid abundantly. A microscopic examination of this residue shows the presence of corn starch in large quantities. The solution, when acidulated, liberates iodin. When calcidin is charred a residue remains which is soluble in hydrochloric acid, and contains traces of iron and aluminum, large quantities of calcium and some magnesium.

Iodin.—Total iodin (*a*), 1.3933 gm. calcidin was mixed with a solution of 1 gm. potassium hydroxid in 10 c.c. water, evaporated to dryness and ignited. The residue was extracted with small portions of hot water, using in all about 75 c.c., filtered, and the filtrate collected in a separator. When cool 10 c.c. hydrochloric acid was added, followed by 10 c.c. solution of ferric chlorid U. S. P. When, after standing one-half hour, the liberated iodin was extracted with carbon disulphid and titrated with tenth-normal sodium thiosulphate V. S., 15.25 c.c. were required, indicating 0.1920 gm., or 13.78 per cent. iodin.

(*b*) 1.2079 gm. calcidin was fused with potassium hydroxid as outlined above. The residue was dissolved in water by the aid of nitric acid and the liquid filtered. In the filtrate the total halogen content was determined by precipitation with silver nitrate and calculated as silver iodid.

0.3197 gm. silver halide was obtained, equivalent to 0.1727 gm., or 14.3 per cent. iodin.

In a duplicate determination 1.2214 gm. calcidin gave .3236 gm. silver halide, equivalent to .1748 gm., or 14.31 per cent. iodin.

Average: 14.13 per cent. total iodin.

Available Iodin.—Iodin liberated on acidulation was determined as follows:

(*a*) A weighed quantity of calcidin was added to 50 c.c. water and acidulated with hydrochloric acid. The liberated iodin was then titrated with tenth-normal sodium thiosulphate V. S., using as indicator the blue color of the starch iodid present. The end point was not sharp and an excess of the thiosulphate V. S. seemed to be necessary to completely destroy the color. Varying results were obtained, averaging about 9.75 per cent. free iodin. This being unsatisfactory, the following method was finally adopted as giving the best results.

(b) 0.7838 gm. calcidin was washed by decantation with small portions of water, filtering each portion and continuing the washing until the filtrate gave no reaction with silver nitrate T. S., and the residue was white. The solution was acidulated with hydrochloric acid and the iodin set free determined with tenth-normal sodium thiosulphate V. S.; 5.73 c.c. were required, indicating .0721 gm., or 9.2 per cent. iodin.

In a duplicate determination .7049 gm. calcidin required 5.15 c.c., indicating .0648 gm., or 9.2 per cent. iodin.

Average, 9.2 per cent. available iodin.

Calcium.—(*a*). 1.3710 gm. calcidin was ignited to expel iodin and to destroy starch. The residue was dissolved in hydrochloric acid, and after removal of iron and aluminum the calcium was precipitated as calcium oxalate, and weighed as calcium oxid.

Found .5325 gm. calcium oxid, indicating 27.76 per cent. calcium (Ca).

In a duplicate, .5902 gm. calcidin gave .2295 gm. calcium oxid, indicating 27.78 per cent. calcium.

Average: 27.77 per cent. calcium.

(b) Calcium was converted into calcium sulphate by direct ignition of calcidin with sulphuric acid. 0.3497 gm. calcidin gave a residue weighing 0.3405 gm., indicating 28.67 per cent. calcium.

In this determination the traces of iron, aluminum and magnesium were weighed as calcium sulphate. For this reason the result is not considered in calculating the composition of calcidin, but is included as confirming the estimation under the first method and as demonstrating the absence of appreciable quantities of alkali metals.

Magnesium.—Magnesium was determined in the filtrate from the calcium oxalate precipitation. After evaporating to dryness and igniting to expel ammonium salts, the residue was dissolved in dilute hydrochloric acid and filtered. In this filtrate, magnesium was determined in the usual way.

1.371 gm. calcidin gave 0.016 gm. magnesium pyrophosphate, indicating .21 per cent. magnesium (Mg).

Carbon Dioxid.—Carbon dioxid was determined by the aid of Knorr's apparatus as outlined in U. S. Department of Agriculture, Bureau of Chemistry Bulletin, No. 65, p. 98. The apparatus was modified by placing between the condenser and the bulb containing the sulphuric acid a calcium chlorid tube charged with sodium sulphite. This was found necessary to absorb iodin carried over when the solution was heated to expel carbon dioxid.

1.8068 gm. calcidin gave .277 gm. CO_2, indicating 15.32 per cent. carbon dioxid.

In a duplicate, 1.9869 gm. calcidin gave .2985 gm. CO_2, indicating 14.98 per cent. carbon dioxid.

Average: 15.15 per cent. carbon dioxid.

Starch.—The starch was estimated by treating 1.1098 gm. calcidin with small portions of cold water until all iodin was removed. The lime was next removed by washing with very dilute hydrochloric acid. The insoluble residue collected on a weighed filter and dried to constant weight, weighed .1790 gm., indicating 16.13 per cent. starch.

In calculating the probable composition of the powder from the above analysis, it was assumed that the iodin, which is not liberated when dilute acid is added, is present as calcium iodid, that a part of the calcium is in combination with the carbon dioxid, and that the remaining calcium is present as calcium oxid or calcium hydroxid.

The presence of such a large per cent. of carbon dioxid would seem to indicate that the lime had been decomposed by exposure to air or otherwise. Therefore, the calcium not present as calcium carbonate or iodid is probably present as calcium hydroxid. Following the usual custom, it is calculated to calcium oxid, however, as is also the magnesium. The water present as water of hydration and also that normally contained in the starch is reported as "difference."

The analysis shows that the specimen of calcidin contained:

	Per cent.
Iodin (I)	14.13
Calcium (Ca)	27.77
Corn starch (anhydrous)	16.13
Magnesium (Mg)	.21
Iron and aluminum	Traces
Carbon dioxid (CO_2)	15.15

The analysis shows that the attempt to produce calcidin tablets was a failure because of the tendency of iodin to react with bases to form iodates and the tendency of the iodates to decompose with formation of iodids, which facts are well known to chemists.

The details of the analysis are given below:

COMMENTS.

Two points are especially worthy of emphasis in the above report by the Association chemists. The first is the old, old story so common in the history of nostrums and "patent medicines," of discrepancies between the extravagant, unscientific and absurd claims made by the manufacturers or promoters and the actual facts as revealed by a scientific examination. Inspection of the advertising matter for calcidin shows that its promoters make the following statements regarding it:

> Calcium Iodized, Calcidin (Abbott) is an entirely unique substance, being neither a true chemical compound, nor a simple mixture of its ingredients. Briefly, it is calcium carrying an excess of freely available iodin.

In a circular discussing the nature of the product is this statement:

> It is a new compound of iodin and calcium easily broken up when in contact with acids and of remarkable therapeutic value.

Another advertisement states:

> Calcidin, Abbott (Calx Iodata) is a unique product. It consists of lime unchanged or modified except by hydration, bearing a definite percentage of available iodin. There is no essential chemical union between the two, neither is it a mere mechanical mixture of calcium and iodin, but by a peculiar [?] process (which is stopped at precisely the right moment [sic]) the lime becomes a carrier for the iodin, which is liberated when the substance is brought in contact with acids in the digestive tract.

It is also claimed that calcidin produces "therapeutic effects entirely different from those obtained from iodin in any other form;" that it is "the most effective and only non-injurious preparation of iodin for internal use," and that it possesses all of the valuable properties of iodin with all of the objectionable effects left out.

This enthusiastic eulogy of the preparation closes with the following climax:

> If it is a case in which iodin (divested of all its objectionable features) would be "the remedy of choice" use calcidin and rest assured the result will be satisfactory.

Certainly a preparation possessing such startling and epoch-making qualities is worthy of careful investigation.

It is somewhat disappointing, after having our expectations brought up to such a point, to be informed that calcidin is simply a mixture of iodin, lime and corn starch, and that the results of its administration are exactly similar to those obtained when giving an equal amount of ordinary iodin, calcium iodid and calcium chlorid. Had the promoters of this preparation advertised their product as a convenient method of administering a certain amount of these three chemicals, there would have been no ground for criticism. It is a different matter, however, to make extravagant and ridiculous claims of unique and unequaled therapeutic properties, which are not, in any sense, borne out by the facts in the case.

One other point worthy of emphasis in this connection is that, according to the advertisements of calcidin, the great advantage presented by the use of calcidin tablets is that they contain "free iodin." Calcidin and calcidin tablets are supposed to be practically the same thing, but, as is so often the case in proprietary preparations, the statements made by the manufacturers are not borne out by the chemical analysis. Calcidin tablets are said to contain 1/3 of a grain of calcidin and hence should contain 1/30 of a grain of "free iodin" per tablet. As a matter of fact each tablet contains only 1/250 of a grain of "free iodin," an amount so small as to be of no practical value, the remaining iodin being in the form of calcium iodid, *a substance condemned by the manufacturers of calcidin as practically inert.* The advertising matter specially emphasizes the statement that "free iodin" alone is of value and that iodids are practically useless. Such being the case, it is unfortunate that calcidin tablets contain practically no "free iodin" at all and that all of the iodin present is in the form of iodids. In other words, the preparation does not contain the form of iodin which it is claimed to contain, and does contain the form of iodin which the promoters insist is of little value.

The practical lesson to be drawn from the above report is that any manufacturer who makes extravagant claims, or any product which is advertised by means of statements of marvelous methods of manufacture, unique properties, unheard-of chemical contents and the like, is to be viewed with suspicion. Calm statements of scientific and chemical facts are one thing and circus poster methods of advertising are quite another.

ANALYSIS OF CALCIDIN TABLETS.

2. A one-ounce package of 1/3 grain calcidin tablets was purchased in the open market and the available and total iodin content of the tablets determined.

"Available" Iodin.—The method of estimating available iodin adopted in the analysis of calcidin did not work because of difficulty in filtration, and method (*a*) was used. Fifty tablets were triturated with water, the mixture was acidulated with hydrochloric acid and the liberated iodin determined with sodium thiosulphate. The end point was not sharp, but less than 1 c.c. of tenth-normal sodium thiosulphate V. S. was consumed, equivalent to .01259 gm. iodin; hence each tablet contains not more than .00025 gm. (1/250 grain) "available" iodin.

Total Iodin.—(*a*) Fifty tablets were fused with potassium hydroxid. The residue, treated as outlined for the estimation of total iodin in calcidin, required 12.2 c.c. tenth-normal sodium thiosulphate. V. S., indicating .1536 gm. iodin, or .0030 gm. iodin per tablet.

(*b*) Fifty tablets were mixed with 2 gm. potassium hydroxid and 5 c.c water, evaporated to dryness and ignited. In this residue the total halogen content was determined gravimetrically, as outlined under calcidin .2857 gm. silver halide was obtained, indicating 1544 gm. iodin or .0031 gm per tablet.

In a duplicate determination, 50 tablets gave .2764 gm. silver halide, indicating .1493 gm. iodin, or .0031 gm. per tablet.

Since each tablet contains 0030 gm. total iodin (average of the three estimations), and liberates on acidulation 00025 gm. iodin, the difference 00275 gm. iodin, is probably present combined with calcium as iodid This indicates about 0.0031 gm. (1/18 grain) calcium iodid per tablet.

Correspondence

Family Records—A Plea for the Systematic Preservation of Exact Data—Answers Desired.

1504 Pine Street, Philadelphia, Aug. 23, 1907.

To the Editor:—Historians are constantly hindered in their search for truth by the absence of exact records, especially as to the lives of individuals. Nowhere are these kept with completeness and exactitude. Even the courts of law, the county and municipal authorities, make only partial provision for the future in this particular. Even at the present enlightened time recourse is constantly had to the "family Bible," in which the custom prevails to place some account of births and deaths, which gives, at best, only names and ages, with possibly some fragmentary comments on acts. Clergymen do sometimes keep books containing registrations of marriages, births and baptisms, rendering a meager and irregular assistance.

Old-time physicians were accustomed likewise to take account of some such data, also the more careful ones kept notes of illnesses. Not all physicians, even now, take careful notes of cases, or only the, to them, more important ones. All this may be of use when preserved; they too often are lost or destroyed, but at best are manifestly inadequate to make history or settle disputes as to property or other legal issues.

I venture to assert that we physicians would make ourselves a vastly greater power for good, enhance our potentiality in the community, if we should do our duty by contributing systematically to the exactitude of records. At the same time, our duty to our patients would be better discharged and we should earn gratitude even long after we are dead.

I here offer a plan suggested long ago:

To solve clinical problems successfully the physician must possess ample facts of two kinds, present and past. He must ascertain the status of his patient, both to-day and previously. Unless a fair knowledge be acquired of antecedent conditions, the elucidation of the immediate problem can be only imperfect. To minimize the gravity of the earlier history is to fall into errors and invite blame. The public is quick to criticise our sins, not only of commission, but especially of omission. They demand, naturally, that we shall be able to tell them correctly what is amiss now; also we are constantly forced to prophesy, and a future is dark without adequate light from antecedent facts, however much skill we may possess in interpreting the phenomena of Nature and her complex derangements. Some physicians may have the gift of divination, but so rare is this that the only safe course is to be armed by all attainable, all relevant, incidents. Then and then only, can we draw rational inferences or make exact deductions.

In the conduct of any large business one of the primary requisites is a knowledge of all obtainable collateral facts. No business man will blame an employé for errors committed if the cause is clearly absence of information essential to the understanding of the problem. In every well-regulated business office it is customary to devote a large part of the office force to the securing, sifting, systematizing of facts, direct and indirect, and placing them ready to hand. Success is recognized to follow in proportion as this data is adequate, and wisdom is exhibited in its prompt utilization. The laity criticise us sharply and justly for our lack of consistency in views on related subjects, diversities in belief as to causes, phenomena, progress of human derangements; above all, for seeming contrariness in selection of remedies, and guesswork as to finalities.

Yet it is by no means all our fault that medicine can still be termed inexact. Despite centuries of effort, we still lack many fundamental facts. The public should be made to know that research workers in medicine are estimated by experts in other scientific lines to have contributed more to the sum total of human knowledge than the aggregate of all the other exact sciences.

The chief obstacle in solving clinical problems lies in the absence of adequate case histories.

To remedy this, I would propose the very general employment of family case-history books. These should be simple yet complete in their arrangement, with clear, exact directions for use by parents, physicians and others. Physicians should be able to buy them cheaply in quantity and supply them to all the families they attend gratis, or for a small sum. If this were done, or wherever done, there would be at least a more or less satisfactory record kept of happenings, peculiarities, data on growth, development (mental and physical), accounts of ailments, illnesses, in sequence. When the medical attendant is confronted by the problem of an ailment he would be able, by consulting this record, to obtain invaluable light on many otherwise obscure points. To depend on the memory of parents, or the records of other physicians, is far from satisfactory. It would not be long before all intelligent people would adopt the custom. The records would thus be entirely private. When a family transfers its confidence from one physician to another, it is often most difficult to secure cordial cooperation and comparison of notes. Whenever a specialist is needed he may desire information of a sort not to be had at all. Such a family record could be so devised, by the help of specialists in different lines, as to supply much thus required.

In the taking of histories of children the burden will fall naturally on the mother or other near relatives. It can be best done coincident with the occurrence of notable circumstances, but is most feasible while the facts are fresh in the memory. Invaluable records have been made by parents which furnish data for child-study, comparative psychology, developmental stages, and many similar researches.

The family physician is the one whose duty it is to oversee the members of a family whenever, in his judgment, there is necessity, to watch growth, to confer on subjects consonant with his official connection. Whenever he visits the family and makes observations, the book should be submitted to him to make notes.

During severe or protracted illness, when a trained nurse is employed, the records should be kept in this book. In the interest of exactitude, there should be certain pages of blank anatomic diagrams, such as are used in hospitals and by careful clinicians, on which can be marked the site of lesions of chest, of heart, or other parts.

Details of form and character need not be given here. I consulted a publisher as to the wisdom of issuing some such systematic inexpensive case-record book. He is of the opinion that "it might not pay." My purpose is to beg an expression of opinion from as many as possible and then to form practical conclusions. Would not such data prove of high value to physician, families and perhaps even to historians as well as lawyers? Postal card replies will suffice.

J. Madison Taylor.

Milk Supervision and Certification by County Societies.

Jackson, Mich., Aug. 28, 1907.

To the Editor:—Enclosed find our scheme for obtaining pure milk, which is self-explanatory. As you will notice, our plan is somewhat different from the usual one of certifying the product from only one dairy. Any dairyman who will comply with our rules and furnish a product meeting standard requirements as to bacterial content and food elements may have our certification. The scheme has already secured good results.

C. G. Parnall.

[The work to which Dr. Parnall calls attention is being done through a committee appointed by the Jackson County (Mich.) Medical Society. A circular and a card of application for certification are sent to the dairymen. The former embodies the most important recommendations and measures for producing clean milk, requiring the dairyman to agree to inspection by the committee and to abide by its rules and regulations. Any case of communicable disease occurring in the household of any person engaged in handling the milk or milk utensils must be reported at once to the committee. The rules also require cleanliness of the cows and stables; the latter are to be whitewashed at least once a year. The water supply must be uncontaminated and a separate, clean milk house provided, which must be used for no other purpose. The milkers must not have any communicable disease, must wash their hands before each milking, and the utensils must be kept scrupulously clean. The milk from diseased cows must not be shipped; the milk must be strained in the milk house only; it must be cooled below 55 degrees, and no preservative, coloring or other adulteration is to be permitted. Then follow the detailed recommendations of the health department of New York City as suggestions. These suggestions treat the subject of production of clean milk with considerable detail and must certainly be of great value to dairymen who wish to improve the quality of their milk to meet the demands of sanitary science. The application card binds the dairyman to permit inspection and the taking of reasonable samples and to abide by the rules of the committee. This work is excellent and ought to be imitated by many other county societies. It is such an enterprise as this that compels recognition by the public.]

Miscellany

Arabian Contributions to Medicine.—In a letter to the *Boston Medical and Surgical Journal*, Dr. E. T. Williams, Roxbury, Mass., refers to Dr. Osler's recent statement that the physicians of the Arabian school made no solid contributions to anatomy or physiology, and says that while this is undoubtedly true, yet the Arabians made valuable contributions to science. Geber, in the eighth century, discovered arsenious acid and corrosive sublimate. Albucasis, in the twelfth century, discovered alcohol and the art of distillation. Alhazan of Cairo, in the eleventh century, wrote a valuable treatise on optics and described the properties of lenses. Rhazes of Bagdad, in the tenth century, gave the first accurate description of smallpox; Avicenna, in the eleventh century, described malignant pustule, and Avenzoar of Seville, in the twelfth century, gave a description of the itch. We owe to the Arabians the methodical use of opium as a remedy, which, though used by Dioscorides and some of the Grecians to a certain extent, was apparently unknown to the Galenists. They also used mercury, which was first made known to the Europeans as a medicine by the Moors and Saracens, was adopted by Guy de Chauliac and Paracelsus and formed the chief ingredient of the prescription sold by Barbarossa, the corsair of Mitylene, to Francis I to cure his pocks. We can not, says Dr. Williams, date a letter without the Arabic numerals, or compound a salt solution without an "alkali," a purely Arabic word. Altogether, he declares, we owe a good deal to the Arabians, which we ought not wholly to forget.

Tuberculous Glands in the Neck.—J. Eddy Blake, Brooklyn, in the *Long Island Medical Journal*, emphasizes the following points: Tuberculosis is tuberculosis, no matter where found or under what conditions. Tuberculous glands in the neck are simply one form of tuberculosis, and are apt to be followed by, if they are not complicated with, other forms of the disease. The occurrence of tuberculous glands in a patient marks that patient as particularly liable to tuberculosis in any form, and the treatment of tuberculous glands in the neck is the treatment of incipient tuberculosis, plus the treatment of the local condition.

The Pathologist.—The man who specializes in clinical pathology should not merely be allowed, but encouraged and urged, to care, personally, besides his regular work, for as many patients as he has time for. Otherwise his specialty needlessly stoops his shoulders and narrows his intellectual vision; sets him, in Carlyle's droll words, to "nosing in every cranny and dog-hole" of science instead of keeping on the main road.—William N. Berkeley, M.D., in the *Long Island Medical Jouranl.*

Clinical Pathology—Its Value.—For many years to come clinical pathology, while it will offer aid—often valuable, sometimes invaluable—in the work, will not contrive to bring medical diagnosis out of the problematical and into the mathematical sphere.—William N. Berkeley, M.D., in the *Long Island Medical Journal.*

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Aug. 31, 1907:

Reynolds, F. P., surg., leave of absence extended fourteen days.

Fisher, H. C., surg., granted thirty days' leave of absence.

Phalen, J. M., asst.-surg., granted fifteen days' leave of absence.

Billingslea, C. C., asst.-surg., granted twenty-five days' leave of absence.

Fisher, H. C., surg., in addition to his other duties at Fort Logan, Colo., will report to the commanding general, dept. of Colorado, Denver, for temporary duty as chief surgeon.

Craig, E. J., dental surg., granted leave of absence from the Philippines division for one month, with permission to visit the United States.

Lincoln, H. F., cont. surg., reported at Fort Robinson, Neb., for temporary duty.

Wiggin, D. C., cont. surg., reports at Fort Levett, Me., for duty.

Chase, A. M., cont. surg., relieved from duty at Fort Reno, Okla., and will proceed to Fort Sam Houston, Tex., for duty.

Dade, W. H., cont. surg., leave of absence extended six days.

Casaday, G. H., dental surg., returned to duty at Army General Hospital, Presidio of San Francisco, from leave of absence.

Phelan, H. du R., cont. surg., returned to duty at Fort Baker, Cal., from leave of absence.

Dillon, G. P., cont. surg., granted leave of absence for three months, to take effect on or about Oct. 1, 1907.

Archer, W. M., jr., cont. surg., will proceed from Washington, D. C., to Fort Sam Houston, Texas, for duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Aug. 31, 1907:

Dorsey, B. H., asst.-surg., detached from duty at the navy recruiting station, Des Moines, Iowa, and ordered to Washington, D. C., September 3, for examination for promotion, then to wait orders.

Oman, C. M., passed asst.-surg., detached from the *Arkansas* and ordered to the *Illinois,* September 9.

DeLancy, C. H., passed asst.-surg., detached from the *Florida* and ordered to the navy yard, New York.

Vickery, E. A., asst.-surg., detached from the *Illinois* and ordered to the navy yard, Boston.

Martin, J. C., pharmacist, detached from the naval dispensary, Washington D. C., and ordered to the U. S. Naval Medical School Hospital, Washington, D. C.

Schetky, L. O., pharmacist, detached from the naval hospital, Norfolk, Va., and ordered to the naval hospital, Washington, D. C.

Reynolds, C. E., pharmacist, detached from the naval medical school hospital, Washington, D. C., and ordered to the bureau of medicine and surgery, Navy Department.

Jones, A. M., acting asst.-surg., sick leave revoked; ordered to the naval recruiting station, Des Moines, Iowa.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Aug. 28, 1907:

Kerr, J. W., assts.-surgeon general, on the expiration of his present leave, directed to proceed to Cincinnati and Cleveland, Ohio; Syracuse, Elmira, Rochester and New York, N. Y.; Newark, N. J., and Philadelphia, for special temporary duty, on completion of which to rejoin his station in Washington, D. C.

Kalloch, P. C., surgeon, granted leave of absence for thirty days from Sept. 10, 1907.

McIntosh, W. P., surgeon, directed to assume temporary charge of the service at Portland, Maine, Quarantine, during the absence, on leave, of Surgeon P. C. Kalloch.

Smith, A. C., surgeon, directed to proceed to Boston, reporting to Captain K. W. Perry for temporary duty aboard the revenue-cutter *Gresham,* on completion of which to rejoin his station in Pittsburg, Pa.

Nydegger, J. A., passed assist.-surg., granted leave of absence for one month and seven days from Sept. 10, 1907.

Cumming, H. S., passed assist.-surg., granted leave of absence for one month from Oct. 1, 1907.

Foster, M. H., passed assts.-surg., granted leave of absence for two months and eleven days from Oct. 9, 1907.

Ramus, Carl, passed asst.-surg., granted leave of absence for seven days from Aug. 7, 1907, under paragraph 191, Service Regulations.

Stansfield, H. A., passed asst.-surg., leave of absence granted Passed Assistant Surgeon Stansfield for three months from July 12, 1907, amended to read for one month and eight days from July 12, 1907.

Holt, John M., passed asst.-surg., granted twenty-three days' extension of annual leave from Sept. 7, 1907.

Stimson, A. M., passed asst.-surg., granted leave of absence for three weeks from Sept. 3, 1907.

Foster, A. L., asst.-surg., relieved from duty at Naples, Italy, on the return of Passed Assistant Surgeon A. J. McLaughlin, and directed to proceed to New York City.

Collins, G. L., asst.-surg., granted leave of absence for one day, Aug. 27, 1907.

Guthrie, M. C., asst.-surg., granted leave of absence for thirty days from Sept. 5, 1907.

Stiles, Ch. W., Chief Division of Zoölogy, Hygienic Laboratory, granted leave of absence for nine days—four days from August 14 and five days from Aug. 26, 1907.

Porter, J. Y., sanitary inspector, directed to make inspections of quarantine stations of the service in the state of Florida when necessary.

Friedman, H. M., acting asst.-surg., transferred from Philadelphia to Ellis Island, N. Y., to take effect Aug. 24, 1907.

Gustetter, A. L., acting asst.-surg., leave of absence granted Acting Assistant Surgeon Gustetter amended to read from Aug. 24, 1907, instead of Sept. 1, 1907.

Mason, William C., acting asst.-surg., granted leave of absence for five days from Sept. 16, 1907.

Riemer, H. B. C., acting asst.-surg., granted leave of absence for fourteen days from Aug 17, 1907.

Schwartz, Louis, acting asst.-surg., transferred from Ellis Island, N. Y., to Philadelphia, effective Aug. 24, 1907.

Tuttle, Jay, acting asst.-surg., granted leave of absence for fourteen days from Aug. 15, 1907.

Weldon, William A., acting asst.-surg., granted leave of absence for one month from Sept. 10, 1907.

Gahn, Henry, pharmacist, granted leave of absence for ten days from Aug. 19, 1907.

BOARDS CONVENED.

Under date of Aug. 26, 1907, boards of medical officers were convened as follows, for the purpose of conducting medical examinations of candidates for appointment as cadets in the Revenue-Cutter Service:

At Galveston, Texas.—Passed Assistant Surgeon G. M. Corput, Chairman, and Acting Assistant Surgeon Wm. H. Gammon, Recorder.

At Washington, D. C.—Assistant Surgeon-General J. M. Eager, Chairman, and Passed Assistant Surgeon J. W. Trask, Recorder.

At Detroit.—Surgeon Fairfax Irwin, Chairman, and Assistant Surgeon E. R. Marshall, Recorder.

At Baltimore.—Surgeon L. L. Williams, Chairman, and Passed Assistant Surgeon J. T. Burkhalter, Recorder.

At Stapleton, N. Y.—Passed Assistant Surgeon H. W. Wickes, Chairman, and Assistant Surgeon R. B. Scofield, Recorder.

At Boston.—Surgeon R. M. Woodward, Chairman, and Assistant Surgeon T. W. Salmon, Recorder.

At Chicago.—Surgeon G. B. Young, Chairman, and Passed Assistant Surgeon B. S. Warren, Recorder.

At Portland, Me.—Surgeon W. P. McIntosh, Chairman, and Acting Assistant Surgeon A. F. Stuart, Recorder.

At San Francisco.—Surgeon H. W. Austin, Chairman, and Passed Assistant Surgeon J. D. Long, Recorder.

At Philadelphia.—Surgeon J. M. Gassaway, Chairman, and Acting Assistant Surgeon Louis Schwartz, Recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 30, 1907:

SMALLPOX—UNITED STATES.

California: San Francisco, August 11-17, 4 cases.
Kansas: Kansas City, August 11-17, 1 case.
Massachusetts: South Groveland, July 1-August 17, 20 cases.
Michigan: Detroit, August 11-17, 1 case.
Nebraska: Lincoln, April 1-July 31, 95 cases.
New York: Buffalo, August 11-17, 1 case.
North Carolina: General, June 1-30, 62 cases; Greensboro, August 11-17, 1 case.
Ohio: Columbus, June 1-30, 3 cases.
South Dakota: Sioux Falls, August 11-17, 1 case.
Texas: San Antonio, August 11-17, 1 case.
Vermont: West Berlin, April 26-August 20, 43 cases.
Washington: Seattle, July 1-31, 17 cases; Spokane, August 11-17, 1 case; Tacoma, August 11-17, 1 case.

SMALLPOX—FOREIGN.

Austria: Trieste, August 3-9, 1 case; Vienna, July 28-August 3, 2 cases.
Brazil: Bahia, July 14-27, 11 cases; Rio de Janeiro, July 12-28, 4 cases, 2 deaths; Santos, June 1-30, 1 case, 1 death.

Canada: Halifax, August 11-17, 1 case.

China: Cheefoo, July 14-27, 2 cases (case July 20 from S. S. *Pennsylvania*); Shanghai, July 14-27, 2 cases, 60 deaths, cases foreigners; deaths natives.

Germany: General, July 21-27, 2 cases.

India: Calcutta, July 7-13, 2 deaths.

Italy: General, August 2-8, 7 cases; Genoa, June 1-30, 6 cases; Naples, August 10, 1 case, 1 death.

Madeira: Funchal, June 29-August 11, 20 cases, 8 deaths.

Manchuria: Dalny, July 7-14, 4 cases.

Mexico: Aguas Calientes, August 6-17, 10 cases.

Portugal: Lisbon, July 28-August 3, 6 cases.

Russia: Riga, July 28-August 3, 2 cases; St. Petersburg, July 21-27, 1 case; Warsaw, July 1-27, 5 deaths.

Spain: Almeira, July 1-31, 8 deaths; Barcelona, August 1-10, 4 deaths; Cadiz, July 1-31, 5 deaths; Seville, July 1-31, 4 deaths, Valencia, July 21-27, 4 deaths.

Straits Settlements: Penang, July 7-13, 1 case, 1 death.

Turkey in Europe: Constantinople, July 28-August 4, 2 cases.

Turkey in Asia: Damascus, July 6-13, present; Bagdad, July 7-13, present; Bassorah, July 14-20, present.

West Indies: Barbados—Bridgetown, August 2-10, 1 case.

CHOLERA.

China: Amoy-Kulangsu, native city, June 30-July 6, 8 deaths daily, estimated; Tientsin, August 15, epidemic.

India: Bombay, July 17-23, 3 deaths; Calcutta, July 7-13, 26 deaths; Rangoon, July 7-13, 1 death.

Japan: Moji, August 20, 26 cases.

Philippine Islands: Manila, July 14-20, 2 cases, 2 deaths.

Russia: Samara, Government District, July 16-August 4, 35 cases, 10 deaths.

YELLOW FEVER.

Brazil: Manaos, July 21-27, 4 deaths.

Cuba: Alacranes, Matanzas Province, August 26, 1 case.

West Indies: Trinidad, Port of Spain, August 4-10, 1 case, 1 death (on S. S. *Atrato*, from Trinidad).

PLAGUE—UNITED STATES.

California: San Francisco, August 28-29, 3 cases, 1 death.

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro, July 14-28, 3 cases, 2 deaths.

China: Amoy-Kulangsu, native city, June 30-July 6, 10 deaths daily, estimated.

Hawaii: Honolulu, July 22-24, 3 cases, 2 deaths (previously reported with case which proved not to be plague).

India: General, July 6-13, 6,812 cases, 4,492 deaths; Bombay, July 17-23, 3 deaths; Calcutta, July 7-13, 18 deaths.

Japan: Formosa, June 30-July 27, 171 cases, 158 deaths.

Marriages

A. Drozdowitz, M.D., to Miss Hattye Krulewich, both of Chicago, August 29.

Carl August Palm, M.D., to Miss Lena Uebel, both of Kenosha, Wis., August 22.

Hugh Doudna, M.D., to Miss Ethel Cavanaugh, both of Lake City, Mich., August 21.

J. M. Ehlert, M.D., Dutchtown, La., to Miss Myra Holmes of New Orleans, July 20.

Paul Riche, M.D., to Miss Bessie Adeline Komarow, both of New York City, August 4.

Chauncey G. Wright, M.D., St. Louis, to Miss Alice B. Lay of Oberlin, Ohio, August 14.

Emanuel Ely Shelly, M.D., to Miss Ida Olive Brubaker, both of Freeport, Ill., August 20.

George A. O'Connell, M.D., Mobile, Ala., to Miss Lollie Gilreath of Birmingham, Ala., August 27.

Barnet P. Wilson, M.D., Rockville, Md., to Miss Annie Royall Owen, at Lynchburg, Va., August 22.

Charles Joseph Diss, M.D., Ilion, N. Y., to Miss Constance Fannie Barker of Sidney, N. Y., August 22.

David Moury, M.D., to Mrs. Leota M. Roebuck, both of Bellefontaine, Ohio, in Toledo, August 22.

Harry H. Everett, M.D., to Miss Martha Blanche Hargreaves both of Lincoln, Neb., August 20.

Willis W. Waite, M.D., Syracuse, N. Y., to Miss Lillian Adelle Cook of Lake Mills, Wis., August 19.

R. Tait McKenzie, M.D., Philadelphia, to Miss Ethel O'Neil of Hamilton, Ont., in Dublin, Ireland, August 19.

Fred L. Bates, M.D., Lima, Ohio, to Miss Bessie Bonnewitz of Van Wert, Ohio, at Covington, Ky., August 23.

Francis Edward DeLong, M.D., Philadelphia, to Miss Emma J. Stoflel of Economy, Pa., in Pittsburg, August 22.

William H. Doolittle, M.D., Woodstock, Ill., to Miss Mary J. McNair of Winnebago, Ill., in Chicago, August 15.

Ralph T. Belsinger, M.D., Lancaster, Pa., to Miss Rae M. Howard of Philadelphia, in New York City, recently.

John Andrew, Jr., M.D., Longmont, Colo., to Miss Grace T. Schnur of Newton, at Blessing Hospital, Quincy, Ill., August 21.

Deaths

Horace Granville Leslie, M.D. University of Vermont, College of Medicine, Burlington, 1868; a member of the American Medical Association; once president of the Essex North District branch of the Massachusetts Medical Society; surgeon of the First Tennessee Volunteer Infantry during the Civil War, and since that time a prominent practitioner of Amesbury, Mass.; in 1890 and 1891 representative in the legislature from Amesbury; for several years a member of the local school board, died at his home, August 22, after a long illness, aged 65.

Charles Follen Folsom, M.D. Medical School of Harvard University, Boston, 1870; of Boston, Mass.; a member of the American Medical Association; from 1874 to 1882 secretary of the State Board of Health; in 1879 secretary of the State Board of Lunacy and Charity; for many years one of the physicians to the Boston City Hospital; who on the resignation of Dr. Henry I. Bowditch, was made a member of the National Board of Health, died in New York City, after a short illness, August 20.

John H. Banta, M.D. Bellevue Hospital Medical College, New York City, 1879; a member of the Medical Society of New Jersey and the Passaic County Medical Society; a member of the Paterson (N. J.) Board of Health; died at his home in that city, August 20, from pleurisy following the fracture of two ribs in a fall about two months before, aged 54.

Miles Henry Nash, M.D. Jefferson Medical College, Philadelphia, 1855; surgeon in the Confederate service throughout the Civil War; for 28 years attending physician and house physician of Demilt Dispensary, New York City, and thereafter physician emeritus to the institution, died in Richfield Park, N. J., August 13, after an illness of several months, aged 74.

John J. Thometz, M.D. Rush Medical College, Chicago, 1882; a member of the American Medical Association and of the Chicago Pathological Society; attending physician at the Hospital of St. Anthony of Padua and St. Elizabeth's Hospital, Chicago; who had suffered for a long time from rheumatism, died suddenly at his home from endocarditis, August 7, aged 47.

Charles B. Tucker, M.D. Eclectic Medical College of the City of New York, 1865; a member of the hospital corps of the Army during the Civil War, and for many years a practitioner of Brooklyn, N. Y., died in the Fordham Hospital for Incurables, August 26, from acute ascending paralysis, after an illness of a year and a half, aged 67.

John Leander Hughes, M.D. University of Georgia, Medical Department, Augusta, 1851; a member of the Medical Association of the State of Alabama and Calhoun County Medical Society; said to have been the oldest practitioner of that section of the state, died at his home in Piedmont, August 22, after a short illness, aged 80.

John Elliott Miller, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1860; surgeon of the Fifty-seventh Pennsylvania Volunteer Infantry during the Civil War; for many years a practitioner of Hagerstown, Md., died suddenly at his home in that city, from heart disease, August 25, aged 70.

Martin L. James, M.D. Jefferson Medical College, Philadelphia, 1852; formerly professor of practice of medicine in the Medical College of Virginia, Richmond, and dean of that institution; a member of the Virginia Medical Society and of the Richmond Academy of Medicine, died at Mobjack, Va., January 13.

Alonzo Boone, M.D. Miami Medical College, Cincinnati, 1878; a member of the American Medical Association, died at his home in Englewood, Ohio, August 27, from the effects of gunshot wounds said to have been self-inflicted, while despondent on account of the death of his wife, aged 65.

John M. Brice, M.D. Medical College of the State of South Carolina, Charleston, 1890; a member of the South Carolina Medical Association and Chester County Medical Society, died at his home in Chester, August 20, from typhoid fever, after an illness of six weeks, aged 39.

William R. Edgar, M.D. Detroit College of Medicine, 1881; for a number of years a practitioner of Lyons, Ohio, and at one time a representative in the legislature of Michigan, died at his home in Toledo, August 14, after a long period of invalidism, aged 47.

William M. Rymer, for many years a practitioner of Harrisville, W. Va.; a member of the Little Kanawha and Ohio Valley medical societies and of the Ohio State Medical Association, died suddenly from heart disease, at his home, February 2, aged 75.

Charles W. Sly, M.D. Beaumont Hospital Medical College, St. Louis, 1892; Physio-Medical Institute, Chicago, 1888; a member of the Illinois State and Woodford County medical societies, died suddenly at his home in Benson, Ill., August 16, from heart disease, aged 44.

Carodon Leroy Swartz, M.D. Northwestern Medical College, St. Joseph, Mo., 1891; a member of the Missouri State Medical Association and Andrew County Medical Society; formerly of Rosendale, Mo., died at his home in Arkoe, Mo., August 7, aged 55.

Fred McOmber (Examination, Mich., 1899); a veteran of the Civil War; for ten years postmaster of Berrien Springs, Mich., and for a number of years an editor of that city, died suddenly at his home, August 19, from angina pectoris, aged 61.

John B. Hill, M.D. Medical Department, University of Nashville, Tenn., 1854; one of the oldest practitioners of Davidson County, Tenn., died at his home near Nashville, August 13, from pleuro-pneumonia, after an illness of one week, aged 73.

J. H. Crafford, M.D. Medical College of Virginia, Richmond, 1874; of Lee Hall, Warwick County, Va.; at one time a member of the state legislature, died at Sarah Buxton Hospital, Newport News, Va., August 21, after a brief illness.

Arthur Conrad, M.D. Missouri Medical College, St. Louis, 1880; formerly an officer in the German army; a practitioner of Crete, Neb., for more than 25 years, died at his home, August 19, after an illness of several months.

Julian G. Smith, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1857; for more than 30 years a practitioner of Salamanca, N, Y., died at his home in that city, August 20, after a long illness, aged 62.

J. A. Sadler, M.D. University of Tennessee, Medical Department, Nashville, 1859; for about 40 years a practitioner of Sherman, Texas, died at his home in that city, August 21, after an illness of about one year, aged 75.

Carter Wade, M.D. University of Virginia, Department of Medicine, Charlottesville, 1882; for several years coroner of Lynchburg, Va., is reported to have been killed in a railway accident at Wakefield, Mich., August 13.

Adolph Hess, M.D. Jefferson Medical College, Philadelphia, 1893; a well-known Jewish practitioner of Milwaukee, and a leader in the Zionist movement, died at his home, August 20, after an illness of two weeks, aged 42.

Joseph T. Pace, M.D. Ohio Medical University, Columbus, 1878; died at his home in Carlyle, Ill., August 17, after a lingering illness, from injuries received two years before in a fall down an elevator shaft, aged 62.

James Madison Solomon, M.D. College of Physicians and Surgeons in the City of New York, 1872; of Brookline, Mass., died at his summer home in Hull Hill, Mass., August 21, after an illness of five months, aged 54.

Charles H. King, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; of Redondo, Cal., died at the Orthopedic and General Hospital, Los Angeles, August 17, from paralysis, after a long illness.

Hiram W. Carter, M.D. Cleveland University of Medicine and Surgery, 1869; died at his home in Cuyahoga Falls, Ohio, August 25, from chronic prostatitis, after an illness of eighteen months, aged 66.

Raleigh Robert Parcher, M.D. Cleveland Homeopathic Medical College, 1904; died at his home in Defiance, Ohio, August 21, from nephritis, after an illness of six months, aged 29.

Marcus A. Wheelock, M.D. St. Louis Eclectic Medical College, 1882; a veteran of the Mexican War, died at his home in Salt Lake City, August 24, after a prolonged illness, aged 84.

Philip B. Cook, M.D. Miami Medical College, Cincinnati, 1867; a veteran of the Civil War and for 22 years a practitioner of Leraysville, Pa., died at his home, August 13.

Ferdinand Hilbert, M.D. University of Minnesota College of Medicine and Surgery, Minneapolis, 1892; of Albany, Minn., died at his home in that place in March, aged 45.

Samuel Fisher, M.D. College of Physicians and Surgeons, Boston, 1903; a colored practitioner of Norfolk, Va., died at his home in that city, August 19, aged 31.

Hugo L. Patterson, M.D. Medical Department, University of Nashville, Tenn., 1869; died at his home near Elkton, Tenn., July 27.

William H. Bentley (Years of Practice, Ill., 1877); a Confederate veteran, died at his home in Marion, Ill., August 22.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

Medical Society Postgraduate Work.

In our day every physician of enterprise and progressiveness recognizes the necessity for keeping in touch with medical advance and realizes that for this purpose he needs not only to keep abreast of the reports of medical discoveries in the literature, but also needs, at least at intervals, to come in contact with medical teachers and investigators. The difficulty, of course, is for the busy practitioner to spare the time from his practice, as he must not only consider the actual cost of residence in a large city while his income is reduced to nothing, but must also count on the possibility of losing some of his patients, who consult other physicians in the meantime. The possibility, therefore, of having postgraduate work in connection with the local medical society has suggested itself and has been applied in various places. When properly organized the success of this movement has been marked. Small beginnings often give so much satisfaction that the movement develops in such a way as to lead to the organization of promising postgraduate work.

A typical example of how much can be accomplished by the medical society of a city with a population of scarcely more than 100,000 is to be found in the work of the Scranton (Pa.) Clinical and Pathological Society, which, by admirable organization, though without very much effort, has succeeded in bringing a considerable amount of postgraduate instruction to the physicians of the district, to the eminent satisfaction of its members, yet without entailing any serious sacrifices on them. The movement began about a year and a half ago, when the society invited a well-known New York specialist in nervous diseases to deliver a series of lectures, on successive Saturday evenings of the late spring months, when practice is likely to be less exacting. The society offered to pay him a moderate consultation fee for his journeys and lectures and declared that they would greatly appreciate whatever might be done for them in this line. A special fee of $20 was charged for the course of twenty lectures and altogether over twenty men attended. The lectures were mainly clinical, though sufficient didactic instruction was given to enable even the ordinary practitioner to acquire a working knowledge of diagnostic methods in nervous diseases and to give him hints as to recent advances.

All who participated in this course were so pleased with its practical nature and the benefits derived from it that a double course in clinical medicine relating to heart and pulmonary diseases and the kidneys was planned for the next year and was carried out with, if possible, even greater success. The number in attendance increased, and neighboring towns even ten miles away awakened to the possibility of participation. The district is a crowded one, with small towns every mile or so, and physicians from these towns were stimulated to take part in the course, and, having appreciated how much good was done by it, to spread the good news to others. The consequence is that the Scranton Clinical and Pathological Society is now in a position to take up postgraduate work for its own members and for brother practitioners in good standing in the surrounding district to a degree that has perhaps never before been deemed possible under such circumstances.

The plans of the present season include the services, during the whole month of September, of a trained pathologist, who is to have a laboratory in a private hospital in Scranton, to which the physicians of the district may come at whatever hour they can spare during the day and be given points in the technic of laboratory diagnosis that will be helpful in general practice. For this work the services of an assistant in pathology at Johns Hopkins has been secured. September is a favorable month for physicians because it is not a time of much sickness, and for university teachers because the regular university courses have not yet begun.

The private hospital in Scranton is so conducted that any physician may send his patients there, retain charge of them himself, and thus study out puzzling ailments with the aid and under the guidance of the instructor in clinical pathology. Arrangements for making the Widal test for staining and recognition of bacteria and for hardening and staining of tissues will be readily available for every physician, and all those who are members of the class will be able to apply some of them at least in their daily work during this time. It is evident that this will do much to enable men to introduce the simpler methods of laboratory diagnosis into their practice in a way which might not be secured even under the more formal circumstances of medical school training. The promise of such a work is, indeed, great and the result will be watched with interest.

The plans for clinical work are even more attractive than those for pathologic and laboratory methods. A specialist in children's diseases from New York City is to give some hints on the feeding of children, and the care of them when suffering from respiratory diseases, especially with relation to the admission of as much air as possible. A series of surgical experts will deliver one lecture apiece with a demonstration on a patient suffering from a form of disease in which he has made special studies. A genitourinary specialist is to detail some of the latest advances in that specialty. Gynecologists are to give some special features of recent advance in that branch of practice. Clinical medicine is to be represented with a series of ten lessons with clinical demonstrations. A specialist in mental diseases is to give important points on the newer phases of psychiatry, dealing especially with the early recognition of mental disease and the institution of treatment that will, so far as possible, serve as a prophylactic against the advance of the affection. A physiologic chemist and a clinical pathologist who have done some specially significant work are to present the elements of their work that are likely to be of service to the general practitioner. Finally, an expert in the use of x-rays is to give a series of demonstrations with regard to the use of this agent for diagnostic purposes, as well as some practical points with regard to the installation of such apparatus as may be of the greatest service in ordinary practice.

Among the members of the class there is the feeling that instruction received in this way is likely to be even more beneficial than when taken in a regular postgraduate institution. Absence from home for a month or six weeks involves so much expense that the student physician is likely to try to acquire more than he can really grasp, without appreciating how much of it he may be able to use in his practice. When the instruction is spread out over a year and is taken at the same time that practice continues, its application to the clinical examination of patients is much more clear and the temptation to establish various progressive features of recent medical advance in actual practice is very great. For this reason there is a growing impression that an excellent method of keeping up to date in medicine has been secured and the Scranton Clinical and Pathological Society thinks that it has solved an important problem for physicians in general practice throughout the country.

Pennsylvania County Societies to Meet.

Dr. John B. Donaldson, secretary of the Washington County (Pa.) Medical Society and councilor for the seventh district, has sent out a circular letter announcing the second annual meeting of the secretaries, corresponding and assistant secretaries, of the component county societies of the Pennsylvania State Medical Society, to be held at Reading, September 24. The councilors and general officers of the state society are also expected to be present. A dinner will be given by the state society.

The program includes papers on the following subjects: "What Can a Secretary Do to Get New Members?" J. H. Coffman, Scotland; "The Relation of the Secretary to the Society and to the Profession," A. F. Meyers, Blooming Glen; "The Young Men in the Society and How to Interest Them," H. Z. Frantz, Huntingdon; "The Lazy Secretary and His Effect on the Society," E. W. Buckman, Wilkes-Barre.

What the Physician Is Entitled To.

Dr. George W. Guthrie, Wilkes-Barre, councilor for the Third (Pa.) Councilor District, delivered an address at the July meeting of the Wayne County Medical Society, on the subject of "The Doctor's Duty to Himself." Dr. Guthrie urged the completion of the organization of the local profession, saying: "The local society should admit every educated, intelligent, reputable, legally qualified physician not a sectarian." By membership in the county and state society and the American Medical Association, he said, every doctor gains a consciousness of the power of association. "Attendance at meetings brings about a better feeling, while organization enables physicians to make and to maintain just and equitable fees. The oftener a society meets, the greater will be the interest. The physician owes it to himself to preserve his energy and to retain his faculties; to live as long as other men. He should take frequent vacations, for by working fifty-two Sundays as well as holidays, he lengthens his year to fourteen months, while his work-day is rarely less than sixteen hours. With better feeling, induced by county membership in a local medical society, physicians can work together and one can care for another's practice while the latter is seeking recreation in fishing, hunting or travel."

An Educational Campaign in Ohio.

The August *Ohio State Medical Journal* calls attention to the good work done by the Crawford County Medical Society in educating the public regarding nostrums and frauds in proprietary medicine. At the meeting of the society in July 1,000 copies of the reprint of "The Great American Fraud" articles were ordered for distribution among the physicians of the county. Arrangements were also made to place a substantially bound copy of the book in each school library in the county and to place several copies in each public library, calling attention to the articles through notices in the public press. As the *Journal* well says: "The plan is an excellent one and speaks for the earnestness and diligent attention to important matters on behalf of the Crawford County Medical Society. Other county societies may well put this plan in force. The mission of the state society is a great one, yet its chief purpose consists in the preservation of the union of county societies, in order to insure a central body of large membership, great influence, and power for the benefit, first, of the people, and second, of the medical profession. The state association will be helpless in its efforts without the wide-awake county organizations. The absolute, almost unlimited, power for good which is possible will be realized only when county officers recognize the importance of their work and do it promptly and effectively."

Popular Interest in Medical Legislation.

A recent editorial in the Muncie (Ind.) *Star* discussed, under the heading "When Doctors Agree," the proposition for a law regulating medical licensure, eliminating sectarian questions connected with therapeutics and treatment from the state board examinations. The *Star* says:

> No movement is more notable than that which has been started in the medical profession for the exclusion from the license examinations by state medical boards of therapeutics. The effect of it, if adopted, would be that the several boards of examiners that exist in some states would give place to a single board, which would give to creditable applicants the title of "licensed practitioner of medicine or surgery." No doubt the real danger is from admission to the practice of medicine of uneducated men, who are not acquainted with the details of human construction and the cause and manifestations of disease that are recognized as scientific facts by all educated men.

This editorial is of interest as showing the trend of public opinion on the question of the restriction of medical practice. So long as the public regard the efforts of the educated portion of the profession to elevate the medical standard as simply a "squabble among doctors," or as an effort on the part of a portion of a profession to bar out their less fortunate associates, just so long will the public fail to take any interest in such legislation and just so long will its enforcement be against the current of popular opinion. But as soon as it is recognized that the desired legislation is in the interest of public health and better sanitary conditions, rather than for or against any class or set of men, then the endorsement and support of the press and of the public will be well nigh unanimous.

Book Notices

Diagnostics of Diseases of Children. By Le Grand Kerr, M.D., Professor of Diseases of Children in the Brooklyn Postgraduate Medical School. Fully Illustrated. Cloth. Pp. 542. Price, $5.00 net. Philadelphia and London: W. B. Saunders Co., 1907.

This is a work in which are described certain important symptoms occurring both alone and in conjunction with other symptoms, and the various causes which might give rise to them. In such a book there is danger of being superficial and of magnifying the symptom into the disease. This danger the author has avoided. He has described the significance of symptoms without magnifying them into diseases. Throughout, he emphasizes the fact that one must not be satisfied with the condition, but must search diligently for the cause of the condition. The examination of the child and the difficulties of the process are dwelt upon in the first part of the book. Then are taken up important symptoms, such as vomiting, diarrhea, headache, anemia, cough, convulsions, etc., and the manifold causes which might give rise to these symptoms are discussed. Finally, the diagnostic features of certain specific subjects are taken up: typhoid fever, tuberculosis, meningitis, and the contagious diseases, the main diagnostic points being considered. Fourteen pages are devoted to cough, with a consideration of the causes which may produce it; similarly eighteen pages are given to vomiting, thirteen to convulsions and thirty to paralysis.

One expects to see in a work on diagnosis at the present day considerable space devoted to the laboratory side of diagnosis. Such aids are especially important in children, where we have to rely so much on our own examination. In this respect the book is disappointing. There is too little mention of the laboratory part of diagnosis. Thus in typhoid too much stress is laid on the inconstant signs of rose-spots and an enlarged spleen, while no mention is made of the almost constant leucopenia or of the presence of bacilli in the blood. Again, no mention is made of the value of a white count in differentiating between lobar pneumonia and typhoid, or of a lumbar puncture in differentiating between pneumonia and meningitis.

The frequency and obscurity of middle ear trouble is mentioned, but not sufficiently emphasized. We should not put otitis under this heading: "Diseases in Which Pain Is the Early and Prominent Symptom." Pain is so frequently absent in middle ear trouble that this very absence constitutes one of the elements of obscurity in diagnosis. It would have been well also to emphasize in the section on temperature otitis media as a frequent cause of an obscure temperature.

The book is valuable chiefly in its "suggestiveness." The busy practitioner will find in it an excellent, compact description of the many causes which produce symptoms, and thus will be put on the track of a diagnosis which he can then run down in some more elaborate work, giving the pathology, symptomatology and treatment. It is of value to the medical student in teaching him to think of symptoms as superficial, as arising from a great variety of causes and in showing him the necessity of determining what cause has given rise to the symptoms observed in a given case.

Manual of Anatomy. Systematic and Practical, Including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S., Glas., Professor of Anatomy in Anderson's College, Glasgow. Vol. II. With 363 Illustrations, Mostly Original and in Colors. Buckram. Pp. 1539. Price, $2.75 net. Chicago: W. T. Keener & Co., 1907.

The first volume was devoted to osteology and the anatomy of the upper and lower limbs. The book is well bound in flexible water-proof buckram and so can be used in the dissecting room. The author uses the conventional anatomic nomenclature instead of the more recent Basle terminology. The illustrations of the section on osteology are copious and well labeled. The section on the anatomy of the limbs contains dissecting directions for the student, colored illustrations and numerous cuts. Like most of the anatomic manuals, the directions to the dissector are put in fine print and in a subordinate position, while the conventional descriptive text is given prominence. Practical experience in the dissecting room leads one to believe that the most necessary information for beginners in anatomy is clear and unmistakable directions to guide them in their work. The second volume takes up the anatomy of the perineum, abdomen, thorax, head and neck, nervous system and special sense organs. The cuts showing the anatomy of the male perineum, while small, are clear; that of the triangular ligament being especially graphic. The diagrams showing the descent of the testis and the varieties of tunica vaginalis are also good. Considerable space is devoted to the peritoneum, the development of which is shown by diagrams. In the description of the abdominal and thoracic organs, cuts showing the histologic structure of different organs are interspersed with the gross anatomy. Dissecting directions for the abdomen and peritoneum are elaborate. In the section on the thorax considerable attention is paid to the development and arrangement of the pleura. The cuts showing the minute anatomy of the brain and cord are in part taken from Testu, Hirschfeldt and Leveille and in part from original drawings. The sections on special sense organs are complete, without being unnecessarily minute. The two volumes so far published are, on the whole, worthy of commendation.

Manual of Personal Hygiene. Proper Living on a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D., Fellow of the American Academy of Medicine, etc. Third Edition, Revised and Enlarged. Cloth. Pp. 451. Price, $1.50 net. Philadelphia: W. B. Saunders Co., 1907.

Dr. Pyle has had the able assistance of Drs. Charles G. Stockton, Buffalo; George H. Fox, New York; E. Fletcher Ingals, Chicago; B. Alex. Randall, Philadelphia; J. W. Courtney, Boston; G. N. Stewart, Chicago, and D. H. Bergey, Philadelphia, who have written very satisfactory chapters on their special departments. The character of the work is excellent and, in our opinion, it covers just about the right amount of ground. Simplification of language would improve it, for the book is intended for lay readers and in its present form it seems to have been written for the well-educated layman. Others will, we fear, pass it by to take up a work written in more popular style—for, to judge from the introduction, which decries "popular" treatises, the plan of the editor has not been to make the work attractive to the masses. The appendix on accidents and emergencies is excellent, being terse and clear. We consider such a book as this incomplete in the present day without reference to sexual hygiene and the avoidance of venereal disease. Smallpox and typhoid are well discussed, but there could well have been more said of some other transmissible diseases.

Morris' Human Anatomy.. A Complete Systematic Treatise by English and American Authors. Edited by Henry Morris, M.A., etc., President of the Royal College of Surgeons of England, and J. P. McMurrich, A.M., Ph.D., Professor of Anatomy, University of Michigan. Illustrated, Partly in Colors. Fourth Edition, Revised and Enlarged. Part I. General Morphogeny, Osteology, Articulations. Cloth. Price, $1.50 net. Part II. The Musculature. Organs of Circulation. The Lymphatics. Price, $2.00 net. Part III. The Nervous System. Price, $1.50. Philadelphia: P. Blakiston's Son & Co., 1907.

In bringing out the fourth edition of Morris' anatomy the publishers have taken the opportunity of making it an international treatise by securing the services of a number of American anatomists in the revision and rewriting of certain of the sections. Some of the sections have been entirely rewritten and considerably enlarged. The results of recent investigations have been included so that the work represents the present state of anatomic science. The Basle system of nomenclature or BNA, as it is called, has been adopted, the older English names being added in parentheses where they differ greatly from the new terms. The illustrations are excellent and have been considerably changed by omitting several of the old ones and adding new ones made from specially prepared drawings or taken from other books with due credit. With these changes the new edition must be welcomed as one of the most valuable text-books on this important subject.

Gaining Health in the West (Colorado, New Mexico, Arizona) Being Impressions of a Layman, Based on Seven Years' Personal Experience with "Climate." By George B. Price. Cloth. Pp. 138 New York: B. W. Huebsch, 1907.

A very sensible little book of practical suggestions for those who go west because of tuberculosis. A layman wrote this book after realizing the need for it in his own quest for health. What to do and what not to do is simply stated, including such points as companions, exercise, employment, camping, the right mental attitude, marital obligations, social life and travel. The author acknowledges the aid of some medical friends in his work.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Massachusetts Board of Registration in Medicine, State House, Boston. September 10-12. Secretary, Dr. Edwin B. Harvey, 159 State House, Boston.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines. September 17-19. Secretary, Dr. Louis A. Thomas, Des Moines.

Colorado State Board of Medical Examiners, 1723 Tremont St., Denver, October 1. Secretary, Dr. S. D. Van Meter, Denver.

Idaho State Board of Medical Examiners, Capitol Building, Boise, October 1. Secretary, Dr. W. F. Howard, Pocatello.

Minnesota State Board of Medical Examiners, Old Capitol, St. Paul, October 1. Secretary, Dr. W. S. Fullerton, St. Paul.

Montana Board of Medical Examiners, The Capitol, Helena, October 1. Secretary, Dr. W. C. Riddell, Helena.

North Dakota State Board of Medical Examiners, Grand Forks, October 1-3. Secretary, Dr. H. M. Wheeler, Grand Forks.

New York State Board of Medical Examiners, Albany, October 1-4. Chief of Examining Division, Charles F. Wheelock, Albany.

Indian Territory, Western District Board of Medical Examiners, Muskogee, October 7. Secretary, Dr. M. F. Williams, Muskogee.

Utah State Board of Medical Examiners, Salt Lake City, October 7-8. Secretary, Dr. R. W. Fisher, Salt Lake City.

Arkansas State Board of Medical Examiners, State Capitol Building, Little Rock, October 8. Secretary, Dr. F. T. Murphy, Brinkley.

Arkansas Homeopathic Board of Medical Examiners, Little Rock, October 8. Secretary, Dr. V. H. Hallman, Hot Springs.

Georgia Board of Medical Examiners (Regular), Capitol Building, Atlanta, October 8. Secretary, Dr. E. R. Anthony, Griffin.

Michigan State Board of Registration in Medicine, Lansing, October 8. Secretary, Dr. B. D. Harison, 205 Whitney Building, Detroit.

Mississippi State Board of Health, Jackson, October 8. Secretary, Dr. J. F. Hunter, Jackson.

Wyoming State Board of Medical Examiners, Laramie, October 9. Secretary, Dr. S. B. Miller, Laramie.

Rhode Island State Board of Health, Room 313, State House, Providence, October 10-11. Secretary, Dr. Gardner T. Swarts, Providence.

District of Columbia Board of Medical Supervisors, Law School of Georgetown University, Washington, October 10-14. Secretary, Dr. Geo. C. Ober, Washington.

Georgia Board of Eclectic Medical Examiners, Senate Chamber, Atlanta, about October 15. Secretary, Dr. C. H. Field, Marietta.

Indiana Board of Medical Registration and Examination, Indianapolis, October 22-24. Secretary, Dr. W. T. Gott, Crawfordsville.

Illinois State Board of Health, Great Northern Hotel, Chicago, October 23-25. Secretary, Dr. J. A. Egan, Springfield.

Illinois June Report.—Dr. J. A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, June 19-21, 1907. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 338, of whom 320 passed and 18 failed. Three candidates took an incomplete examination and two withdrew from the examination. The following colleges were represented:

PASSED.

College.	Year Grad.	Total Num. Ex.
Northwestern Univ. Med. School	(1907)	92
American Medical Missionary College	(1907)	1
Bennett College of Ecl. Med. and Surg	(1907)	21
Chicago College of Medicine and Surgery	(1907)	24
Coll. of P. & S., Chicago (1, 1900); (1, 1906);	(78, 1907)	80
Dearborn Medical College	(1907)	22
Hahnemann Med. Coll., Chicago	(1907)	23
Hering Medical College	(1907)	3
Illinois Medical College	(1907)	4
Jenner Medical College (1, 1906);	(11, 1907)	12
National Medical University (1, 1906);	(4, 1907)	5
Rush Med. Coll. (1, 1897); (1, 1904); (1, 1906);	(22, 1907)	25
State Coll. of P. and S., Indianapolis	(1907)	1
University of Louisville	(1907)	1
Hospital Coll. of Med., Louisville	(1901)	1
Barnes Medical College	(1907)	1
Lincoln Medical College	(1907)	1
Ohio Medical University	(1907)	1
Hahnemann Med. Coll., Philadelphia	(1898)	1
McGill University, Quebec	(1907)	1

FAILED.

College.	Year Grad.	Total Num. Ex.
Bennett Coll. of Ecl. Med. and Surg	(1907)	3
Chicago Coll. of Med. and Surg	(1907)	4
College of P. and S., Chicago	(1907)	1
Dearborn Medical College	(1907)	1
Hahnemann Medical College	(1907)	1
Hering Medical College	(1907)	1
Jenner Medical College	(1907)	2
Keokuk Medical College	(1895)	1
St. Louis University	(1907)	1
University of Lausanne, Switzerland	1907)	1

Maryland June Report.—Dr. J. McP. Scott, secretary of the Maryland Board of Medical Examiners, reports the written examination held at Baltimore, June 19-21, 1907. The number of subjects examined in was 9; total number of questions asked, 54; percentage required to pass, 75; 122 candidates were examined, of whom 90 passed and 32 failed. The following colleges were represented:

PASSED.

College.	Year of graduation.	Anatomy.	Surgery.	Pathology.	Obstetrics.	Practice.	Chemistry.	Materia medica.	Therapeutics.	Physiology.	Average.
Geo. Washington Univ..	(1906)	93	80	90	8	82	89	79	87	75	85
Geo. Washington Univ..	(1907)	88	95	66	95	87	78	85	80	60	82
Georgetown University ..	(1905)	75	80	65	75	84	72	85	78	75	77
Georgetown University ..	(1906)	88	98	86	85	87	89	97	93	95	91
Georgetown University ..	(1907)	89	95	87	100	77	79	92	83	65	85
Yale Medical School....	(1906)	79	90	68	90	75	50	82	82	80	77
Johns Hopkins Med. Sch.	(1903)	85	98	87	100	79	98	97	100	91	93
Johns Hopkins Med. Sch.	(1905)	85	95	88	100	75	80	96	94	83	88
Johns Hopkins Med. Sch.	(1907)	83	90	85	90	75	63	86	84	82	82
Johns Hopkins Med. Sch.	(1907)	91	100	83	75	90	78	84	78	68	82
Johns Hopkins Med. Sch.	(1907)	87	95	89	95	82	75	77	93	77	86
Johns Hopkins Med. Sch.	(1907)	81	95	81	85	90	84	87	..	85	75
Johns Hopkins Med. Sch.	(1907)	82	95	83	100	79	86	80	90	82	86
Johns Hopkins Med. Sch.	(1907)	87	95	92	85	91	88	80	87	73	86
Johns Hopkins Med. Sch.	(1907)	94	90	93	100	93	84	80	92	87	90
Johns Hopkins Med. Sch.	(1907)	81	95	87	95	85	92	88	94	90	90
Johns Hopkins Med. Sch.	(1907)	64	98	91	100	90	66	97	76	86	85
Johns Hopkins Med. Sch.	(1907)	81	85	73	95	83	63	88	93	82	83
Johns Hopkins Med. Sch.	(1907)	93	95	97	100	88	98	81	93	87	91
Johns Hopkins Med. Sch.	(1907)	81	85	75	85	85	75	89	82	76	81
Johns Hopkins Med. Sch.	(1907)	92	90	97	85	95	92	78	87	92	90
Johns Hopkins Med. Sch.	(1907)	78	90	86	95	93	89	87	80	69	85
Johns Hopkins Med. Sch.	(1907)	85	85	90	95	85	93	78	95	78	87
Johns Hopkins Med. Sch.	(1907)	75	85	97	90	88	81	75	81	81	84
Johns Hopkins Med. Sch.	(1907)	81	100	73	90	78	66	92	84	90	84
Jonhs Hopkins Med. Sch.	(1907)	92	95	69	80	81	78	88	85	86	84
Johns Hopkins Med. Sch.	(1907)	90	80	96	65	82	96	83	91	86	85
Jonhs Hopkins Med. Sch.	(1907)	90	90	91	95	78	79	85	82	79	84
Johns Hopkins Med. Sch.	(1907)	72	90	84	100	83	83	82	76	70	82
Johns Hopkins Med. Sch.	(1907)	91	95	89	100	84	83	95	88	91	91
University of Maryland.	(1906)	62	90	76	80	77	73	84	93	90	81
University of Maryland.	(1907)	85	90	70	100	72	16	83	84	75	75
University of Maryland.	(1907)	67	95	82	100	78	82	94	93	63	84
University of Maryland.	(1907)	81	95	81	80	75	71	80	94	90	83
University of Maryland.	(1907)	78	85	73	100	79	80	60	82	70	79
University of Maryland.	(1907)	86	80	75	90	82	75	80	85	75	81
University of Maryland.	(1907)	76	95	83	100	80	88	90	92	75	87
University of Maryland.	(1907)	78	85	77	80	71	83	93	84	75	81
University of Maryland.	(1907)	88	95	80	100	82	53	78	85	96	84
University of Maryland.	(1907)	94	90	82	100	75	90	88	67	84	86
University of Maryland.	(1907)	89	90	88	95	89	93	97	92	95	92
University of Maryland.	(1907)	71	90	75	90	84	40	78	87	60	75
University of Maryland.	(1907)	77	85	77	90	75	30	82	84	75	75
University of Maryland.	(1907)	91	90	80	100	87	85	76	75	92	86
University of Maryland.	(1907)	94	100	81	100	82	82	81	93	93	90
University of Maryland.	(1907)	79	85	92	75	80	75	84	92	75	82
University of Maryland.	(1907)	81	85	77	100	81	89	83	89	95	87
University of Maryland.	(1907)	55	85	61	90	75	75	82	87	85	77
University of Maryland.	(1907)	86	85	75	85	76	77	77	87	75	80
University of Maryland.	(1907)	89	90	82	100	67	76	78	90	95	85
University of Maryland.	(1907)	76	90	72	85	80	85	82	81	85	82
University of Maryland.	(1907)	82	98	75	90	69	89	95	75	80	84
University of Maryland.	(1907)	88	95	75	80	87	82	90	80	87	85
University of Maryland.	(1907)	77	98	90	90	86	76	93	87	88	87
University of Maryland.	(1907)	80	85	86	95	75	70	78	75	67	79
University of Maryland.	(1907)	85	95	69	85	83	50	95	93	70	81
University of Maryland.	(1907)	75	90	90	95	76	52	82	75	78	79
Baltimore Medical Coll..	(1906)	72	85	63	75	75	61	94	85	70	76
Baltimore Medical Coll..	(1907)	78	80	79	90	76	77	83	75	75	79
Baltimore Medical Coll..	(1907)	78	85	67	90	56	64	90	82	85	77
Baltimore Medical Coll..	(1907)	88	90	68	80	75	63	72	68	75	75
Baltimore Medical Coll..	(1907)	82	90	86	95	82	81	93	80	96	87
Baltimore Medical Coll..	(1907)	86	95	75	90	79	76	92	85	80	84
Baltimore Medical Coll..	(1907)	85	85	59	95	76	83	82	66	80	79
Baltimore Medical Coll..	(1907)	80	90	81	75	80	75	95	93	86	84
Baltimore Medical Coll..	(1907)	60	90	66	85	75	65	93	90	75	78
Woman's Med. Coll., Balt	(1906)	81	80	75	75	79	75	75	86	70	77
Woman's Med. Coll., Balt	(1907)	91	95	92	90	82	37	86	88	75	82
Woman's Med. Coll., Balt	(1907)	70	90	69	95	83	49	93	88	75	79
Woman's Med. Coll., Balt	(1907)	85	80	79	85	71	76	75	85	82	80
Woman's Med. Coll., Balt	(1907)	85	90	75	90	88	39	87	80	65	78
Coll. of P. and S., Balt..	(1906)	84	95	75	100	87	73	75	85	75	83
Coll. of P. and S., Balt..	(1906)	89	90	75	90	82	47	93	85	72	80
Coll. of P. and S., Balt..	(1907)	78	85	70	85	84	86	77	72	80	80
Coll. of P. and S., Balt..	(1907)	85	85	71	85	84	78	78	88	71	81
Coll. of P. and S., Balt..	(1907)	80	100	82	100	93	85	88	92	76	88
Coll. of P. and S., Balt..	(1907)	83	90	69	100	75	68	81	82	85	81
Coll. of P. and S., Balt..	(1907)	66	90	79	90	77	57	66	93	67	76
Coll. of P. and S., Balt..	(1907)	80	80	67	95	76	60	83	63	80	76
Harvard Medical School.	(1907)	60	85	72	95	81	77	83	78	68	78
Med.-Chirur. Coll., Phila.	(1903)	85	85	44	90	75	57	75	89	75	75
Med.-Chirur. Coll., Phila.	(1907)	80	90	82	95	89	86	92	92	90	88
Univ. of Pennsylvania..	(1907)	64	90	71	85	75	50	75	80	85	75
Univ. of Pennsylvania..	(1907)	82	90	85	85	94	75	80	75	95	85
Univ. of Pennsylvania..	(1907)	86	95	78	90	85	71	80	91	90	85
Univ. of Pennsylvania..	(1907)	89	98	93	95	90	58	87	86	85	87
Univ. of Pennsylvania..	(1907)	88	95	80	90	89	67	82	83	80	84
Univ. of Pennsylvania..	(1907)	85	100	88	95	82	78	93	89	95	89
Jefferson Medical Coll...	(1907)	55	80	65	90	78	42	96	94	75	75
Woman's M. Coll. of Pa.	(1907)	81	75	75	100	86	68	75	92	91	83

FAILED.

Geo. Washington Univ..	(1907)	86	75	65	75	75	58	62	73	76	72
Howard University.....	(1903)	37	75	12	80	36	41	96	81	66	58
Maryland Med. College..	(1905)	27	90	11	75	63	43	92	83	63	61
Maryland Med. College..	(1906)	63	80	31	90	75	40	77	75	85	68
Maryland Med. College..	(1907)	65	75	35	75	69	56	87	70	60	66
Maryland Med. College..	(1907)	76	85	52	75	75	45	77	75	75	71
Maryland Med. College..	(1907)	80	90	32	85	80	20	83	63	54	65
Maryland Med. College..	(1907)	38	75	49	100	68	23	78	64	58	61
Maryland Med. College..	(1907)	8	30	5	80	48	13	68	31	46	37
Baltimore Medical College	(1904)	76	80	60	90	77	31	77	62	65	69
Baltimore Medical College	(1907)	77	80	76	90	70	20	68	80	77	71
Baltimore Medical College	(1907)	70	98	61	90	75	58	62	49	70	70
Baltimore Medical College	(1907)	82	85	..	100	79	77	75	77	80	73
Baltimore Medical College	(1907)	42	85	31	90	64	26	90	92	66	65
Baltimore Medical College	(1907)	52	90	66	75	64	49	58	52	60	63
Baltimore Medical College	(1907)	42	50	32	75	45	48	88	90	50	58
University of Maryland..	(1905)	81	90	76	80	76	75	..	..	92	63
University of Maryland..	(1907)	37	85	68	85	75	50	77	77	80	70
University of Maryland..	(1907)	69	85	55	100	75	37	80	61	60	69
University of Maryland..	(1907)	83	85	70	100	75	75	..	73	60	69
University of Maryland..	(1907)	67	95	48	80	63	39	77	50	85	67
University of Maryland..	(1907)	50	80	45	85	72	79	77	68	60	68
University of Maryland..	(1907)	75	90	35	90	66	62	78	75	85	73
Johns Hopkins Med. Sch.	(1907)	77	90	67	75	85	40	75	53	84	72
Baltimore University....	(1902)	12	60	0	75	16	4	77	53	60	40
Woman's M. Coll., Balt..	(1907)	61	90	50	85	75	47	80	75	75	71
Leonard School of Med..	(1907)	76	85	64	85	75	43	78	62	75	71
Coll. of P. and S., N. Y.	(1907)	92	95	68	65	84	22	75	77	75	73
Jefferson Medical Coll...	(1906)	67	90	46	100	62	49	80	76	80	72
Jefferson Medical Coll...	(1907)	67	80	51	90	79	20	87	85	60	69
Meharry Medical College	(1907)	47	75	12	80	48	13	48	65	65	50
Meharry Medical College	(1907)	60	75	22	80	45	33	42	62	75	55

New Jersey June Report.—Dr. J. W. Bennett, secretary of the State Board of Medical Examiners of New Jersey, reports the written examination held at Trenton, June 18-19, 1907. The number of subjects examined in was 9; total number of questions asked, 135, from which candidate was required to answer 90; percentage required to pass, 75. The total number of candidates examined was 63, of whom 53 passed and 10 failed. One candidate withdrew from the examination. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Howard University	(1905)	83.5
Georgetown University	(1897)	88.2
Northwestern Univ. Medical School	(1906)	83.
Hahnemann Med. College, Chicago	(1902)	79.1
Kentucky University	(1895)	88.7
College of P. and S., Baltimore	(1906)	77.1
Baltimore Medical College	(1906) 86; (1907),	83 1*
Maryland Medical College	(1907)	75.8
University of Maryland	(1903)	83.3
Johns Hopkins Medical School	(1906)	77.
Dartmouth Medical College	(1901)	83.4
Long Island College Hospital	(1906)	84.
College of P. and S., New York	(1888) 79.5; (1906)	81.5
Woman's Med. Coll. of Pennsylvania	(1907) 82.6, 85.5, 85.7, 86.5, 87.1, 87.6, 88.2.	
University of Pennsylvania	(1904) 86.7; (1905) 84.5; (1906) 88; (1907) 79.5, 81.8, 82.8, 83.2, 83.4, 83.5, 84.5, 85.2.	
Hahnemann Med. College, Philadelphia	(1898) 83.4; (1901) 82; (1906) 80.3; (1907) 74.4, 81.6, 82.3, 83, 83.5.	
Jefferson Medical College	(1906) 78.2, 80.4, 80.5; (1907) 85.5, 82.8, 83.8, 84.8.	
Medico-Chirurgical College, Philadelphia	(1906) 84.4; (1907)	79.3
University College of Medicine, Richmond	(1907)	77.4

FAILED.

College.	Year Grad.	Per Cent.
Chicago Homeo. Med. Coll	(1897)	68.
University of Louisville	(1906)	67.5
Baltimore Medical College	(1904) 62; (1906)	73.8
College of P. and S., Baltimore	(1904)	72.5
University of Pennsylvania	(1867)	73.1
University of Naples, Italy	(1899)†; (1905) 45.2; (1906)	67.5
Royal University of Turin, Italy	(1906)†	

*Percentage not given. †Expelled from examination.

Washington July Report.—Dr. C. W. Sharples, secretary of the Washington State Medical Examining Board, reports the written examination held at Seattle July 2-4, 1907. The number of subjects examined in was 17; total number of questions asked, 100; percentage required to pass, 75, and 70 for those having had ten years' practice. The total number of candidates examined was 123, of whom 97 passed and 26 failed. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
Cooper Medical College	(1896)	85
College of P. and S., Los Angeles	(1905)	87
University of So. California	(1907) 85, 90, 91,	92
College of P. and S., Chicago	(1899) 81; (1902) 77; (1905) 80, 91; (1906) 79, 80, 85; (1907) 90.	
Northwestern Univ. Med. School	(1900) 81; (1902) 80; (1905) 92; (1906) 76, 80, 85; (1907) 90.	
American Coll. of Med. and Surg.	(1905)	91
Hahnemann Med. Coll., Chicago	(1905) 75, 77, 90; (1907)	79
Rush Medical College	(1891) 80; (1899) 80; (1901) 81; (1903) 84, 87.	
Harvey Medical College	(1905)	75
University of Iowa	(1906) 83; (1907) 81,	86
University of Iowa, Homeo. Dept	(1907)	81
Keokuk Medical College	(1903)	80
University of Kansas	(1906)	90
Louisville Medical College	(1904) 76; (1906)	77
Kentucky School of Medicine	(1902)	76
College of P. and S., Baltimore	(1906)	80
Harvard Medical School	(1901)	83
Detroit Coll. of Medicine	(1907)	80
Univ. of Michigan	(1891) 72; (1896) 85; (1900) 86, (1905)	83
Hamline University	(1904)	76
University of Minnesota	(1899) 79; (1905) 82	89
Marion-Sims College of Medicine	(1898)	78
St. Louis Coll. of P. and S.	(1892)	75
St. Louis University	(1903) 77; (1907) 79, 80,	92
Kansas City Hahnemann Med. Coll	(1907)	78
Barnes Medical College	(1907)	75
Washington University, St. Louis	(1899) 77; (1907) 77, 79,	81
Creighton Med. Coll	(1907)	84
Syracuse University	(1903)	81
Bellevue Hosp. Med. College	(1884) 81; (1897)	87
Western Reserve University	(1897)	77
Medical College of Ohio	(1904)	89
Pulte Medical College	(1892)	72
Miami Medical College	(1904)	82
Willamette University	(1907)	79
University of Oregon	(1906) 76, 88; (1907) 79, 82, 83, 86,	92
Jefferson Medical College	(1906)	84
Medico-Chirurgical College, Philadelphia	(1902) 83, 91; (1907)	76
University of Pennsylvania	(1882) 74; (1894)	93
University of Virginia	(1905) 82,	84
Wisconsin Coll. of P. and S.	(1903) 75; (1904)	75
Trinity Medical Coll	(1900) 82; (1902)	88
University of Toronto, Ontario	(1905) 93; (1907)	91
Queen's University, Ontario	(1903)	80
University of Naples, Italy	(1897)	70
Nagasaki Medical College, Japan	(1902)	88

FAILED.

College.	Year Grad.	Per Cent.
California Med. College	(1904) 71; (1906)	56
Gross Medical College	(1902)	70
Chicago Homeo. Med. Coll	(1883) 52; (1891)	69
Harvey Medical College	(1904)	72
Rush Medical College	(1891)	62
Northwestern Univ. Med. School	(1896)	64
Drake University	(1897)	65
University of Maryland	(1879)	66
Detroit College of Medicine	(1904)	70
Barnes Medical College	(1897)	47
St. Louis College of P. and S.	(1895) 62; (1896)	57
Marion-Sims College of Medicine	(1896)	50
Ensworth Central Medical College	(1906)	65
College of P. and S., Kansas City	(1901)	62
Medical College of Ohio	(1881)	59
Miami Medical College	(1882)	60
Willamette University	(1906)	70
Medico-Chirurgical College, Philadelphia	(1899)	74
Jefferson Medical College	(1905)	70
University of Vermont	(1899)	66
Trinity Medical College, Ontario	(1904)	63
Queen's University, Ontario	(1901)*	
McGill University, Quebec	(1875)	67

*Expelled from examination for dishonesty.

Medicolegal

Requirement in Employment of Physician.

The Supreme Court of Illinois says, on the appeal of Variety Manufacturing Company vs. Landaker, that through a fall of an employé of the company the femur bone of his left leg was broken near his body. He was treated by two physicians, who were in regular practice in the city of Chicago, and who were experienced in the practice of their profession. The ends of the bone would not unite, and some months after the injury the physicians who had charge of the case cut the leg open and fastened the ends of the bone together with wires. The operation was not successful, although not an unusual one, and the man died a few days thereafter. The man's widow, as administratrix, then sued the company for damages. A judgment for $5,000 was rendered in her favor, which is here affirmed. The jury was instructed in the case that a person who is suffering from an injury is only required to use reasonable diligence to employ a physician of ordinary skill and experience to treat him, and that the law regards the injury resulting from the mistakes of the physician, or from the failure of the means employed to effect a cure, as a part of the immediate and direct damages flowing from the original injury. The Supreme Court sees no error in this.

Opinions as to Conditions Being Caused by Injury.

The Supreme Court of Illinois says, in City of Chicago vs. Didier, a personal injury case brought by the latter party, that there is some apparent confusion in the authorities on the question as to whether, in such cases as this, a medical expert may be asked his opinion as to whether the physical conditions of the injured party are the result of the injuries complained of. The defendant contended that the inquiry should be as to whether the injury might have produced the physical conditions, and not whether it did produce them. Expressions will be found in some cases tending to support that view, but the weight of authority in this state, as well as in other jurisdictions, does not support that contention.

The reason given for permitting a properly qualified witness to give his opinion as to what did produce certain results or consequences, and not what might have produced them, is that the fact to be established is, what did cause the conditions found to exist? Where the determination of that question involves scientific knowledge or skill, which is possessed only by those who have given the matter special study, and with which jurors and others engaged in the ordinary avocations of life are unfamiliar, a witness possessing the necessary qualifications may be asked for his opinion as to what did cause the conditions described. Such an opinion is not conclusive, and is subject to be contradicted by other evidence. It is for the jury to determine the weight and value of such opinions, when considered in connection with all the evidence in the case.

Right of Health Officer to Compensation.

The Fourth Appellate Division of the Supreme Court of New York says, in People vs. Hervey Blood and others, that it thinks the claims of Frank G. Sherwood should be allowed, one of which claims was for $250 for services as health officer of the town of Albion for one year and for $20.40 for expenses in attending the annual sanitary conference of health officers at Albany.

The court says that if the board of health did not have the authority to fix the compensation of the health officer for his salary in advance of his rendering the services, or did not in fact fix the same, it might agree with the board of auditors that the claim for services presented should not have been allowed, or at least not allowed in full. But he did not base his claim on the specific services rendered. His claim was founded on the stated compensation fixed by the board of health, and, if he was right, there was no necessity for his keeping an account, or furnishing a detailed statement of services rendered by him. The record before the court showing that the board of health did so fix the compensation, the court is of the opinion that it had the authority to fix the same, and that it acted providently in so doing.

Section 21 of the public health law of New York provides that every local board of health "shall prescribe the duties and powers of the local health officer, who shall be its chief executive officer, and direct him in the performance of his duties, and fix his compensation. In addition to his compensation so fixed, the board of health may allow the reasonable expenses of said health officer in going to, attending and returning from, the annual sanitary conference of health officers, or equivalent meeting, held yearly within the state," etc. It seems quite obvious from this provision, the court says, that it was competent for the local board of health to fix the compensation of its health officer at a yearly salary as was done in this case, and to allow him his reasonable expenses in addition to the sum so fixed for attending the sanitary conference.

With regard to the contention that the health officer was entitled to no salary for the reason that the local board of health failed to prescribe the duties and powers of the health officer, the court says that it was true that no formal resolutions were adopted prescribing his duties, but it did not follow from this that he performed no services. The statute made him the chief executive officer of the local board of health and he was subject to the direction of the board in the performance of his duties. There was no claim that he was not ready at all times to do what was required of him by the local board of health, or did not in fact discharge the duties imposed on him by law or required of him by the local board. Merely because the board of health failed to prescribe his duties in a formal manner afforded no good reason for withholding his compensation.

Neither was the board of auditors justified in rejecting these claims because it did not agree with the board of health as to his rate of compensation or the value of his services. That question was for the local board of health, and the court can not say, nor was the board of auditors warranted in determining, that the board of health acted improvidently in fixing the compensation as it did.

Power to Compel School Officials to Exclude Unvaccinated Pupils.

The Supreme Court of Pennsylvania had, in Commonwealth vs. Rowe and others, school directors of Waynesboro school district, a case where a writ of mandamus had been awarded to compel the directors to exclude from one of the schools of the district a child who had failed to submit a certificate signed by a physician, setting forth that she had been successfully vaccinated, or that she had previously had smallpox. Such a certificate is required by the twelfth section of the act of June 18, 1895, as a condition of a child's right to be admitted to the public schools. The section reads: "All principals or other persons in charge of schools as aforesaid are hereby required to refuse the admission of any child to the schools under their charge or supervision, except on a certificate signed by a physician, setting forth that such child has been successfully vaccinated, or that it has previously had smallpox."

Two questions were presented to the Supreme Court: (1) Does the twelfth section of the act of June 18, 1895, impose any duty on school directors? (2) Can mandamus issue against them to compel them to exclude a scholar from a public school until such scholar has furnished the certificate called for in the twelfth section of the act? The court decides both in the negative.

The court says that if the duty was imposed on the school directors as such to exclude from one of the public schools under their direction a child not having the certificate required by the foregoing section, the writ of peremptory mandamus was properly issued; but if, in the act invoked, no duty appeared to be imposed on them, the writ should have been denied.

The act of 1895 is "for the more effectual protection of the public health in the several municipalities of this commonwealth." It is composed of 21 sections, but only the eleventh, twelfth, thirteenth, fourteenth and twenty-first relate to schools. By the eleventh section no child belonging to or residing with a family in whose house any person may be suffering from smallpox shall be permitted to attend any public, private, parochial, Sunday or other school, and "all school principals, Sunday school superintendents, or other persons in charge of such schools," are required to exclude from them, for a fixed period, children belonging to or residing with a family living in a house in which any person may be suffering from said disease. By the twelfth section "all principals or other persons in charge of schools as aforesaid" are required to exclude children not presenting the certificate provided for in it. By "all principals or other persons in charge of schools as aforesaid," the legislature meant the principals or other persons in charge of the schools designated in the preceding section, and the twelfth section simply imposes on them an additional duty, which is to exclude from a school in their charge a child coming even from a home in which there may have been no smallpox, unless the proper certificate is produced.

In neither the eleventh nor twelfth section of the act is any reference made to school directors. They are not named in any section of the act. The duty to exclude children from infected homes and those not presenting the certificate of immunity from smallpox is placed on the principals of the schools, or other persons in charge of them. They are the ones specifically designated in the eleventh section, and in the twelfth must be understood as the same persons on whom the duties had been imposed in the eleventh. Their natural meaning must be given to the words "by other persons in charge of schools," and it is that the legislature intended that those having the active charge of them should be charged with the duty of excluding children, and not the directors, who have a supervisory charge of schools.

In the first ten sections, relating to certain duties to be performed in the interest of public health, nothingis left to implication as to who are to perform them, and who shall be responsible for failure to perform them. Coming to the eleventh and twelfth sections, it is not reasonable to hold that, if the legislature intended to impose by them any duties on directors, it would have failed to name these officers.

The child in this case ought to have been excluded from the school. The duty of doing so was imposed on the principal or teacher in charge of the school, and he was not only culpable for neglecting to perform it, but incurred the penalty prescribed by the last section of the act. The directors ought to have seen that their employé having charge of the school obeyed the injunction of the statute, and, if he did not, it would have been proper for them to exclude the child. They had the right to do so before the passage of the act of 1895 (Duffield vs. Williamsport School District, 162 Pa. 467), and since its passage they ought not to have hesitated in seeing that it was observed by the teachers. But that was not the question before the court. The court was simply to determine whether a ministerial duty was imposed on the directors by the act of 1895, which they had neglected to perform. No duty can be there found, and, in the absence of it, there was nothing for the court to command them to do under the petition presented for a writ of mandamus.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

August 24.

1 Landmarks in Pancreatic and Biliary Ducts. B. Robinson, Chicago.
2 *Two Hundred Charity Cases of Pulmonary Tuberculosis Under Sanatorium Treatment at Los Angeles from 1903 to 1907. W. J. Barlow, Los Angeles, Cal.
3 *Local Treatment of Cancer. R. Bell, London.
4 *Perforating Gunshot Wounds of Pleura and Lung. H. Roth, New York.
5 Modern Therapy of Cystitis. M. W. Ware, New York.
6 Tuberculosis of Middle Ear. A. Bardes, New York.
7 *Differential Diagnosis Between Chorea Minor and Tic. W. W. Graves, St. Louis.

2.—Abstracted in The Journal, June 1, 1907, page 1893.

3. **Local Treatment of Cancer.**—On the supposition that cancer cells differ but little from those in their immediate vicinity, except that they have degenerated and become weaker, and therefore are not so capable as normal cells of resisting the destructive effect of an agent used to demolish them, Bell recommends the use of irritants, not caustic in their effects, which while not strong enough to destroy the vitality of the normal healthy cell, will succeed in killing a diseased one. As a result of some years' experiments he uses an infusion of capsicum pods the strength of which can be easily regulated, preceded by the application of a 2 per cent. solution of cocain, which, he thinks, aids rather than retards the destructive effect on the morbid cell. The strength recommended to begin with is one ounce of pods, broken up and infused in a pint of boiling water and decanted in a few hours. In a few days a crust will have formed, which will separate in a short time, when the condition of the raw surface will indicate whether or not a further application is advisable. So far, the author's good results have been confined to cases of epithelioma.

4. **Gunshot Wounds of the Lung.**—When the bullet penetrates below the sixth intercostal space it perforates the diaphragm and causes injury to the abdominal viscera. When entering higher it is likely to carry spicules of bone. The bullet tract remains sterile. When the pleura is perforated pneumothorax is likely to follow, and if a large bronchus is opened, it is likely to be extensive. With pleuritic adhesions both pneumothorax and hemothorax may be absent. The entrance of air will cause emphysema. Shock, harassing cough, hemoptysis, pain, varying in intensity and occasion, and possibly even referred to the abdomen, and dyspnea are important symptoms. Clothing carried before the bullet is the most dangerous foreign body. Conservative treatment is the best prophylactic against sepsis: Care of the wound entrance and exit, treatment of primary symptoms, avoidance of transportation if possible, and particularly of the examination with probing finger. Immobilization of the chest and the dorsal posture with raised head and absolute rest are important in treatment. Hypodermoclysis may be beneficial and oxygen of value in alleviating dyspnea. The author deprecates thoracotomy, which is advocated by French and Italian surgeons. It is a very desperate recourse, but will sometimes save patients otherwise doomed. Hernia of the lung, if recent, should be replaced at once. When of longer duration it may be ligated, resected and cauterized, or left to slough off if gangrenous.

7. **Diagnosis Between Tic and Chorea Minor.**—With careful observation, Graves says, the diagnosis should be readily made. He gives a tabulation of the distinguishing features of chorea and tic, of which the following are perhaps the most important: Tic does not affect general nutrition; chorea does. Expression and disposition are vivacious in tic; sullen, even stupid, in chorea. The movements in tic are commonly confined to a single part of the body and rarely become general; in chorea, though beginning locally, they usually become general. In tic the movements are invariably confined to synergically associated muscle groups; in chorea, never. Voluntary tic movements are never inco-ordinated; voluntary effort may control or lessen tic movements; it makes choreic movements worse. A tic movement in the beginning was either a purposeful or an imitative movement; a choreic movement is purposeless and not imitative. Tic movements are lessened by voluntary movements, emotional states, and in the presence of others; choreic movements are exaggerated under these circumstances. Marked associative movements are never present in tic, but are always present in chorea. When an inhibited tic movement gives way to the desire to tic, the ensuing movement is accompanied by feelings of satisfaction to the patient; choreic movements are always unpleasant. Tic movements may be imitated, choreic movements not. Tic is a habit which tends to recovery, while chorea minor is a disease which tends to recovery in from two to six months.

New York Medical Journal.

August 24.

8 *Questionable Influence of So-Called Diathetic Condition in Diseases of Throat and Nose in Children. C. G. Kerley, New York.
9 Future of the Proctologist. S. G. Gant, New York.
10 Differential Diagnosis of Imbecility and Dementia Præcox A. R. Diefendorf, New Haven, Conn.
11 Two Forms of Gastroduodenal Dilatation. B. Robinson, Chicago.
12 Absence and Marked Diminution of Hydrochloric Acid of Gastric Contents in Cancer Involving Organs Other Than Stomach. J. Friedenwald and L. J. Rosenthal, Baltimore
13 The Art of Percussion. J. G. Beardsley, Philadelphia.
14 *Blood Pressure Studies in Typhoid. J. H. Barach, Pittsburg
15 Police Methods for Sanitary Control of Prostitution. (Continued.) F. Bierhoff, New York.

8. **Diathetic Conditions in Diseases of Throat and Nose.**—Kerley says that in his experience he does not find that any special type of constitution markedly tends toward adenoids or enlarged tonsils. Since these conditions occur among all classes of people, one must look for a factor common to them all. This he finds in the habit of early childhood of sucking the thumb, etc. The vacuum thus produced tends to produce hyperemia and stasis; further, the friction of the soft palate against the posterior pharyngeal wall gives rise to irritation, congestion and hypertrophy of the mucous glands. Colds, again, constitute another common factor, and according to Kerley's observations, excessive sugar eating is a common element in the production of cold. Cane sugar may be toxic to every child if given in sufficiently large amounts. Another factor is the tendency to lymphoid tissue involvement, peculiar to all children.

14. **Blood Pressure in Typhoid.**—Barach summarizes his paper with the following conclusions: 1. Blood pressure falls from the normal after the patient has taken to bed, stays down until convalescence is established, and then returns toward the normal. 2. Typhoid is a disease with blood pressure below 100 (accepting at present the Standard instrument as standard). 3. The blood pressure is governed by factors of its own, and bears no constant ratio to pulse rate or temperature. 4. In diagnosis, blood pressure studies may be of value in differentiating this disease from others, after we know the behavior of other diseases in this respect. In the diagnosis of the com

plication it has a value. 5. In prognosis, the blood pressure chart is of value; a steadily falling pressure means grave danger; so long as the blood pressure keeps up at a reasonable level, we may feel that there is reserve power to work with. 6. In the treatment of the disease, study of blood pressure will probably be found of the greatest actual value. It may teach us that the way to combat circulatory failure in typhoid is to increase peripheral resistance; or, when to direct our efforts at the heart and when at the blood vessels, when it is well to increase, and when it is well to diminish the amount of fluid in the vessels.

Boston Medical and Surgical Journal.

August 22.

16 *Results of Treatment of Acquired and Congenital Torticollis at Boston Children's Hospital Since 1879. E. H. Bradford and J. W. Sever, Boston.
17 *Search for a Suitable Climate. S. A. Fisk, Denver, Colo.
18 *Study of 750 Fractures of Long Bones of Lower Extremity. L. G. Paul, Boston.
19 *Habit Cure, Mental and Physical. J. W. Achorn, Boston.

16. **Torticollis.**—Bradford and Sever present in this paper their conclusions with regard to the treatment of torticollis as justified by the experience obtained at the Children's Hospital in the last 28 years; the term "torticollis" being confined to those conditions in which the deviation of the head results from a contraction chiefly of the sternal mastoid, and not including conditions arising from spinal caries, inflamed glands, etc. In view of the results of the study of this large number of cases, covering such a long period of time, the writers think that the following conclusions may be stated, namely: (a) That congenital or acquired muscular torticollis may be cured. (b) That an open incision, with complete division of the two heads of origin of the sternocleidomastoid muscle, is all that is necessary, except in unusual cases. (c) That the horizontal incision below the clavicle in the line of the skin cleavage is the best to use, in that it gives adequate room and also gives the best cosmetic results. (d) That plaster-of-Paris is the easiest applied, holds the head in the corrected position, and allows ambulatory treatment, and is, therefore, the best immediate dressing. (e) That the plaster cuirass should be worn not longer than two months. (f) That the Buckminster-Brown brace, Thomas collar, or wire collar should be worn for an average of four months following the removal of the cuirass. (g) That it is best to operate on patients between the ages of 2 and 12 years, to insure a good result, and to prevent permanent bony deformity of the face and head.

17. **Suitable Climate.**—Fisk considers the Colorado climate for young tuberculous persons in detailed comparison with many other parts, and particularly with southern California, and he concludes in favor of the Colorado climate "used properly."

18. **Fractures of Long Bones of the Lower Limb.**—Paul, after an examination of 750 cases of fracture of the long bones of the lower extremities, arrives at the following conclusions: 1. In fractures of the long bones of the leg the proportion of males to females is about 4 to 1. 2. Fractures of the right leg are only slightly more frequent than of the left. 3. Fractures of the femur are proportionately more frequent in children than in adults. 4. High fractures in any of these three bones are rare in children under 10 years of age, but are found in adults past middle age. 5. Fractures in children unite readily, and old age of itself is not a cause of delayed union. 6. The majority of fractures in which union is delayed are of the oblique or comminuted variety. 7. In the great majority of cases, delay in union is due to local causes, such as interposition of muscular tissue between the fragments, or faulty approximation of fragments. 8. Constitutional diseases rarely cause delay in union, but certain fractures, for some unknown reason, fail to unite, although the approximation is accurate and no constitutional disease is present. Practically all who have written on this subject are agreed that local conditions, as interposition of soft parts, imperfect approximation of fragments, imperfect immobilization, etc., will delay or prevent union of fractures, but opinions differ as to what extent constitutional diseases will influence union.

19. **Habit Cure.**—This is a presentment, in a very practical form, of the principle of autosuggestion in the cure of settled morbid conditions, mental or physical. It lays down clearly the principle on which are attained such good results as undoubtedly do occur in many instances under Christian Science. Here is an example: "A man suffering from insomnia will often establish this fact in his anatomy by sitting up regularly after night; or perhaps about sunset he begins to say, 'I can't sleep,' and then keeps on vaccinating himself with this idea until saturated with it. Of course, he knows he can't. He has been telling himself this for ten years, and he lies awake to prove it. Let him begin by saying, 'I shall sleep.' Let him say it 40 times a day—say it until the memory of 'I can't sleep' fails and the affirmation 'I shall sleep' takes its place." The paper abounds in useful aphorisms, for instance: "The person who wills wins; the person who tries presupposes that he is going to fail; the will to do a thing has faith for a companion, while trying to do a thing has failure for a mate." The author sums up as follows: "First comes the resolution to do the thing required, then the memorization of an affirmative expression, because it is constructive and toning; a good substitute for the expression that is negative and destructive. This practice should be kept up till memory takes on the affirmative expression and the negative fades away; and along with this goes concentration of mind and purpose; and finally one should seek any influence known that will assist, such as optimistic friends, reading that elevates, change of scene or thought, exercise or prayer, if one has faith."

Lancet-Clinic, Cincinnati.

August 24.

20 Dangers of Self-Medication. H. V. Sweringen, Fort Wayne.
21 Relationship in Disease Between Stomach, Liver and Intestines. F. L. Rattermann, Cincinnati.
22 Advertisement of Venereal Cures in Public Press. D. R Silver, Sydney, Ohio.

St. Louis Medical Review.

July.

23 *Blood Pressure and Its Relation to Disease. F. W. Froehling, Kansas City, Mo.
24 Is the Induction Machine Commonly Called Static of any Therapeutic Value? H. N. Chapman, St. Louis.
25 *A Little Human Milk. J. Zahorsky, St. Louis.

23. **Blood Pressure.**—Froehling gives a good picture of the present standing of the blood-pressure question, illustrating certain points by personal experience. For instance, he values the use of the sphygmomanometer not only for diagnosis, but for prognosis, in Bright's disease and he has often been able also to make the diagnosis of Bright's disease by means of Sahli's instrument, which he considers to combine the advantages of those of Basch and Riva Rocci, before examining the urine.

25. **A Little Human Milk.**—Zahorsky renews his plea, first made in *Pediatrics*, Vol. II, 1901, for the addition of a little human milk to the dietary of an infant deprived by circumstances of the mother's breast. Human milk can be obtained from the breast by milking, in the case of some woman who has more milk than her own child needs, into a sterilized cup or bottle, and should be treated as ordinary cow's milk, kept on ice, to be used as required. Many conditions, chiefly disorders of nutrition, are named in which the benefit of a little human milk in addition to other food is of value, e. g., severe marasmus, gastroenteric infection, rickets, scurvy, laryngospasm, pneumonia, bronchopneumonia, pertussis, dysentery, the acute exanthemata, in short, in most wasting conditions.

The Physician and Surgeon, Detroit.

April.

26 *Fatal Case of Typhoid. G. Dock, Anu Arbor.
27 Dietetic Treatment of Bright's Disease. G. W. McCaskey. Fort Wayne.
28 The Green Stool. W. H. Birchmore, Brooklyn.

26. **Fatal Case of Typhoid.**—Dock describes a fatal case of typhoid and expresses the opinion that operations for perforation in typhoid fever are still not done so much as they ought to be, and for the simple reason that we are entirely too exacting in our requirements for diagnosis. We wait not merely for perforation symptoms, but for peritonitis symptoms. The point is not to wait until the patient has peritonitis, but the minute it is suspected he has perforation—that the infection is going through the serosa—as shown by pain or change of temperature, or leucocytosis, or rise of blood pressure, or abdominal signs—then the thing to do is what we do with ap-

pendicitis when we meet it early enough—operate at once and do what we can. As to feeding, the trend of opinion is coming around to the belief in fuller feeding. Dock is convinced that if his patient can digest the food and has no bad symptoms, no pain, no tympanites, no undue rise of temperature or pulse, he is likely to get along faster, with less liability to thrombosis and many other complications.

The Laryngoscope, St. Louis.

July.

29 Modern Methods in Repair of Cleft Palate. J. B. Roberts, Philadelphia.
30 Cleft Palate and Hare-Lip. K. W. Baldwin, Philadelphia.
31 Submucous Perineural Injection of Anesthetic Solutions in the Nose. G. Killian, Freiburg, Germany.
32 Problem of Asepsis in Routine Office Work of the Laryngologist. T. Hubbard, Toledo, Ohio.
33 Ocular Diseases of Nasal Origin. J. A. Patterson, Colorado Springs, Colo.
34 *Differential Diagnosis of Tuberculosis and Syphilis of the Upper Respiratory Tract. L. M. Hurd, New York.
35 Anatomic and Surgical Considerations of the Frontal Sinus. H. J. H. Hoeve, Des Moines, Iowa.
36 Cerebellar Abscess Following Acute Suppuration of Middle Ear. W. D. Black, St. Louis.
37 Instrument for Application of Disc to Perforations of Ear Drum. J. W. Wamsley, Philadelphia.

34. **Tuberculosis and Syphilis of the Upper Respiratory Tract.**—Hurd says that certain phases of syphilis of the mucosa are histologically identical with tuberculosis. A number of giant cells, apparently not differing from those seen in tuberculosis, may be easily demonstrated. Consequently, in an area of chronic inflammatory action in the mucosa crowded more or less with round cells, with or without loss of epithelium and ulceration, the presence of one or more giant cells in every field does not justify an unqualified histologic diagnosis of tuberculosis. The presumptive diagnosis, whatever the clinical history, should be syphilis when a marked vascular thickening and the number of giant cells are out of all proportion to, and more prominent than, the coagulation necrosis, unless the tubercle bacilli can be demonstrated in the tissues.

Journal of the Arkansas Medical Society, Little Rock.

July.

38 Problem of Nutrition in Gastric Atony. F. B. Turck, Chicago.
39 Clinical Diagnosis of Tumors. M. D. Ogden, Little Rock, Ark.
40 *Duties and Relations of Physician and Surgeon. W. A. Snodgrass, Little Rock, Ark.
41 *Preventive Medicine. W. P. Illing, Little Rock, Ark.
42 Medical Legislation. C. R. Shinault, Little Rock, Ark.

40.—Abstracted in THE JOURNAL, June 22, 1907, page 2147.

41.—Abstracted in THE JOURNAL, June 22, 1907, page 2146.

Journal of Biological Chemistry, New York.

January.

43 Poisons of Amanita Phalloides. J. J. Abel and W. W. Ford, Baltimore.
44 The Glyoxylic Acid Reaction for Tryptophan, Indol and Skatol. H. D. Dakin, New York.
45 *Cases of Diabetes Treated with Secretin. N. B. Foster, New York.
46 *Treatment of Case of Diabetes with Secretin. H. D. Dakin and C. C. Ransom, New York.
47 The Chemistry of Flesh. H. S. Grindley and H. S. Woods.
48 Studies in the Chemistry of Ion-proteid Compounds. T. B. Robertson.
49 Action of Certain Vegetable Cathartics on the Isolated Center of a Jelly Fish. J. B. MacCallum.

February.

50 The So-Called Coferment of Lipase. A. S. Loevenhart.
51 Inhibiting Effect of Sodium Fluorid on the Action of Lipase. A. S. Loevenhart and G. Pierce.
52 Effect of Bile on Hydrolysis of Esters by Pancreatic Juice. A. S. Loevenhart and C. G. Souder.
53 Are the Animal Enzymes Concerned in the Hydrolysis of Various Esters Identical? A. S. Loevenhart.
54 Fate of Radium After Its Introduction into the Animal Organism. G. M. Meyer.
55 Quantitative Estimation of Tryptophan in Protein Cleavage Products. P. A. Levene and C. A. Rouiller.
56 Presence of Lactic Acid in the Urine of Pernicious Vomiting of Pregnancy. F. P. Underhill.

March, Vol. II, No. 6.

57 Studies of the Effects of Ions on Catalysis, with Particular Reference to Peptolysis and Tryptolysis. W. N. Berg and W. J. Gies.
58 Composition of Toxicodendrol. S. F. Acree and W. A. Syme.
59 Elimination of Indoxyl Sulphate in Urine of the Insane. J. H. Borden.
60 Kinds of Lactic Acid Produced by Lactic Acid Bacteria. P. G. Heinemann.

March, Vol. III, No. 1.

61 Thymus Nucleic Acid. W. Jones and C. R. Austrian.
62 Excretion of Boric Acid from the Human Body. H. W. Wiley, Washington, D. C.
63 *Creatin as a Brain Stimulant. S. S. Maxwell.
64 Formation of Glycogen in Muscle. R. A. Hatcher and C. G. L. Wolff, New York.
65 Relation of Thyroid to Autolysis. H. G. Wells and R. L. Benson, Chicago,
66 Relation of Extractive to Protein Phosphorus in Aspergillus Niger. W. Koch and H. S. Reed.
67 Relation of Electrolytes to Lecithin and Kephalin. W. Koch.
68 Experiments Bearing on the Mode of Oxidation of Simple Aliphatic Substances in Animal Organism. H. D. Dakin.
69 Reduction of Barium Sulphate in Ordinary Gravimetric Determinations. O. Folin.
70 Occurrence and Formation of Alkyl Ureas and Alkyl Amines. O. Folin.

May.

71 Synthesis of Protein Through the Action of Trypsin. A. E. Taylor.
72 Synthesis of Protein Through the Action of Pepsin. J. B. Robertson.
73 Detection and Estimation of Reducing Sugars. S. R. Benedict.
74 The Heat of Combustion of Vegetable Proteins. F. G. Benedict and T. B. Osborne.
75 Is the Saliva of the Dog Amylolytically Active? L. B. Mendel and F. P. Underhill.
76 Behavior of Uric Acid Toward Animal Extracts and Alkalies. P. H. Mitchell.
77 Manganese, a Normal Element in the Tissues of Fresh Water Clams. H. C. Bradley.
78 Quantitative Estimation of Extractive and Protein Phosphorus. W. Koch.
79 Day and Night Urines. E. Osterberg and C. G. L. Wolf.
80 Ammonia in Milk and Its Development During Proteolysis Under the Influence of Strong Antiseptics. H. C. Sherman, W. N. Berg, L. J. Cohen and W. G. Whitman.
81 Separate Determination of Acetone and Diacetic Acid in Diabetic Urine. O. Folin.

July.

82 Researches on Pyrimidins. H. L. Wheeler and T. B. Johnson.
83 *Relative Efficiency of Various Methods of Administering Saline Purgatives. F. W. Bancroft.
84 Proteins of the Pea. T. B. Osborne and I. F. Harris.
85 Nuclein Ferments of Embryos. W. Jones and C. R. Austrian.

45. **Secretin in Diabetes.**—The effect of secretin, an acid extract of the duodenal mucous membrane, in stimulating the external pancreatic secretion, having led Spriggs and Moore to the idea that its effect might also be exerted on the internal secretion, and to a consequent trial in diabetes, Foster records the clinical histories of five cases in which this method was used without favorable result, save that in the second case, while the sugar content remains the same, the patient has regained appetite, strength and weight to the extent of five pounds. Four other patients also showed no favorable result, though these are not reported, as the conditions did not leave Foster in absolute control. Foster is unable to confirm the favorable observations of Moore and his associates.

46. **Id.**—Dakin and Ransom also report a case of diabetes treated with secretin, in which a decrease in sugar accompanied by a diminished urine output continued until, after five weeks, the original sugar excretion was reduced by one-half, but it was not permanent.

63. **Creatin as a Brain Stimulant.**—Maxwell found that when powdered creatin was applied to the cortex of the motor areas, the results agreed in every essential detail with the tremblings and cramps described years ago by Landois, as following on such application. A saturated solution, however, was much longer in producing the effect, which was also much less marked. Other experiments show that creatin does not excite the peripheral motor nerves, and it is probable that it does not stimulate the white matter of the brain. Its hydroscopic action is not sufficient to cause the contractions, as in the case of cane sugar crystals applied to the brain, and Maxwell, therefore, concludes that substances like creatin probably do not stimulate directly, but bring about secondary chemical changes, to which the excitation is due.

83. **Administration of Saline Purgatives.**—Bancroft, as the result of a series of careful experiments, summarizes his conclusions as follows: 1. In any experiments dealing with the quantity and character of the feces eliminated, it is absolutely essential that the feces of the experimented animals should be compared with those of the control animals kept at the same time and treated in the same way as the experimented animals, except, of course, that no salts are given them. The need of this precaution is largely responsible for the different results arrived at by Auer and MacCallum. 2. When small doses of mild purgative are given a bulky diet will sometimes largely mask any effect that might be due to the purgative. In such experiments, therefore, a more concentrated diet should be given. 3. The subcutaneous injections of small doses of sodium citrate was found to increase the feces eliminated for the next

three to five hours to twenty-three times the amount eliminated by the controls. 4. The intravenous injection of maximum doses of sodium sulphate was found to increase the feces ten times. 5. The subcutaneous injection of 2 c.c. of barium chlorid was found to increase the feces eliminated for the next two hours fourteen and one-half times. 6. Large subcutaneous or intravenous doses of all three of these salts make the feces eliminated unusually moist. After barium chlorid the feces even become partially fluid. 7. Fluid feces can be more easily obtained with sodium citrate when it is given by mouth because it usually takes more than 100 c.c. of an $\frac{m}{6}$ solution to produce fluid feces, and this amount is almost always fatal when given subcutaneously. 8. With sodium sulphate, fluid feces are more easily obtained when the salt is given by the mouth because : (a) It is but slowly absorbed from the digestive tract, and so is passed down into the cecum which it distends and the contents of which it dilutes. It thus remains in contact with the walls of the digestive tract for a long time and has a chance to affect the mechanism for peristalsis and secretion which are contained in the walls. (b) It is but slowly absorbed from the subcutaneous tissue, and so never reaches the wall of the digestive tract in sufficient concentration to produce its maximum effect. (c) When introduced into the circulation it acts as a diuretic and is thus rapidly eliminated and never reaches the intestines in sufficient concentration and for a long enough time to produce its maximum effect before it has killed the rabbit. 9. With barium chlorid fluid feces are more easily obtained when the salt is given subcutaneously than when it is given by the mouth. 10. In considering the effect of any salt, it should always be borne in mind that the effect may be due to the activity of either anion or cation. Magnesium sulphate acts as a purgative on account of its anion. 11. All these results go to show that MacCallum's conclusions are correct: The mechanism for causing purgation is in the intestinal walls and is stimulated whenever any saline purgative reaches it in sufficient concentration, no matter in what way that purgative may have been introduced into the body.

Louisville Monthly Journal of Medicine and Surgery.

August.

86 *Current Treatment of Diseases of the Tear Passages. S. G. Dabney, Louisville.
87 Portal Hypertension. B. Robinson, Chicago.

86. **Diseases of the Tear Passages.**—Dabney concludes his article as follows: 1. A simple conjunctival wash and pressing out of the tear sac will usually suffice to cure dacryocystitis in the new-born—the time varying from a few weeks to a few months. 2. In chronic dacryocystitis, the nose should be examined and special attention given to the inferior meatus, removing obstruction and reducing inflammation. 3. In mild cases cure, and in severe cases much benefit may often be obtained by syringing with cleansing and astringent agents. 4. Probing is useful as an adjunct to the syringe, but it rarely curative, and if rudely performed may be injurious. 5. In tedious cases, those subject to lachrymal fistula or to recurring acute attacks or to impermeable stricture, extirpation of the tear sac should be advised with the prospect of cure of the suppuration and great improvement in the epiphora.

Journal of the Michigan State Medical Society, Detroit.

August.

88 Uses and Abuses of Proprietary Infant Foods. T. B. Cooley, Detroit.
89 *Treatment of Arthritis by Localized Passive Hyperemia. F. Smithies, Ann Arbor.
90 The Future Hygiene. M. Willson, Port Huron.
91 *The Neurotic Factor in Gastric Troubles. B. R. Corbus, Grand Rapids.
92 *Case of Perforation of Small Intestine, with Operation and Recovery. W. T. S. Gregg, Calumet.

89.—Abstracted in The Journal, July 13, 1907, page 181.

91. **Gastric Troubles.**—Corbus has found gastric trouble among the most prominent symptoms in 75 per cent. of neurasthenic cases, and insists on the importance of looking more to the neurotic factor in digestive disorders. It is a frequent starting point of a vicious circle.

92.—Abstracted in The Journal, July 13, 1907, page 179.

Journal of the Medical Society of New Jersey, Orange.

July.

93 *President's Address, Medical Society of New Jersey. A. Marcy, Jr., Riverton, N. J.
94 *Oration on Surgery, Medical Society of New Jersey. A. Vander Veer, Albany, N. Y.
95 *Oration on Medicine, Medical Society of New Jersey. M. Manges, New York.
96 Significance of Abnormal Stools in Early Life. G. R. Pisek, New York.

August.

97 *Legality of the State Medical Examinations and Reciprocity in Interstate Medical Licensure. E. L. B. Godfrey, Camden, N. J.
98 *Lymphatics. E. Z. Hawkes, Newark, N. J.
99 Plea for More Gentle Wound Manipulation. J. H. Bradshaw, Orange.

93.—Abstracted in The Journal, July 20, 1907, page 269.

94, 95, 97.—Abstracted in The Journal, July 20, 1907, page 267.

98. **Lymphatics.**—Hawks insists on the importance of a thorough knowledge of the lymphatics for correct interpretation and successful treatment of many pathologic processes, and instances the relation of chills and fever to lymphatic and venous absorption respectively, the spread of cancer, etc.

Virginia Medical Semi-Monthly, Richmond.

August 9.

100 *Unclassifiable Fevers. J. Tyson, Philadelphia.
101 Traumas of the Brain. J. S. Horsley, Richmond.
102 Functional Disorders of the Biliary Secretion and Their Treatment. H. Richardson, Baltimore.
103 Report of a Frightful Vesicovaginal Rupture, Menstruation Suspended. R. S. Hill, Montgomery, Ala.
104 Bier's Treatment with Hyperemia. C. R. Robins, Richmond.
105 Treatment of Trifacial Neuralgias. W. S. Wiatt, East St. Louis, Ill.
106 Principles of Surgery. (Continued.) S. McGuire, Richmond.

100. **Unclassifiable Fevers.**—Tyson reports six cases of anomalous febrile conditions, and discusses their classification, deciding the first to be simple continued fever, notwithstanding its resemblance to typhoid fever, paratyphoid, cerebrospinal and syphilis, respectively. The second may have been a case of influenza, no positive diagnosis could be made, and so on. He reports the cases in support of a plea for the retention of the terms "simple continued fever" and "ephemeral fever," to cover those instances of fever that do not admit of classification under the ordinary divisions.

Annals of Gynecology and Pediatry, Boston.

August.

107 *Buttermilk as a Food for Infants. F. H. Allen, Boston.
108 Atypical Tphoid. E. V. Sullivan, Lawrence, Mass.

107. **Buttermilk for Infants.**—Allen says that buttermilk has been used more than 100 years as a food for infants in Holland, and even in Germany it has been used with much success for five years, though in America its use is little known. He describes the preparation, composition, indications and contraindications for the use of buttermilk, the method of feeding with it, and the results of following its use. The theoretical objections to buttermilk as a rational food for infants are certainly strong, for a mixture more unlike breast milk it would be hard to imagine, yet the clinical results do not support the theoretical objections in this (as in many other) cases. The buttermilk was tried almost entirely on patients suffering with gastrointestinal disturbance, 127 receiving it during a period of from three to twenty days. Of these, 84 showed marked improvement. It appeared to have some slight favorable effect on the vomiting and in some cases to cause a fall of temperature. A gain of body weight was found in a proportion of cases.

Colorado Medicine, Denver.

July.

109 The Deviated Nasal Septum in Causation of Respiratory Diseases. A. R. Solenberger, Colorado Springs, Colo.
110 *Ocular Headaches. E. W. Stevens, Denver.
111 *Acute Suppurative Otitis Media and Mastoiditis. W. C. Bane, Denver.
112 Hygiene of the Upper Air Passages. C. E. Cooper, Denver.
113 *Importance of Early Recognition and Treatment of Squint. J. M. Foster, Denver.
114 *Consideration of the Principles of Infant Feeding. A. G. Taylor, Grand Junction.

110, 111, 113.—Abstracted in The Journal, Oct. 20, 1906, page 1321.

114.—Abstracted in The Journal, Oct. 20, 1906, page 1404.

Texas State Journal of Medicine, Fort Worth.

July.

115 Thirst Cure. J. W. Scott, Houston, Texas.
116 Hydrotherapy. J. M. Frazier, Belton, Texas.

117 Sarcoma of the Long Bones. B. Saunders, Fort Worth.
118 Case of Ovarian Cyst Complicated by Pregnancy. F. D. Thompson, Fort Worth.

The Medical Standard, Chicago.

July.

119 Treatment of Rectal Fistula. C. J. Drueck, Chicago.
120 Résumé of Gastrointestinal Diseases. J. W. Van Derslice, Chicago.
121 How to Administer Chloroform. P. Nichols, Hot Springs, S. Dak.
122 Relation of Sigmoid to Adjacent Viscera. B. Robinson, Chicago.
123 The Disintegration of George Hardin. E. W. and N. H. Buskett, Coffeyville, Kan.

Indiana Medical Journal, Indianapolis.

July.

124 Value of Bismuth Skiagraph Shadow in Clinical Study of Gastroptosis and Enteroptosis. A. B. Graham, Indianapolis.
125 Heart Block. J. A. McDonald, Indianapolis.
126 Treatment of Influenza. S. E. Earp, Indianapolis.
127 *Hyperemia as a Remedy. L. Burckhardt, Indianapolis.
128 Should We Dispense Our Own Medicines? E. R. Beard, Liberty, Ind.

127.—Abstracted in The Journal, June 22, 1907, page 2145.

Archives of Ophthalmology, New York.

July.

129 Eyeball Injuries by Iron Foreign Bodies. H. Knapp and L. Stoll, New York.
130 An Unusual Form of Hereditary Congenital Cataract. B. Chance, Philadelphia.
131 Double Choked Discs Associated with Compressed Air Disease. L. W. Callan, New York.
132 Venæ Vorticosæ Choriovaginales in Myopic Eyes. J. Van der Hoeve, Leyden.
133 Formation of Permanent Superior Retrotarsal Fold, in Operation for Symblepharon. H. Wolff, Berlin.
134 Bacteriology of Chronic Purulent Inflammation of the Meibomian Glands. A. A. Malakoff, Jr., Moscow.

Central States Medical Monitor, Indianapolis.

July.

135 Blood of the Anemias. G. L. Chapman, Indianapolis.
136 Cataract Operations and After Care. H. C. Parker, Indianapolis.
137 Hardened Chewing Gum Removed from the Right Bronchus with the Aid of the Killian Bronchoscope. J. J. Kyle, Indianapolis.
138 Metabolism. J. Burke, Manitowoc, Wis.
139 The Obstetrical Binder. E. Charles, Summitville, Ind.
140 Treatment of Sciatica. L. E. Cox, Greenwood, Ind.
141 Case of Imperforate Anus. J. A. Gibbons, Mitchell, Ind.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

August 10.

1 Progress of the Medical Man. F. Taylor.
2 *Epileptoid Attacks in Tachycardia and Bradycardia. F. H. Clarke.
3 *Bilateral Lesion of the Auditory Cortical Center: Complete Deafness and Aphasia. F. W. Mott.
4 *Prevention of Valvular Disease. R. Caton.
5. Theory and Technic of Orthodiagraphy. P. C. Franze.
6 *Case of Depression of Parietal Bone in New-Born Infant. I. Newton.
7 Malnutrition in Infant Due to Excessive Putrescence in Alimentary Canal, Successfully Treated by Lactic Acid Bacilli. A. Veitch.
8 Case of Intussusception. R. Manwaring-White.

2. **Epileptoid Attacks in Tachycardia and Bradycardia.**—Clarke calls attention to certain nervous conditions, common to tachycardia and bradycardia, which though apparent opposites are very closely allied. The particular point to which he directs attention is the occurrence of severe epileptiform convulsions, with loss of consciousness, which, however, he asserts, are certainly not epileptic, but are sometimes seen in both conditions. In the first case he reported, after the tachycardia a pause of some seconds elapsed; when the interval was short, say four or five seconds, an expression of alarm was noted, and a feeling as if "something were about to happen," was complained of. Intervals of from six to nine seconds caused the face to become pale and the lips livid. There was a scream, the thumbs were drawn inward, the head backward, and there was a convergent squint. In the milder attacks consciousness was not lost, and the patient was able to talk immediately afterward. In lapses of from eight to twelve seconds, consciousness was lost, and convulsive seizures were more severe. Abdominal pulsations, which were marked during the tachycardia, continued after the cessation of the radial pulse. Slight contractions of the heart, probably auricular only, were present during the attack. Intensity of the fit was proportional to the cessation of radial pulse. The return of the pulse cut short the attack, but little disturbance of the general health occurred, even after three years. Three urinary calculi were passed, and occasionally there were rheumatic or gouty symptoms in the small joints. A similar case is also reported. In contrast, the author describes two cases, one of his own and one of Dr. Webster's, of bradycardia, in which similar symptoms took place. He refers to the common statement that Napoleon Bonaparte was an epileptic, which he disputes, asserting that Napoleon was a sufferer from bradycardia, his normal pulse being only 40 a minute, and he regards Napoleon's seizures as being of the same character as those above described, and as due to prolonged cardiac systole. The occurrence of the convulsive seizures was doubtless due to suddenly withheld nutrition of the brain, and that without reference to any sudden change of blood pressure in the cerebral vessels, in support of which Clarke cites Langendorff's experiments in 1878. Detailing recent discoveries of the relation of heart block to the band of His, Clarke suggests that tachycardia is a pure neurosis characterized by a great increase in auricular contractions from disturbed nervous influences. Over-exertion occasions fatigue in the conductivity of the bundle of His, resulting in missed impulses, and delays ventricular contraction, causing cerebral anemia and the before mentioned nervous symptoms. In tachycardia, consequently, the prognosis is not bad. Bradycardia, being due to serious structural changes in the bundle of His, is never recovered from, and the chances of sudden death must always be remembered. Rest is the most important treatment. Any deviation from health must be attended to. Clarke's experience with bromids in tachycardia has been bad. Nerve tonics, zinc valerianate or oxid, do good; glycerophosphates or glyceroformates are suggested, but not from experience. Strychnin or nux vomica, atropin belladonna and alcohol are better avoided. In bradycardia, strychnin hypodermically, with digitalis or stropanthus, seems to have been of use. Potassium iodid has led to recovery in a case of Osler's.

3. **Bilateral Lesion of Auditory Cortical Center.**—Mott publishes the sequel of an interesting case, the clinical account of which was published in the *Archives of Neurology*, iii, page 401. There was extensive destruction of the first and second temporal convolutions on both sides, due apparently to emboli from old sclerotic vegetations of the mitral valve, found at autopsy, but not disclosed to repeated examinations during life. The history of the case causes Mott to draw conclusions on two important disputed points: 1. That Marie is right (*Sem. Méd.*, May 23, 1906; reviewed editorially in The Journal, Aug. 11, 1906, page 436) in stating that the area of cortex destroyed is not a true index to the damage to the brain, and that by assigning functions to areas of cortical destruction, without considering the possibility of the loss of function being due to destruction of subcortical fibers belonging to other regions, we have fallen into a great error. On the other hand, he appeals to this case—the patient's appearance, acts, endeavors to make people understand his wants, desire to help the attendants, cleanliness of habits, comprehension of surroundings, etc.—as contradicting the dictum of Marie, that loss of intelligence is one of the most important characteristics of lesions of the zone of language. 2. The case in point supports Bastian's views that the primary revival of spoken words during thought takes place in the great majority of persons by a subconscious process in the auditory center.

4. **Prevention of Valvular Disease.**—Caton reminds us that in acute rheumatism the inflammatory changes in the joint tissues and the endocardium respectively are like in kind, but the essential treatment of rest is not equally possible of application. The work of the heart varies with times and circumstances, however, so that within limits the amount can be regulated, if we take sufficient trouble. Pain and fever can be lessened by adequate doses of some salicyl compound or other measure appropriate to the condition. Absolute rest of body and mind, light diet, a gentle sedative in sleeplessness, fairly full doses of sodium or potassium iodid three or four times daily, to aid absorption, lessen the volume of the blood and diminish blood pressure. These measures slow the heart

and diminish its amount of work. Secondly, through the first four dorsal nerves, in their distribution between the clavicle and the nipple, the trophic and vasomotor nerves of the heart can be stimulated without exciting the muscle fibers. This is effected by small blisters, applied one by one. The rest treatment is the most important and must continue for six or eight weeks, or even longer, and it must begin early, before marked structural changes occur. This depends on a capacity to recognize the advancing stages of valvular disease in the making. The normal first sound at the apex consists of two elements: 1, The less important muscle sound; 2, the crack of the stretched valve ducts made taut by the sudden high pressure of the blood stream under the powerful squeeze of the ventricle. Thickening and stiffening of the valve membrane from inflammatory change with subendothelial effusion, and the formation of vegetations gradually change the clear sound into a longer and duller one, eventuating in a whiffing sound that ultimately develops into a real regurgitant bruit.

6. **Depression of Parietal Bone.**—Newton describes a case of a new-born child, with a saucer-like depression over the left parietal bone, extending one and a half inches from the coronal suture toward the occipital bone, resembling that often seen in a punctured India rubber ball. On the twelfth day after birth, trephining was performed, a disc of bone reflected as a flap, and a blood clot adherent to the dura mater was removed.

The Lancet, London.

August 10.

9 *General Surgical Anesthesia. F. W. Hewitt.
10 Experimental Researches on Specific Therapeutics. P. Ehrlich.
11 *Bodily Posture and Cardiac Physical Signs. W. Gordon.
12 *Researches into Etiology of Carcinoma. W. F. Robertson and M. C. W. Young.
13 Study of Conditions Producing Anomalous Reaction in Testing Urine for Sugar with Fehling's Solution. (Concluded.) F. W. Pavy.
14 Method of Amputation at the Ankle Joint which Leaves the Heel Intact. C. G. Watson.
15 *Suggestion for Radical Cure of Femoral Hernia. J. S. Pearson.
16 Case of Streptococcic Septicemia. W. G. Sutcliffe and H. W. Bayly.
17 Polydactylism. W. J. Morris.
18 Case of Belladonna Poisoning. H. J. Brewer.
19 *Effects of Borax on Infants. J. C. McWalter.

9. **Anesthesia.**—Hewitt, in his third lecture, states, as a result of personal experience with inhalation of pure nitrogen, that its initial sensations are of the same type as those that characterize the inhalation of the recognized anesthetics, namely, a peculiar, pleasurable, rhythmic, indescribable thrilling or sensory disturbance. This fact, he considers, strongly supports Snow's contention that all volatile narcotics act in the same way by "arresting or limiting those combinations between the oxygen of the arterial blood and the tissues of the body, which are essential to sensation, volition, and to all the animal functions." He also discusses the advantages and disadvantages of the Trendelenburg posture, and particularly states that patients with any pre-existing respiratory affection should not as a rule be placed in the Trendelenburg posture. He reports a case of early syncope under the A. C. E. mixture, and a case, unique in his experience, of intercurrent asphyxia during anesthetization, in a patient in whom excision of the tongue had been previously performed.

11. **Cardiac Physical Signs.**—Gordon sums up his paper as follows: In most cases the change from the erect position to the recumbent: 1. Raises and narrows the normal cardiac dulness. 2. Makes the first heart sound duller and the second sharper, thus producing the classical "lub-dup." 3. Diminishes the anteroposterior diameter of the chest. 4. Markedly narrows the dulness of an enlarged heart. 5. Increases the loudness and the area of audibility of (a) "hematic murmurs" both at the base and apex, (b) mitral and tricuspid regurgitant murmurs, and (c) aortic stenotic murmurs (some of the murmurs may be audible only in the recumbent position). 6. Lessens the loudness and area of audibility of (a) the "venous hum" in the neck, and (b) the presystolic murmur of mitral stenosis (some of these murmurs may only be audible in the erect posture). 7. Leaves unaffected the murmur of aortic regurgitation. 8. Increases the loudness of the accentuated pulmonary second sound. 9. Makes more marked the reduplication of the reduplicated second sound (in some cases the reduplication is only heard in the recumbent position). 10. Causes the partial or complete disappearance of the cardiac dulness in certain cases of cancer in their later stages. Taking all these facts into consideration, Gordon believes that it has been shown that no description of the cardiac physical signs can be regarded as complete which does not include a statement of the position of the patient at the time of the observation.

12. **Etiology of Carcinoma.**—Robertson and Young report an improved ammonio-silver process, with which they have examined specimens of squamous epithelioma and malignant adenoma, in which they find that over extensive areas the nuclei of nearly all the epithelial cells contain several cyanid-fast bodies in single spheres, pairs and short chains. These are certainly not normal structures, and probably not degeneration products. Numerous facts support the view that they are stages of a special protozoan organism.

15. **Femoral Hernia.**—Pearson twists the isolated sac, transfixing and tying it with No. 4 silk, leaving the two ends of the silk long. Both ends are threaded with curved needles, and one end is passed twice through Poupart's ligament and then out through Gimbernat's ligament. The other end is buried deep in the pectineus, and also brought out through Gimbernat's ligament. The ends are then tightly tied and the tied sac acts as a thick plug at the weakest point, securely closing the opening.

19. **Borax Poisoning.**—As bearing on the use of borax as a food preservative, McWalter reports the case of an infant two months old, born strong and healthy, which developed thrush a fortnight after birth. A mixture of borax and honey was applied, which relieved the thrush, but the child developed a liking for it, so that from two to three 4-dram boxes were used every week. The author describing the effects says that a progressive wasting had set in, and when he saw the infant there was a marked erythematous eruption on the palmar aspect of the hands and on the plantar aspect of the feet, with distinct desquamation between the toes and the fingers; well-marked urticarial eruption was present on the arms and forearms, but the region between the legs was notably free from eruption. There were tumefaction and tenderness of the abdomen, and a raw, pinky redness of the lips, tongue, palate and throat, with vomiting and looseness of the bowels. The face had a wizened look, the skin was soft and brownish, the eyes were bright, and the joints, especially the knees, tender, swollen and somewhat stiff. There was no evidence of syphilis or other cause for the wasting and rash except the borax, of which the child had about 10 grains every day for six weeks. On stopping the borax and confining the infant to breast milk, together with a little raw beef juice, it appears to be recovering rapidly.

The Practitioner, London.

August.

20 *Recent Research Work on Cancer. S. M. Copeman.
21 Spread of Cancer in the Upper Lip and Its Influence on Treatment. G. L. Cheatle.
22 *Diagnosis of Addison's Disease. O. Grünbaum.
23 Backward Displacements of Uterus. G. B. Smith.
24 Movable Spleen. T. G. Moorhead.
25 Two Cases of Leprosy Affecting the Eyes. A. W. Ormond.
26 *Inquiry into the Cause of Seasickness. K. F. Lund.
27 Hernia. H. M. Rigby.
28 Abdominal Surgery. H. Upcott.
29 Treatment of Ulcers. B. C. Stevens.
30 Dental Surgery. J. G. Turner.

20. **Cancer.**—Copeman's conclusions summarized are: Cancer is to some extent preventable; it is not in the ordinary sense an infection; it is a local manifestation of perverted faulty metabolism. In spite of temporary amelioration of symptoms, in some instances, with or without retardation of growth, early and complete operative measures afford the only satisfactory treatment. It occasionally disappears spontaneously. Further research into the conditions favorable to such spontaneous cure may ultimately lead to a specific treatment.

22. **Addison's Disease.**—Grünbaum, considering that in many apparently typical cases of Addison's disease in which the suprarenal glands have been proved to be healthy and their extract physiologically potent, disease of the solar plexus can be demonstrated, is led to the conclusion that the internal secretion of the medulla of the suprarenal may act by stimulating the sympathetic system. He discusses in detail the

pathognomonic signs, pigmentation, asthenia, vascular conditions and the blood. He takes the blood pressure at least three times in all suspected cases, and if it is found low, administers suprarenal extract by the mouth, 3 grains, three times a day, for three days. If there is a rise of more than 10 per cent. in the pressure, the probability that the patient suffers from adrenal insufficiency approaches a certainty. In regard to the blood, the opsonic index of the serum for the tubercle bacillus may be taken, as tuberculosis is the commonest cause of the destruction of the capsule.

26. **Seasickness.**—Lund affirms the unanimity of opinion as to the central origin of seasickness, and with regard to the diversity of opinion as to the origin of the stimulus concludes: (a) Strictly speaking, the vomiting is not due to the unusual impression of vision, as it occurs in some people on land; it occurs even when the eyes are closed, and the blind suffer as much as, if not more than, sighted people. (b) It is not due to smell. Any bad or unpleasant odor may cause vomiting. This cause is common to people on land or sea; in fact, to any or all, including deaf mutes, who have sensitive nasal organs. (c) It is not due to momentary displacement of viscera which seems to occur in swinging, or in descending in a lift. The sensation is present whether the eyes are open or closed, but it does not occur in deaf mutes. (d) There is some mechanism in the auditory organ, possibly the system of semicircular canals, which is directly affected by the oscillations of a vessel at sea, and which acts as a stimulus to the vomiting center. [The suggestion that seasickness is due to the disturbance of the perilymph of the semicircular canals was made by J. A. Irwin, The Pathology of Seasickness, *Lancet*, 1881, ii, p. 907.—Ed.]

Journal of Tropical Medicine and Hygiene, London.

August 1.

31 *Description of Diplococcus Found in the Lesions of Severe Chronic Pemphigoid Disease of West Africa. F. C. Wellman.
32 Palliative Treatment of Elephantiasis. A. Castellani.
33 Plague. W. J. Simpson.

31. **New Diplococcus.**—Wellman has isolated from the vesicles of a peculiar severe pemphigoid disease in West Africa a diplococcus differing as to pathologic effect from the organism described by Clegg and Wherry, and Almquist, and culturally and morphologically from those isolated from pemphigus by Matznauer and Leiner, for which he proposes the name *Micrococcus dermolyticus, sp. nov.*

Australasian Medical Gazette, Sydney.

June 20.

34 Insanity in Every-Day Practice. S. H. R. Montgomery.
35 *Peripheral Neuritis Due to Lead Poisoning in Children. J. M. Gill.
36 Intubation and Tracheotomy. J. K. Couch.
37 Fever in Pulmonary Tuberculosis. F. C. Griffiths.
38 Incontinence of Urine Cured by Ventrofixation of Uterus. W. T. Chenhall.
39 Two Ruptured Tubal Pregnancies in Same Patient Within a a Year. Æ. J. McDonnell.
40 Two Postmortem Abnormalities. N. A. W. Conolly.
41 Case of Multiple Myomectomy. F. J. T. Sawkins.
42 Fracture of Anterior Fossæ of Skull. H. E. Pridham.

35. **Lead Poisoning in Children.**—Gill reports three cases, and says that the symptoms of lead poisoning in children in some respects differ from those in adults. He cites as characteristic symptoms extreme tenderness on pressure over the affected nerve; that the lower extremity is much more affected than the upper; that the blue line on the gums may be absent if the teeth are clean and free from tartar, and that permanent damage to the brain may result, the acute stage being sometimes accompanied by severe convulsions.

British Journal of Children's Diseases, London.

July.

43 Treatment of Common Tuberculous Affections in Children. C. R. Keyser.
44 *Peculiar Outbreak of Erythema Nodosum. W. L. Symes.
45 Cases of Congenital Anomalies in Children. J. Allan.
46 Thrush and Its Severer Effects. J. G. Sharp.

44. **Erythema Nodosum.**—Symes reports in brief 13 cases, 12 of which occurred in one of the homes for children with which he is connected. He emphasizes the following points: 1, It may become a serious and dangerous disorder; 2, it is sometimes epidemic; 3, it appears to be infective; 4, endocarditis may arise during its course; 5, it may quickly be followed by meningitis.

Presse Médicale, Paris.

47 (Nos. 48-55.) *Penetration of the Intact Skin by the Tubercle Bacillus. (Pénetration du bacille tuberculeux par la peau intacte.) V. Babes.
48 *Time of Leaving Bed After Normal Labor. (Etude sur lever précoce après l'accouchement physiologique.) L. Bouchacourt.
49 *The Liver in Heart Disease. (Recherches sur foie cardiaque.) A. Bauer.
50 Cardiac Reflex of Abrams. (Reflexe Cardiaque.) J. Heitz.
51 Latero-lateral Anastomosis in Intestinal Surgery. (L'anastomose latero-laterale en chirurgie intestinale.) E. Bougon and P. Decrocque.
52 Thiosinamin in Deafness. (Traitement de la surdite.) M. Lermoyez and G. Mahu.
53 *Lime and the Arteries. (Lachaux et les Artères.) M. Loeper and P. Boveri.
54 *Nature of Malignant Tumors. (Tumeures malignes.) L. Hallion.
55 Diagnosis of Buccal Leucokeratoses. M. Ferrand.
56 *Conclusions on Length of Stay in Bed After Delivery. (La question de séjuer au lit des accouchées.) L. Bouchacourt.
57 *Hyperglycemia and Hyperglycystia in Diabetics. (Hyperglycémie et hyperglycistie chez les diabetiques.) M. Labbé.
58 Reaction of Eye to Tuberculin in Pulmonary Tuberculosis. Sa valur séméiologique dans la tuberculose pulmonaire.) M. Letulle.
59 Prognosis of Surgical Intervention in Spina Bifida. P. Lecene.
60 *Functional Relations of Stomach with Other Digestive Organs. (Rapports fonctionnels de l'estomac avec les autres organes digestifs.) A. Frouin.
61 Clinical Form and Diagnosis of Sporotrichosis. Monier-Vinard.
62 *Ethereal Sulphates in Urine in Intoxication of Gastrointestinal Origin. (Les sulfo-éthers urinaires dans l'intoxication d'origine gastro-intestinale.) R. Brunon and M. Guerbet.
63 Hypnotics with Alcohol Radicals. (Les Hypnotiques à Radicaux alcoholiques.) A. Martinet.

47. **Penetration of Skin by Tubercle Bacilli.**—Babes has experimented by rubbing the cultures from tubercle bacilli into the skin of guinea-pigs. In some cases the hair was simply cut away; in others the skin was shaved. The bacilli penetrated the shaved skin with readiness, and in some cases were able also to penetrate the skin when the hair had merely been cut off. The author regards it as probable that tuberculosis may be acquired through patches of diseased skin, although in his experiments there was no evidence of any disease of the skin at the point where the bacilli had entered.

48. **Early Rising After Normal Labor.**—Bouchacourt reviews the opinion expressed with regard to the disadvantages and advantages of the puerperal woman leaving the bed early after a normal labor. The dangers which are encountered by this practice are divided into first, the danger of infection; this the author concludes is due not to leaving the bed, but to neglect of aseptic precautions. Second, danger of arrest of the involution of the uterus. Involution appears, according to various authors, to be actually more rapid after leaving the bed, and to have been completed to a sufficient degree by the ninth to the twelfth day after delivery. Third, danger of uterine displacement. Here again he cites various authors to show that there is less danger of displacement by the movements of rising than by keeping the horizontal position. Fourth, danger of embolism. There is no question that sudden movements may cause the detachment of a clot closing a uterine vessel, and thus provoke hemorrhage or embolism. However, Küstner insists on the fact that in the course of his experimental researches he has not observed a single case of embolism. Fifth, danger of ptosis. This is undoubtedly real, and the authors who recommend leaving the bed early insist on the necessity of applying a proper abdominal bandage. Among the advantages attributed to a short stay in bed are, first, a favorable influence on the digestive function; second, favorable influence on the circulation and urinary function, and third, promotion of the secretion of milk. (See also abstract No. 56.)

49. **Liver in Heart Disease.**—Bauer refers the changes in the liver in consequence of cardiac disease to the dilatation of the capillaries connected with the hepatic vein, and shows by experiments that the typical picture of the cardiac liver can be reproduced by tying the inferior vena cava in the thorax and immediately after opening the abdomen and tying the portal vein, allowing the animal to die under the anesthetic. In these conditions the capillaries are found greatly dilated, the liver tissue compressed, the cells generally flattened but sometimes globular, containing neither pigment nor fatty globules.

Bauer does not deny that changes may take place in the liver cells in the course of cardiac disease, and influence, to some extent, the resulting lesion. But, in his opinion, the dilatation of the hepatic capillaries is the principal cause of the changes found.

53. **Lime and the Arteries.**—Loeper and Boveri hold that the bones are the natural outlet for an excess of calcium in the body fluids. As the organism grows older this outlet is limited, and the tendency to deposition in the walls of the arteries is increased. Animals whose tissue fluids are saturated with calcium salts are especially susceptible to the action of poisons affecting the vessels, and such poisons, especially adrenalin, they state, cause the deposition of the calcium in the arterial walls if the blood is rich in calcium salts. Comparative experiments with rabbits fed on food rich in calcium salts, such as cabbage, showed that they acquired calcification of the arteries much sooner than did control animals fed on potatoes or other food poor in lime. Artificial calcification of the arteries can not be induced in pregnant females because the excess of calcium is transferred to the fetus. The excess of calcium salts can not be said to cause calcification, but predisposes to it.

54. **Nature of Malignant Tumors.**—Hallion criticises the theory of Dungern and Werner that cancer can be caused by an exaggeration or combination of irritants, and regards it as insufficient, because the almost infinite difference between the slight proliferation caused by simple irritation, and the progressive changes characteristic of malignant growths, indicates a similar difference in cause. Hallion adheres to his theory of a sort of fecundation of one cell by another.

56. **Conduct of the Puerperium.**—Bouchacourt concludes that the woman should be permitted considerable freedom of movement during her stay in bed, and should not be restricted to the dorsal decubitus position. Gymnastics or passive movements are advised by some authors. The length of stay in bed should be suited to the character and social station of the patient, and the gravity of the case. From one week to two weeks is sufficient in normal cases. The patient, after leaving bed at first, should rest on the couch, but may soon be allowed to walk about the room, and may go out, preferably in a carriage, at the end of three weeks.

57. **Hyperglycemia and Hyperglycystia.**—Labbé thinks that not enough emphasis has been placed on the saturation of the blood and tissues of diabetics with glucose as the cause of the symptoms exhibited. He divides diabetics into two classes: 1, Those in whom the origin of glycosuria is exclusively alimentary and, 2, those who form glucose from the albumin and fat ingested, or even from their tissues. In the first class there is a defect in the ability of the organism to burn sugar, and it accumulates in the tissues and in the blood. An excess of sugar in the tissues is termed hyperglycystia, and the excess in the blood hyperglycemia. Diabetics differ in their power to oxidize glucose, and the retention in the tissues begins when the amount of carbohydrates ingested is greater than that which they are able to oxidize. The accumulation of glucose in the tissues does not immediately produce any symptom, but when a maximum is reached, its excretion by the kidneys begins showing glycosuria. The necessity for an increase of fluids results in polydypsia and polyuria. The nervous symptoms follow in consequence of the saturation of the tissue fluids with glucose. The retention of glucose in the tissues explains the fact that glycosuria does not immediately follow the ingestion of an amount of carbohydrates above the degree of tolerance. On the other hand, the fact that glycosuria still continues after the reduction of the amount ingested below that which can be tolerated, is explained by the gradual excretion of the glucose, which had accumulated in the system. Sometimes this excretion is so slow that glycosuria continues for an indefinite period, but is finally removed by absolute avoidance of carbohydrates. Labbé says that it is not necessary, therefore, to conclude that the excretion of a small amount of sugar after carbohydrates have been entirely excluded from the diet indicates that sugar is formed from fat or albumin. He has calculated that the organism of a diabetic weighing 60 kilograms (132 pounds) may contain in the body fluid, the liver and the muscles a quantity of carbohydrates in the form of glucose and glycosin equal to 678 grams (22.6 ounces). The ability of the organism to deposit glucose in the form of glycogen may modify the effects of the ingestion of an excess of carbohydrates. Experiments made by von Noorden have shown relative poverty in glycogen in the liver and muscles of diabetics. The author suggests the possibility that glucose is retained in a form of carbohydrate differing from glucose and from glycogen. The treatment of these conditions is at present exclusively dietetic.

60. **Relation of Stomach to Other Organs.**—Frouin reports some interesting results of the removal of the stomach with the view to determining whether the stomach is essential to life or exerts any influence on other organs by internal secretion. He removed the stomach completely from dogs and succeeded in keeping them alive for months and in one instance for five years. Although the animals continued to live, it was possible to demonstrate certain changes which show that the function of the stomach is not simply to serve as a reservoir for the food. In these dogs from which the stomach had been removed, for from three months to five years, there was a notable distension of the abdomen. At the autopsies more or less intense congestion of the liver was found, and sometimes a hypertrophy of this organ. In the animal which lived five years there were numerous small cysts in the kidneys and an abscess in the cortical portion. Frouin attributes these changes to the removal of the stomach. In normal animals it is possible to recover pepsin from the various organs, but in animals from which the stomach has been removed no pepsin can be found in the organs. It has been shown that the ferment is produced in the stomach and absorbed from it into the blood. Frouin believes that this ferment is useful in the intracellular fermentations, and that the metabolism will suffer to a greater or less extent when the organ is removed. He reviews the production and action of secretin, and explains that while the acid secretions of the stomach are active in producing secretin, there are other substances which have a similar action; for instance, soaps. Fleig has found that alcohol produces secretin, consequently when the stomach is removed the pancreatic and other digestive secretions are stimulated in such a way as to replace the digestive action of the stomach.

62. **Ethereal Sulphates in Gastrointestinal Putrefaction.**—The conclusions of Brunon and Guerbet are: 1. The coefficient of intestinal fermentation is the relation of the ethereal sulphates of the urine to 100 parts of total urinary nitrogen estimated in SO_3. 2. As a result of experiments made by one of the authors on healthy individuals, this coefficient is often less than 1, and never passes 1.4. Diets such as milk, vegetarian, mixed or meat, do not affect this result. 3. On the other hand, in patients in whom one suspects hepatic or renal insufficiency (except in the case of uremia, in which it tends to be depressed), this coefficient may serve to measure the degree of alimentary intoxication. It exceeds 1.4 and may reach a very high figure. In their observations this elevation of the coefficient almost always coincided with a slight albuminuria. 4. The diet has a very marked effect on the coefficient; the vegetarian or milk diet associated with absorption of lactic acid ferments lowers it. 5. Clinical improvement has always been observed in these cases. 6. The determination of the coefficient of intestinal fermentation is a simple clinical procedure. This coefficient is capable of giving the physician useful practical indications for diagnosis, prognosis and dietetic treatment.

Münchener medizinische Wochenschrift.

64 (LIV, Nos. 24-25.) Typhoid and Colon Sepsis; Typhoid as Endotoxic Disease. (Typhus als Endotoxinkrankheit.) E. Stadelmann and A. Wolff-Eisner.
65 *Cerebrospinal Syphilis. (Lues cerebrospinalis.) Tiedemann and Nambu.
66 Differential Diagnosis of Pathogenic Streptococci. W. H. Schultze.
67 *Radical Operation in Enormous Inguinal Hernias. (Uebergrosse Leistenhernien.) Sauerbruch.
68 *Transplantation of Goiter and Experimental Exophthalmic Goiter. (Kropfverpflanzung.) C. Pfeiffer.
69 A Diagnostic Symptom of Appendicitis. M. Blumberg.
70 *Atypical Epithelial Growth and Carcinoma. (Epithelwucherungen.) H. Stahr.
71 Green Stools in Nurslings. (Grüner Stühle beim Säugling.) A. F. Hecht.

72 *Intraureteral Method for Causing Expulsion of Impacted Ureteral Calculi per vias naturales. (Lösung eingeklemmter Harnleitersteine und ihrer Herausbeförderung.) R. Jahr.
73 *Laughter Induced by Examination of Eye. (Lachen vom Auge ausgelöst.) O. Neustätter.
74 *Argyroid Coloration of Hair. (Argentoide Haarverfärbung.) W. Ipsen.
75 Haines' Test for Sugar in the Urine. (Hainesschen Lösung.) R. Schwarz.
76 *Test for Pentose in Urine. E. Kraft.
77 *Removal of Placenta. (Nachgeburtsoperationen.) H. Sellheim.
78 Pharmacology of Oxybenzyltannin. (Pharmakologische Verhalten.) H. Hildebrandt.
79 Practical Experiences with Oxybenzyltannin. (Praktische Erfahrungen.) O. Baumgarten.
80 *Relations of Medulla Oblongata to Pupil. L. Bach.
81 *Massage by Rhythmic Pressure After Intra-abdominal Operations. (Rhythmischen Druck.) G. B. Schmidt.
82 Congenital Functional Defects in Cranial Motor Nerves. (Funktionsdefekte der motorischen Hirnnerven.) R. Neurath.
83 *Scopolamin Narcosis in Obstetrics and Influence of Drug on Child. Skopolamindämmerschlaf in d. Geburtshilfe.) E. Holzbach.
84 *Mesenteric Lymph Glands in Treatment of Sclerodermia. (Mesenterialdrüsen.) Schwerdt.
85 *Hereditary Transmission of Squint. (Schielens.) v. Sicherer.
86 Case of Cerebral Fat Embolism Associated with Tetanus. (Zerebraler Fettembolie, kombiniert mit Tetanus.) Jähne and Schmidt.
87 *New Saccharometer in Testing Urine for Sugar. (Gährungsröhrchen.) O. Schumm.
88 *New Gastric Sound for Roentgenization of Stomach. (Magen-sonde für Röntgenzwecke.) W. Gross.
89 Does Lumbar Injection of Stovain Influence Motor Functions of Intestines? (Beeinflusst Stovaïn die motorischen Funktionen der Eigenweide?) M. Penkert.
90 Etiology of Cancers and Tumors in General. (Krebses u. Geshwülste im allgemeinen.) H. Spude.
91 Typhoid and Colon Sepsis Typhoid as Endotoxin Disease. E. Stadelmann and A. Wolff-Eisner.
92 *Diphtheritic Phlegmons of Skin. (Hautphlegmone.) O. Ehrhardt.
94 *Sauerbruch's Pneumatic Cabinet. (Druckdifferenzverfahren.) W. Kausch.
95 Phosphaturia in Gonorrhea. M. Oppenheim.
96 *Therapeutic Use of Human Gastric Juice. (Menschlichen Magensaftes.) E. Rosenberg.
97 Favoring Healing. (Heilungsvorgänge beschleunigen.) Heile.
98 Treatment of Antrum of Highmore in Chronic Sinusitis. (Kieferhöhle bei chronischer Sinusitis.) F. Kretschmann.
99 *Angina at End of Pregnancy, Followed by Fatal Streptococcus Septicemia During Puerperium. (tödlicher Streptokokkensepsis.) H. Merkel.
100 Intralobular Serous Pleurisy. Seufferheld.
101 Fatal Mercurial Poisoning. (Quecksilberintoxikation.) J. F. v. Crippa and F. Feichtinger.
102 *Aseptic Catheterization by Means of Special Apparatus. (Katheterizator.) H. Markus.
103 Urinalysis by General Practitioner. (Harnuntersuchungen in der Praxis.) H. Engel.
104 Artificial Hyperemia in Frostbite. (Künstliche Hyperämie.) C. Mirtl.

65. **Cerebrospinal Syphilis.**—Tiedemann and Nambu report a case which they diagnosticated as one of cerebrospinal syphilis on the ground of a syphilitic history, and which showed temporary marked improvement under antisyphilitic treatment. The symptoms consisted in gradual atrophic paralysis of the extremities, with increased reflexes, disturbances of the bladder and rectum, shooting pains, and tenderness of the muscles and nerve trunks, with which an extreme hyperesthesia of the skin was associated at the end of the disease. Besides this, there were marked ataxia of the arms and legs, and occasional attacks of obstinate vomiting, closely resembling the gastric crises of tabetics. The appearance of gastric disturbances in cerebrospinal syphilis, the authors have never found recorded. The pathologic appearances consisted of inflammation of the meninges, thickening of the walls of the vessels and some softening of the nerve tissue. In the spinal cord there were degenerations of the posterior columns of the cervical lumbar cord. The authors regard the changes as due to a syphilitic process. The *Spirochæta pallida* could not be found. This is of little consequence, they state, considering the age of the syphilitic affection, though no micro-organisms were contained in the meninges.

67. **Radical Operation in Enormous Inguinal Hernias.**—Sauerbruch maintains that hernias of unusually large size may be operated on safely and without bad results. After a preliminary treatment consisting of absolute rest in bed, with the foot of the bed elevated, careful dieting and elimination, extending over a period of about two weeks, the operation is done under spinal anesthesia. A large incision is made so as to give easy access to the field of operation, and the hernial sac, it is emphasized, must not be disturbed in any way. This, the author claims, will prevent the formation of postoperative hematomas. The sac is closed with three or four purse-string sutures. The large opening usually found in such cases is closed by means of the rectus muscle. A portion of this muscle is separated from the lateral side of the whole muscle, and its lower end or insertion into the symphysis is separated from its attachment, including the periosteum. This portion of muscle is then passed directly in front of the hernial opening and sutured to Poupart's ligament. The cord is first transplanted. In male patients over 60 years of age castration is advised. The operator may, if desired, close the defect created by the removal of a portion of the rectus muscle by a periosteal flap taken from the pubic bone, as is done in some cases of femoral hernia. An ordinary gauze-collodion bandage is applied, and the patient is kept in bed for two weeks, when healing, under ordinary circumstances, is complete. All patients operated on in this manner have done well. There has been no recurrence.

68. **Transplantation of Goiter.**—With a view to producing goiter experimentally, Pfeiffer transplanted the ordinary goitrous thyroid, and the exophthalmic thyroid into the spleen of animals, using female dogs for this purpose. The pieces of thyroid were laid into slits made in the spleen, and the hemorrhage was checked by means of sutures placed so as to avoid the piece of thyroid tissue. In four out of six cases it was possible to demonstrate the thyroid tissue in the spleen at necropsy. In two cases no remnant of thyroid tissue remained. In four cases there were prominent follicles filled with colloid material. In all the animals the pulse was increased in rapidity, and in the case of the three animals into whom the thyroid of an exophthalmic goiter was transplanted, the pulse rate was 180. In the four animals in whom the thyroid tissue was demonstrable in the spleen, the pulse rate remained high, so that the increase in the pulse rate could not be ascribed to the operation. In one case the necropsy was held 127 days after the transplantation of the thyroid tissue.

70. **Atypical Epithelial Growth.**—Stahr confirms the results obtained by Fischer in the experimental production of atypical epithelial growths, but he says that in order to obtain these results it is necessary to make use of the oils employed by Fischer, as soot, tar, xylol-paraffin, etc., failed to cause proliferation of the epithelium. Although Stahr is not prepared to accept Fischer's conclusions, he thinks that his work is a decided step in advance in the study of carcinoma, and further investigation may yield valuable results.

72. **Expulsion of Impacted Ureteral Calculus.**—After having tried all known methods to relieve a persistent anuria caused by the impaction of a calculus in the ureter, Jahr finally made use of a catheter whose tip was capped with a distensible piece of rubber, something like Nitze's ureteral occlusion catheter. The catheter was passed up to the stone, the rubber bulb was then inflated, so as to distend the ureter sufficiently to permit of the free passage of the urine around the stone, and the attempt was successful. The stone again became impacted lower down, but a resort to the same procedure again proved successful.

73. **Laughter Induced by Ophthalmoscopic Examination.**—Neustätter reports five cases, occurring in three females and two males, of reflex laughter, excited, apparently, by an examination of the eye. Every other cause for laughter was excluded, and as one of the male patients was aged 45 years, the author feels justified in ascribing the laughter to the eye examination.

74. **Argyroid Coloration of Hair.**—Ipsen describes the case of a man, whose hair was of the color usually seen in the skin in cases of argyria. The hair of all parts of the body had that peculiar grayish-brown color, with the silver gray shimmer so characteristic of silver poisoning. It was ascertained that the hair had been of this color since birth, and that the patient's mother and sister were similarly afflicted.

76. **Pentose in Urine.**—Kraft urges that every suspicious urine be examined for pentose. He employs Bial's method.

77. **Removal of Placenta.**—In order to give to the practitioner the knowledge necessary to remove a placenta properly Sellheim advises that students of medicine and young practi-

tioners practice its removal on the cow. He has found this particularly useful inasmuch as the conditions in the cow are very similar to those existing in the human female.

80. **Relations of Medulla Oblongata to Pupil.**—By means of experiments on monkeys, cats and rabbits Bach has been able to demonstrate that the reaction of the pupil to light is not affected by a decapitation, except when the medulla is destroyed as far as the fourth ventricle, when this reaction immediately disappears.

81. **Massage by Rhythmic Pressure.**—Schmidt has employed successfully a method of massage devised by Cederschiöld, of Stockholm, in which pressure supplants the usual rubbing motions. The degree of pressure varies from a very light to a very heavy pressure, and should alternate at the same sitting. It is made centripetally and the object is to remove adhesions by pressure and to exert a pump-like or suction-like action on the lymph and blood vessels. It has been found that by means of this rhythmic pressure-massage, hematomas, edema and extravasations are speedily removed. Of course, the pressure must be regulated in the individual case. It is made either with the hand encircling the part, as in the case of the extremities, or with the flat of the hand or the palm, when pressure is made on the abdomen or thorax. Schmidt has used the method succesfully after appendectomy, gallstone operations, and operations on the adnexa.

83. **Scopolamin Narcosis in Obstetrics.**—Holzbach found that when hyoscin (the author uses this word in the text and scopolamin in the title) is employed during labor, that it appears in the colostrum and in the milk during the first few days, and in the urine of the child fifteen minutes after its birth. He has not been able to ascertain as yet whether the child is affected in any way by this drug.

84. **Mesenteric Lymph Glands in Scleroderma.**—Schwerdt reports five cases of scleroderma, in which he made use of the mesenteric lymph glands of the sheep with some success. Some of the patients claimed to have felt better after the treatment, although the local condition had not changed very much. In another patient the local condition had practically disappeared entirely, although no other treatment than the glands had been employed. The functions of the patient, such as digestion, were not affected disagreeably by the treatment.

85. **Hereditary Transmission of Squint.**—In the cases reported by Sicherer, the squint was traceable through four generations of one family. The histories of the cases, and especially the ophthalmoscopic findings, are described at length.

87. **New Saccharometer.**—The instrument used by Schumm differs from Einhorn's in that the closed end becomes gradually attenuated. It is said to permit the estimation of the slightest amount of gas present, although it is more difficult to fill the apparatus with urine.

88. **New Gastric Sound.**—Gross uses the sound devised by Freund, but it is provided with end and side openings so that it can also be used as a stomach tube, and to dilate the stomach with air or fluid, if this is necessary.

92. **Diphtheritic Phlegmon of Skin.**—Ehrhardt reports four cases of a phlegmonous skin affection, from which the diphtheria bacillus was obtained in pure culture. None of the patients had faucial diphtheria.

94. **Pneumatic Cabinet.**—Kausch is very emphatic in his endorsement of the value of the pneumatic cabinet, devised by Sauerbruch, in certain operations on the thorax. He says that the apparatus can not be dispensed with, if one would avoid operative pneumothorax, and a consequent infection, nor in doing an extra-pleural pneumotomy, especially when the lung is infected. It can also be used with benefit when operating for empyema. Underpressure is preferred to overpressure.

96. **Therapeutic Use of Human Gastric Juice.**—Rosenberg had an opportunity of making use of the gastric juice of a patient suffering from gastrosuccorrhea in the treatment of two cases of achylia, two of achlorhydria, and two cases of subacidity. The man who furnished the gastric juice was neurasthenic, but otherwise entirely well, that is, so far as syphilis, tuberculosis and the condition of his organs was concerned. He yielded from 200 to 650 c.c. of gastric juice every day. It was filtered and used fresh, each patient receiving from a teaspoonful to a tablespoonful, four times daily, ten minutes before eating. None of the patients complained of nausea, or of being otherwise disagreeably affected. In most of the cases the appetite was improved and the patients gained in weight. The author, however, is inclined to view the results as identical with those obtained from the administration of hydrochloric acid.

99. **Angina and Streptococcus Septicemia.**—The case reported by Merkel was one of angina, occurring almost at the termination of pregnancy, in a woman who had cardiac disease. The labor progressed very favorably, but immediately after its termination the temperature rose and the patient presented all the symptoms of sepsis, from which she died on the eighth day. Blood cultures showed enormous quantities of streptococci. The patient admitted having had an articular rheumatism many years previously. Her first seven pregnancies had been normal. The last pregnancy was terminated naturally on the fifteenth day, after the woman's throat first became sore, and at no time during the period had a vaginal examination been made. One interesting feature of the case was a rather severe hemorrhage, of some duration, which occurred ten hours after the termination of the labor. A verrucose endocarditis was found at necropsy.

102. **Aseptic Catheterization.**—Markus presents an apparatus in which catheters can be placed for the purpose of keeping them aseptic, and from which the catheter can be inserted without necessitating any handling of the instrument. The apparatus, it is said, can be sterilized easily.

Centralblatt f. Gynäkologie, Bonn.

105 (Nos. 17-26, pp. 465-824.) *Fetal Monstrosity. (Hemitherium posterius.) Nacke and C. Benda.
106 Rudimentary Organs in Female Genital Tract. (rudimentarer Organe im weiblichen Genitaltraktus.) J. Kocks.
107 *Typhoid Occurring During Pregnancy and Puerperium. (Typhus abdominalis unter Geburt u. Puerperium.) S. Rosenfeld.
108 *New Abdominal Binder. (Leibbinde.) Alberts.
109 *New Instrument for Measuring True Conjugate. (Neues Instrument zur Messung.) Zweifel.
110 *Case of Intrauterine Cry. (Intra-uterinem Kindesschrei.) J. Richter.
111 *The Intrauterine Cry. R. Teuffel.
112 Convertible Bed for Normal and Operative Deliveries. (Operations und Entbindungsbett.) P. P. Miklaschewsky.
113 *Decapsulation of Kidney in Eclampsia. (Beh. Eklampsie m. Decapsulatio renum.) C. J. Gauss.
114 *Pubiotomy in the Home. W. Sigwart.
115 *Formation of Artificial Anus to Prevent Occurrence of Colipyelitis Following Rectal Implantation of Ureters. (Vermeidung d. Colipyelitis bei Einpflanzung d. Ureteren ins Rektum.) Krönig.
116 Acquired Occlusions of Female Genital Passages. (Ereworbenen Gynatresien.) H. v. Derera.
117 *New Obstetric Forceps. (Geburtszange.) N. J. A. F. Boerma.
118 *Hernia Following Pubiotomy. (Hernien in Hebotomiespalt.) J. Hartmann.
119 Estimation of Transverse Diameter of Fetal Head During Pregnancy. (Querdurchmessers d. kindlichen Kopfes.) F. Kermauner.
120 Rudimentary Organs in Female Genital Tract. R. Meyer.
121 Permanent Widening of Pelvis by Pubiotomy. (Dauernde Beckenweiterung.) P. Wendeler.
122 Varieties of Narrow Pelvis. (engen Beckens.) E. Scipiades.
123 Id. K. Baisch.
124 *Hemorrhage at Menopanse. (Klimakterischer Blutungen.) H. Meyer-Ruegg.
125 *Unexpected Results in Inoperable Carcinoma of the Uterus. (Unerwartete Heilerfolge.) F. Weindler.
126 Paravaginal Metastasis in Carcinoma Corporis Uteri. (Metastase im paravaginalen Bindegewebe.) E. Schick.
127 *Hydrorrhea Gravidarum with Extra-amniotic Development of Fetus. (Exochorialen Fruchtenwicklung.) W. T. Wiemer.
128 *Air Embolism During Labor. (Luftembolie.) K. Apfelstedt.
129 Vaginal Operation for Prolapsed Ovary. H. Rose.
130 *Metastatic Ophthalmia in Puerperium. J. Feiertag.
131 Cone-shaped Vaginal Tampon. (Zapfentampons.) L. Prochownick.
132 *Substitute for Rubber Gloves. (Gummihandschuhe.) Wederhake.
133 Treatment of Intractable Inversion of Uterus. (Inversio uteri inveterata.) C. D. Josephson.
134 Habitual Death of Fetus as Indication for Induction of Labor. (Habituélles absterben der Frucht.) E. Zurhelle.
135 Myoma of Cervix Obstructing Labor. (eingeklemmetes cervicalmyom.) H. Pape.
136 *Infrapubic Drainage of Bladder. (Infrasymphysären Blasendrainage.) W. Stoeckel.
137 Accidental Injury of Prolapsed Uterus. (Verletzung d. prolapierten Uterus.) W. Hannes.
138 Refilling Uterus After Rupture of Amnion. (Wiederauffüllung d. Uterus nach Vorzeitigem Blasenprung.) Peters.

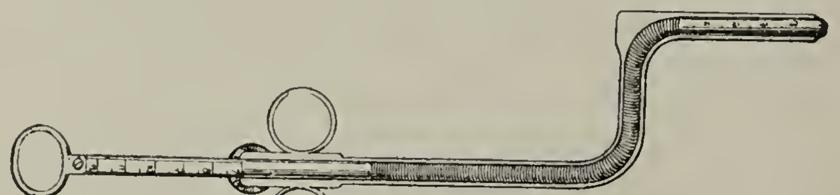
105. **Fetal Monstrosity.**—Nacke and Benda describe an extremely severe instrumental delivery of an acardius acephalus whose cutaneous and subcutaneous tissues were markedly

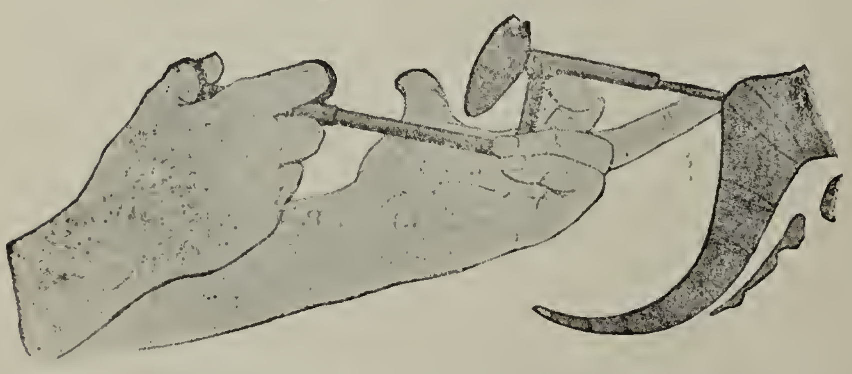
edematous. An interesting feature in the case was the fact that there existed a heart rudiment. Otherwise the specimen was in keeping with others previously described.

107. **Typhoid During Pregnancy.**—In the case reported by Rosenfeld the delivery occurred during the prodromal period or stage of the typhoid infection, complicating the diagnosis of the infectious disease very considerably. During the course of the typhoid the cardiac symptoms were so prominent as to lead the observer to suspect that the case really was one of endocarditis due to sepsis from the genital tract. Not until about the tenth day was it possible to obtain a positive Widal test, and then, too, other symptoms of typhoid were manifested. The patient went through a typical attack, but suffered two recurrences. The typhoid did not interfere with the favorable course of the puerperium.

108. **New Abdominal Binder.**—Alberts uses a bandage made of the usual elastic webbing, with a firm but adaptable back brace made of soft leather and stays. Two straps cross the chest, pass over the shoulders, again cross and button to the leather back brace. Two leather garters pass from the lower edge of the binder to the stockings.

109. **Measuring Conjugata Vera.**—Zweifel has devised an instrument for measuring the conjugata vera which appears to be simple of construction and yet very useful. It consists of a metal tube in which rests a pliable metallic spring made of German silver, carrying at both ends a graduated scale. Figure 1 represents the instrument and Figure 2 the instrument in use.





110. **Intrauterine Cry.**—Richter reports a case in which it became necessary to do a version in order to effect delivery, and as soon as the knee of the child had passed through the vulva there was heard very distinctly the cry of a child apparently coming from within the abdomen of the woman, which was shortly followed by another in the same tones but somewhat muffled.

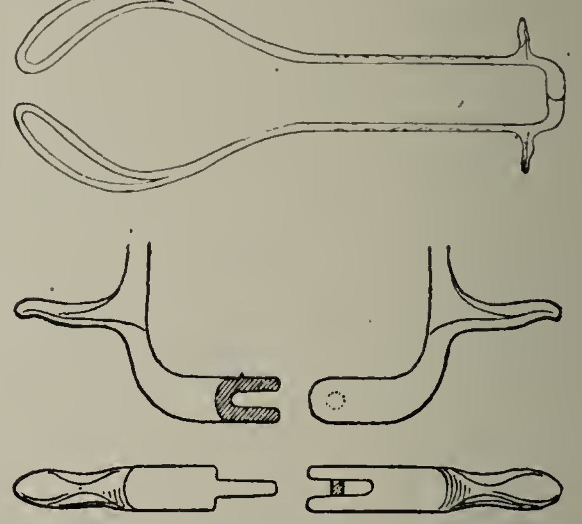
111. **Id.**—Teufel believes that the so-called intrauterine cry is caused by an inrush of air into the amniotic sac, the return of the air being prevented by the presenting part.

113. **Renal Decapsulation in Eclampsia.**—Gauss reports two cases. In one immediate improvement followed the decapsulation, while in the second case the operation was ineffective, and the patient's condition remained unchanged until after the uterus had been emptied.

114. **Pubiotomy in the Home.**—Sigwart is convinced that pubiotomy can be performed in the patient's home with equal facility and safety as in the hospital. He uses Bumm's needle and has in readiness as a precautionary measure several needles armed with catgut and gauze for tamponade. He reports five cases in which the results were all that could be wished for. Sigwart considers Bumm's needle an ideal instrument from every standpoint for performing pubiotomy.

115. **Artificial Anus in Ureteral Implantation into Rectum.**—Krönig reports a case of extensive sarcoma of the uterus, vagina, bladder and urethra in which it was necessary to transplant the ureters into the rectum. In order to prevent the occurrence of an ascending infection and a consequent colipyelitis, an artificial anus was made. Continence is said to be perfect and a clear urine is voided every two or three hours. The patient feels well and is attending to her household duties as before. No dates are mentioned, but the author says that the case is too recent a one to warrant making any positive conclusions, but thus far he believes that the result obtained warrants a repetition of the procedure in similar cases.

117. **New Obstetric Forceps.**—The forceps devised by Boerma is modeled after Naegele's instrument, but locks at the extremities of the handles instead of near the middle. The blades of the forceps are built as usual. Traction is made with one hand or both hands on the lock in the handle and on two projections, one on the outer side of each handle, as shown in the illustrations. The instrument is intended for use in cases in which the advancing head is impacted in the pelvis.



118. **Hernia Following Pubiotomy.**—Hartmann reports a case of pubiotomy which three weeks afterward was followed by the development of a hernia during an attack of bronchitis. It was found that the bone ends were separated sufficiently to admit a finger, and that when the patient coughed the bladder protruded into the opening between the bone ends, and the intestine was forced down into the inguinal canal, a typical inguinal hernia. The bone ends were brought together and sutured, the inguinal canal was closed by a radical operation, and the patient made a complete recovery. The hernia is ascribed to the failure of the bone ends to unite.

124. **Hemorrhage at Menopause.**—Four cases are reported by Meyer-Ruegg of women who suffered considerable inconvenience from hemorrhages at the menopause. In each case the cervical canal was found to present a spindle-shaped dilatation, the apex of the spindle being directed downward. On dilating the os a considerable amount of blood, clots and shreds was poured out, and there was no further sign of hemorrhage afterward. The author suggests that all such patients be examined carefully for the cause of the hemorrhage.

125. **Inoperable Carcinoma of Uterus.**—Weindler reports three cases of inoperable carcinoma of the uterus in which a thorough curettage was done; the cavity was cauterized with the actual cautery and then swabbed with concentrated carbolic acid. The result was an unexpected one. The patients recovered from the symptoms caused by the tumors, and there has been no recurrence after five and six years respectively. The diagnosis was confirmed microscopically. The three patients are entirely well and are attending to their household duties.

127. **Extra-Amniotic Development of Fetus.**—Wiener reports a case of hydrorrhea gravidarum in which the amniotic fluid began to empty itself a considerable time before the beginning of the labor. After the birth of the child it was found that its size was out of all proportion to the size of the amniotic cavity, so that the author took it for granted that the sac had ruptured when the fluid first began to be discharged from the vulva, and that the development of the

fetus was continued outside of the membranes. Two months elapsed between the first appearance of the fluid and the labor.

128. **Air Embolism in Labor.**—In the case reported by Apfelstedt the air embolism, which proved fatal, occurred as the result of a partial detachment of the placenta during the progress of the labor. The child was dead when delivered, and the mother died half an hour after the labor with all the symptoms of cardiac distress due to air embolism. A careful examination of the uterus failed to disclose a rupture.

130. **Metastatic Ophthalmia.**—Feiertag reports a case of metastatic ophthalmia occurring during the puerperium as the result of septic endometritis. Only one eye was affected and enucleation was advised but deferred because of the ocular pain of which the patient complained. The patient was still under observation at the time of writing, and her general condition was good.

132. **Substitute for Rubber Gloves.**—Wederhake uses an iodin-rubber solution with which he gives the hands a coating after they have been prepared in a solution of iodin one part, and carbontetrachlorid 1,000 parts. The exact composition of the iodin-rubber solution is not given, as it is said not to have been determined exactly. It is said to give a coating that is safe, effective and easily made.

136. **Infrapubic Drainage of Bladder.**—Stoeckel employs a trocar-catheter which is passed into the bladder between the pubis and the urethra, thus lying above the field of operation and not in contact with it. He uses a catheter modeled after that of Skene but made of metal, into which is passed a curved trocar.

Correspondenz-Blatt, Basel.

139 (XXXVII, Nos. 1-12.) Leprosy in Canton Wallis. (Lepra.) Jadassohn and A. Bayard.
140 Localization of Aphasia. (Aphasie.) H. O. Schlub.
141 *Lumbar Puncture in Persons Mentally Affected. (Geisteskranken.) E. Fankhauser.
142 Leprosy in Canton Wallis (Concluded). Jadassohn and A. Bayard.
143 *Subcutaneous Ruptures of Liver. (Subkutane Leberrupturen.) P. Schönholzer.
144 Determination of Viscosity of Blood. (Viskosität.) W. Hess.
145 Id. K. Kottmann.
146 *Two New Instruments. K. Köhl.
147 The Physician and Lodge Practice. (Krankenversicherung.) Häberlin.
148 Early Diagnosis of Pulmonary Tuberculosis. (Frühdiagnose.) G. Rheiner.
149 Accident and Sick Insurance. (Kranken- u. Unfallversicherung.) A. Jaquet.
150 Progressive Paralysis and Syphilis. F. Ris.
151 Early Diagnosis of Pulmonary Tuberculosis (Concluded). G. Rheiner.
152 *Distension Ulcers in Obstruction of Intestine. (Dehnungsgeschwüre. W. Zimmermann.
153 Progressive Paralysis and Syphilis (Concluded). F. Ris.
154 Trichocephaliasis. R. Kahane.
155 *Curability of Gastric Cancer by Surgery. (Heilbarkeit d. Magenkrebses.) T. Kocher.
156 Carcinoma of Body of Uterus. (Corporis Uteri.) Widmer.
157 Hematoma of Ear. (Othematom.) Seiler.
158 Etiology and Treatment of Typhoid. W. Silberschmidt.
159 Dosage of Digalen. K. Kottmann.
160 Visceral Changes Due to Spinal Curvature. (Verkrümmungen d. Wirbel säule.) J. Karcher.
161 *Veronal Poisoning. (Vergiftung.) E. Nienhaus.
162 Witzel's Drop Method of Producing Ether Anesthesia. (Aethertropfnarkose.) Arnd.
163 Visceral Changes Due to Spinal Curvature (Concluded). J. Karcher.

141. **Lumbar Puncture in the Mentally Affected.**—Fankhauser reports on the examination of the cerebrospinal fluid in the case of 67 persons suffering from disturbances of the nervous system. Among these there were 35 cases of paralysis, 21 of dementia præcox, 8 of epilepsy, 4 each of congenital dementia, alcoholic disturbances and senile psychoses, and one case of postapoplectic dementia. This study included the estimation of the pressure of the fluid, its macroscopic and microscopic appearances and its albumin content. The findings of the author are in accord with those of other observers, who believe that the procedure is of some diagnostic value. It possesses no therapeutic worth.

143. **Ruptures of Liver.**—Schönholzer discusses the clinical history of subcutaneous ruptures of the liver, and reports one case, that of a man who was caught between two freight cars. Although the patient suffered intensely from symptoms of a severe internal hemorrhage, he was able, with some assistance, to seek medical aid at a distance of about a quarter of a mile. The physical findings pointed to an injury of the liver, and a laparotomy was done immediately. A large jagged tear was found in the liver, from which an enormous hemorrhage had taken place. A sterile compress was forced into the tear to check the hemorrhage, and the peritoneal cavity was freed of the accumulated blood—about two quarts. The rupture of the liver was almost complete, and as its size precluded suture, the portion to the left of the rupture was removed. A number of blood vessels were ligated, and the edges of the tear were brought together with sutures. In order to support the liver it was sutured to the parietal peritoneum. The resected liver mass weighed 320 grams, and measured 16 cm. by 10 cm. The patient slowly recovered and two months after the operation appeared to be none the worse for the injury.

146. **New Instruments.**—One of the instruments devised by Köhl is an angiotrypsic forcep to be used on the appendix, and the other is a curved sound, to be used in inverting the hernial sac in Kocher's operation for hernia. The end of this sound is grooved like a Kocher's director, and serves as a point of resistance and a guide when making the buttonhole in the end of the sac.

152. **Distension Ulcers.**—These ulcers, which Zimmermann saw in three cases, are said by Kocher to be the result of disturbances in the circulation of the bowel, caused by an enormous distension of the intestine, such as often occurs above an occlusion. The three patients whose cases are reported were the victims of carcinoma. One patient had carcinoma of the sigmoid flexure, the second had carcinoma of the descending colon, and the third had carcinoma of the left ovary, which occluded the rectum at its commencement. In the first case Zimmermann assumes that the ulcer was caused by pressure of hardened masses of feces, there being only one ulcer in the immediate vicinity of the occlusion. In the remaining two cases there were many ulcers of varying size and depth, situated at some distance from the occlusion. In these cases Kocher's theory of the formation of these ulcers probably is the correct one. Zimmermann points out that the diagnosis in such cases is extremely difficult. The prognosis is always grave, and the treatment operative.

155. **Surgical Treatment of Carcinoma of Stomach.**—Kocher has done resection of the stomach 122 times, 25 times since the last report on patients operated on before September, 1904. In these 25 cases (24 gastric cancers, 1 gastric ulcer) there were only four deaths, a mortality of 16 per cent. These deaths occurred in cases that were very far advanced, and in which the operation was undertaken with the sole hope of according relief from distressing symptoms. Kocher discusses briefly the necessity of early diagnosis, and reviews the conditions on which such a diagnosis is dependent. One of his patients is alive and well 19 years after the operation, another 10 years after, three patients 8 years, one patient 7 years, one 6 years after the operation, and three patients 4 years after the operation. Including all patients operated on, according to Kocher's method, there are only 14 fatalities out of 92 cases, a mortality of 15.2 per cent.

161. **Veronal Poisoning.**—Nienhaus reports the case of a woman who took four grams of veronal with suicidal intent. One hour after taking this dose she lost consciousness and remained in this state for almost twenty-four hours, when she regained periods of consciousness. The recovery of the patient was protracted, stretching over a period of about two weeks. On the day following the ingestion of the veronal, the patient passed 100 c.c. of urine, which on examination was found to contain 0.1 gram of veronal. The symptoms observed in this case were typical, resembling those of uremia. A notable feature in this case was the prolonged convalescence.

Gazzetta degli Ospedali e delle Cliniche, Milan.

164 (XXVIII, Nos. 37-84.) Stenosis of the Pylorus from Diaphragmatic Hernia. (Stenosi acuta del piloro da ernia diaframmatica.) P. Conti.
165 Tuberculosis of Alimentary Origin. (Sulle tuberculosi di origine alimentare.) A. Bonome.
167 *Studies on the Gonococcus. (Studii sul gonoc.) A. Bruschettini and L. Ansaldo.
168 *Pleural Autoserotherapy. (Autoseroterapia pleurica.) E. Jona.
169 An Improvement in Eosin Staining. Use of Methylene Blue for Neurodiagnosis and Clinical Cytodiagnosis. (Un perperfezionamento nella tecnica della colorazione coll' eosina. bleu di metilene.) C. Minerbi.

170 Hydrocele in the Female. (Studio dell' idrocele muliebre.) G. Poilni.
171 Closing Lecture of the Course at the Medical Clinic for the Year 1905-6. (Lezione di chiusura al corso di clinica medica 1905-6.) E. Maragliano.
172 Essential Paroxysmal Tachycardia. (Sulla tachicardia par. essenziale.) G. Bacelli.
173 *Agglutination of Koch's Bacillus in Relation to the Theory of Unicism. (Agglutinamento dell bacillo di Koch in relazione colla teoria di unicismo.) C. P. Goggia.
174 Biologic Studies on the Exanthemata—Demonstration of Bacterial Antibodies in the Blood Serum of Patients. (Ricerche biologica sulle malattie esantematiche—Dimostrazione di anticorpi bacterici nel siero di sangue di soggetti.) S. Livierato.
175 Stovainization of Spine. (Rachistovainizzazione.) U. Gironi.
176 Severe Case of Osteomalacia Cured by Adrenalin Injections According to Bossi's Method. (Osteomalacia guarita con le iniezioni di adrenalina il metodo Bossi.) De Tanaurri.
177 Rheumatism and Chorea. (Reumatismo e corea.) E. De Renzi.
178 *Tuberculosis of Alimentary Origin. (Sulla tuberculosi di origine alimentaire.) G. Bonome.
179 The Puerperium and Tuberculosis. (Puerperio e tuberculosi.) G. Carli.
180 *The Immunizing Action of the Cerebral Substance of Various Animals. (Sulla azione immunizzante della sostanza cerebrale di vari animali.) C. Fermi.
181 The Liver and Heterologous Albumin. (Fegato et albumine heterologiche.) E. Sylvestri.
182 *The Caustic Action of Chlorohydrate of Quinin. (Contributa all'azione caustica del cloridrato di chinino.) E. Sylvestrini.

167. **Studies on the Gonococcus.**—Bruschettini and Ansaldo report encouraging results from their experiments in the culture of gonococcus. They used media containing blood and white and yolk of egg. The virulence of the germs was also markedly increased, and they report, without going into details, which are promised in a future memoir, that they have succeeded in obtaining an aggressin from the gonococcus which not only shortens the incubation period of the disease, but also causes death when injected in a culture that by itself would be incapable of producing this result in the animal.

168. **Autoserotherapy.**—Without being able to reproduce such brilliant results as those claimed by Gilbert with his method of autoinjection of pleuritic fluid into the patient's subcutaneous cellular tissues, under aseptic precautions, Jona finds the method worth employing in exudative pleurisy, especially in cases of recent date. He tabulates 15 cases thus treated, in which the time required for absorption of the fluid varied from six to thirty-four days. The number of injections varied from one to four. Nine were cases of tuberculous pleurisy; one case was traumatic. The cases longest in reabsorption were all of some standing and resistant to other treatment. In all save two the injections were followed by a marked increase in the urinary excretion, excitation of which seems to be the method of their action.

173. **The Unity of Tuberculous Infection.**—Goggia has tested the agglutinating power of the sera of various animals, dogs, guinea-pigs and rabbits, with also that of man, on the tubercle bacilli of the disease in the same and other species, using cultures as nearly as possible identical, as regards the number of bacilli to each unit of volume, and employing all due precautions as to exactness of comparison. The results are given in tabulated form and support the view that the germs, while modified by the environment, are practically identical in the different species.

178. **Tuberculosis of Intestinal Origin.**—From his clinicopathologic observations, covering about 129 autopsies of cases with tuberculosis of the alimentary tract and his experimental studies, Bonome concludes that tuberculosis infection may originate in the alimentary tract in a considerable proportion of cases. In nearly 17 per cent. in his autopsies of tuberculous patients the primary infection was in the alimentary tract, usually in the intestine or the mesenteric annexes, and much more rarely in the upper tracts, the mouth, pharynx, esophagus, etc. In experimental oropharyngeal infection in animals the rapid involvement of the submental, submaxillary and cervical lymphatics was noticeable, and the bronchial glands and lung are later involved. In experimental aerial infection the bacilli were almost always arrested in the nasal, buccal or pharyngeal mucosa, and reached the air passages only with difficulty. Infection of the upper digestive tract is, therefore, to a certain extent the same as infection by inhalation. In most cases of undoubted primary alimentary tract infection there was also found at autopsy an acute miliary eruption in the lungs (hematogenous infection) and sometimes also a lymphogenous nodular peribronchial infection. Autopsies affording opportunity to observe infection absolutely limited to the intestine or mesenteric glands are rare. The tubercle bacillus does not lose its virulence by arrest in the mesenteric glands. Primary intestinal tuberculosis is most frequent in infants and in children up to 16 years of age, in whom it reaches the proportion of 23 per cent. of all cases. Between 16 and 55 it constitutes 16 per cent., and is rarer still in the aged, in whom Bonome finds it in only 6.25 per cent. No difference was observed in the intestinal lesions according to age, but those in the mesentery were usually more severe in the young than in the aged. The alterations of the mesenteric glands consist in a primary hyperplasia with secondary caseous degeneration, a point of some importance in so far as it indicates that the infective agent, the bacillus, reaches the glands by way of the chyliferous apparatus. The primary intestinal lesion is not always discoverable at autopsy, but in Bonome's opinion this does not necessarily support Behring's contention that the bacillus may penetrate the intact intestinal walls, especially in infants. He is more inclined to recognize the possibility that the primary microscopic lesions may heal without leaving traces. The local lesion, in his experiments, varied in severity according to the condition of the virus and the species of the animal experimented on. Similar variations probably occur also in the spontaneous infection in the human species.

180. **The Immunizing Action of the Cerebral Substance.**—In this preliminary communication Fermi states the results of experiments made to ascertain more particularly the special substances to which are due the immunizing action against rabies, previously demonstrated by him to be shown by the cerebral substance of rabbits, dogs, sheep and cattle. He finds in these later studies that the immunizing effects of the normal nervous substance varies according to the species from which it is derived. The lipoid substance possesses in varying degree a certain immunizing action against rabies, but always inferior to that of serum and antirabic vaccine. Cholesterin and lecithin, however, are not endowed, according to his experiments, with the lyssacidal action claimed for cholesterin by Almagia, nor do they possess any bactericidal power, so far as shown by these experiments.

182. **Chlorohydrate of Quinin as a Caustic.**—Sylvestrini has employed chlorohydrate of quinin in a number of cases of phagedenic ulceration, neglected wounds, whitlow, etc., with excessive granulations, with excellent results. He finds it a valuable substitute for nitrate of silver; it has a profoundly caustic effect without the discomfort to the patient caused by the silver application.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

Second Annual Report of the National First Aid Association of America. Paper. Pp. 66. 6 Beacon St., Boston, Mass., 1907.

Hygienic Laboratory Bulletin No. 38. Influence of Antitoxin in Postdiphtheritic Paralysis, by M. J. Rosenau and J. F. Anderson. Paper. Pp. 34. Washington: Government Printing Office, 1907.

Thirty-third Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year Ending June 30, 1905. By Authority. Cloth. Pp. 214. Lansing, Mich.: Wynkoop, Hallenback Crawford Co., 1906.

Practical Treatise on Fractures and Dislocations by Lewis A. Stimson, B.A., M.D., etc., Professor of Surgery in Cornell University Medical College, New York. Fifth Edition, Revised and Enlarged. Illustrated. Cloth. Pp. 847. Price, $5.00. New York and Philadelphia: Lea Bros. & Co., 1907.

Manual of Clinical Diagnosis by Means of Microscopic and Chemical Methods for Students, Hospital Physicians and Practitioners, by Charles E. Simon, B.A., M.D., Professor of Clinical Pathology at the Baltimore Medical College. Sixth Edition, Thoroughly Revised. Illustrated. Cloth. Pp. 682. Price, $4.00. Philadelphia and New York: Lea Bros. & Co., 1907.

Text-Book of Physiologic Chemistry for Students of Medicine and Physicians. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology at the Baltimore Medical College. Third Edition, Thoroughly Revised. Cloth. Pp. 490. Price, $3.25. Philadelphia and New York: Lea Bros. & Co., 1907.

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Original Articles

AN EPIDEMIC PNEUMOCOCCIC CATARRHAL DISEASE.[*]

CLINICAL STUDY.
HARVEY G. BECK, M.D.
BACTERIOLOGIC STUDY.
WILLIAM ROYAL STOKES, M. D.
BALTIMORE.

CLINICAL STUDY.

INTRODUCTORY.

It may appear presumptuous to insert the word "pneumococcic" in the title of a paper which has to deal largely with a disease or condition with local manifestations involving the mucous membrane of the upper air passages and conjunctivæ, because recent investigations tend to show that these anatomic situations are a normal habitat of the pneumococcus. It is, therefore, with a considerable degree of reserve that this title has been adopted, even after coupling a definite clinical picture with the persistent presence of an overwhelming number of pneumococci characterizing this series of cases. It is, of course, impossible to make a numerical division as to what constitutes a normal or an abnormal invasion of pneumococci in the mucous membrane of the eye, nose and throat. Therefore, we do not regard the increase in the number of these organisms, even though it be enormous, of sufficient importance to warrant our conclusions, but when this is associated with a definite underlying pathologic basis and distinct clinical features we feel justified in reporting this series of cases under this caption.

REVIEW OF LITERATURE.

In a cursory review of the literature we find that epidemic pneumococcic conjunctivitis has been described in a special article by Axenfeld.[1] We also find a description of pneumococcic fibrinous pharyngitis by Bissell, and pneumococcic pseudomembranous bronchitis by Landrieux and Triboulet.[2] If the conditions these observers described correspond with our present epidemic then they failed to comprehend the entire clinical picture and merely presented single aspects of the disease.

Davis of Chicago[3] intimates that acute catarrhal conditions resembling grippe might possibly be caused by the pneumococcus, but does not furnish clinical and bacteriologic proof of the assumption.

Samuel J. Darling, pathologist, Ancon Hospital, Panama,[4] examined the accessory nasal sinuses in thirty-seven autopsies in which death was due to pneumococcus infection. Ninety-two per cent. of the cadavers showed involvement of one or more of these sinuses. Thirteen cases of pneumococcus meningitis were studied. All of these cadavers presented an inflammation of the sinuses, and in every one the middle ear and mastoid were normal. The inflammation was usually intense, fibrinopurulent in character, and apparently antedated the general infection. In all of his cases the pneumococci were found in abundance. He also found a pneumococcus sinusitis in 28 per cent. of the control cases in none of which death was due to pneumococcus infection.

Darling believes that the portal of entry of the pneumococcus is in most instances an accessory nasal sinus. the mucous membrane in the sinus becoming infected through a previous rhinitis.

I mention these investigations of Darling's because his observations and the study of our cases establish the fact that there is undoubtedly a direct line of invasion by the pneumococcus beginning in the upper air passages, frequently involving the accessory sinuses which may ultimately lead to the development of pneumonia, pneumococcus meningitis, endocarditis, septicemia, etc.

STUDY OF EPIDEMIC.

Two years ago this spring there occurred in my practice in Baltimore a curious catarrhal condition which I regarded at the time as epidemic in nature. It differed essentially from ordinary colds in that it was apparently not the result of exposure and it affected almost invariably more than one member in a family and sometimes entire families. Last year no such case came under my observation.

In March of this year my attention was again directed to the same condition. My interest was aroused, after being summoned within one week to three families, in which either the entire family or several members of a family were similarly affected. Since then many other cases have come under my care which have enabled me to make a careful study of the affection from a clinical standpoint, and have furnished Dr. Stokes, who kindly offered to make a bacteriologic investigation, an opportunity to study the epidemic from an etiologic standpoint. In this work Dr. Stokes was assisted by A. E. Winlack and D. G. Preston, students at the College of Physicians and Surgeons.

As the following notes will show, these cases may be looked on clinically as measles without a rash, as conjunctivitis with general catarrhal symptoms, as whooping cough without a whoop or as grippe without mental or physical depression. Since this group of cases presents a definite clinical picture—a symptom-complex not exactly corresponding to the familiar epidemic diseases—it appears to me not at all improbable that the epidemic is an affection having a distinct entity.

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[*] Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[*] From the Department of Medicine and Pathology of the College of Physicians and Surgeons, Baltimore, and the Bacteriologic Laboratory of the State and City Boards of Health.

1. Kölle and Wassermann: Bacteriology.
2. Rev. gen. de clin. et de therap., Paris, 1896, x. 97.
3. The Journal A. M. A., May 11, 1907.
4. The Journal A. M. A., Nov. 10, 1907.

This report is based on the clinical study of fifty-six cases, of which thirty-three were examined bacteriologically. I shall give the histories in full of a few of the most typical family groups of cases showing house infection, one case of the severest type of the disease, and follow these by a summary of the entire series:

Group 1.—My first experience was with the G. family, consisting of six members, all of whom were affected; father aged 42, mother 34, Pearl 18, Urban 6, Alfred 5, and baby 10 months. March 13, 1907, I was called in to see the baby, who was thought to be suffering from whooping-cough. The child had had none of the acute infectious diseases. Alfred and Urban had had whooping-cough one year ago. Alfred was the first one in the family affected with this catarrhal condition. The others, except Urban, were affected three days later. Alfred did not remember having played with children similarly affected, before he was taken sick. Later, two children in the M. family, living in the same block, developed similar symptoms. Alfred had been playing with these children during his illness.

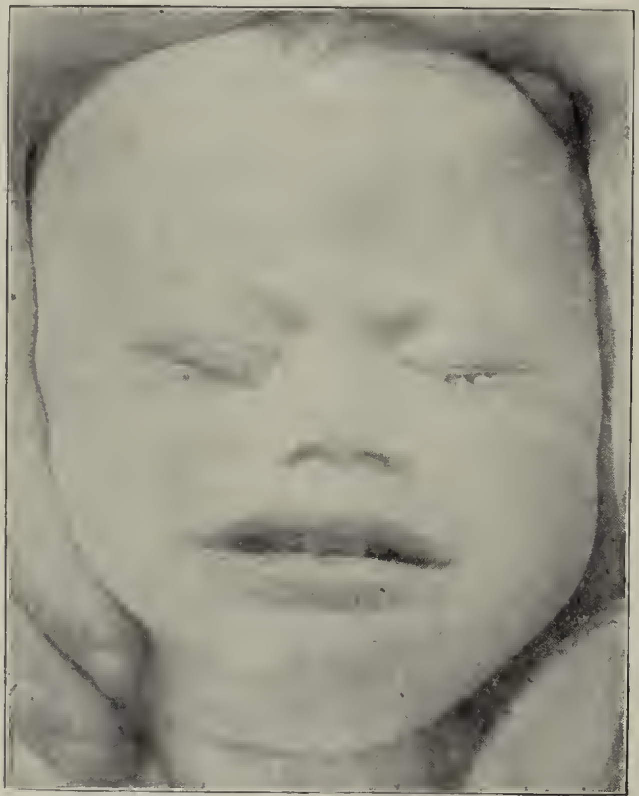

Fig. 1.—Dr. Friedenwald's patient, showing purulent conjunctivitis and swelling of upper eyelids.

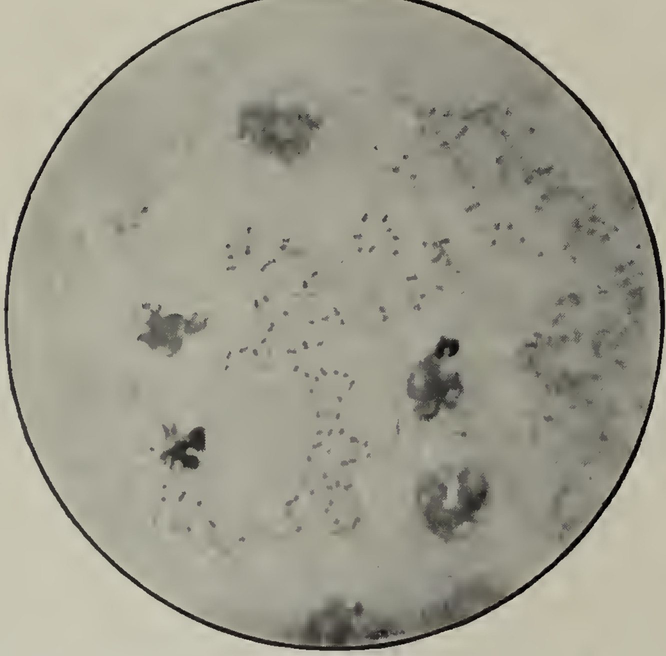

Fig. 2.—Peritoneal exudate from mouse inoculated with fibrinous exudate from throat, showing many typical pneumococci with capsules. The photomicrographs were all made by Dr. T. M. Wright, of the City Health Department.

The mother gave the following description of Alfred's illness: He began to complain of chills followed by slight fever and night sweats; this was associated with paroxysmal cough, discharge from the nose, watering of the eyes, slight soreness in the throat, slight pain in the chest and abdomen, and absolute loss of appetite. There was marked constipation. Vomiting frequently occurred after paroxysms of coughing. The cough was of a severe croupy character, and, at first, lasted half an hour. These attacks occurred more frequently during the night. There were four or more severe attacks at night and two or three lighter ones during the day. Occasionally during the night, these paroxysms terminated in a distinct whoop. When the child was first seen, the symptoms had subsided, except the cough and the discharge from the nose, which was at this time mucopurulent. He had a slight bronchitis and vesicles of chickenpox.

Urban, who was similarly affected, was also taken with chills and fever, which were followed by sweats. He had a peculiar dry paroxysmal cough, having three or four severe attacks at night, which lasted until he vomited. He had marked lachrymation without congestion, nasal discharge, sore throat, thoracic and abdominal pains, but no rash. The fever lasted about one week, during which he had several night sweats; anorexia was marked and he was very constipated.

Pearl's case corresponded closely to Alfred's and Urban's, except in the following particulars: Her eyes, at first watery, became mucopurulent and the lids were pasted together in the morning. In addition to the discharge from the nose, there was much sneezing. The cough, which was spasmodic in character, produced gagging after each paroxysm. Her appetite was not impaired.

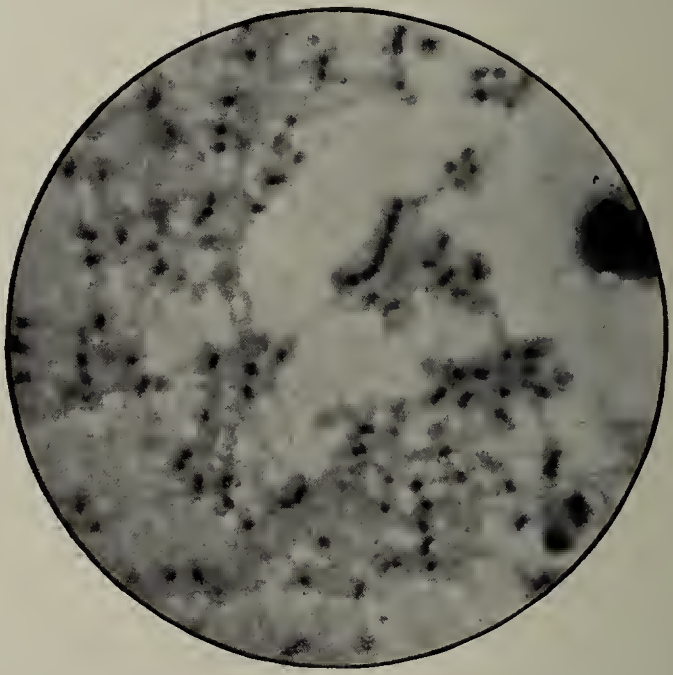

Fig. 3.—Peritoneal exudate from mouse inoculated with culture from throat of typical case, showing pneumococci, capsules and one short chain.

The mother had the same train of symptoms; namely, fever, sweat, cough, sneezing, rhinitis, mild conjunctivitis, pain in chest, slight abdominal cramps, anorexia, and vomiting after paroxysms of coughing. Her symptoms lasted three weeks.

The father had the same symptoms, but a more intense conjunctivitis. His eyes were painful, watery and itching at the beginning; the conjunctivæ soon became injected and the eyes felt dull and heavy; photophobia was quite marked. There was slight frontal headache. The discharge from the eyes, at first serous, became mucopurulent. The eye symptoms subsided in four or five days. The respiratory and gastrointestinal symptoms were less pronounced than in other members of the family. He had a sore throat, a moderately dry cough, not paroxysmal in character, no nausea, vomiting or anorexia, and no thoracic or abdonimal pains.

The baby began with intestinal symptoms: viz., nausea, vomiting and diarrhea. The cough appeared two days later, accompanied by fever, sweats, conjunctivitis, rhinitis, pharyngitis and bronchitis. The cough, which was severe, appeared in paroxysms, simulating fully developed whooping-cough from the beginning. She had a mucopurulent conjunctivitis in both eyes, slight swelling of the eyelids and intense photophobia, the child burying her face in her mother's lap to shut out the light. A rhinitis, which began with sneezing, followed by serous discharge, became mucopurulent in character. The throat was uniformly red; the tonsils were not enlarged. The mother felt alarmed because the child refused all nourishment for several days. It vomited considerable mucus and had diarrhea, passing, in twenty-four hours four to seven stools which contained much mucus and were highly offensive. The temperature was 102 F.; the pulse was rapid. Coarse bronchial râles were heard all over the chest. The liver and spleen were not enlarged. A slight heat rash was observed. Cover-slip preparations and cultures from the nose and the throat of the mother and the baby showed pneumococci.

Group 2.—May 10.—S. family. Four members were affected: Aunt K., aged 35, mother aged 40, and two children, Celeste aged 5 and Janette aged 7, both of whom had had measles and chickenpox. Mrs. M. and sister, living in a flat on the second floor of the same dwelling, were also affected. The first one affected was Mrs. M., who became ill about April 20. A week later aunt K. was affected; Janette three days later; Celeste three days after Janette, and the mother a few days later than Celeste.

Aunt K.'s illness began with chilliness and fever followed by sweats, associated with cough, sneezing, discharge from nose and lachrymation. Later, the nasal discharge became mucopurulent, but that from the eyes remained watery. The eyes became painful. She suffered with burning and itching and was not able to read without considerable difficulty. Epistaxis occurred three times during the attack. Her throat was sore and she complained of dryness and hoarseness. There was substernal pain. The cough, which was dry, occurred in paroxysms, and occasionally there were associated sensations of choking, as if a foreign particle were lodged in her trachea. This was sometimes accompanied by vomiting of intensely tenacious mucus. There was also loss of appetite, which lasted two days.

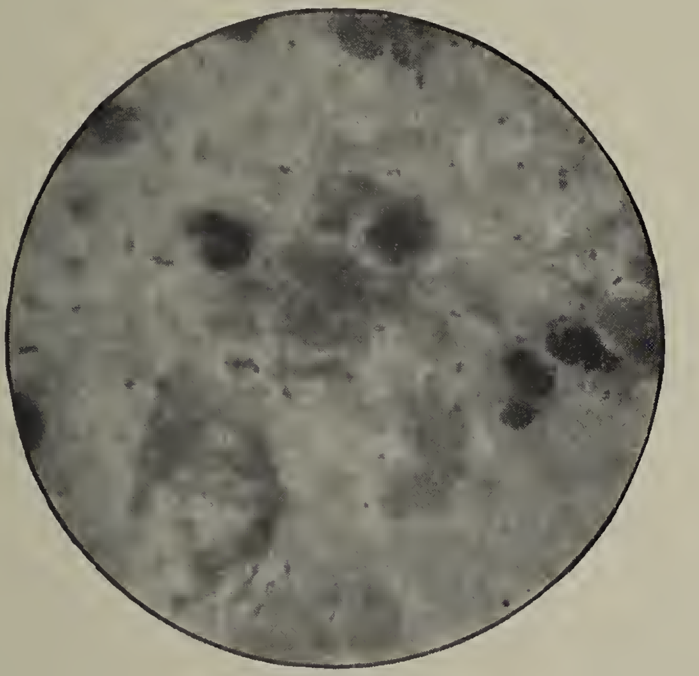

Fig. 4.—Many pneumococci in typical exudate from throat.

Janette was taken sick three days after aunt K. Her illness began with a distinct chill, which was followed by considerable fever and sweats, and by sneezing, nasal discharge, cough and mucopurulent conjunctivitis. The right eye was first affected; the left shortly after. The discharge from the nose, which was watery at first, became so thick and tenacious that it clogged the nostrils and the child was unable to breathe through her nose, especially in the morning. In order to relieve this obstruction, the mother resorted to the use of cold cream inserted into the nostrils, after which she was able to remove plugs of inspissated secretions by means of a hairpin. This procedure was carried out for five successive mornings. The cough, croupy in character, was worse at night than during the day and occurred in paroxysms. The tenacious secretions caused a choking sensation and vomiting, when an effort on the part of the child was made to remove them. There was complete anorexia. The bowels were constipated. The child suffered from headache, earache and abdominal pains and also had considerable mediastinal pain. She complained of dryness of the mouth, great thirst and hoarseness.

Physical examination of Janette.—The patient was up and about, but appeared somewhat nervous. Her eyelids were swollen, the upper more than the lower, and were of the peculiar rose color described by Axenfeld. There was a mild blepharitis and the eyelids were matted with dry, yellow masses of pus. The child presented a picture of adenoid facies and was breathing through her mouth. A profuse herpetic eruption was observed on the lips. There was a slight excoriation about the nares. The tongue was dry and slightly coated and showed several patches of aphthous stomatitis, which also appeared on the buccal mucous membrane. The mucous membrane of the mouth and pharynx were uniformly red. The tonsils were slightly enlarged; the uvula was swollen and edematous. The cervical glands were prominent. Coarse, dry râles were heard over the chest. Pulse and temperature were normal.

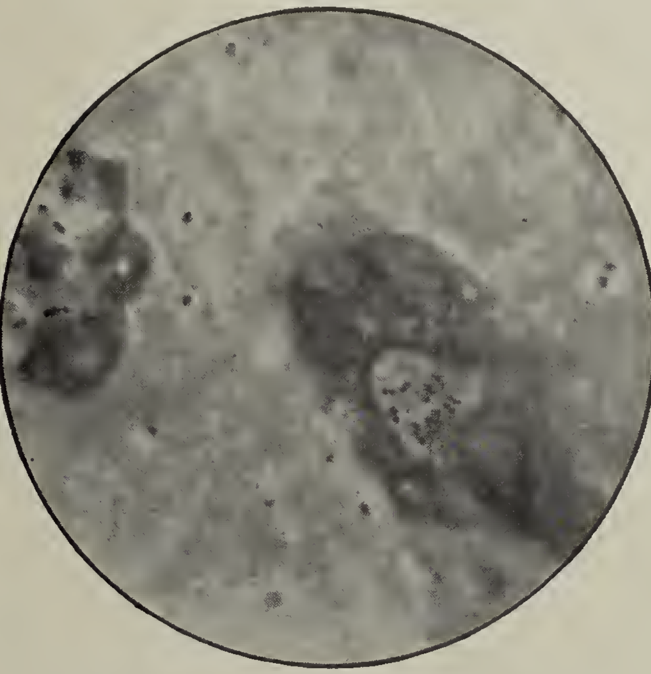

Fig. 5.—Pneumococci in a pus cell and in the nucleus of an epithelial cell from a case with a fibrinous membrane.

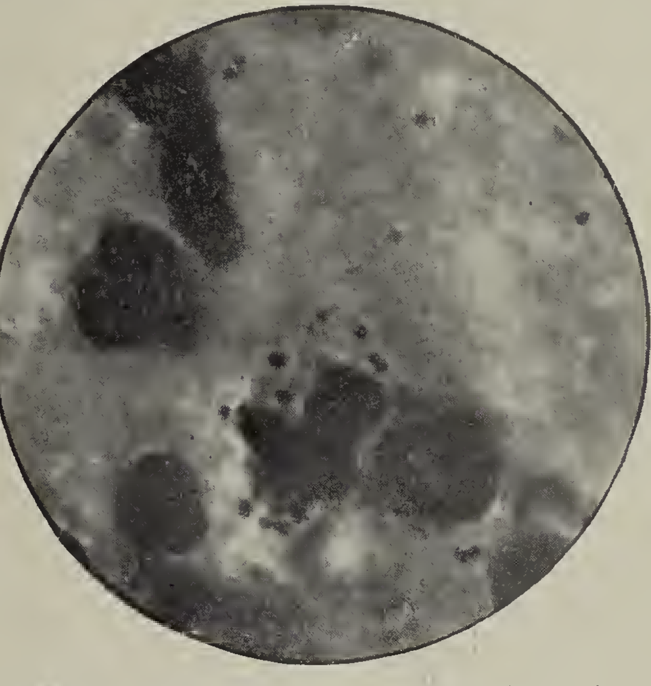

Fig. 6.—Many pneumococci within the protoplasm of a pus cell showing active phagocytosis.

Celeste began to complain three days after Janette. She had played with Janette and had spent much time with the family, similarly affected, living in the upper flat. The subjective symptoms corresponded throughout with Janette's.

Physical examination of Celeste.—The child was sitting up, but not disposed to play. Pulse, accelerated; evening temperature, 101.5 F.; skin, dry. The child breathed through her mouth. The eye symptoms were not as marked as Janette's, but were worse a few days before. She also had herpes and her tonsils were considerably enlarged. The mucous membrane was of a deep red color. While her throat was being examined, she was seized with a paroxysm of coughing, during which she gagged and expectorated a large amount of thick, tenacious, fibrinopurulent matter, portions of which were rusty in character, not unlike the sputum of pneumonia. This expectoration adhered to the bottom of the vessel containing it when inverted. Microscopic examination showed numerous pneumococci. The cervical glands were enlarged and painful. Coarse bronchial râles were heard all over the chest, otherwise the chest was negative. A blood examination showed a leucocytosis of 15,200, and the following differential count: Small mononuclear cells 20, large mononuclear 10.5, polymorphonuclear 69.5. Cultures and cover-slip preparations from the mucopurulent expectoration after vomiting, showed pure pneumococci.

The mother had a very mild attack; the most distressing symptom was the cough.

The disease ran a course of about two weeks in the case of the aunt and the two children. In the case of the mother it lasted only a few days.

One of the most interesting cases of this collection was treated in the Baltimore Eye, Ear and Throat Charity Hospital. It was through the courtesy of Dr. Harry Friedenwald that I was invited to examine the patient and permitted to embody the history in my report. I am indebted to Dr. J. W. Downey, resident physician, for the history of the case, from which I have made the following abstract:

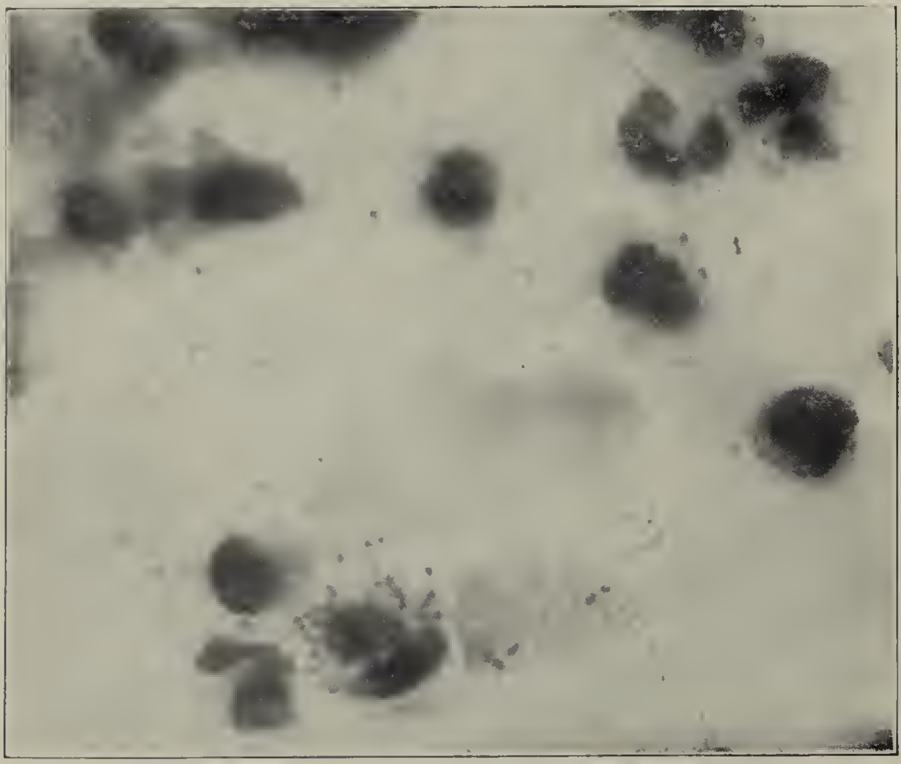

Fig. 7.—Pus from eye showing phagocytosis.

Case 1.—The patient, a boy, aged 18 months, was admitted to the hospital April 25. The mother thought the child had measles a month previously, although she says the measles never "came out." The early symptoms of the illness were hoarseness, cough, fever and lassitude. Several brothers and sisters were affected in the same way; none of them had a rash. The eye condition had existed one week previous to the admission to the hospital, and the eyes had been slightly affected during the whole course of the so-called "measles."

Examination.—This showed a fairly well developed child, although rather poorly nourished. The lids of both eyes were swollen, so that the eyes were closed (Fig. 1). The lids were soft to the touch. There was a slight mucopurulent discharge from both eyes and a slight eczematous eruption around the eyelids. The palpebral conjunctivæ of both eyes were much swollen, and covered with a slight, loosely adherent membrane. The ocular conjunctivæ were not covered with a membrane and were not edematous, but were very much congested. Examination of conjunctivæ caused bleeding. There was a cloudiness of the cornea of the right eye and a hazy appearance of the cornea of the left eye, but there were no ulcers. Impetigo pustules were observed on the face and body. There was a pale, stringy, nasal secretion. The voice was weak and hoarse, and his cries were crowing in character. The mucous membrane of the mouth and throat was slightly reddened, and there was a slight, dirty looking membrane, which appeared in patches, in the pharynx. The larynx also showed a few shreds of membrane. Cough was a distressing symptom. Moist bronchial râles were heard. The chest was normally developed and the heart was normal. Appetite was poor. The child passed from four to five diarrheic stools daily; these were at times tinged with blood. The spleen was distinctly enlarged.

One thousand units of diphtheria antitoxin were at once administered, although cover smears and cultures on blood serum and agar later proved negative for diphtheria. The bacteriologic examination of the eyes showed almost pure pneumococci. A few staphylococci were also found, and staphylococci were obtained in cultures from pustules from the face and leg.

May 2, an ulcer developed on the right cornea. The left cornea was still cloudy, but no ulceration appeared. No improvement in general condition.

May 7, ulcer appeared on the left cornea.

May 17, the report showed that the child had had an almost continuous fever for three weeks previous, ranging from 99 to 100.3. The eyelids were still swollen and the child was unable to open them. The intestinal symptoms had improved and the membrane from the eyes and throat had disappeared.

May 25, Dr. Friedenwald reported the recovery of this patient with maculæ of both corneæ.

Case 2.—A parallel case is that of Mr. S., aged 23, who had a severe purulent conjunctivitis with small ulcerations on each cornea and a yellow, loosely attached membrane on the left inferior turbinate and on the left side of the nasopharynx. The general appearance of the membrane was very suggestive of diphtheria and 3,000 units of antitoxin were at once administered. Cultural and inoculation methods of examination, however, demonstrated a pure pneumococcic membrane.

I shall not give a detailed statement of other cases which resemble greatly those above reported. In the following I shall give a brief summary, based on the observations made on my own cases and those of several colleagues.

ETIOLOGY.

That this disease is of an infectious nature is evident from the report of the two family groups in this paper. In all except ten cases there was a history of house infection. Forty-six cases occurred in thirteen families. In a family consisting of eight members, only two girls were affected. They slept in the same bed. Another family, in which six were affected, the disease was distinctly traced to a servant who had the symptoms for three days before the general outbreak. An interesting example of the epidemic character is an outbreak on board a bay steamer, in which 20 per cent. of the crew suffered the same symptoms, including the captain, chief engineer, second mate and watchman. A smear from the engineer's throat showed epithelial cells containing as many as sixty pairs of encapsulated diplococci. The epidemic character of pneumococcus conjunctivitis has been pointed out by Hauenschild[5] and its invasion of families by Bänzinger and Silberschmidt and by Veasey.[6] Most of the cases of pneumococcus conjunctivitis which have been reported have not occurred in epidemics.

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[5] Ztschr. f. Augenheilk., lii, p. 200.

[6] Arch. of Ophth., xxviii, 1899, p. 30.

From a single observation, it appears that animals are not immune. In a family in which three members were affected, one of the patients was fondling a pet cat. Three days later the animal began to sneeze, which was followed shortly by a severe cough and a purulent conjunctivitis. Unfortunately, the cultures taken from the eye were lost and no bacteriologic examination was made. Colliea[7] was able to produce pneumococcus conjunctivitis experimentally in young dogs, but not in rabbits.

AGE.

The disease is met with more frequently in children.[8] In twenty-nine of the fifty-six cases, it occurred under 7 years of age, ten of these were under 1 year, the youngest patients were twins, 8 weeks old. It occurred four times in the second decade, eight in the third, nine in the fourth, and five in the fifth; the oldest patient was the engineer above referred to, 56 years of age.

PREVALENCE.

All of my cases occurred in the spring. Epidemics of pneumococcus conjunctivitis have likewise been observed in the spring or in the fall.[9] Many new cases have been brought to my notice since I concluded the study of this series. A number of physicians have informed me of meeting similar cases in their practice in Baltimore. Physicians in other cities have also seen numerous cases which correspond to this disease. No reference has been made in any of the medical journals, although the lay press recently reported epidemics of "colds" in London, Philadelphia and Baltimore. These epidemics may possibly be of the same nature.

SYMPTOMATOLOGY.

The period of incubation ranges from two to seven days.[10] The invasion is usually marked by chilliness, slight febrile disturbance, and occasionally night sweats. There is rarely a distinct chill. The temperature, usually from 99.5 F. to 102 F., continues from three or four days to one week. The highest temperature recorded is 103.5 F.; the pulse is not much accelerated. Sneezing, lachrymation and a mucous discharge from the nose are early symptoms. These are followed by a burning sensation in the nose, itching of the eyelids and slight soreness in the throat.

A spasmodic cough, croupy in character, usually worse at night than during the day and often associated with nausea, and even vomiting, is a fairly constant phenomenon. Occasionally the paroxysm terminates in a distinct whoop. In some instances the cough is less spasmodic and more hacking, like that of early tuberculosis. It is nearly always a dry cough, and, if expectoration is present, it occurs as an extremely tenacious, yellow mucopurulent excretion, which adheres to the bottom of a vessel when inverted, and rarely is it blood streaked. There is frequently an associated bronchitis, but the symptoms manifest a more profound inflammation of the upper air passages as indicated by a uniform redness of the mucous membrane of the nose, nasopharynx, soft palate, larynx and vocal cords and by hoarseness and a laryngeal or tracheal cough.[11]

The eyes are also frequently affected; the usual symptoms are lachrymation and photophobia; the conjunctivæ often become injected, and in twenty-one of my cases (37.5 per cent.) a purulent conjunctivitis developed. Two of these cases were complicated with corneal ulcers.

Profuse herpetic eruptions frequently occur. The tongue is generally dry and somewhat coated; loss of appetite and often complete anorexia are distressing symptoms, especially in nursing children; nausea and vomiting of stringy, tenacious mucus, after paroxysms of coughing, is a quite constant feature. Constipation is the rule, although diarrhea may ensue, with blood and mucus in the stools. Intense thirst has been noted in many of the afebrile cases, as well as in those accompanied with slight fever. Polyuria was frequently present. Vesical irritability was observed in three of the cases. In one the irritation was doubtless due to hyperacidity of the urine (70 c.c. of deci-normal solution of sodium hydroxid were required to neutralize 100 c.c. of urine in the presence of an excess of potassium oxalate). The urine is generally pale, highly acid, low in specific gravity and free from sugar, albumin and casts.

A striking feature in the study of these cases is the absence of any marked nervous or mental symptoms. There is little or no mental or physical depression. Few of the patients were found in bed on my first visit, and practically all the children affected with the disease emphatically refused to stay in bed, even with a moderate fever of 101 F. or 102 F. Most of them did not feel ill or distressed except when seized with a paroxysm of coughing, during which they suffered from a severe choking sensation. In three instances I was hastily summoned, as the parents thought the children were dying from strangulation. During these attacks, which lasted only a few minutes, the patients became cyanosed and exhausted. Immediately after the attack they felt as well as usual. One patient, a girl of 20, had five such attacks in twenty-four hours. After a thorough cleansing of the larynx by means of an alkaline spray they promptly ceased.

Mild frontal headaches, substernal and epigastric pains are frequently complained of. Dr. H. C. Knapp furnished me with notes on an interesting case of pneumococcic bronchitis in which there was a pseudomembrane in the throat, and severe joint pains especially in both knees and ankles. With the exception of chickenpox vesicles in one case, sudamina vesicles in another and impetigo in a third, no eruption was observed. Many cases developed a mild adenitis, especially of the postcervical glands. The spleen was only enlarged in those cases associated with severe intestinal symptoms. A decided leucocytosis was observed in all cases in which the blood was examined, ranging from 12,500 to 21,000.

SPECIAL SYMPTOMS AND COMPLICATIONS.

A significant feature of this disease is the formation of a pseudomembrane. This occurred in 12.5 per cent. of all the cases. The membrane is of a light yellow color, usually situated in the nose, pharynx or nasopharynx and occasionally the conjunctiva. It is easily removed, but usually leaves a bleeding surface of the mucous membrane. Cover-slip preparations show an enormous amount of encapsulated pneumococci, and direct inoculation into animals produces pneumococcic septicemia. Severe bronchitis was present in ten of the cases. Some of them which have been carefully studied by Dr. Stokes prove almost beyond a doubt to be due to a pneumococcus infection. Vomiting of clear or bile-stained mucus after coughing occurred in 37.5 per cent. of the cases. This appeared to affect small children more constantly than adults. Vomiting was often accompanied with intense retching. Diarrhea complicated four of the cases in this series, all of which occurred in children under 4 years of age. They averaged from three to seven movements daily. The stools were thin, highly offensive, and contained a large amount of mucus which was occasionally streaked with blood. Fibrinous pleurisy complicated two cases and frontal sinusitis and purulent otitis media each complicated a single case.

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[7] Accordino, Supplemento al Policlinico, 1899.

[8] The predisposition of children to pneumococcus conjunctivitis has been shown by Axenfeld in Kölle and Wassermann's Handbuch.

[9] Nicholas, C.: Etude sur la conjunctivites à pneumonocoques, Thèses, Paris, 1901.

[10] Halle (Annals d'Oculist, cxxiii, p. 200) found the period of incubation of pneumococcus conjunctivitis very variable. An accidental infection in one case resulted in the development of an acute conjunctivitis on the third day; in another case on the seventh day.

[11] Denig (Ztschr. f. Augenheilk, iv, p. 213), has called attention to the association of pneumococcus conjunctivitis and pneumococcus angina.

It is strange to say that pneumonia did not develop in any of these cases, although Dr. C. F. Blake informs me that he has recently seen two cases follow an acute catarrhal condition, which answered the description of this disease.[12]

COURSE AND RELAPSE.

The average duration of the acute stage is from one week to ten days. The cough frequently persists much longer, and in some instances it continued for five or six weeks. Six of the patients had definite relapses; five occurred in young children and one in an adult. The interval between the subsidence of the primary attack and the onset of the relapse ranged from one to two weeks.

DIFFERENTIAL DIAGNOSIS.

If this is an independent affection, then it is necessary to differentiate it from: 1, measles; 2, whooping-cough; 3, influenza; 4, an epidemic catarrh due to the micrococcus catarrhalis, and, 5, epidemic conjunctivitis.

Measles.—The mere fact that there is a uniform absence of Koplik spots and rash should suffice. If, however, in addition, we consider the fact that having had measles does not lessen the susceptibility of the individual to an attack of this disease, we can safely exclude the possibility of measles.

Whooping-cough.—While it is true that in a small percentage of cases there is a distinct whoop, yet this appears as early as the second day of the illness and usually disappears within a period of one week. Moreover, the most typical cases that I saw, developed in children who have had whooping-cough.

Influenza.—With the exception of the absence of a mental and physical depression and severe nerve pains, the condition presents a close resemblance to influenza. Other differentiating features to be considered in the present epidemic are the tendency to the development of pseudomembrane and conjunctivitis; the peculiarly characteristic cough; the more or less persistent hoarseness, and, above all, the absence of the Pfeiffer bacillus.

Epidemic Catarrh.—This is generally a mild catarrhal affection and is not characterized by any gastro-intestinal symptoms. The characteristic organism, *Micrococcus catarrhalis,* was not found in any of the patients examined.

Epidemic Conjunctivitis.—As far as the eye symptoms are concerned, there are no distinguishing features to separate it from the epidemic pneumococcic conjunctivitis which was prevalent in a number of large communities in continental Europe in 1896, as described in the report of Kölle and Wasssermann. These authors, unfortunately, merely called attention to the fact that there is associated an acute catarrhal condition, and look on the eye symptoms as the essential lesion. In this epidemic, the eye symptoms are subsidiary, the primary seat being almost invariably in the upper air passages, and, as already stated, only 37.5 per cent. developed pneumococcic conjunctivitis.

TREATMENT.

The cough is very intractable and little influenced by ordinary cough mixtures. Antipyrin and the bromids diminish the intensity and frequency of the paroxysms. Much relief is obtained by a thorough cleansing of the mucous membrane of the nose and throat by the use of an alkaline spray. The mild forms of conjunctivitis yield readily to the local application of boracic acid solution. The severe mucopurulent and membranous forms were successfully treated with 10 per cent. argyrol solution. Quinin administered in large doses (twenty-five to thirty-five grains daily) has proved an efficient remedy. It has the effect of promptly reducing the temperature and lessening the cough and coryza.

From the clinical and bacteriologic study of these cases, we believe that this affection is an acute pneumococcic disease of a decidedly epidemic character.

BACTERIOLOGIC STUDY.

Before describing the findings in the bacteriologic study of this acute, inflammatory, communicable infection of the conjunctiva and upper air passages, it is proper to mention the various bacteria which are found in diseased conditions of these mucous membranes.

The conjunctival epidemic inflammations are usually produced either by the Koch-Weeks bacillus or the Morax-Axenfeld organism. The former bacillus is very small, decolorizes by Gram's method, is found in and outside of the pus cells, and will only grow on blood agar or other similar media. The latter organism is a much larger, thicker bacillus which often occurs in pairs and also decolorizes by Gram's stain. It may be cultivated on blood serum. Among the other bacteria may be mentioned *B. diphtheriæ, Micrococcus gonorrhœa, Staphylococcus aureus, Streptococcus pyogenes, Meningococcus intracellularis, Bacillus coli, Bacillus pyocyaneus* and *Diplococcus pneumoniæ.* Any of these organisms also may produce inflammation of the mucous membranes of the throat and nose.

In most of the cases which we examined bacteriologically we found the *Diplococcus pneumoniæ* at times in combination with the pyogenic micrococci, and the pneumococcus has previously been reported by several investigators as the cause of epidemic conjunctivitis. These outbreaks are described in Kölle and Wassermann's Bacteriology, 1903.

The first cases of pneumococcic conjunctivtis were reported by Parinaud[13] and Morax[14] in 1894 as occurring in newborn infants and young children, and these cases were accompanied by lachrymation, coryza and purulent and fibrinous inflammation of the conjunctival mucous membranes.

Gasparrini[15] and Axenfeld[16] in 1896 reported many cases of pneumococcic conjunctivitis in children and adults, and they considered the infection communicable.

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[12] The association of pneumococcus conjunctivitis and of pneumonia was pointed out by Pymowicz in 1902 (*Postep. Okul,* No. 11, Polish).

[13] Ann. d'ocul., 1894.

[14] Recherches bacter. sur l'etiol. des conjunctivites aigues. Thèse de Paris, 1894.

[15] Annali d'ottalm., 1893, xxii, 6, and 1896, xxv.

[16] Verhanglungen der ophth. Gesellsch. Heidelburg, 1896; Deutsche med. Wochschr., 1898, No. 1.

The geographic distribution of this disease is widespread, and epidemics have been described as occurring in several cities in Germany, Austria, Italy, Denmark, Switzerland, Russia, Egypt and the United States. In these cases the inflammation was limited to the conjunctiva, and we have been able to find only one case reported by Denig[17] in which this condition was accompanied by an angina, or fibrinous inflammation of the throat.

It is difficult to produce an inflammation of the conjunctiva in rabbits and other animals by means of the pneumococcus, although this has been accomplished after scarifying the conjunctiva. The history of the outbreaks among human beings, however, makes it highly probably that the condition is communicable, and this was proven by Gifford[18] and von Pichler[19], who produced the disease in healthy persons by inoculating their eyes with pure cultures of the pneumococcus obtained from cases of epidemic conjunctivitis. Hauenschild[20] produced the disease by inoculating the pus from the eye into healthy eyes, and proved an incubation period of about two days.

From what has been said it can be seen that the clinical picture of this condition has almost entirely related to the conjunctiva. Dr. Beck, however, has demonstrated that the mucous membranes of the throat and nose are also frequently affected both by purulent and fibrinous inflammations, and in our bacteriologic studies we have made routine cultures from the nose, throat and eye of all the cases examined. In addition, in most of the cases, we have examined cover slips from the eye, nose and throat, and the cultures have frequently been inoculated into white mice or rabbits to prove the virulence of the pneumococcus.

So far we have studied 33 cases, and by microscopic examination have found pus cells and pneumococci in 7 specimens from the nose, 9 from the throat and 10 from the eye. Capsules were stained by Welch's method in 1 preparation from the nose, 3 from the throat and 2 from the eye. We failed to find pus cells and pneumococci in 2 specimens from the nose, 1 from the throat and 3 from the eye. No microscopic examinations were made of the other cases.

The pneumococcus was found in cultures in 8 cases from the nose, in 2 of which fibrinous membranes were present, and in 23 cases from the throat, in 4 of which membranes were present. In 7 out of 17 cases the cultures from the eye contained pneumococci, and in the rest of the 33 cases the eyes were not examined. The original cultures from most of our cases were inoculated into white mice, and the pneumococci often proved virulent, killing the animals with general septicemia in from 1 to 11 days. The cultures from the eye produced pneumococcic septicemia 3 times and those from the throat and nose each 5 times.

In the second series of 16 cases we inoculated 8 rabbits intravenously with pure cultures from the throats of the patients, and 5 died of general pneumococcic septicemia. In 29 out of 33 cases the pneumococcus was obtained either from the nose, throat or eye by coverslips, cultures or animal experiments.

In order to exclude the Koch-Weeks and influenza bacilli, cultures were made from the throat and eye in 5 cases on blood agar with negative results. We also failed to find any of those very fine, Gram-decolorizing bacilli in the microscopic examinations of cultures from the eyes, nose and throat, and think that this organism may be excluded as a causative agent. In many of the cases we obtained the pneumococcus in pure cultures, but some of the throat and nose cultures contained the *Staphylococcus aureus* and *albus* and the xerosis bacillus. Several cultures from the eye showed the presence of these pyogenic micrococci. We think that these organisms are secondary invaders and that the inflammatory condition can be produced by the pneumococcus alone.

In several of the cultures from the pus from the eyes and membranes in the nose and throat and in cover-slips from these materials only pneumococci were found. Frequently the pneumococci were within the pus cells showing phagocytosis. We consider this, therefore, the primary infectious agent.

These cultures gave the usual cultural and staining characteristics of the *Diplococcus pneumoniæ*, although we made no attempt to distinguish between the two forms of the organism, in respect to its effect on culture materials containing inulin. The diagnosis was based on the presence of capsules, the coagulation and acidulation of milk, the clouding of bouillon, and its failure to grow well in gelatin.

In ascribing to the pneumococcus the causative rôle in this disease, we have not disregarded its presence in the normal mouth and throat. The "Report of the Medical Commission for the Investigation of Acute Respiratory Diseases of the Health Department of the City of New York" contains several investigations which show that the pneumococcus is an almost constant inhabitant of the throat and mouth. Park and Williams found either typical or atypical pneumococci in 51 out of 80 normal mouth secretions examined, and Longcope and Fox found typical pneumococci in 19 out of 40 normal throats which they examined. Duval and Lewis isolated this organism in all of 24 healthy persons examined, and Berger found it in 110 out of 283 normal throats examined. The pneumococcus, therefore, can be considered an almost constant inhabitant of the mouth and throat.

But when this organism is discovered in diseased conditions of the mucous membranes, usually in pure culture, frequently virulent, and so distributed in purulent and fibrinous inflammations as to explain these conditions, we have no hesitancy in considering it as the cause of the condition. The photomicrographs from typical cases also show the organism in large numbers, often within the pus cells, showing active phagocytosis, and this is a further point in favor of its being the cause of the disease.

CONCLUSIONS.

This disease exists as a distinct entity, characterized by purulent or fibrinous inflammation of the mucous membranes of the eye, nose and throat.

The infection can be communicated from diseased to healthy persons.

The infection is caused by the pneumococcus, resembling in its cultural and pathogenic properties the cause of lobar pneumonia.

Physical Morality.—Perhaps nothing will so much hasten the time when body and mind will both adequately be cared for, as a diffusion of the belief that the preservation of health is a duty. Few seem conscious that there is such a thing as physical morality.—Herbert Spencer.

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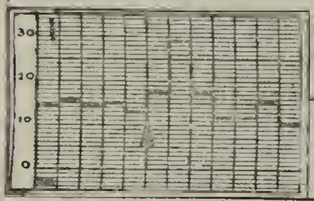
[17] Ztschr. f. Augenheilk., 1900, 213.
[18] Arch. of ophthal., 1896, xxv, 314.
[19] Beitr. z. Augenheilk., 1896, xxiv, 19.
[20] Ztschr. f. Augenheilk., 1900, iii, 1.

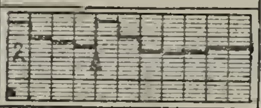
THE RATE OF ELIMINATION OF URIC ACID IN MAN.*

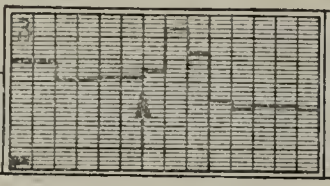
LAFAYETTE B. MENDEL and ERNEST W. BROWN.
NEW HAVEN, CONN.

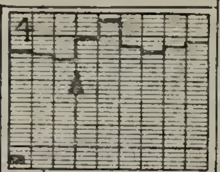
Recent years have yielded substantial contributions to our knowledge of purin metabolism and the genesis and elimination of uric acid in the animal organism.[1] The studies of Sivén and of Burian and Schur taught the distinction between endogenous and exogenous components in connection with uric acid excretion, and they have emphasized the probability that under ordinary conditions the endogenous purin output is fairly constant for the same individual. Quite lately evidence has accumulated to show that under exceptional circumstances, such as starvation or a low nitrogenous diet, the absolute quantity of endogenous uric acid eliminated may be diminished.[2] The widely accepted law of constant uric acid excretion on a diet free from purin derivatives has thus again been called into question, and further investigation will be necessary to explain the discrepancies noted under different dietary conditions. A further distinct advance in current conceptions regarding purin metabolism is indicated in the better appreciation that the uric acid eliminated from day to day ordinarily represents a balance between the quantity formed and that destroyed within the organism. In man the destruction of purins (or uric acid precursors) is not complete; indeed, it is far less so than in certain of the laboratory animals, such as the dog, cat and rabbit.

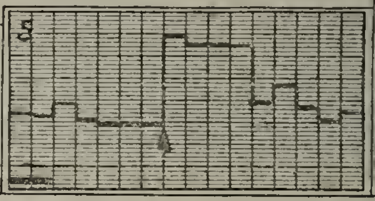
Explanatory Note.—In all the charts each vertical line (ordinate units) represents one milligram of uric acid; each horizontal line(abscissa units) marks off successive hourly periods; the vertical arrow indicates when the meal was ingested; the heavy horizontal line beneath each record shows, comparatively, the total increment of uric acid output above the abstinence output.











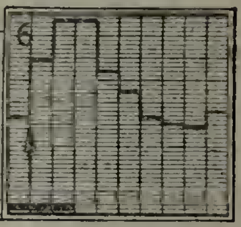
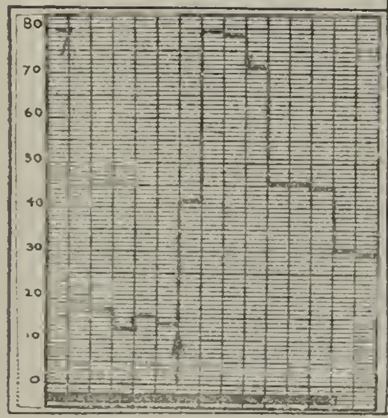
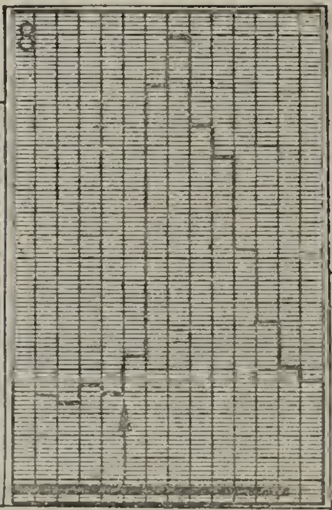
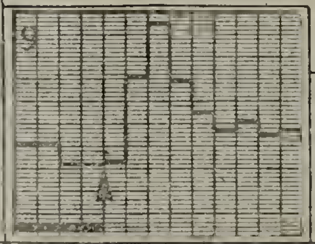


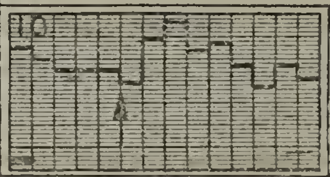
Fig. 1.—(Table A.) Test meal of 300 gm. crackers with butter.
Fig. 2.—(Table A.) Test meal of 30 gm. sago, with sugar and few crackers.
Fig. 3.—(Table A.) Test meal of 50 gm. casein in 450 c.c. milk.
Fig. 4.—(Table A.) Test meal of 50 gm. crackers, with 950 c.c. milk.
Fig. 5.—(Table A.) Test meal of 6 eggs, fried.
Fig. 6.—(Table A.) Test meal of 8 eggs, fried.

It is obvious that perversions of purin metabolism may take place in several directions. The progressive hydrolysis and oxidation of ingested or intermediary purins may be retarded or accelerated through involvement of some of the organs effectively concerned with these reactions. Uric acid may accordingly be either formed or destroyed more or less readily than usual. Or, again, the elimination of normally formed uric acid may be subjected to some peculiar alteration. Investigators have for the most part been concerned with final or absolute results—with the total quantitative changes involved under different circumstances. The accumulated data on the quantity of uric acid excreted under an almost endless variety of conditions have furnished volumes of scientific memoirs. Yet the study of the rate at which these metabolic and excretory functions proceed has, on the other hand, scarcely received consideration. It is to this aspect that we wish to direct attention.









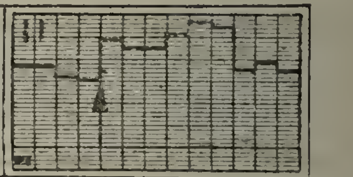


Fig. 7.—(Table B.) Test meal of 500 gm. beefsteak (chopped).
Fig. 8.—(Table B.) Test meal of 600 gm. beefsteak (chopped).
Fig. 9.—(Table B.) Test meal of water extract of 500 gm. beefsteak.
Fig. 10.—(Table B.) Test meal of residue after extraction of 500 gm. beefsteak.
Fig. 11.—(Table B.) Test meal of coagulable proteins extracted from 500 gm. beefsteak.

With respect to the rate of formation and destruction of uric acid in man, indirect evidence only can be adduced at the present time. The study of the composition of the urine elucidates the rate of elimination of the undestroyed residues. Data obtained at longer intervals, such as daily periods, may fail to indicate features of importance which a study of shorter intervals would reveal. Thus, irregularities in production and elimination might easily be compensated during longer periods and thus completely overlooked, whereas they would become conspicuous when the results are examined from hour to hour.

Marés[3] and Hopkins and Hope[4] furnished the earliest data of importance regarding the rate of uric acid elimination. They observed that the figures for the hourly excretion after a meal containing uric acid precursors furnished a curve in which the maximum was reached in about five hours. The curves for different individuals were quite comparable in this respect. In our laboratory Beebe[5] obtained similar results. Statistics compiled in this way involve the assumption that the hourly elimination of uric acid in the absence of food is practically constant. With certain wide limitations this tends to hold at definite periods of the day. Pfeil[6] has studied the rate of elimination of uric acid at three-hour intervals and noted a ready response in increased uric acid elimination after meals containing purins (meat). The form of the "curve of elimination" was characteristic and alike in different healthy individuals. In pathologic conditions, on the other hand, Soetbeer[7] found that the hourly output of uric acid may deviate from the normal findings with the same diets. His experience was obtained on gouty patients, in both chronic and acute cases. The curves here show an extreme irregularity of form, indicative of profound alteration of the rate of elimination as well as quantitative differences in the total output of uric acid associated with a fixed diet. The more extensive examination of the curves of excretion under known dietary conditions in pathologic cases may throw new light on the nature of some of these disorders.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

* From the Sheffield Laboratory of Physiologic Chemistry, Yale University.

[1] The literature on the formation of uric acid has lately been reviewed by Mendel; The Harvey Lectures, 1905; The Journal A. M. A., March 24 and 31, 1906. Cf. also Bloch; Biochem. Centrbl., 1906, v. 521, et seq.

[2] Cf. Folin: Am. Jour. of Physiol., 1905, xiii, 66; Jackson and Blackfan: Studies from the Bender Hygienic Laboratory, 1906, iii, 24; Shaffer: Am. Jour. of Physiol., 1906, xvii, 370; Leathes: Am. Jour. of Physiol., 1906, xxxv, 129.

[3] Jahresb. f. Thierchemie, 1888, xviii, 112.

[4] Jour. of Physiol., 1898-99, xxiii, 271.

TABLE A.—EXPERIMENTS WITH PURIN-FREE MEALS.

Protocol No.	1		2		3		4		5		6	
Meal.	300 gm. crackers with butter.		30 gm. sago with sugar and few crackers.		50 gm. casein in 450 c.c. milk		50 gm. crackers with 950 c.c. milk.		6 eggs fried.		8 eggs fried.	
Urine.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.
Hour.												
7- 8	..	....	..	....	27	19.4	..	....	26	12.0	26	16.2
8- 9	37	14.6	..	....	26	19.5	..	....	34	11.6	42	29.9*
9-10	30	15.6	26	13.0	26	15.3	42	21.5	36	14.2	44	38.9
10-11	32	14.6	29	9.5	27	15.3	32	21.0	35	10.2	52	38.5
11-12	30	14.9	28	9.0	30	16.0	36	19.8	37	9.8	46	27.0
12- 1	30	12.7	28	7.5	27	15.9	45	24.8*	38	9.7	48	22.3
1- 2	32	17.1*	144	13.3*	32	17.8*	90	28.7	42	9.8	50	16.9
2- 3	20	28.8	38	9.3	58	27.0	42	22.9	42	25.9*	42	15.1
3- 4	28	17.1	28	6.4	50	21.5	42	21.7	36	22.2	38	14.4
4- 5	22	11.6	30	6.1	40	10.9	37	22.7	34	22.9	52	18.0
5- 6	27	12.0	23	6.4	45	9.1	22	23.8	38	22.1	..	....
6- 7	40	15.6	30	7.3	46	10.9	..	....	40	14.9	..	....
7- 8	32	10.7	22	7.4	31	9.9	..	....	36	18.6	..	....
8- 9	33	....	..	....	32	10.2	..	....	38	13.1	..	....
9-10	28	....	..	....	30	9.3	..	....	34	10.2	..	....
10-11	..	....	..	....	..	....	..	....	35	12.1	..	....

TABLE B.—EXPERIMENTS WITH MEAT AND MEAT PRODUCTS.

Protocol No.	7		8		9		10		11	
Meal.	500 gm. beef-steak chopped.		600 gm. beefsteak chopped.		Water extract of 500 gm. beefsteak.		Residue after extraction of 500 gm. beefsteak.		Coagulable proteins extracted from 500 gm. beefsteak.	
Urine.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.
Hour.										
8- 9	42	18.6	..	....	35	15.2	78	22.6	..	....
9-10	35	16.7	21	19.0	30	15.3	60	20.0	31	18.6
10-11	28	12.4	18	17.2	22	11.0	55	17.8	40	18.9
11-12	29	16.1	25	21.2	22	11.0	54	17.8	15	16.0
12- 1	30	13.8	25	19.4	30	12.7*	40	17.6	29	15.3
1- 2	58	41.6*	41	28.0*	40	30.6	41	14.4*	31	24.8*
2- 3	85	79.2	88	88.2	44	43.0	42	24.8	22	22.6
3- 4	95	78.1	103	98.2	32	29.2	43	28.1	24	22.9
4- 5	95	71.1	88	79.5	33	22.2	42	21.9	29	25.9
5- 6	80	45.9	82	73.0	44	18.2	45	23.5	38	23.1
6- 7	90	45.9	101	51.8	37	20.7	60	18.6	29	22.2
7- 8	99	44.9	115	36.0	41	17.5	63	13.5	30	17.8
8- 9	105	31.0	87	25.4	36	18.4	66	18.2	35	19.3
9-10	72	29.2	66	22.3	..	....	51	15.6	33	17.8

Obviously the preliminary requisite for any adequate investigation of the rate of purin elimination is an understanding of the metabolism of known ingesta. Several years ago one of us (Brown) undertook an extensive series of experiments on the hourly elimination of uric acid. The method of procedure was similar to that introduced by Hopkins and Hope.[8] Although the research was intended to elucidate other problems, we have thought that some of the data might prove of value in any future consideration of the "elimination curves" characteristic for different dietaries and thus contribute to establish the "standards," so to speak, of normal rate of purin excretion.

TABLE C.—EXPERIMENTS WITH GLANDULAR AND OTHER PURIN-YIELDING TISSUES.
(Liver.)

Protocol No.	12		13		14		15	
Meal.	About 400 gm. liver.		About 500 gm. liver.		Residue after extraction of 500 gm. liver		Water extract of 500 gm. liver.	
Urine.	Volume. c.c.	Uric acid mg.	Volume. c.c.	Uric acid mg.	Volume. c.c.	Uric acid mg.	Volume. c.c.	Uric acid mg.
Hour.								
8- 9	26	19.3	..	....	..	....	45	25.9
9-10	26	23.3	40	16.4	25	16.2	40	23.7
10-11	23	24.8	38	17.5	28	13.3	42	24.8
11-12	28	19.2	44	17.1	31	13.0	67	33.9*
12- 1	21	18.3	31	11.6	29	17.1	63	45.3
1- 2	23	19.5*	32	18.7*	26	19.8*	53	39.9
2- 3	26	57.3	55	33.5	35	34.2	43	27.7
3- 4	59	80.3	74	66.0	34	35.6	37	28.0
4- 5	63	90.5	79	83.9	36	54.0	40	24.8
5- 6	64	63.8	78	85.0	43	53.6	25	20.9
6- 7	70	54.7	66	50.3	49	44.6	35	21.9
7- 8	53	46.3	66	43.4	28	45.3	..	....
8- 9	51	29.1	75	39.4	32	36.7	..	....
9-10	49	27.8	63	40.8	30	38.8	..	....

TABLE D.—EXPERIMENTS WITH GLANDULAR AND OTHER PURIN-YIELDING TISSUES.
(Pancreas.)

Protocol No.	16		17		18	
Meal.	400 gm. pancreas.		Water extract of 500 gm. pancreas.		Residue after extraction of 500 gm. pancreas.	
Urine.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.
Hour.						
8- 9	..	....	..	....	33	16.5
9-10	27	13.8	25	10.0	31	15.4
10-11	25	12.7	27	10.2	27	16.5
11-12	30	9.8	35	13.6	31	14.4
12- 1	30	11.6	28	11.3	46	20.1*
1- 2	44	16.4*	30	11.2	60	41.4
2- 3	35	43.8	27	10.4	105	52.9
3- 4	32	40.9	28	13.6*	43	46.8
4- 5	36	50.7	30	23.7	53	32.4
5- 6	43	50.0	60	46.4	31	34.2
6- 7	52	48.5	55	46.0	40	23.4
7- 8	38	26.9	61	15.4	50	19.2
8- 9	40	35.7	63	15.7	47	16.5
9-10	30	28.5	62	15.6	43	17.4
10-11	33	37.5	70	13.6	48	15.2

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[5] Am. Jour. of Physiol., 1904, xii, 13.
[6] Ztschr. f. physiol. Chem., 1904, xl, 1.
[7] Ztschr. f. physiol. Chem., 1904, xl, 25.

[8] The estimation of uric acid was made by Hopkins' method.

The plan of the experiments was simple. After an evening meal, usually taken at 6:30, no food was consumed until the experimental meal of the following day. Marés believed that the uric acid output per hour attains a nearly constant level from the thirteenth to the twenty-fourth hour of fasting. We therefore collected the urine in hourly periods during several hours on the morning of the experimental day. The test meal was most frequently taken at 1 p. m. and the hourly collections of urine and estimations of uric acid continued during the subsequent eight or ten hours. The meals were varied in character to show the influence of low protein and high protein foods, both rich in and devoid of purins, either free or combined. Some of the data are submitted in tabular form (Tables A to G). The asterisk (*) indicates the hour at which the test meal was ingested. The charts (Figs. 1 to 31) give a graphic representation of the results, the ordinate units representing milligrams of uric acid and the abscissa units expressing successive hourly periods. The time at which the test meal was ingested is indicated by the vertical arrow in each chart. Finally the total increment of uric acid output above the abstinence output[9] is shown in a comparative way by a horizontal line beneath the record of each experiment. These are, however, not directly comparable, for some of the experiments were necessarily ended before the uric acid curve had returned to its abstinence level. In such cases the increments represented are too small. A representation of the relative increment during some fixed period, e. g., the first five hours after the meal, would likewise have been misleading in so far as the quantity of purin ingested was not alike in all cases.

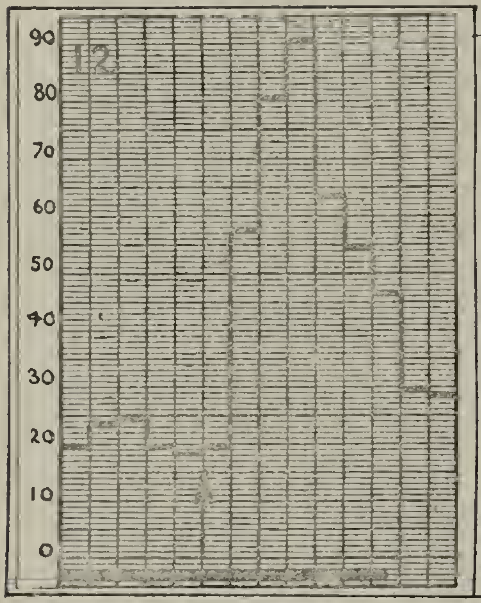

Fig. 12.—(Table C.) Test meal of about 400 gm. liver.

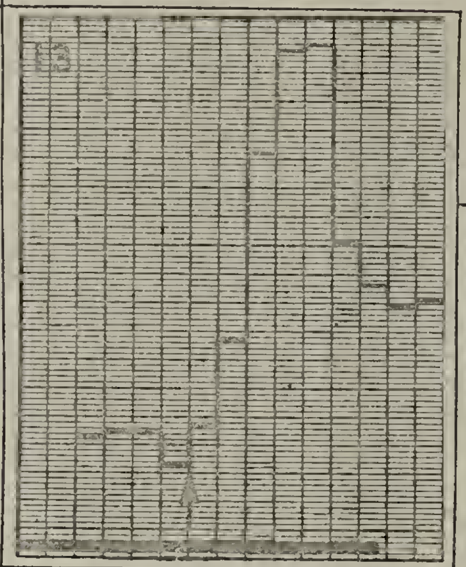

Fig. 13.—(Table C.) Test meal of about 500 gm. liver.

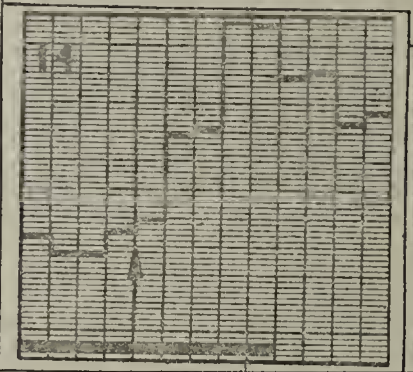

Fig. 14.—(Table C.) Test meal of residue after extraction of 500 gm. liver.

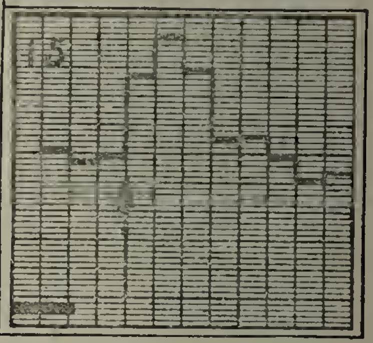

Fig. 15.—(Table C.) Test meal of water extract of 500 gm. liver.

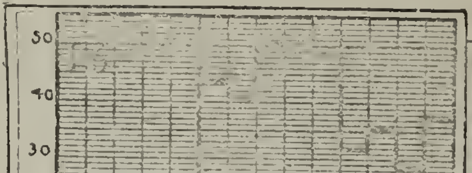

Fig. 16.—(Table D.) Test meal of 400 gm. pancreas.

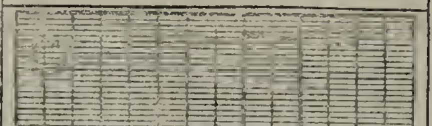

Fig. 17.—(Table D.) Test meal of water extract of 500 gm. pancreas.

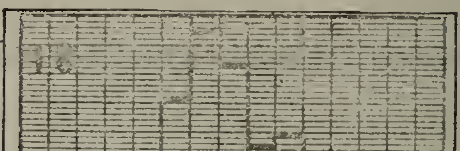

Fig. 18.—(Table D.) Test meal of residue after extraction of 500 gm. pancreas.

EXPERIMENTS WITH PURIN-FREE TEST MEALS.

The ingestion of a purin-free meal is followed by a minimal rise in uric acid output above the abstinence values during the hours immediately following the ingestion of the food. When larger quantities of protein, such as the purin-free egg-proteins (Experiments 5 and 6, Table A, Figs. 5 and 6), are included the rise is somewhat larger. In none of cases, however, is the postprandial rise comparable in extent with that observed in the later experiments with purin-yielding foods. The question of the influence of food *per se* on the endogenous output of uric acid has been variously answered. The careful experiments of Rockwood[10] have failed to indicate any noteworthy change in the uniform daily endogenous uric output when considerable quantities of non-nitrogenous food were added to the fixed ration. Mohr and Kauffmann,[11] however, believe that the individual endogenous constant varies somewhat with the total calorific intake. On a protein-free diet Folin[2] and Jackson and Blackfan[2] have described a low total output of purins, and von Wendt[12] has noted variations in the endogenous excretion in the same individual when the protein and total calorific intake was varied in wide limits. None of the investigators have considered the immediate influence of such quantitative food variations on the rate of elimination. That the postprandial rise is not attributable simply to increased diuresis is evident from inspection of our protocols, in which hourly volumes of urine secreted are recorded. The coincidence of large volume and increased uric acid output is accidental and by no means constant. The independence of these factors is also shown in an experiment by Beebe,[5] in which an enormous diuresis (565 c.c. of urine per hour) produced by alcohol was without noteworthy effect on the quantity of endogenous uric acid excreted during the same time. The experiments of Leathes[2] likewise indicate that the alterations in uric acid output are not attributable to variations in renal activity.

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[9] It may be remarked here that the hourly abstinence values are by no means alike on the various experimental days. A perfect uniformity is scarcely to be expected without greater attention to the constancy of the diet on the days preceding the experiments. While the level of uric acid excretion during the morning hours thus varied from day to day, the abstinence values from hour to hour were sufficiently uniform to show distinctly the postprandial changes in excretion. The important features of the data are, therefore, not the figures for the absolute output per hour, but rather the form of the elimination curve—the rate of elimination as influenced by the diet—and the total increase of purin output above the abstinence values for the experiment under study.

[10] Am. Jour. of Physiol., 1904, xii, 38.

[11] Archiv. f. experiment. Pathol. u. Pharmakol., 1902, lxxiv, 141, 348.

[12] Skandinav. Archiv. f. Physiol., 1905, xvii, 231.

TABLE E.—Experiments with Glandular and Other Purin-Yielding Tissues.
(Thymus; Spleen.)

Protocol No.	19		20		21		22	
Meal.	490 gm. thymus.		560 gm. thymus.		340 gm. spleen.		Water extract of 450 gm. spleen.	
Urine.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.
Hour.								
7- 8	..	....	29	19.4	..	....	..	....
8- 9	..	....	31	31.3*	..	....	..	....
9-10	26	23.4	63	83.9	36	18.2	25	19.1
10-11	26	23.0	80	84.6	31	19.7	27	21.2
11-12	27	22.3	74	69.8	30	17.5	26	20.9
12- 1	26	19.4	54	58.3	32	18.3	34	28.4*
1- 2	33	25.9*	58	43.2	35	20.0*	30	43.2
2- 3	45	42.4	60	68.8	46	71.5	41	40.3
3- 4	60	56.5	45	62.6	43	66.2	32	29.1
4- 5	56	64.0	32	42.1	60	76.2	27	23.7
5- 6	43	57.6	33	55.1	61	86.1	26	21.2
6- 7	53	52.5	..	....	48	47.4	30	17.6
7- 8	50	49.7	..	....	50	55.1	31	15.5
8- 9	62	69.5	..	....	76	45.0	..	....
9-10	66	52.2	..	....	66	42.4	..	....
10-11	..	....	..	....	59	36.0	..	....

TABLE F.—Experiments with Glandular and Other Purin-Yielding Tissues.
(Kidney; Brain; Lymphatic Glands; Haddock Roe.)

Protocol No.	23		24		25		26	
Meal.	500 gm. kidney.		500 gm. brain.		300 gm. lymphatic glands.		400 gm. haddock roe.	
Urine.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.
Hour.								
7- 8	36	19.8	27	19.4	..	....	..	....
8- 9	51	29.9*	38	18.0	38	24.1	..	....
9-10	88	64.1	41	17.2*	37	24.5	23	19.1
10-11	76	59.4	49	40.0	31	23.0	27	17.6
11-12	58	51.8	52	52.5	35	25.0	21	43.2*
12- 1	54	52.2	46	38.8	28	20.2	40	61.5
1- 2	53	39.8	41	37.0	32	41.3*	43	69.1
2- 3	48	28.8	50	37.0	40	52.8	52	80.3
3- 4	50	22.7	53	28.4	48	63.0	49	91.4
4- 5	48	26.3	61	28.0	47	57.4	60	69.1
5- 6	41	24.2	42	22.6	58	49.3	63	62.3
6- 7	..	....	39	24.8	45	49.0	70	55.4
7- 8	..	....	..	....	43	48.0	61	58.7
8- 9	..	....	..	....	52	64.0	42	51.1
9-10	..	....	..	....	47	35.0	..	....

EXPERIMENTS WITH MEAT AND MEAT PRODUCTS.

The influence of meat on the production and elimination of uric acid is well recognized. Von Noorden has introduced the method of determining the quantity of uric acid eliminated after digestion of a known amount of meat as a test for the capacity of the body to metabolize the purins of the diet. This function, indicative of the tolerance of the body for purins, appears to be subject to alterations in pathologic conditions. The contributions from von Noorden's clinic have not touched on the time relations in this activity. The purin precursors exist in muscle tissue for the most part in the form of free purin bases, hypoxanthin and xanthin, the quantity of nucleoprotein (combined purins) being very small. The metabolism and oxidation of the purins present is readily effected, as indicated by the rapid increase in uric acid elimination after ingestion of meat in Experiments 7 and 8 (Figs. 7 and 8, Table B). The aqueous extract of a comparable quantity of chopped meat (Experiment 9, Fig. 9, Table B) was also very effective, as might be expected from what was noted above; the residue left after this extraction (Experiment 10, Fig. 10, Table B), as well as the flesh proteins obtained by coagulation of the watery extracts (Experiment 11, Fig. 11, Table B), provoked responses like other purin-free foods.

TABLE G.—Experiments with Nucleoprotein Preparations.

Protocol No.	27		28		29		30		31	
Meal.	15 gm. pancreas nucleo-protein, crackers.		30 gm. pancreas nucleo-protein, 5 eggs.		10 gm. thymus nucleo-protein, crackers.		20 gm. thymus nucleo-protein (in NaOH).		20 gm. yeast nuclein (in NaOH).	
Urine.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.	Volume. c.c.	Uric acid. mg.
Hour.										
6- 7	..	....	27	17.4	..	....	..	....	..	....
7- 8	..	....	34	18.3	..	....	..	....	..	....
8- 9	..	....	29	63.3*	..	....	..	....	22	20.8
9-10	28	18.2	33	68.0	31	17.5	40	20.5	22	20.5
10-11	33	18.4	46	74.1	27	19.6	38	21.6	32	55.8*
11-12	27	16.4	52	90.3	25	18.2	48	42.8*	38	57.6
12- 1	20	17.8	71	86.0	21	16.8	48	42.4	38	52.5
1- 2	30	39.4*	61	95.4	23	15.7*	50	36.0	30	42.1
2- 3	27	47.0	51	69.8	25	25.9	52	32.4	31	32.7
3- 4	29	48.5	47	34.9	26	25.9	54	30.9	22	32.4
4- 5	30	35.7	35	41.7	28	22.0	42	30.0	28	34.9
5- 6	32	44.2	31	33.1	31	26.9	42	27.0	28	33.4
6- 7	36	41.6	..	....	32	30.1	..	....	..	....
7- 8	40	38.0	..	....	24	28.0	..	....	..	....
8- 9	36	32.8	..	....	31	28.3	..	....	..	....

EXPERIMENTS WITH GLANDULAR AND OTHER PURIN-YIELDING TISSUES.

These tissues are characterized chemically by their richness in nucleoproteins in addition to the "free" purin bases. This is illustrated by the following figures:[13]

PURIN CONTENT OF COMMON FOODS.

	Total Purin Nitrogen. Per cent.	Free Purin Nitrogen. Per cent.	Combined Purin Nitrogen. Per cent.
Meat	0.06	0.045	0.015
Liver	0.12	0.033	0.087
Thymus	0.45	0.042	0.408
Spleen	0.16	0.046	0.114

Corresponding with this fact, it will be observed in the feeding experiments that these uric acid precursors induce a very marked rise in the elimination curve, persisting over a somewhat longer period of time than in the previously reported experiments. This persistence of the high level may be attributed to several causes; most probably the chief factor lies in the nucleoprotein combinations present from which the purin bases must first be liberated before they can serve in the elaboration of uric acid. The soluble and "free" purins are ready for speedy absorption and metabolism; the "combined" purins do not enter into these changes until they are set free by digestive reactions through the cooperation of nucleases. The distinction between meat and liver, for example—two food materials respectively poor and rich in "combined" purins—is emphasized by their influence on the postprandial uric acid curves. The residues left after extraction of free purins from meat afford only a small rise (Experiment 10, Fig. 10, Table B). In the corresponding experiments on the liver, on the other hand, the residue and extract are both effective in eliciting a rise in uric acid output (Experiments 12, 13, 14, 15; Figs. 12, 13, 14, 15; Table C). With the extract it is of brief duration; the residue, rich in so-called nuclein products, only slowly experiences disintegration in the digestive tract, with corresponding prolongation of the period of elimination. In all these cases an added factor of importance, as yet entirely underestimated, concerns the rate of discharge of different foods from the stomach. Cannon[14] has called attention to this in his studies on the motor activities of the alimentary tract. It is obvious that any interference with the normal progression of the intake to the places of absorption must directly influence the rate at which the products formed are eliminated. We need more defi-

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[13] From Burian and Schur: Archiv. f. d. gesammte Physiol., 1900, lxxx, 308.

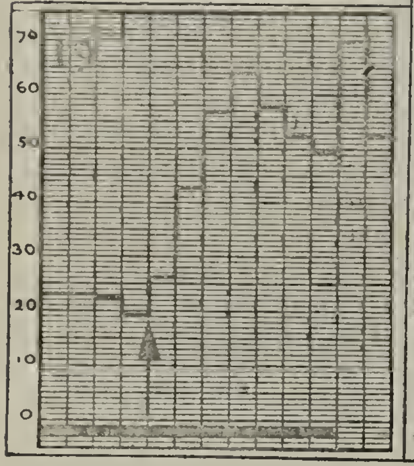

Fig. 19.—(Table E.) Test meal of 490 gm. thymus.

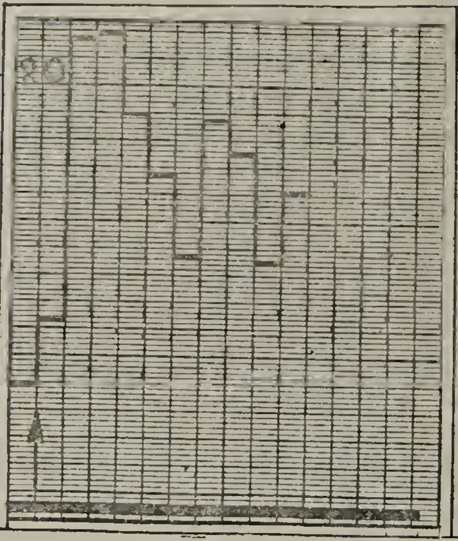

Fig. 20.—(Table E.) Test meal of 500 gm. thymus.

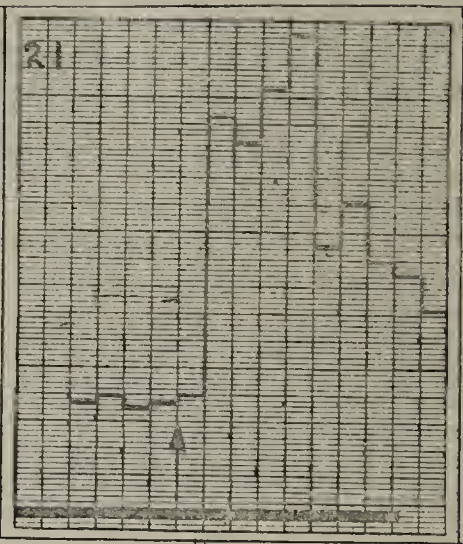

Fig. 21.—(Table E.) Test meal of 340 gm. spleen.

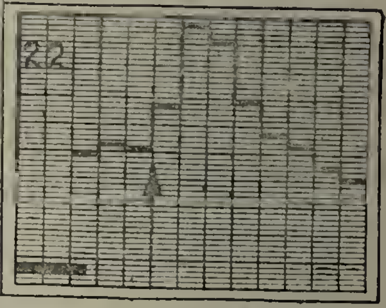

Fig. 22.—(Table E.) Test meal of water extract of 450 gm. spleen.

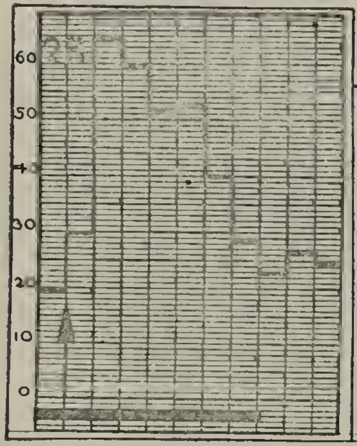

Fig. 23.—(Table F.) Test meal of 500 gm. kidney.

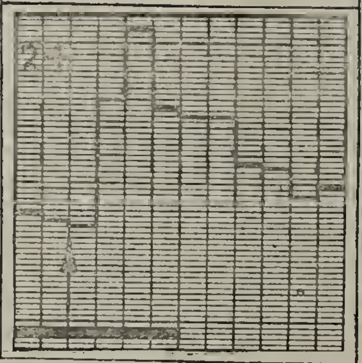

Fig. 24.—(Table F.) Test meal of 500 gm. brain.

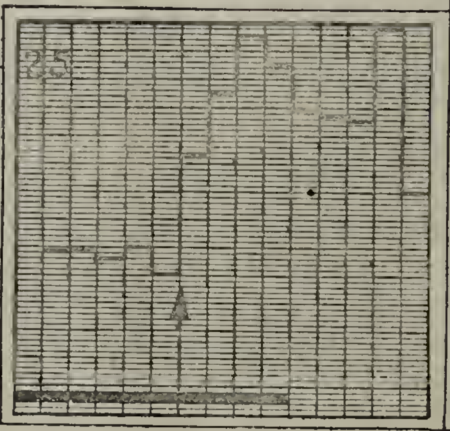

Fig. 25.—(Table F.) Test meal of 300 gm. lymphatic glands.

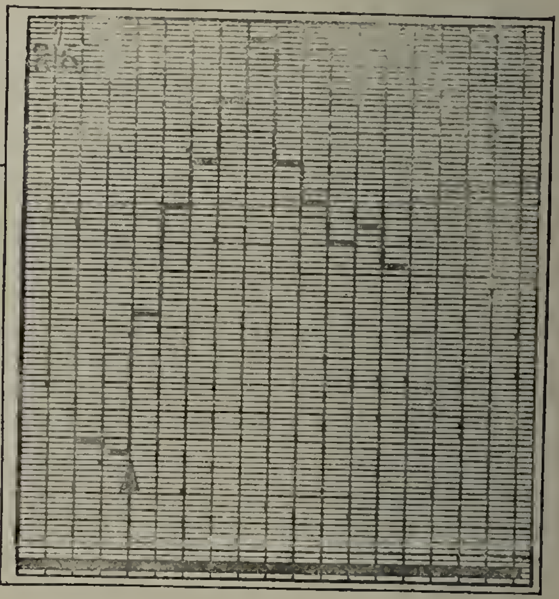

Fig. 26.—(Table F.) Test meal of 400 gm. haddock roe.

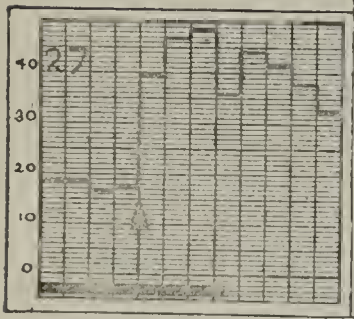

Fig. 27.—(Table G.) Test meal of 15 gm. pancreas nucleoprotein, with crackers.

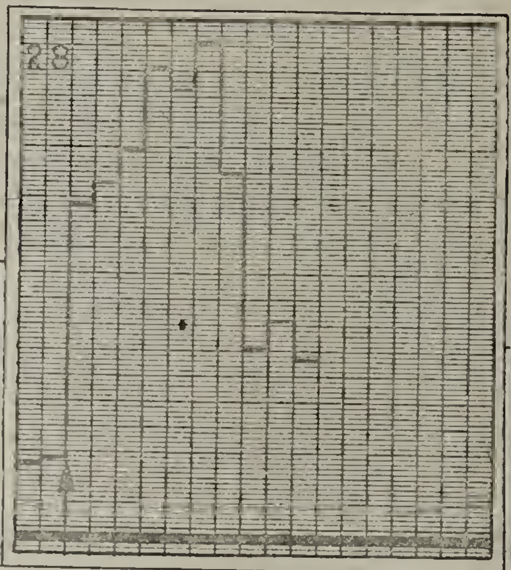

Fig. 28.—(Table G.) Test meal of 30 gm. pancreas nucleoprotein; 5 eggs.

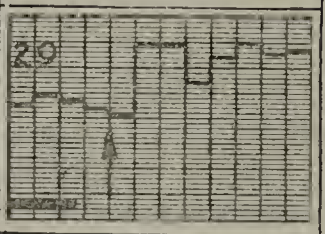

Fig. 29.—(Table G.) Test meal of 10 gm. thymus nucleoprotein, with crackers.

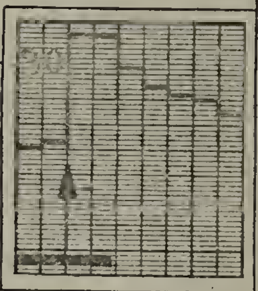

Fig. 30.—(Table G.) Test meal of 20 gm. thymus nucleoprotein (in NaOH).

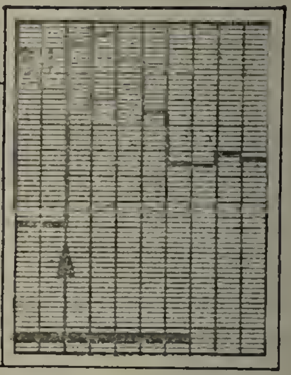

Fig. 31.—(Table G.) Test meal of 20 gm. yeast "nuclein" (in NaOH).

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[14] Am. Jour. of Med. Sci., April, 1906.

nite information regarding the behavior of the foods here under consideration in this respect. Only when such knowledge is available can the factors modifying the rate of chemical transformation of the foods be properly interpreted.

The other glandular tissues examined all yielded the typical postprandial curve of uric acid elimination. This is true of pancreatic gland (Experiments 16, 17, 18, Figs. 16, 17, 18, Table D); thymus (sweetbreads) (Experiments 19 and 20, Figs. 19 and 20, Table E), spleen (Experiments 21 and 22, Figs, 21 and 22, Table E; kidney (Experiment 23, Fig. 23, Table F), brain (Experiment 24, Fig. 24, Table F), lymphatic glands (Experiment 25, Fig. 25, Table F), and haddock roe (Experiment 26, Fig. 26, Table F). The prolonged period of high elimination is very pronounced in those tissues rich in "combined" purins, such as thymus and fish roe.

From the foregoing illustrations selected from our numerous protocols it is evident that the character of the test meal is not without marked influence on the type of postprandial elimination curve. The ready response in uric acid output is, however, a constant and characteristic feature, as well as the marked tendency toward a distinct maximum. It will be recalled that in these features the pathologic cases cited by Soetbeer[7] showed abnormal behavior; and to these points future studies on the pathology of purin metabolism should be specifically directed.

EXPERIMENTS WITH NUCLEOPROTEIN PREPARATIONS.

In order to follow more closely the fate of some of the combined purins which occur in nature as nucleoprotein compounds, feeding experiments were made with isolated products. Pancreas nucleoprotein was prepared from sheep's pancreatic glands by extraction with boiling water and precipitation of the concentrated extract with alcohol. The metabolism of the product is shown in Experiments 27 and 28 (Figs. 27 and 28, Table G). The elimination curve remains a longer time at a high level than when free purins are ingested. Thymus nucleoprotein obtained by precipitation of the watery extracts of the gland with dilute acetic acid gave results exemplified in Experiments 29 and 30 (Figs. 29 and 30, Table G). With yeast "nuclein" the results were most conspicuous when the product was administered in solution (Experiment 31, Fig. 31, Table G), and the slow digestion of the product is perhaps accountable for the prolongation of the excretion curve.

The foregoing experiments indicate a typical reaction of the human organism to diet as illustrated in the rate and extent of uric acid elimination under a large variety of conditions. The response is speedy and characteristic, as the charts show. The limitations of any research, however extensive, which is confined to a single individual, are patent. We believe that the method of study employed is worthy of some consideration at the hands of the clinical investigator.

DISCUSSION.

Dr. Fenton B. Turck, Chicago, said that the feeding of meat extractives may have some bearing on this question, as he has observed certain changes in the feces and urine, for instance, increased output of xanthin and hypoxanthin. It is exceedingly interesting to note that in many of these animals the pathologic conditions that follow are not always in direct ratio to the changes found in the metabolic processes. The simple metabolic changes can not be used as an index of the pathologic conditions produced, for other conditions are found in the metabolism that appear to be more than certain metabolic changes and rate of elimination which have been heretofore recognized. Dr. Turck said that he favors the hypothesis that some not well understood substances are formed that pass into the blood and remove from the blood certain protective bodies, and the rate of elimination of uric acid has not given the indication of the actual process.

DYNAMIC ILEUS.*

JOHN C. MUNRO, M.D.
BOSTON.

The term ileus signifies not a disease, not a symptom, but a group of symptoms associated with many and widely varying causes. These symptoms are abdominal pain, nausea or vomiting, distension and intestinal obstruction. The relative importance of each symptom varies in the individual case, while collectively they may indicate a condition that varies between harmless postoperative discomfort and a rapidly fatal obstruction.

The simplest classification of ileus includes, on the one hand, the mechanical type, where the intestinal obstruction is due to some form of physical interference with the intestinal current, and, on the other hand, the dynamic ileus, in which the obstructions are secondary to some interference with the neuromuscular mechanism of the gut. In the mechanical class we should include stricture, tumors, invaginations, bands, etc. In the dynamic class would fall those cases due to peritonitis, trauma, sepsis, reflex irritations, spinal lesions, etc. But even in the latter class the obstructions due to peritonitic kinking may be, to all intents and purposes, mechanical. Furthermore, different forms of both mechanical and dynamic ileus may be present in the same patient, as we see in cases of stricture with beginning peritonitis and toxemia.

It would be a distinct gain to medical nomenclature if the term ileus could be abolished, thus compelling the diagnostician to define his case of intestinal obstruction as secondary to stricture, to peritonitis, to toxins, etc., as the case might be. For the sake of discussion, however, I will retain the word, but, as it would be impossible in a short paper to consider each one of the numerous varieties of non-mechanical ileus, I will take up only that which is seen both before and immediately after abdominal operations. In this form of ileus the obstruction may be acute and rapidly fatal, or it may be mild, subsiding spontaneously and never threatening life. Not infrequently is the intestinal paresis that follows a laparotomy ascribed to a functional neurosis, but Kocher gives little encouragement to this explanation. He maintained some years ago that such a paralysis is sequent to a serous inflammation, even if very slight, or to circulatory disturbances secondary to the operation itself. To emphasize these views is my purpose here.

It would be well for the general practitioner to rid himself of the idea that the syndrome pain, vomiting, distension and obstruction is, except in the rarest instances, caused by functional disturbances, by drugs, such as morphia, by hysteria or other non-organic conditions. He should search first for septic, traumatic or mechanical causes, then for reflex and, lastly, for functional causes. Rarely will he see a genuine case of the latter. Dynamic ileus almost always represents the result of a sepsis of the peritoneum or a toxin affecting the motor mechanism of the intestines. To differentiate even these varieties is difficult but important, because the treatment of one variety differs much from that of the other.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

A purely functional paralysis of nervous origin may exist, according to Nothnagel, but it is rare. He has seen it after paracentesis for advanced ascites, and it is possible that this variety of ileus may contribute to the exaggerated distension that follows the removal of large cysts or fibroids where there has been a minimum of intestinal handling. Cases of distension of this class also are reported after injuries to the testis, extraperitoneal operations on the kidney, etc.

The non-fatal distension that follows blunt contusion of the abdomen may be from a reflex or functional paralysis, but it is much more reasonable to suppose that it is secondary to the contusion of a loop of gut or its mesentery, too slight to produce the usual secondary necrotic changes.

The distension and obstruction that we see in patients ill with abdominal disorders and before operative interference are in most instances due primarily to a peritonitis. In our experience it is the exception to be called to operate for intestinal obstruction and not to find a case of appendicitis or other infective peritonitis, simple at the outset, but made serious by persistent endeavors, on the part of the patient or his doctor, to force a passage through the intestinal tract. Relatively seldom do we see the true mechanical acute obstruction, but when we do the general picture is so different that the diagnosis of obstruction without peritonitis ought to be made easily.

That toxins independent of those generated by an intra-abdominal lesion may cause ileus is seen in the cases of distension that are found with pneumonia, and more rarely with acute nephritis. Either of these may be confused with the ileus due to abdominal inflammation because the four components of the syndrome are present, but the fifth and distinguishing sign, surgical spasm, is always absent. By what channels these extra- and intra-abdominal toxins produce paralysis is not clear. It may be through the visceral muscles or through the motor supply.

The researches of Durham point to infection of the peritoneum as the cause of ileus in the fulminating cases seen after operation, or in sudden intra-abdominal lesions that do not come to operation. In such instances a superficial examination would seem to rule out the presence of a peritonitis because the gross evidences are so very slight, whereas the omentum and the mediastinal glands will show the presence of abundant microorganisms. The recent experiments of Buxton corroborate this. Cases of this sort have been described by Robson, Stengel and others as acute peritoneal infection rather than as peritonitis.

It is remarkable how slight a degree of peritonitis will stop peristalsis, especially in the cachetic or anemic. Every surgeon will now and then see a fatal case of ileus or toxemia in a patient with far advanced malignant disease coexistent with an amount of mild local peritonitis that would never disturb a healthy individual. Finney and other writers have emphasized this fact. In a few personal calamities of this nature we had been inclined, before death, to ascribe the obstruction to a kink or a twist, or even to a functional neurosis, but autopsy has clearly demonstrated as the true cause a small, mild, local peritonitis. Furthermore, a critical analysis of our cases of mild and severe ileus at the Carney Hospital shows peritoneal sepsis or prolonged manipulation to be the most obvious cause for the condition.

The ileus that follows a clean laparotomy where there is every reason to eliminate operative sepsis is probably due to peritoneal or intestinal trauma; but even so, it is by no means safe to exclude some degree of septic infection as cause or association. It is interesting to note that operations on patients with preexisting septic foci, who have already acquired some degree of immunity, suffer comparatively little from distension. On the other hand, a very slight intra-abdominal operation in an acute case, before immunity to toxins has been acquired, will arouse an intense and perhaps fulminating ileus. On this account delay in operating on septic diseases of the peritoneum is occasionally wise.

Distension alone is of moment because it is well proven that toxins may penetrate a normal intestinal wall when distended and cause a peritonitis in the region of their passage. If the wall has been damaged by disease or by surgical manipulation, this phenomenon takes place much more readily. Hence we see that a distension alone, even if there is only incomplete obstruction, is or may be a source of danger. In addition to the passage of toxins, numerous changes may take place in the gut itself, varying from a hyperemia and infarcts to ulceration and gangrene. Coincident with these pathologic changes is the ever-increasing absorption of toxic products and pressure against the diaphragm.

Absorption of the gases of fermentation takes place to a considerable extent from the healthy intestine. Any damage to the wall quickly impairs the absorption of liquids as well as of gases. As the fermentation increases the distension increases, the circulation of the gut wall is impaired and absorption is rendered more difficult, so that a vicious circle is quickly established. Experiments show that the toxins from an obstructed intestine are far more virulent than those from a healthy gut. For this reason it is important to eliminate as much toxic material as possible by lavage both of the stomach and of the colon. Finney calls especial attention to restlessness as a characteristic symptom of toxin poisoning.

Another cause of ileus that the surgeon must ever consider in his work is mechanical injury to the intestine or mesentery, especially that portion derived from the midgut. Cannon and Murphy's experiments on cats demonstrate the harmful effects of manipulation. Anesthesia or exposure alone is far less important. The cessation of intestinal activity after injury is apparently a conservative phenomenon. It allows repair to take place in order that peristalsis may be re-established. Where the damage is local and the consequent paresis is loval, a reversed peristalsis of the proximal gut is found, the quiescent, damaged section acting much as though it were mechanically occluded. These observers have also shown that the effect of injury to the intestine is much more serious in the debilitated and anemic, a fact which every surgeon has seen clinically.

It is well to bear in mind that in a well-marked case of ileus there is bound to be more or less shock and that the additional shock of even a slight operation may prove fatal.

Treatment depends on our distinguishing, first of all, the different types of dynamic ileus, whether peritonitic, traumatic, toxic or reflex as applied to cases before and after operation.

To consider the peritonitic type, first of all, we can safely say that it may be differentiated by the presence of surgical spasm, elevated pulse and temperature and leucocytosis. Excluding the fulminating cases of this or any type for which the treatment is the same, it is a grievous error to attempt forcible passage of flatus or feces by the repeated administration of cathartics. If the case is seen before operation, this is doubly emphatic, and there is no surgeon who has not seen scores of cases of severe or fatal ileus created in a patient with a mild peritoneal lesion, originally, by the persistent administration of one cathartic after another. Where there is a definite focal cause, like an appendix or a gall bladder or a tube, it must be removed sooner or later. It can be pretty safely said that the distension and obstruction that comes with a local peritonitis rarely of itself demands operation unless to remove the contributing cause. It seems appropriate to emphasize by reiteration the warning against the use of cathartics, beyond a very slight degree, in cases of so-called obstruction where there is any possibility of its being mechanical or infective. The increase of peristalsis destroys the barriers already constructed by Nature against further infection; the augumentation of intestinal fluids favors putrefaction and absorption of toxins; the resultant distension favors bacterial emigration into the peritoneal cavity already actively septic. Thus a mild ileus will develop into a general paralytic ileus with complete obstruction and toxemia.

The treatment of the early stages of distension in almost all cases is non-operative. The treatment of late (mechanical) ileus is always surgical. Rarely is it necessary to meet a reflex or a toxic ileus by other than palliative means. Rarely must we meet a peritonitic or a traumatic ileus by operation for the ileus alone. Every type, however, now and then may be so rapidly fulminating that enterostomy is imperative to prevent a secondary mechanical obstruction, infection or gangrene from over-distension, thrombosis, etc. At what stage this interference is demanded depends on the surgeon's experience in dealing with abdominal lesions, on the general condition of the patient and on the result of palliative therapy. An early enterostomy when necessary will often save life when the same operation a few hours later would kill.

Even distension attended by partial obstruction may need surgical relief quite as imperatively as one attended by complete obstruction, depending on the absorption of toxins from the gut and on the interference with the diaphragm. All such cases, especially the subacute, are poor subjects for a secondary operation. Patients with acute, rapidly fulminating ileus will bear an enterostomy better, relatively, because the toxemia or copremia, or whatever it is that proves so fatal, has existed for only a short period.

In the milder peritonitic types it is better to rely on the elimination of the intestinal contents, both gaseous and liquid, from below. Cathartic enemata, antispasmodics, irrigation of both the stomach and colon, the administration of salt solution by rectum (to aid elimination through the kidneys), and the rectal tube are the best therapeutic measures that we have.

Enterostomy to forestall a possible ileus we believe to be rarely indicated. Even in the presence of considerable distension due to a septic focus is it but rarely justified, as a primary step, because removal of the causative focus will generally relieve the ileus, provided there has not been too much operative damage done to the viscera.

In the rare cases of obstruction from enteric spasm as seen in biliary or renal colic and, judging from our experience, in similar rare cases of peritoneal trauma and infection, it is well to use morphin, which, by diminishing the pain, favors peristalsis and thus acts as a cathartic.

Patients with pure traumatic ileus rarely require surgical relief unless a mechanical ileus or secondary necrosis supervene. The routine case is best treated as the mild peritonitic case is, by enemata, lavage, etc.

In conclusion, I would suggest that the intestinal obstruction commonly seen before and immediately after operation is, for the most part, secondary to some degree of peritoneal infection or mechanical injury. That when there is a definite local focus, this and not the ileus requires operative treatment. That the variety of ileus under discussion may be confused with the reflex or toxic types, but that the latter do not exhibit spasm, fever and leucocytosis. That because of the toxin absorption, the secondary changes in the gut and other sequelæ, it is of the greatest moment to empty the intestines of their contents by enemata and lavage and to re-establish peristalsis.

However much comfort we may take out of the fact that the peritoneal cavity disposes of large quantities of septic material, it behooves us in any operation to introduce as little foreign septic material as possible and to inflict the minimum amount of damage on the peritoneal organs. Slight sepsis and slight trauma will cause some degree of ileus; they may cause fatal ileus, and we must be willing to admit that the discomfort which follows our laparotomies is much more likely to be secondary to some degree of sepsis or trauma than to the neurologic idiosyncrasies of our patients.

RESECTION FOR THE RELIEF OF INTESTINAL OBSTRUCTION.*

WILLIAM J. MAYO, M.D.
Surgeon to St. Mary's Hospital.
ROCHESTER, MINN.

The frequent necessity of resection for the relief of intestinal obstruction is a somber commentary on the diagnostic ability of the profession. In the very large majority of cases, delay in surgical interference is responsible rather than the primary cause of the ileus. The favorable cases are those in which there is interruption to the fecal current without vascular strangulation. The need for resection, however, usually arises from the damage to the blood supply rather than from blocking of the intestinal lumen.

The important considerations are, first, the extent of vascular involvement; second, the degree of infection; third, amount and toxicity of the obstructed intestinal contents. The upper intestinal tract is comparatively free from pathogenic bacteria. Their number and virulence gradually increase toward the ileocecal orifice, and as demonstrated by Herter, the terminal two feet of the ileum teem with these organisms. The walls of the empty intestine are comparatively thick and wonderfully supplied with blood, and in this condition, as shown by

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Dudgeon and Sargent, are entirely competent to prevent penetration of micro-organisms, but if the fecal current be obstructed, the distension seriously impairs the blood supply, the contents rapidly become infected and the intestinal walls may no longer be able to prevent the egress of bacteria, and some escape into the peritoneal cavity from the excessively distended part where the circulation is grossly impeded. For a time these invading micro-organisms are picked up by the omentum, according to Mr. Bond, but general septic peritonitis soon supervenes. The intestine above the obstruction becomes filled with fluids which are not only most infectious, but also contain poisonous chemical products.

Regurgitation of this material into the stomach requires careful emptying by gastric lavage before operation, for the reason that the regurgitated intestinal contents not only depress the patient, but its toxins may cause acute gastric dilatation. McArthur and Andrews have particularly called attention to the possibility of fecal drowning during operation, through the vomiting up of large quantities of fluids into the esophagus and aspiration into the lungs.

Treves says that the mortality of resections for intestinal obstruction was decreased one-half after it became customary to evacuate the intestinal contents through an incision, instead of allowing it to pass down into the healthy distal intestine where it was absorbed. Evacuation is best accomplished after the method described by Monks. Through a small intestinal incision, he introduces a long drainage tube or blunt ovariotomy trocar into the lumen, slipping coil after coil over it as it is emptied.

Vascular changes in the intestine above the obstruction are greatly increased by the distension and local toxic effect of the contained liquids. For this reason it is necessary to go well above the seat of the disease to secure healthy intestine. A considerable percentage of the deaths following resection are due to perforation from thrombosis, and the utmost care should be taken in handling the distended intestine not to increase the vascular damage.

In searching for the seat of obstruction it is wise to go down to the ileum at the cecal termination and endeavor to find the collapsed intestine and trace this to the point of disease, rather than handle the distended gut. If the abdominal incision is badly placed, so that one can not reach the seat of obstruction without tension on the mesentery, it is better to make a second more advantageous working incision. This is particularly true of strangulated femoral hernia. Here it is advisable to open the abdomen above Poupart's ligament, reduce the gangrenous loop into the abdominal cavity and bring it out of the upper incision so that resection may be easily accomplished.

RESECTION OF THE SMALL INTESTINE.

Lateral anastomosis with end closure by the two-row suture method, we believe to be the safe resection for *acute* obstruction of the small intestine. It keeps away from the dangerous mesenteric border with its contained blood vessels and makes the anastomosis at a point where there is adequate peritoneum and the tissues are healthy. The fact that the contents of the small intestine are in a fluid state, adds much to the safety. The intestine can be quickly crushed with heavy clamps and tied in the groove with catgut and the ends inverted like the stump in appendectomy and closed with a linen purse-string suture. More of the bowel should be removed opposite the mesentery, so that there will be no question as to the vitality of the part retained. The intestine should be held by clamps and the anastomotic opening made at least three inches in length, a point insisted on by Robert Abbe in his original work on "Lateral Intestinal Anastomosis."

While it is theoretically better practice to anastomose so that the intestinal peristalsis shall be continuous, clinically it seems to make little difference. The possibility of intussusception of the proximal blind end should be avoided by having it short and suturing the stump to the wall of the opposite intestines.

After resection for chronic obstruction of the small intestine end-to-end union is the operation of choice. I prefer the two-row method of suturing. The Connell single row of sutures and the Murphy button, in such cases, give equally good results. If the button is used it must be made certain that there is no narrowing of the lumen of the intestine below which would prevent its passing out; and the line of anastomosis should be protected by four interrupted mattrass sutures of linen or silk, so applied that they will pass the button.

The immediate functional results after end-to-end union are better than after the lateral. Cannon has shown experimentally that there is delay of food at the opening in lateral anastomosis and that this is not true of end-to-end unions. In time, however, the lateral union adapts itself to circumstances so that the fecal current is direct and a slight elbow in the intestine is all that marks the site of the juncture.

RESECTION OF THE ILEOCECAL COIL, ASCENDING COLON AND HEPATIC FLEXURE.

The ileocecal region is a favorable situation for operative interference. The blood vessels are terminal, so that it is not necessary to exercise the same amount of care as in the ligation of the mesenteric vessels higher up, where the main blood supply is continuous to the intestine below. The contents of the ileum are in a fluid state, so that the mechanical conditions are much simpler than in the large intestine, where solid fecal masses endanger the integrity of the suture line.

The lymphatic arrangement of the large intestine is favorable for resection. The lymph nodes are sparse and do not easily take offense, as would be expected from the nature of the colonic function.

Butlin's statistics show that more than half of the patients with carcinoma of the colon die from obstruction of the bowels before glandular metastasis has taken place. As a rule ileocecal resection should include the ascending colon, and resection of the ascending colon should include the cecum. The certainty of union in ileocolostomy is so great as contrasted with anastomosis in the colon, that the extensive removal of the intestine is more than compensated.

The ileocolic anastomosis should be lateral, and made between the lower ileum and the transverse colon near the hepatic flexure underneath the omentum. The intestine should be crushed and tied with catgut, after which the stump should be inverted with purse-string sutures; the two-row method of suturing with the aid of holding clamps gives the best results. We have, however, a number of times used the Murphy button, passing each half in through the open cut ends of the bowel and drawing the barrel out through a button hole, making the juncture without the usual purse-string suture as recommended by Robert Weir. The button union, however, should be protected by four or five mattrass sutures of linen or silk.

In irreducible ileocecal or other intussusceptions the procedure of Mikulicz and Jessett, which is a modification of the Mounsell method, may be employed. After reducing as much of the intussusception as possible, an incision is made through the containing wall of the investing colon and the entire gangrenous mass lifted out, amputated and sutured from the mucous side. After the stump is returned, a few sutures of linen or silk protect the serous surface. The working incision in the colon is separately closed.

RESECTION OF THE TRANSVERSE COLON.

In resecting part of the transverse colon it should not be forgotten that in four cases out of five the middle colic artery is the sole blood supply, and unless these vessels are involved they should be preserved, else the whole transverse colon will become devitalized. End-to-end or lateral anastomosis may be performed, as the parts are amply surrounded by peritoneum and invested in the folds of the omentum, so that the certainty of union is very great. The contents of the transverse colon are semi-fluid, which is a most favorable circumstance. The suture method, however, should be adopted, preferably the two-row with the holding clamps. The Murphy button should be avoided, as there may be fecal masses of sufficient size to obstruct the button lumen.

RESECTION OF THE SPLENIC FLEXURE, DESCENDING COLON AND SIGMOID.

The colonic fecal container begins at the splenic flexure of the colon and extends to the upper border of the rectum. The splenic flexure and the upper part of the descending colon under normal conditions are empty, acting rather as a connecting link or passage-way to the sigmoid, which is the true fecal reservoir. That portion of the sigmoid which is closely attached to the iliac fossa, the English call the iliac colon, and the part lying between this and the rectum, the pelvic colon, which is more accurately descriptive than the term sigmoid.

Resection for obstruction between the splenic flexure and the rectum should usually be made in two stages on account of the solid character of the feces. The cause of the obstruction is most frequently new growths or extensive inflammatory disease, such as diverticulitis. Immediate end-to-end or lateral union may be advisable when there is no obstruction, especially in that part completely invested with peritoneum, but if there is obstruction the complete primary operation is very fatal. It is far better to follow the method of Mikulicz and Paul, which consists in drawing the affected part out of the abdomen and after separating its mesentery and suturing the two limbs together, attach it to the abdominal incision, with the diseased part projecting beyond the skin. After waiting as long as the condition of the patient will permit for adhesions to protect the wound, the obstruction is relieved by a small opening in the distended loop. In from two to four days the entire projecting area is cut away, leaving the two ends of the colon flush with the skin, side by side like a double barrelled gun. At the end of two weeks a pair of clamps is introduced, one blade in each opening, and made to grasp the opposed walls of the intestine, where they are held by the sutures for a distance of not less than three and a half inches. The clamps are gradually tightened until they cut their way through, which takes from four to six days. This re-establishes the communication. The fistula gradually contracts, and will either close itself, or can readily be closed by secondary plastic operation.

AFTER-TREATMENT OF INTESTINAL RESECTION.

The care of patients following intestinal resection is important. First, the patient should have the head and chest raised to the semi-sitting posture for several days after the operation, so that the sepsis may be gravitated away from the sensitive diaphragm, to the pelvis, where it will be more safely absorbed. Second, in obstruction of the small intestine especially, there is necessity of rectal infusions of salines, four or six quarts in the adult during the first twenty-four hours, as recommended by Murphy, to aid elimination and relieve the dehydration so frequently present. Third, the stomach must be carefully and repeatedly emptied and irrigated with hot water, if there be any tendency to prolonged nausea or vomiting.

[This Symposium on Ileus is to be continued. The discussion will follow the last paper.]

PUBLIC PROVISION FOR INCIPIENT CASES OF TUBERCULOSIS, SANATORIA AND DISPENSARIES.*

CHARLES C. BROWNING, M.D.
Medical Director, Pottenger Sanatorium.
MONROVIA, CAL.

The prevalence of tuberculosis; its fatal tendency when sufficiently advanced to manifest its presence by symptoms, physical signs and tests, when not treated; the encouragement afforded to sufferers when properly treated; the disease being the most amenable to treatment of any of the chronic diseases, especially in the incipient stage; the well-known source of infection and its means of communication; together with the means of prevention; and, lastly, the practical results which have been achieved as shown by the decreased mortality where efforts have been made to treat and control the spread of the disease, are sufficient reasons for assuming without argument that the public should make provision for the accomplishment of these ends.

The treatment must be carried out in sanatoria, dispensaries and the home, or by combinations of these methods, according to the condition of the patient.

By public provision, in this title, I understand provision by the nation, state, county or municipality, as may come within the province of each, in contradistinction to provision by private charities.

For convenience of consideration of this subject, people may be divided into three classes: The poor, who live on their earnings from day to day and on the charities of the public or their friends, when, through lack of work or misfortune, they cease to earn wages for a short time and must be cared for as soon as overtaken by illness.

The second class, those who are more provident than the first, and who lay in store enough to tide them and those dependent on them over a greater or less period of time that their earning capacity is suspended; and who are able to support themselves during temporary interruptions of work or of ordinary short illnesses, or if enforced idleness for a considerable time, would be able to contribute something to their support, but not to maintain themselves wholly, and secure the attention which they need throughout a long-continued illness, such as an attack of tuberculosis even when discovered in the early stages usually proves to be, and should have a certain degree of assistance.

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The third class are those who are financially able to maintain themselves indefinitely during the incurrence of such expense as is needed to secure the best care and treatment during the course of this disease, and do not need, and many do not desire, aid, but opportunity.

Each of these classes is entitled to consideration. It is one of the underlying principles of civilization that members of the human family are dependent on, and should aid each other; this is the more necessary the more urgent the need, and among the greatest urgencies for aid is in time of illness.

Again, the public should not discriminate between the deserving and the undeserving. It owes opportunity only to the former, it should give no less to the latter. It acts on this principle when it gives protection and opportunity to the convicted criminal undergoing punishment. Not to do as much for the deserving places, to that extent, a premium on crime. Private charities may discriminate between the deserving and the undeserving.

Again, those who receive public aid are under obligation to the public and should lend themselves for scientific research and the dissemination of scientific knowledge, where this can be done without in any sense jeopardizing their chances of recovery.

With the large amount of material which should be available in every "public" sanatorium or dispensary, a comparatively small outlay would furnish opportunities for scientific work; and, indeed, some of this work might be made to reduce the operating expense, as by a system of internships or classes.

The well-regulated sanatorium is the agency through which the treatment of tuberculosis can be carried out in its highest degree of efficiency.

The first class of individuals mentioned, the poor, can only secure this treatment if the public provide it, and in making provision for the incipient cases, it is taking steps to prevent these cases from becoming advanced and restoring them to usefulness.

To place them in a well-conducted sanatorium is to completely change their environment, their habits and their mode of life, and acts as a stimulus favorable to recovery.

These people should receive the best care and treatment suited to their condition, and that which gives them the best opportunity for recovery and makes them least likely to be dissatisfied with their lot when they return to take up their part in the world.

While it is desirable to encourage the desire for higher living, it is dangerous to make persons so much dissatisfied with their walk in life as to embitter them. This I believe to be especially true with young women, as the temptations are greater which beset their paths than are the temptations of young men, and their opportunity to lift themselves entirely out of their former environment and station in life is less.

It is possible to teach them cleanliness, care of secretion and discharges, furnish nourishing and wholesome diet, and make their surroundings comfortable, and not depart so greatly from the environment to which they will return that they lose heart in trying to emulate the life they have been shown was right. What we should do is to place these people under such environment that they can carry the mode of life back to their homes, live it themselves and teach others how to live, and in that way each one may influence many more.

The second class of people to whom I referred do not need entire support, but are able to do something for themselves, yet are unable to maintain themselves and those dependent on them during the several months which it is necessary for them to have treatment to effect a cure from the incipient stage of tuberculosis in a sanatorium.

Their manner of life has been different from the former, and neither class is wholly congenial to the other; and congeniality of surroundings and associates has much to do with recovery in a disease which is so largely dependent on nutrition as is tuberculosis, and where persons must for the length of time necessary be more or less intimately associated in an institution for the cure of incipient cases of this disease.

In a sanatorium, the life partakes much of the character of the family. It is difficult for patients to entirely live apart from others, nor is it desirable that they should. Congenial companionship is a valuable aid.

These patients are able to pay a portion of the expense, and should be granted that privilege. For this reason I believe that separate sanatoria should be maintained by the public; one for those who are unable to pay, and are wholly charitable; the other for those who are able to pay a part, or semi-charitable institutions, and that those who are able to pay a part should, if unwilling, be compelled to do so.

Much excellent work has been accomplished in sanatoria which take both charitable and pay patients; but I believe that greater good could be accomplished by these same institutions if this source of friction could be removed. As to those whose financial ability permits them to pay in full, I do not believe it to be the duty of the state to provide. What they are entitled to, and what most of them desire, is opportunity.

This can be supplied by the private sanatoria. Many of these are semi-charitable institutions, being endowed or receiving donations sufficient to cover a considerable portion of the expense of maintenance, while probably all number among their patients those who are unable to pay. These institutions are the proper ones to discriminate in favor of those of limited means who are especially deserving. By receiving proper compensation from those who are able to pay for care, these institutions are able to extend their philanthropic work to a greater number whom they may consider deserving and are able to furnish the comforts to which these people have been accustomed, contributing to their contentment and better opportunity for recovery.

Public sanatoria should, as far as is possible, in common with all other institutions of public charities and corrections, be removed from politics and political influence. Salaries should be commensurate with the responsibilities assumed and service required and sufficient to attract the most able physicians.

Comparatively few of the great mass of tubercular patients discover that they are afflicted with this disease in the incipient stage; and of those who do, many, on account of civil condition, social relation or other responsibilities, can not or will not accept the advantage of the sanatorium, whether it be charitable, semi-charitable, or one at which they are permitted to pay for such treatment as they desire. These must be treated outside of the sanatorium, which means they must be treated at their homes or at the dispensaries or by a combination of both. The well-to-do will seldom go to a dispensary, so that the public dispensary will be confined to the treatment of the poor and those who are of at least limited means.

As a means of treatment, and as an educational factor, while the dispensary is not equal to the sanatorium, yet it is probable that for the money expended, a greater number of people can be reached through the different forms of dispensaries than through any other channel; and the homes of the tubercular patients can be more thoroughly and completely supervised than in any other manner.

The methods of conducting dispensaries are numerous, and each one is adapted to different classes of patients. In many incipient cases patients applying for dispensary treatment feel that they must continue to work, or that they must maintain their homes in part.

The provision of food for patients who are unable to supply themselves with sufficient amount of the proper kind, aids very materially; and every one who has had experience in the dispensary treatment of incipient cases of tuberculosis, or even in the moderately advanced cases, has been gratified to see material gains made after having instructed the patient how to live, how to expend his earnings for food, and, if necessary, supplement his efforts by furnishing what they are unable to provide, and have seen the beneficial influence exerted over an entire family, tenement house or district, by dispensary patients who had received instruction, and especially if their homes have been visited at intervals by the visiting nurse.

The out-of-door camps have been productive of great good; and, perhaps, their influence is more noticeable in women, because mothers who do not feel that they can leave their families entirely will go for a few hours a day to an out-of-door camp; however, very few patients in the incipient stage of the disease can do so.

Probably the method introduced by Dr. Parker, of Boston, of the formation of tubercular classes, will become one of the most popular means of caring for the tuberculous poor by different societies. The good which can be accomplished in this way is certainly great, and is applicable not only to the cities, but also to the smaller towns and rural districts which have heretofore been neglected. Many persons who would not go to a public dispensary or a public camp will become members of a class, and in that way come under the direction and supervision of physician and nurse.

Is it profitable for the public to provide sanatoria and dispensaries?

Tuberculosis claims most of its victims during the most valuable age to the state, during the reproductive period and the period of productive labor.

Biggs estimates the value of a human life to the state at this period at $1,500, and I think this is not excessive. Based on this, let us consider the monetary value to the state of a sanatorium for incipient cases.

Basing this estimate on the work of the Massachusetts State Sanitarium, at Rutland, the first state sanitarium to be established, we find about 50 per cent. of all patients received are discharged as apparently cured and 40 per cent. more improved. This percentage, no doubt, would be greater were the cases treated confined to the incipient stage.

If for each 100 patients treated, for an average length of time of six months, fifty are discharged cured and forty improved so that they are restored to their earning capacity for an average of one year only, we have a basis on which to compute the value to the state of a sanitarium if they are saved, or the loss to the state if the disease runs an uninterrupted course.

Furthermore, if the disease continues to fatal termination there is a period of time of loss of earning power, which may be conservatively stated at ten months, and another period during which they must have care and treatment from others. If we place the loss of wages for ten months at $1.50 per day and care for six months $1.50 per day additional, we have items of expense which should be added to the above. We will have:

Fifty cases restored, valued at $1,500 each	$ 75,000.00
Wages, 50 people, 10 mos., 260 days at $1.50	19,500.00
Care of 50 people, 6 mos., 180 days, at $1.50	13.500.00
Forty persons restored to earning capacity for one year —313 days—at $1.50	23.475.00
Total amount saved to the state each 6 mos. for each 100 persons treated	$131,475.00
An average weekly saving for each patient treated 6 months	50.50
If we estimate the average weekly cost of caring for patients at	12.50
We have a gain per week for each patient	$38.00
Or for each 100 patients continuously under treatment for an average of 6 months we will have 200 per year, 200 × 52 × $38.00	$395.200.00
Saved to the state for each year per 100 constantly under treatment.	

If it is supposed that half of these might have obtained these results without public aid, may we not balance this with the reasonable probability that each patient who dies of tuberculosis infects one other person?

I believe these estimates to be conservative and that the actual monetary value to the state greater than here estimated, not to mention the suffering saved.

If our social conditions are responsible for the existence of tuberculosis, society owes assistance to the sufferers from this cause, who are unable to care for themselves, and society must care for them in order to protect itself and check the spread of the disease.

Educational influence of organized effort is being manifest by the greater frequency with which patients seek relief early, appreciating the fact that on early diagnosis and treatment depends largely the success of their efforts. Much more is to be accomplished along this line, offering every encouragement to individuals for early recognition of the disease and acknowledgment of its existence rather than concealment.

Every encouragement should be offered to patients to remain at the sanitarium or to report to the dispensary until recovery is complete, and to this end the good which may be accomplished by sanitarium treatment or direction received at the dispensaries should be made apparent to the patient. The advantages of observation and direction regarding diet, rest, exercise and habits of life are of paramount importance.

With the accumulation of evidence of the advantages to be derived from the judicious use of the culture products in the treatment of this disease, I desire to urge on those giving special attention to this work, careful consideration of their use. I believe them to be a valuable aid, if judiciously used. Do not undertake their use in a routine manner, as the results will prove disappointing. Study carefully their mode of action, their possibilities, the technic of administration and use them scientifically. The result will, I believe, be gratifying. They will also add to the patients' interest and assist in holding them under observation.

CLIMATE AND OUTDOOR LIFE IN THE TREATMENT OF TUBERCULOSIS.*

PAUL PAQUIN, M.D.
ASHEVILLE, N. C.

Health is maintained by a vitalizing triad: air, light and food, which constitute the necessary elements of nutrition. So life depends on the earth and its atmosphere, and human nature, therefore, is inseparably linked with, and under the influence of, the numerous atmospheric conditions that surround us.

Air, as we believe, is a mixture of about 21 parts of oxygen and 79 of nitrogen, more or less saturated with water vapors. The nature and amount of these vapors depend on various circumstances, such as proximity to the sea, bodies of fresh water, the existence of winds, altitude, etc.

Air contains a certain quantity of ozone, "a sort of electricized or condensed oxygen," fatal to miasmatic and decomposition developments. Ozone is scarce in the air of cities, but renewed at intervals everywhere, in a measure, by electric phenomena, as all of us have noted in the peculiar freshness—almost pungency—of the air after lightning has streaked the clouds in a storm. Air contains also a small amount of argon which seems to be inert. It contains, perhaps always, a measure of deleterious substances, among which the most objectionable are carbonic acid gas, oxid of carbon, and the myriads of micro-organisms floating about in an invisible cloud of dust. You have all noted this remarkable phenomenon when revealed by a stream of light through a room. In certain localities the air is vitiated, furthermore, by special earth and vegetable dusts which are particularly injurious to the respiratory organs, such as, for instance, the alkali, the fine sands raised by the winds, the pollen of certain plants. It may also be seriously injurious by admixtures from smoke stacks, smelters, foundries, etc.

So, in our efforts to utilize climate as a preventive or curative measure, we should seek to begin with localities where the conditions afford air of the highest purity in every particular. We should discriminate between localities which are the freest from deleterious substances and those which are more or less polluted. How are we to reach a conclusion on the purity of the air in a given locality? Alas! it is very difficult, with the meagerness of the reliable sources of information one can refer to. It is part of the problems of climatology—a vast subject of the sanitary and medical sciences so sadly neglected by our medical schools that few medical practitioners to-day have more than a rudimentary conception of the basis of climatotherapy.

In thus speaking of air at the outset, in discussing climate, I have anticipated a point of general climatology to emphasize the pronounced importance of this factor, and to suggest that, wherever there is pure air, the climate is generally desirable for most cases, irrespective of other circumstances. We will now turn to climate as a whole.

Climate is the sum total of atmospheric conditions. It varies in Nature everywhere according to numerous causes, such as sea currents, light, heat, winds, rains, fogs, mists, snows, frosts, altitude, latitude, distance from bodies of water (lakes, rivers and seas), the nature of the soil (as porosity, compactness, color, rockiness), the conformations of the earth's surfaces (as slopes, hills, mountains, crags, ravines, basins, plateaus), vegetation (as forests and grasses or their absence, as in deserts and on the plains), artificial achievements (as the building of large cities and irrigating canals), the density of population. Naturally, several of these influences are related and more or less inseparable. Indeed, many modify each other and it would be very tedious and difficult to study them separately. Nor is this necessary to understand climate—enough for practical purposes in climatotherapy. Necessarily, then, there exist a great number of different climatic conditions around the earth, each to be classed as a special climate, some of which are bound to be more or less inimical to health, and some of which tend to brace vital activity and to stimulate it to good health.

In the use of climate in the treatment of tuberculosis (and for other maladies, for that matter), we are concerned chiefly with those having a special influence in maintaining nutrition, for this is the basis of resistance against the tubercle bacillus and its toxins; in fact, it is the basis of restoration to health in any malady. Indeed, tuberculosis, like other infective diseases, can not be arrested without that sort of cellular nutrition which is capable of producing and maintaining immunity, and only the climates that can unusually assist such nutrition are worthy of especial consideration as a therapeutic measure. And it should be understood in this connection that there is no perfect climate. A good climate is relatively so, but never such as to include every feature of a theoretically perfect climate for therapeutic purposes. Many physicians who send patients away in search of curative climates expect more, and their patients expect more than is available anywhere, and much disappointment and many sad failures follow. Generally, the idea in mind in sending a patient away is outdoor life in the surroundings most suitable for his condition. This involves, then, not only a knowledge of climates, but their respective utility in and adaptability to different pathologic conditions of various diseases, and even of the same disease, as well as their influence on different temperaments and physical natures. For instance, the tubercular do not all respond alike to the same climatic influences of a given locality. The very anemic, the very dyspeptic, the cavity cases, the mixed infections, the incipient infections, the acute developments, the laryngeal lesions, etc., may exhibit very different results in a given climate—some of them bad which might have been good in a climate especially suitable.

So we need to classify tubercular patients, as well as climates, with regard to climatotherapy. As a basis we should divide them into two general classes, to be again subdivided on pathologic details. In one class I would place the advanced consumptives of all types, including the profound tubercular anemias, the softening processes, the cavity cases, the mixed infections with grave depression, and in general those physically depressed to a grave degree under any form of tuberculosis, save perhaps tuberculosis of the brain. As a rule, these patients seem to do better at higher and dryer altitudes than the lower ones, or where moisture is great, although for comfort, among the incurables, a mild or very warm climate is often grateful to the sufferers.

In the second class I would place the dyspeptic, pretubercular so called (a false designation), the incipient tubercular developments and possibly all stages of tuberculosis prior to softening processes and also the early mixed infection phenomena. These, under proper attention, may do well almost anywhere in pure air, irrespective of altitude, but do much better at medium altitudes, if other climatic conditions are suitable, and may do well in high altitudes under similar circumstances. It is largely a question of individualism as to where it is best to send them, the most reasonable solution being to send them where, if cure should follow, they can return home and live there in comparative safety.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

As I have just suggested, these classes might be subdivided. Several series might be made, based both on pathologic conditions and climatic circumstances. I can not follow this line of thought here, nor can I discuss the local situations of climatology which go to make this spot better than that other nearby, and more or less suitable for this or that condition. Such local climatic influences are of great importance, but they must be considered on the ground, with reference to each case brought there, and no discussion could be made extensive enough, on such an occasion as this, to do more than suggest the need of consideration. Temperature has to be carefullly considered in studying climate. It is held also to be a paramount factor of climate. Certainly it is the most impressive factor on the tubercular. Hot or cold are two effects which they feel quickly, with a great variety of results, and more numerous consequences still on the mind and the physique. But, outside of the direct influence on the system, its effect on climate is what concerns next the student of climatology.

In a given locality heat depends chiefly on the location, distance from the equator (modified more or less by proximity to bodies of water), high mountains, snowfalls, glaciers, moisture in the air, winds from cold regions, cold storms.

The air is heated by the absorption of sun rays by the moisture of the atmosphere. Therefore, the more moisture in it the hotter the weather and the more depressing it may become. An atmosphere absolutely dry would let the sun rays pierce it without imparting any warmth whatever. Such a dry air, and indeed any atmosphere excessively dry, is not as healthful as one mediumly so, for a certain amount of moisture in the air we breathe is necessary for the tissues and, besides, it contributes to the diffusion of a medium temperature. When one accustomed to moist atmosphere is suddenly placed in a very dry air, there sometimes occurs irritation of the air passages to a more or less aggravating extent. This sort of air is taken advantage of in the treatment of cavity cases of tuberculosis and various suppurative forms of disease, such as tubercular infection of the ear, catarrhal involvements of the nasal passages, etc.

The temperature in the sun and the shade vary, of course, and should be differentiated. The latter depends on the heat given off by the earth's surface, which may be modified anywhere by warm currents of air. Dry air, allowing the heat reflected from the earth to pass through more completely and more readily than moist air, makes the difference between heat in the sun and heat in the shade much greater in high altitudes and mountains than in low and moist altitudes in which the moisture stores more heat. In comparatively dry and clear atmospheres the heat is lost rapidly during night, thus tending to produce a cool night air, which is most comforting and conducive to very restful sleep. Those who live in cities impregnated with moisture know how depressing and really sickening is the hot night air they must stand during the warm months. And, conversely, moist air is also chillier in cold weather than dry air, and the city folks know this well, too. At a temperature of twenty or higher in moist localities one suffers more from cold and contracts respiratory troubles much more readily than at a much colder temperature in a comparatively or very dry climate. Indeed, cold air, in a fairly dry locality, is bracing, stimulating, healthful, and it is the reverse in a moist locality. Hot air, dry, in the shade, is beneficial, in advanced consumption particularly, but is ennervating in the sun. High moist temperature is very depressing and conducive to languidness, and should not be selected for patients with curable tuberculosis. In very anemic patients, however, particularly those in whom comfort is more essential to pass the days of a weary existence than efforts to subdue a disease which seems impossible to arrest, a warm climate is of value. It often seems to soothe and comfort. The effects of atmospheric temperature are influenced by sunshine, winds, local air currents, etc. Those influences which improve the effects of atmosphere operate to make the temperate zones the healthiest.

Sunshine and light are of great value. On the mind and nervous system alone they have a powerful stimulating effect. They chase the "blues" and render the surroundings more cheerful. Besides, light itself has direct hygienic forces, arresting the life of many deleterious micro-organisms and favoring the purification of the air and contributing tone to the system generally.

Humidity in the atmosphere has much to do with the effects on the body of man. As we have noted, very dry air has disadvantages as well as excessively moist air, for humidity is a necessary condition of healthful atmosphere. It is concerning the extremes of humidity and dryness that, in the selection of a climate in which to treat tubercular patients, one should discriminate with a view to adaptability and suitableness, particularly if one intends to secure the effects of night and day outdoor life.

Moisture in the air is termed absolute and relative. Absolute moisture is the amount of aqueous vapor in a given volume of air. Relative humidity is properly stated, in Solis Cohen's Physiologic Therapeutics, as "the quantity of vapor in a certain volume of air, expressed as the percentage of the amount that the same quantity of air, at the same temperature and same pressure, could possibly hold when completely saturated." Temperature and pressure, then, should be taken into account in considering relative humidity and its consequences on climate, such as the formation of fogs, mists and dew, which consist of condensation and precipitation of moisture.

This brings us to the question of moisture in the air sufficient for the production of fogs, etc. It must be acknowledged that the effects of these phenomena on man have been often ill judged and the bad results as often grossly exaggerated. While fogs attest to a certain amount of moisture in the air which in itself might be injurious, the locality in which they appear has definite modifying influences. For instance, a thick fog in a valley, at a low altitude, usually remains low on the ground, and thickens the air to a point sufficient to depress one and to cause him to become wet, clammy and cold. A similar fog in the mountains occurs in the declivities and dents of the earth, near rivers, etc., and rises up early in the morning, leaving the air fresher, sweeter and purer. Besides, fogs are not without direct benefit in keeping the air free from floating impurities. Like the rains and snowfalls, they gather dusts and floating germs. In the mountains the fogs are comparatively few and usually in the form of a thin mist. Some of them appear like a haze and hover around the crests of the highest mountains more or less persistently. Such is perhaps the peculiar blue haze of the Blue Ridge Mountains of the Appalachian range which is, nevertheless, noted for its salubriousness.

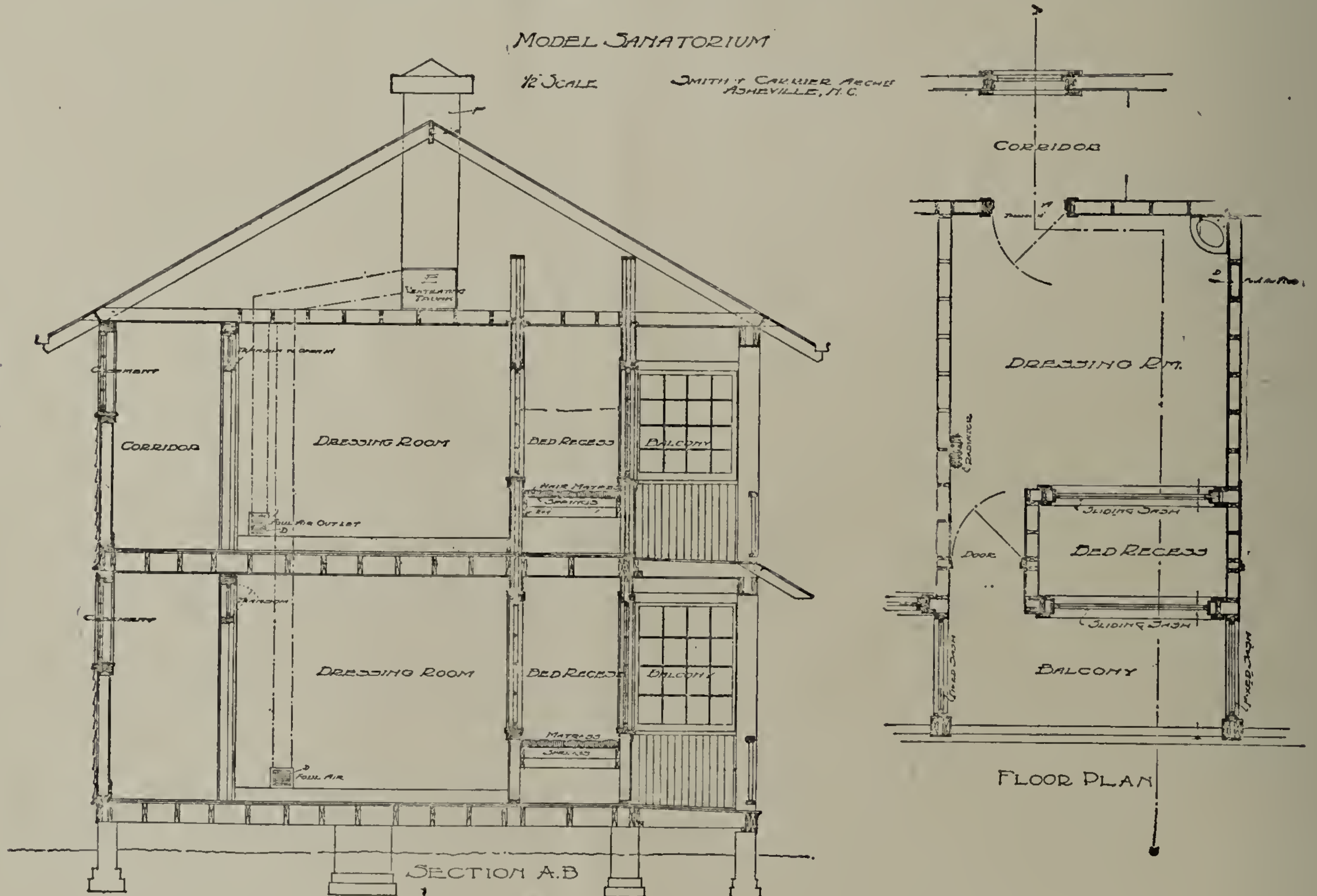
Rainfalls are not all bad for tubercular patients. As I have just stated, they gather the germ-laden dusts of the atmosphere and bring them down to the ground. If the rainfalls are great, and in lowlands, the ground becomes more or less soaked and the atmosphere becomes too moist; then there results bad effects on the system. The same amount of rain in the mountains has quite different consequences. It brings down the impurities, too, but, instead of saturating the earth, it rushes down the mountains and hillsides to the streams as fast as it falls, carrying air débris more or less completely with it, and leaving the soil comparatively free from water to form atmospheric vapors.

Snowfalls have a similar effect, only they weigh down the dusts that they gather, and hold them until the temperature rises to the melting point, when the water formed runs down to the streams or soaks the ground, according to locality.

Frosts are salubrious in arresting and suspending decomposition and fermentation phenomena on the surface of the earth, but ground deeply saturated with water, in regions very cold, freezes very deep and, during the thaws which follow, the air becomes moist and thick to a degree damaging in respiratory troubles. Hence, it is beneficial, in such cases, for those living in cold climates to move, early in the spring, to localities where frosts are slight. I believe it preferable not to go to extremes, as, for instance, to climates so warm that frost never occurs.

Rainfalls, snowfalls and frosts, then, may be really beneficial by clearing the atmosphere, particularly in the mountainous regions and may become damaging, chiefly by their excess and persistency and saturation of the soil and vaporization afterward.

Altitude, which we will now consider, is, of course, of great importance in climate, but it is not, as so often considered, the most useful factor in the treatment of tuberculosis. As one climbs the mountains he meets temperatures colder and colder until the level of perpetual snow is reached. With some modifications, due, in a measure at least, to certain local influences, the temperature becomes colder by about one degree F. each 300 feet or so. Altitude, then, means cool and cold atmospheres, which are conditions that stimulate all the physiologic activities of man. Besides this sort of temperature, high altitudes have a lower barometric pressure than low altitudes, and thus the air is not so dense. It is also dryer, clearer and purer in every way at a certain stratum above the crust of the earth. However, there are high altitudes where the atmosphere is not favorable for the treatment of certain sorts of respiratory troubles. For instance, in high altitudes, where alkali dusts or sands cover the ground and windstorms occur frequently, the atmosphere becomes so full of irritating dusts that it can not be considered the most favorable for the cure of respiratory troubles. Nor is a high altitude always applicable to cases suffering from heart affections or to people with nervous temperaments.



Winds are of two kinds: the general winds, dependent on the general circulation of air over the globe, termed trade winds, and local winds dependent on local conditions of topography, heat, cold, etc., and may perhaps be exemplified by the summer monsoons that blow from the Gulf of Mexico over the plains of Texas and the lower Mississippi Valley. Some of these winds, in some localities, impair the atmosphere very seriously. Strong winds, cold blast winds, chilly winds, hot moist and cold moist winds, winds with dust storms, are all to be avoided. Information on this point should be obtained before selecting a preventive or curative climate for tuberculosis, remembering, however, that, in a given locality, one can perhaps select such a spot as to be entirely sheltered from at least the prevailing bad winds, if not from all of them. In the mountains this is usually a comparatively easy matter, because one can take advantage of elevations and coves as protection. On level grounds one must usually resort to artificial means of protection. Now, given such a climate as we may find favorable for the treatment of a certain type of tuberculosis, there remains to settle this question of selecting a properly protected spot, as also the question of exposure, which is of the greatest importance. I suppose that it can not be denied that in most parts of North America a southwest exposure for the living quarters, bedrooms and outdoor sleeping shelter is, as a rule, the very best, for it affords patients the greatest amount and longest period of sunshine essential as a cheering and curative agent.

As to outdoor life in any climate, intelligent management is necessary. It has been prescribed too often for the tubercular without regard to their condition, possible reactions and other ill results. It is not enough to advise a patient to live out of doors, night and day. They must be shown how, where and when to do this safely. They must be advised as to the causes of accidents, as excessive walking, steep mountain climbing, chilling of the body surfaces, the winds, the dust storms, getting up nights while sleeping out, etc. The latter question deserves special consideration. The greatest drawback in sleeping out is the danger of colds and congestions in getting up from a warm bed in the cold air, perhaps in a draft. Various means have been suggested and are in vogue to procure safety, but none are very satisfactory so far. A new device, intended to afford one a safe and easy way to sleep in or out of doors at will, consists of a pair of sashes, hung on wheels, one each side of the bed. Each sash is perfectly balanced and moves up and down with ease in metal grooves that can never tighten. If one desires to sleep indoors he pulls down the outside sash and lifts the inside. If he desires to sleep out he pulls down the inside and pushes up the outside one. When sleeping out and wanting to rise he pulls down the outside sash, puts up the inside and steps into a warm bedroom (or dressing room, rather). So he does not catch cold. This room and the sleeping compartment are ventilated by direct currents of air through and through from back to front without striking the bed with drafts. The foul air is extracted by flues in the walls, ending on the roof with a specially adapted cap which draws in any wind. A corridor, running back of the room, and a porch, with side glass doors to protect from side winds, are features of the bed protecting structure in front. The roof slopes enough to keep the direct sun rays from the bed and to shade one who may lie in the daytime, but not to shut out light. A steamer chair may be placed on the front porch for the convenience of the occupant. The building as a whole is on the pavilion or section plan. One may add a string of them in a row and heat all by one system. (It is the plan which I have adopted, with a southwest exposure, for the Asheville-Biltmore Sanitarium, now building between the city of Asheville and the town of Biltmore, in North Carolina.) After long search and tests I feel confident that it will afford the best means to date for sleeping outdoors safely in any weather. The device is adaptable to any house by suitable alteration or new construction.

In conclusion, permit me to draw your attention to our very imperfect knowledge of climatology and our blundering as a consequence. For instance, we do not fully realize the nature of our body relationship to the atmosphere, as evidenced by reactions on our tissues, particularly the nerves and the parts involved in certain pathologic phenomena. How and why is it that certain atmospheric conditions cause the appearance of more or less severe aching and nerve pains in arthritic, rheumatic, neuralgic, mialgic and pleuritic affections? We theorize on the subject, but we are far from having scientific data as an explanation. It is probable that other less tangible influences occur on diseased people, perhaps the tubercular, which we do not as yet appreciate. Certain it is that the mere change of climate, irrespective of locality, is often productive of good results and that certain localities which, by the usual factors of climate, would seem very ordinary in the treatment of tuberculosis, occasion apparently persistent cures. It then behooves the profession to undertake a systematic study of climate. The medical schools should take up the matter.

DISCUSSION

ON PAPERS OF DRS. JACOBI,* FARRAND, OTIS, BROWNING AND PAQUIN.

DR. J. H. STOLPER, Krebs, Okla., said that the thing that surprised him is that the men who spoke about the function of the state in relation to the study, prevention and treatment of tuberculosis in incipient and advanced stages seem to have one fixed idea about tuberculosis as it exists in the large cities. Dr. Stolper, for the last five or six years, has been entrusted by various railways in the United States with the formation of a sanitary department, to deal with sanitary conditions on railways. It seems to him that no one has taken into consideration the influence of passenger trains, either for good or bad, in the spread of tuberculosis, as well as other diseases. Thousands of tuberculous patients travel in search of health, and state boards of health, with the exception of Texas, have not paid the slightest attention to the prevention of the spread of tuberculous diseases on trains. In his annual reports to general managers of railroads, Dr. Stolper has recommended that the common drinking cup, which often becomes rusty, be abolished on trains. The answer of the executive officials has been that they fear public criticism in doing away with the drinking cup. Railroad managers have assured Dr. Stolper that they would be perfectly willing to give railway sanitation a fair and reasonable place in their departments provided the public would cooperate therein. During his administration of the temporary sanitary department of the Santa Fe, Dr. Stolper found that the greatest difficulty in establishing any decent sanitary rules against the spread of tuberculosis and other infectious diseases was the absolute lack of cooperation on the part of the public, so far as physicians are concerned. Dr. Stolper knows no reason why physicians, who take into consideration school hygiene, sewerage, drainage, rain, mountains, the hills, valleys and other things, have disregarded railway sanitation. In regard to coal smoke, he said that in Oklahoma everything possible is being done to abate that nuisance. The city of St. Louis has a smoke inspector; other cities have the same inspection, and it is simply a question of time when this nuisance can be abated. In the northwest and southwest to-day more factories, more industry and more life are needed. Factories need steam for their existence, and so long as steam can be obtained from coal, there will be smoke. The only way to abate the smoke nuisance is, first, to find a way to obviate the smoke. So long as physicians remain theorists and advocate measures impossible of adoption, so long will their efforts be of no avail.

DR. MARTIN FRIEDRICH, Cleveland, Ohio, added a word of warning concerning Dr. Otis' paper; not that he thinks the doctor wrong theoretically, but practically we ask for money for sanatoria for consumptives who can no longer be cured, he is afraid that we unwittingly commit an act of cruelty. On account of their physical feebleness he thinks consumptives are more sensitive than any other set of people and they are attached to their families and homes with stronger ties than the rest of the people. The only redeeming feature of tuberculosis is the eternal hope with which it buoys up the patient for final recovery. To take them away from their homes rudely and roughly and put them into a hospital where they know that they can not be cured; to have them realize when they leave their families that their good-by is the last; seeing in their imagination written over the door of the hospital Dante's terrible words: "Abandon hope, all ye who enter here," is to cause them great torment.

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*The papers of Drs. Jacobi, Farrand and Otis were published last week.

Separate wards should be provided for the incipient and more advanced cases. In Cleveland there are two separate hospitals, one in the city on the City Hospital grounds for the more advanced cases, the other about ten miles from the center of the city on a 2,000-acre farm, entirely in the country. The ones in the city are told that they are not fit yet for open-air treatment. They are told: "You could not stand the strong air currents and the wind and rain of the country. We simply keep you here until you get a little stronger and then we will send you out into the country," and frequently when they do get better and give hope for a possible recovery they are sent to the country. A great deal of policy is needed in this matter. If money is asked for the "advanced cases" the people will soon find out what this means. When in Cleveland the hospital was constructed for the care of smallpox it was called the detention hospital. The people called it the pest house. The same thing will happen with the hospital for advanced tuberculosis.

DR. J. EDWARD STUBBERT, New York City, said that he is greatly interested in Dr. Browning's remarks regarding the classification of patients in the sanatorium, although he would take issue with him as to the number of classes. The local sanatorium at Liberty started with the care of all three classes; in contradistinction, Dr. Goodnough had the one class at Saranac. He never encountered the difficulties which were encountered at Liberty—the utter impossibility of mixing the three classes socially, which finally resulted in a considerable loss, from a financial standpoint, to the owners of the institution. Sanatorium work is as yet young; and Dr. Stubbert believes that experience has so far shown that there should be sanatoriums simply for two classes: namely, those patients who are absolutely incapable of caring for themselves; second, those who can care for themselves partially only. He thinks that sanatoriums as we understand the word for the rich people should be done away with entirely. For instance, at Liberty to-day there is a tent where patients are admitted and charged according to what they can pay. A patient, a woman, came to his office in New York recently and said that she could pay $3 a week. He said, "All right; pay the $3 a week and the sanatorium will pay the balance." Another patient was sent up and paid $5, which is the limit placed on the patients who go there. The introduction of politics into a well-organized sanatorium brought the good work of that sanatorium to a standstill. Politics should be kept out of every sanatorium in every state and in every city. Take for example a sanatorium that is partially a state sanatorium and partially a private institution. Politics has been kept out of it, and to-day it has a history that it can be proud of. While Dr. Stubbert believes thoroughly in climatic treatment, the tuberculous patients who come under our care must be considered; 93 per cent., approximately, of all tuberculous patients in our cities must remain at home. Therefore, physicians have no right to apply climatology or any rules to 93 per cent. that can only be put in practical use for 7 per cent. We have no perfect climate and must adapt all climates to all patients. Dr. Otis for the last few years has demonstrated that very thoroughly in Boston. All physicians know what a climate that is to produce tuberculosis; and yet Dr. Otis has established a work in Boston that applies to the 93 per cent. and not to the 7 per cent. It is not the climate, nor the altitude, nor the sea level, but it is outdoor life and pure air which must be supplied to patients. The house that Dr. Paquin has shown can be applied in New York City, in Boston, in Philadelphia, in Colorado or in Texas. It is outdoor life that is needed for patients, with common-sense diet and rest.

DR. LISTON H. MONTGOMERY, Chicago, said that the railroad roller towels constitute an equally, if not a greater, menace than the drinking utensils; no one knows what kind of infection may be lodged on them. He does not agree with the speaker who said that the medical profession has done absolutely nothing toward bringing about sanitary measures on railroads. The railroad officials will and do consult physicians and in many instances accept their suggestions in such matters so as to keep the coaches in proper condition, particularly when the train leaves the initial or starting point. It is the passengers, usually, who create much filth in the coaches that make them so unsatisfactory or they appear to be such while en route. Dr. Montgomery is sometimes called a railroad surgeon; and the managers have talked to him on these subjects and sometimes, indeed, almost always, his suggestions are accepted.

DR. GORDON WILSON, Baltimore, Md., brought up a point mentioned in Dr. Otis' paper in regard to municipal hospitals. In Baltimore two errors were made. The first was the establishment of the municipal hospital for consumptives in the same grounds with the almshouse. As a result thereof it is almost impossible to get the better class of the poorer patients to go there, as they fear the stigma of being "in the poorhouse." The second error was in putting this hospital under the charge of the Supervisors of City Charities instead of the Board of Health. (As a result of this those having charge of the admission of the patients enquire most carefully as to the financial condition of the patient and his family, and wholly ignore the question of the patient being a danger to the community through the advanced character of the disease, and his weakened condition preventing his taking the care that is necessary.) Thus patients "far advanced" have been refused admission simply because they had a relative able to house and feed them, though unable to give them that care that would render them harmless to others. In the matter of the education of the physician, it is pretty generally granted among physicians who are connected with sanatoriums limited to incipient cases of tuberculosis that the general practitioner does not recognize these cases in their incipiency and the reason of his failure is that he is not properly instructed during his student days because these patients are not admitted to the wards of a general hospital for the purpose of study. If these patients were admitted to the wards of a general hospital connected with a medical school, and if it were demonstrated to the student from the suggestive history, the slight afternoon rise of temperature and the tuberculin reaction, in spite of the few or no physical signs, that the patient has tuberculosis, the physician thus instructed would recognize the disease before the physical signs of advanced tuberculosis had made their appearance. For these reasons Dr. Wilson urges the admission of incipient cases of tuberculosis of the lungs to the wards of a general hospital connected with a medical school.

DR. GRANDISON W. DRAKE, Hollins, Va., said that for the last ten years he has been resident physician for a female college. The female colleges and institutes of our country need to be looked after in one way, especially: the kissing habit of the young ladies is a very dangerous and prolific cause of the propagation of tuberculosis. The young ladies in a short time after the beginning of the schools select chums and the devotion between those two—between that pair—is equal, if it does not exceed, the devotion of a young man and his sweetheart. They practice the goodnight kiss—or kisses, it should be—because the kiss is repeated over and over again, with an intensity unequaled by the kisses of lovers under the moonlight; and in the morning they repeat the morning kiss; and all through the day they kiss. This would be a very prolific source of the propagation of tuberculosis. Dr. Drake has talked on the subject and has tried every way as an individual to prevent the kissing habit. If this body of American physicians would speak out in a resolution on that subject, it might assist; it would go far toward preventing this dangerous habit. During the prevalence of grip in the school he saw a notice in one of the newspapers that the health officer of Atlantic City had said that kissing is a prolific source of the propagation of this disease. He clipped the item from the newspaper and put it on the school bulletin board and called frequent attention to it. To make it attractive, he gave notice to a few young men who are professors in the school that they dare not have that disease during the session, that it only prevailed among the young ladies, and that if they had the disease he should report them to the management and try them before the faculty.

Dr. Clifford H. Irion, New Orleans, said that he believes that in the action of the public there is a more promising field of operation than in the treatment of tuberculous individuals in sanatoria. A very small percentage of tuberculous patients ever reach a sanatorium; and that percentage will not be greatly increased in the next few years. But the public can be educated and taught how to prevent the spread of tuberculosis in their own homes and in their own families. Every known method for the spread of tuberculosis should be thoroughly well taught to the people themselves in order that an intelligent knowledge of this disease which is devastating this country may be created, at the same time a demand on the part of the public for such legislation as would be necessary to aid the physicians in their campaign for the treatment of the tuberculous. One of the problems that physicians have to solve is the prevention of transmission of disease by common carriers—those methods of transporting the human race from point to point. Railroad sanitation is very important. For instance, in many of the street cars now the antispitting ordinance is rigidly enforced; it is in New Orleans, where there is a heavy penalty. The street cars of New Orleans are clean and nice—so different from what they used to be, that it strikes the attention of those who live there and can recollect a few years back. On the contrary, a man who gets on a day coach on a railway train must roll up his pants to walk from one side of the car to the other and keep out of the tobacco juice or other filth on the floor; and there seems to be no disposition on the part of the public to demand a remedy of that condition. So far as concerns kissing, he said, there are too many other important matters, and so long as the little god with bow and quiver goes around through the world unchallenged, the campaign against kissing will meet with very little encouragement from the public. The difficulty lies not so much in incipient tuberculosis as in the lack of courage on the part of the physician to tell the patient that he or she has incipient tuberculosis. It is neglect, largely, rather than ignorance on the part of the physician. But if the physician will rise to his duty, diagnose his cases and make them public; if the boards of health throughout the Union would make it obligatory, or, if they are powerless, get such legislation enacted as will give them the power, to report tuberculosis as a contagious disease, just as measles, smallpox and diphtheria are reported by law; and then if the people are taught that this is a contagious disease, that it is a curable disease, that it is a preventable disease, then they will themselves demand that an intelligent crusade be conducted, and they will call on the medical profession to institute that crusade.

Dr. Edward O. Otis, Boston, Mass., said that in a large city, like Boston, for example, of 600,000 inhabitants, there is always a large number of patients, in advanced, hopeless stages of consumption in tenement houses and elsewhere who can not be taken care of at home. It may be, for example, the head of the family who is thus incapacitated for earning his daily living and that of his family; something has to be done with him: he can not be properly taken care of at home, and he is in danger there; and for such the best place is the tuberculosis hospital. There are enough of such advanced cases to fill up any and all tuberculosis hospitals; and, furthermore, the tuberculosis hospital is not a "home" or a poorhouse; it should be, on the contrary—and it is proposed to make it, in building the tuberculosis hospital in Boston—a place where proper opportunities will be allowed for suitable patients to take the open-air cure. For example, on the grounds, which consist of sixty-five acres of land in the suburbs of Boston five minutes from the center of the city, there is, besides a summer day camp, which it is proposed to keep up throughout the year, plenty of opportunity for those who will and are suitable patients to take the open-air cure; and by no means is it necessary to say: "Abandon hope, all ye who enter here." There are many distressing conditions, of course—none more so than when the physician of a sanatorium is obliged to say to the patients who do not gain under the open-air treatment: "This is no fit place for you. You are not getting well here; you are getting worse; you will have to go elsewhere." No more distressing case than when the examining physician for the sanatorium finds that the patient has come to him too late, in an advanced stage, and he has to tell him—distressing as it is—that he is unsuitable for the sanatorium cure. This fact must be faced, and it seems to Dr. Otis that a tuberculosis hospital will be hailed with delight by those poor families in which there are no proper means for taking care of advanced cases of tuberculosis. Dr. Otis emphasized, again, what Dr. Farrand said with regard to the education of the public. This has been done for several years in Boston. There is the Boston Association for the Relief of Tuberculosis and education has been one of the principal works—systematically educating the public in the very best way. The greatest use has been made of the stereopticon and lantern slides and there have been audiences under any and all conditions. There is in league with the association, for example, the Catholic priests, and they have been instrumental in obtaining large audiences; lectures have been given before clubs of all kinds, before labor unions, before workingmen's clubs of all kinds, and wherever an audience could be obtained, particularly before the school children. Appeals were made to the school committee and permission was obtained to give lectures before the school children—the younger and the older—and before the normal schools; and, furthermore, an exhibition has been sent from one part of the city of Boston to another; so that in the last three years the people have been thoroughly educated in the common, simple principles of tuberculosis and its prevention; and to complete, one might say, this system of education, the trustees of our tuberculosis hospital asked the city of Boston to appropriate money (which they did) for putting in every family in our city a pamphlet giving a simple description of tuberculosis and its prevention. So Dr. Otis believes that now people of all classes have an intelligent understanding of the simple facts of tuberculosis. It seems to him this educational propaganda has got to be carried on strenuously throughout the country; because the legislature must be appealed to for money for these various methods of prevention and treatment, namely, tuberculosis hospitals, sanatoria, etc. A great deal of money is needed for these objects; and in order to obtain that money, in order to create the enthusiasm among legislators, the people must first be educated; then they will back physicians in the requests and insist with the lawgivers that money should be appropriated for these various objects of prevention and cure.

Dr. J. C. Foltz, Philadelphia, said he heartily agrees with Dr. Otis as to the great danger to the community of the hopeless cases in their last stages, when they become careless and helpless and most need nursing for their own sake as well as the protection of the community. The great difficulty, however, is to reach such cases without filling the hospital with patients that are chronic fibroids, hanging on indefinitely and filling the beds required by others. The boards of few hospitals appreciate the distinction, and at Chestnut Hill they have never got below 60 per cent. of bed patients, that formerly were largely fibroid cases, but are now more carefully selected. The aim of the City Mission of the Episcopal Church that has the hospital in charge is so to improve the patients with incipient phthisis that they may return to their homes after having learned the proper method of living. They thus become a leaven in the community, and instruct their friends and relatives, reaching a much larger number and returning some to usefulness and self-support. In calling it a home the odium of a hopeless hospital is avoided, and in limiting the number of bed patients expenses are cut down and more wards can be kept open. Dr. Foltz said that over half a million is invested in this institution. It is the oldest hospital for the cure of consumption in this country.

There is great need, he said, of architects who will specialize in building hospitals, and of directors who will select such specialists. The hospital at Chestnut Hill was built about 1886 on a plan that was then becoming obsolete, but most luxurious, with an open fireplace in each separate room, in which no fire has ever burned; with double sash to keep out the wintry blasts that are now welcomed; an elaborate ventilating system of flues that never draw even if doors and windows are closed; it was, in a word, an architect's dream and a doctor's nightmare. The plan has been changed as much as possible by building broad porches to both floors, cutting down the windows, so that the beds can, if necessary for bathing, be run in for a few minutes, but at other times the patient remains in the unobstructed open air, day and night, summer and winter, the whole year round. Four winters, some of them very cold, have proved that porch treatment is practicable in our climate. Sanatoria should not be for the rich; they can develop the second-story porch idea where they wish, and the removal from friends and herding with others is not an advantage. The poor need only be considered as ambulant and bed cases, and the sooner most ambulants go to bed, the sooner they will get up.

Dr. G. Farrar Patton, New Orleans, said he wished to emphasize the necessity, not only of interesting the public, but of securing the cooperation of the public. The medical profession, he said, would conduct a campaign on too dignified a plane, if it did it alone. In Louisiana they are at present just at the beginning of a very active antituberculous campaign, which originated in the Woman's Club of New Orleans. They have the cooperation of the King's Daughters, the Women's Clubs, the Mothers' Clubs of the Public Schools; and this campaign is going along with great vigor and success. The Mothers' Clubs hold meetings in the public schools, and physicians, who are appointed in response to requests, lecture before those clubs in the most informal manner.

It is purposed to have attractive motto cards exhibited in the public schools, and the teachers are to call the attention of the children to them. All the popular organizations—benevolent societies, labor unions and fraternities of the city—are willing and anxious to have physician's talk to them; a number of them have already applied. With reference to financial support, the membership fee has been placed at the nominal figure of $1 a year, but a number of organizations, like the Masons, Odd Fellows and lodges (that is, circles) of King's Daughters, are coming forward with small but steady contributions toward the working expenses of the league, and the success of this campaign will depend mainly on the cooperation of the women of the country.

Dr. Edward O. Otis, Boston, said that our divisions of tuberculosis are often all, more or less, arbitrary. It is difficult to say when incipient cases cease and when the moderately advanced case begins; so that the hospital for consumptives—for what we call advanced cases of consumptives—will receive certain patients who in some respects belong to both classes; therefore, it is the intention in Boston, in building the municipal consumptive hospital (as he believes it should be with all such hospitals) to make provision for the open-air treatment; so that those patients who are beyond the early stage and unsuitable for entrance in a sanatorium, can be given the outdoor treatment; and if they improve under it, they can be transferred to the sanatorium. In Massachusetts, where the state sanatorium has been in existence seven years, the educative influence of the cured discharged patients from that institution has been of incalculable value; they have diffused throughout the state of Massachusetts a desire for fresh air and proper living, good food, and good hygiene. Where the sanatorium does not exist, "tuberculosis classes," so-called, have been instituted. That is, small numbers of tuberculous individuals—eight to ten, or fifteen—are taken under care by one or more physicians, they are visited by the nurse in their homes, their life is regulated so far as possible, they are brought together every week and are given instruction as to temperature, methods of the out-of-door life, food, etc. It is certainly an advantage to those patients who can not enter a sanatorium, and the patients become educational centers to others, in their homes and the community.

Dr. C. C. Browning, Monrovia, Cal., said he wished, first, to make just a brief reference to Dr. Farrand's paper in regard to the teaching; and he was much interested in Dr. Otis' details as to the method of teaching—especially the teaching in the school. He believes that there is the place for us to begin to work the great reformation. It is hard to change the people of to-day; it is easy to lay the foundation for the changing of the people of to-morrow; and teaching can be done in the school understandingly, beginning with the very early grades. It can be taken up in connection with the courses in nature study, showing the relation of the lower organisms to the general underlying principles of hygiene. He thanked Dr. Otis for emphasizing or presenting in detail the methods of the tuberculosis class as carried on in Boston. He believes that the division which he makes of three classes is a proper one; and those who have taken issue with him have done so because he did not make himself quite clear. The subject assigned to him was, "The Public Provision for the Care of Tubercular Patients in Sanatoria and Dispensaries," and he stated that "public provision" he interpreted to be provision by the state, municipality, or county, etc., as the case might be. The very poor must receive that care from the state; the second class should receive aid from the state, sufficient to enable them to receive the benefit. If the sanatorium is the place where the treatment of tuberculosis can be carried out in the highest degree of proficiency, should the well-to-do be debarred? They are not looking for care from the state; they don't want it; they desire opportunity. This can be furnished by private sanatoria. Further, if private sanatoria are established, or endowed institutions (and there are many of them doing good work in the country), they, then, are the proper ones to care for those patients of limited means who are especially worthy. They make discrimination on account of past life such as the state can not. It has become quite popular to condemn the habit of kissing, because of the danger of tuberculous infection. In emphasizing those things of lesser importance, and giving them prominence in the eyes of the community, the idea is encouraged that the casual meeting of the tuberculous patient is a menace. That is not true; it is the continued contact with the patient and with the surroundings—the house—that furnishes the danger.

As to the railroads, they have done some good work and are taking precautions. In regard to the climatic conditions, Dr. Browning heartily agreed with Dr. Paquin. There is no climate which should be universally recommended; it is as unscientific for a man to recommend any one particular climate to every tubercular patient as it is to recommend one kind of bath or any other one particular method of treatment. Climate and climatic condition should be studied carefully and recommendations made accordingly.

Dr. Paul Paquin, Asheville, N. C., said that he wished to emphasize the idea that he had in mind in the outdoor sleeping device. It can be applied anywhere; the idea is not only for curative cases, but for the purpose of prevention and the improvement and comfort of incurables. In general practice everywhere in the United States it is possible to have the right kind of device to sleep out; and the great danger of people sleeping outdoors is that they catch cold, so to speak, and suffer too often from congestions, which sometimes kill. Very many of them are afraid. A good many of them perspire and when they get out of their bed at night, as many of them must, then they get cold and grave, if not fatal, relapses occur. An old house can be rearranged to put the idea in practice; a new house can surely always be so constructed. It is a matter of mechanical technic. The arrangement is suitable for every night outdoors, in hospitals. With respect to climate, the prevalent notion seems to be that all that is necessary to do with tuberculous patients is to send them to a new climate and let them sleep out of doors. This, he said, is a serious mistake. A great deal of damage is often done by such advice. To begin with, a great many patients are sent away who can not possibly live; and it is cruelty to them to send them away to die in a strange country. These patients should really remain at home and the physician there should so advise. Spitting ordinances are of great value. A spitting ordinance has been in force in Asheville, N. C., for a great many years. There is a penalty attached to spitting on the sidewalk in public places, in the stores, etc., and the ordinance is enforced. There is a penalty of $1 for each and every offense and little promiscuous spitting is seen. The law and habit is thoroughly understood and carried out.

With regard to the teaching in the schools, Dr. Paquin happens to be a school director in Asheville, where they have a system of medical examination, and hygiene is taught with the view of preventing infectious diseases among school children. Teachers are properly instructed; and the teachers instruct the pupil in the right direction—not as to tuberculosis alone, but with reference to all infections of every kind and character.

MUCOUS COLITIS.

ARTHUR D. DUNN, M.D.
OMAHA.

Mucous colitis is a subject of more than passing interest to the practitioner, to the internist and to the surgeon. It is so involved with constipation, neurasthenia and various surgical conditions that any illumination that can be thrown on the chaos in which the subject is now floundering will be worth the effort. To the general practitioner this disease is of importance, for the prophylaxis lies largely in his hands in the rational treatment of chronic constipation in its early stages and in the proper handling of incipient neurotics. To the internist the disease is of interest because of the diagnostic problems it may present and the numerous therapeutic difficulties to be surmounted before he can accomplish a restoration of health. The analysis of its etiologic and irritative relationship is of prime importance from a curative standpoint. It is not uncommonly closely allied with surgical conditions which aggravate and render the disease more persistent. From its tendency to simulate certain other acute and chronic abdominal conditions, laparotomies may be performed from which no results are obtained. It occasionally coexists with surgical affections, such as chronic appendicitis, tubo-ovarian disease, displacements, etc., forming a vicious circle, and if overlooked renders inefficacious surgical procedures. With its congeners, neurasthenia and "starvation," the disease does not receive the attention that it should in the decision for or against operation. This is, indeed, a territory in which the surgeon and internist should work hand in hand if end results are the desiderata.

In reviewing the literature of this subject I find a striking lack of uniformity as to nomenclature, etiology and symptomatology. A discussion of the nomenclature would of itself make a paper of considerable dimensions, but it would have little save philologic value.

Among the etiologic factors arraigned are constipation, neurasthenia, hysteria, pelvic derangements, appendicitis, adhesions, trauma, menstruation, arthritic diathesis (numerous French and English observers[1]) and neoplasms. One author[2] even incriminates the liver. The disease is clearly not an etiologic entity. As to two factors, however, there is a consensus of opinion, viz., constipation and a neurosis, one or both of which are always present, usually both. It is a disease of civilization, dependent on an intense life, on inherited nervous instability, on the too great digestibility of our foodstuffs, and occasionally on certain anatomic conditions. Constipation, taken in its broad sense, with its sequelæ, is the *sine qua non.*

Constipation.—For clinical purposes and to show its relationship with mucous colitis, constipation may be schematically divided into the following stages, which thus given are distinct and clear enough, but which merge insensibly into each other. This classification (Cohnheim[2]) is also of value, as it shows clearly the relationship of constipation to this disease.

1. *Atonic.*—There is a tendency to sluggish movements of the bowels, the stools are of large caliber, and the patient resorts occasionally to laxatives, aperients and enemas. The muscles of the colon are relaxed. Except in pronounced neuropathics, the disease begins in this stage.

2. *Catarrhal.*—The condition is aggravated by the abuse of cathartics, flatulence is present with occasional colicky pains. Frequently we find scybala covered with mucus by the glands of Lieberkühn, caused by stagnation

3. *Spastic Constipation.*—This occurs as soon as the abuse of purgatives and the catarrh have so irritated the colon that more or less hypertonicity of the musculature results. In neuropathic individuals and in hysterics, this form appears earlier.

4. *Membranous Enteritis.*—The so-called myxoneurosis of Ewald. We have here a more aggravated state of the condition with excessive catarrhal secretion of mucus by the glands of Lieberkühn, caused by stagnation of scybala in the large gut. The constipation is obstinate, the mucus is dried out by the absorption of the fluids and is expelled, enveloping the feces or in restiform masses. In this stage we often find mucous casts of the bowel.

5. *Colica Mucosa.*—This is merely an acute exacerbation of the above described membranous enteritis. There are accessions of severe colicky abdominal pain which may simulate other acute intra-abdominal conditions so as to produce a severe and striking disease picture. It is followed by a discharge of feces with more or less mucus. After the expulsion of the mucous masses, the patient is free from pain for a variable interval.

6. *Mucous Diarrhea.*—Diarrhea alternates with constipation. These cases are comparatively rare, occurring largely in neuropathics or in individuals whose constipation has been grossly maltreated. The secondary catarrh is here so much in the foreground that its origin from a chronic constipation is only discovered by careful investigation.

Much confusion has arisen from the establishment of the so-called colica mucosa as a type to which we have tried to make all cases conform. The clinical entity of the disease has thus become ill defined, and its relationship to chronic constipation is obscured. This relationship is of the greatest importance to the diagnostic understanding and therapy of the disease. Innumerable variations and transitions may be seen, which form clinical pictures extending from simple catarrhal colitis with constipation, on the one hand, to mucous diarrhea alternating with constipation, on the other. The vast majority of the cases belong to the category of severe constipation and hold in themselves only the potentiality of ever fitting the frame of colica mucosa. It is this that has given us our trouble in diagnosis, and it is these incipient and aberrant types that form the majority of our patients. The well-sketched type of colica mucosa is one of the end stages. It is comparatively uncommon and easy of diagnosis. It is only by considering the disease as a form of constipation that we can gain an adequate conception of its pathogenesis and a rational understanding of its therapy. The constipation is nearly always of the spastic variety, at least spasticity and atony are alternatingly present, depending on the presence of an exacerbation or quiescence in the disease.

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[1] de Langenhagen: Lancet, 1904, i; also de Gendre: Jour. de Med. et de Chir. pratiques, 1905, lxxvi.

[2] Cohnheim: Krankenheiten der Verdauungskanals, Berl., 1905.

Neurasthenia.—Neurasthenia is almost always present in the open or *en masque.* It may precede, arise synchronously, or follow in the wake of the constipation. It dominates the scene or plays the rôle of a supernumerary. We might say the reaction of the organism to the disease varies directly as the square of the neurotic soil. Nervous excitation often brings on an explosion. The menstrual period may be the signal for an upheaval. A tea, a literary effort, a wayward husband or child, or some skeleton in the closet, may be potent factors in igniting, maintaining or aggravating the condition. The incidence of mucous colitis among society women is remarkable. It is often a question of much perplexity to determine whether the neurasthenia or the the mucous colitis is the primary condition, so involved are they at times.

Malnutrition.—The undernutrition of these sufferers is often marked. They are afraid to eat because eating has been associated with discomfort. They have dieted themselves until we often find them subsisting on 700 to 1,500 calories, when they should have at least 2,500 to 3,000. Coffee and toast, with an occasional egg or a little meat t. i. d., is their variety. Seldom do they take any of the cellulose-rich articles.

Visceroptosis.—Mucous colitis is often responsible for the symptoms of visceroptosis, or *vice versa.* Visceroptotics are generally nervous, poorly nourished and overworked individuals. A heavy colon dragging on its moorings is predisposed to constipation. The more the irritation from this displacement and the greater the circulatory and innervation disturbances in the colon, the more likelihood is there of the constipation becoming spastic, and the step from spastic constipation to mucous colitis is a short one. Kinks in visceroptotics occasionally aggravate the constipation; so will also a movable kidney pressing on the colon.

Pelvic Displacements.—Pelvic displacements are often an aggravating and irritating cause which tends to accentuate or prolong the condition.[3] A boggy, retroverted, retroflexed or retroposed uterus can form a mechanical obstruction in the rectum; likewise tumors and inflammatory masses. It is easy to see how a tender, inflamed or displaced uterus, inflamed adnexa or a parametritis coming in contact with the rectum can act as an inhibition to peristalsis in the sigmoid and descending colon. Many French authors make much of this condition, and some are so rabid as to say that the disease always has a pelvic *point de depart.* Thus we see the dogma *le bassin, c'est la femme,* masquerading in new clothes. In selected cases the simultaneous treatment of the mucous colitis and pelvic disorders alone cures the condition. These cases explain surgical failures which, with proper therapy for the constipation, would have been successes. I remember one case with an enlarged, retroposed uterus and a prolapsed ovary which could be felt in the cul-de-sac on a level with the cervix. A typical colica mucosa had here followed the use of Garfield tea extending over many years. When seen, the patient had been suffering from repeated paroxysms of pain for several weeks, which had caused herself and friends to despair of her life. She reacted nicely to medical treatment, but, on return to her household duties, there was some return of the constipation with a slight discomfort. Operation was advised and refused, but I can not help but believe that the combined treatment with remedying of the surgical condition would have produced lasting results. It is probable that surgery alone would have failed absolutely. In another case of which I have notes there had been two laparotomies, one for a supposed stenosis of the descending colon and one later, for an ulcer in the sigmoid. On the latter occasion a small stercorous ulcer had been excised from the sigmoid and an ovary removed without benefit. The patient had suffered from the most intense abdominal crises for twelve years. The whole colon was spastic and the descending colon and sigmoid flexures could be palpated during the attacks as tender cords of lead-pencil size. The crises were almost daily, and the large gut was always more or less spastic. The patient had become morphiniste. A boggy, retroverted uterus plugged the pelvic outlet like a ball valve. The tip of the finger could be inserted between fundus and sacrum only with much difficulty and pain. The spasticity of the gut and the cramps disappeared completely after the operation. No special diet had been instituted. Death occurred fifteen days later from an accident. While the time was too short to assume any positive result, the immediate cessation of the symptoms is suggestive, inasmuch as no transient or immediate relief had followed the other operative procedures.

Appendicitis.—It is probable that mucous colitis coexists occasionally with chronic appendicitis, forming a vicious circle, as it were, in the production of abdominal distress and neurasthenia. Mucous colitis has been compared to gastric hypersecretion and hyperchlorhydria and *de facto* the comparison is not farfetched.[4] Mucous colitis is not improperly considered by some as a pathologic hypersecretion of Lieberkühn's glands. The rôle of appendicitis in aggravating a hyperchlorhydria or hypersecretion is well known, and has been sufficiently demonstrated. *A priori* the same should be true of the colon, and cases are reported which go far to prove it. That appendicitis is a result of mucous colitis, or that the latter plays any part in the production of the former, is difficult to say. Dieulafoy has found it in about 2 per cent. of the cases analyzed which comes within the limit of the normal incidence of appendicitis. This incidence, however, should always make us look for appendicitis in mucous colitis so that we may not overlook the former in the latter disease. In one case, of which I have notes, the patient had suffered ten years from numerous attacks of spastic constipation with occasional mucous discharges. Two of the recent attacks had differed from the usual in having chills, vomiting, temperature and persistent tenderness in the ileocecal region. Much weight was laid on the statement that walking, motion of thigh and jolting in a wagon during the attack had caused her local distress. She also stated that the "mouth of the womb" had been tender during the month in which she suffered from her last attack. A diagnosis of appendicitis in mucous colitis was made on the history and without findings. Operation showed a rather large appendix lying on the psoas and over the brim of the pelvis. There was a stricture about 1 cm. from its mouth through which a greenish-yellow, fetid pus drained. No adhesions except a slight band from base of appendix to cecum. No difference between these two and the other attacks had been noted by the practitioner, but the patient appreciated the difference when her attention had been called thereto. A typical attack of colica mucosa occurred two months after discharge from the hospital.

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[3] Boas (I.): Deutsch. med. Wochschr., 1900, No. 33.

[4] Bouveret and Dévic: Quoted by Vinay (see footnote 5).

A careful analysis of a large number of cases of appendicitis with reference to previous colon disturbances might establish a definite etiologic relationship. There is certainly a considerable number of appendicitis patients that do not gain complete and permanent relief from operation; these cases may belong to the mucous colitis class and this disease may have been the predisposing cause of the appendicitis.

Presumably chronic cholecystitis may act in the same manner as appendicitis.

Chronic adhesive peritonitis, with its manifold and bizarre manifestations and partial stenoses—constricting and dragging bands—adhesions to the subdiaphragmatic organs, causing rhythmic traction on the colon, may act as an exciting cause and render medical treatment unsatisfactory. We can not get far away from the reflex and nervous element in this disease, and its pathogenesis is closely wrapped up with the innervation of the colon and the reflex arcs affecting it.[5] Many of the cases are explicable only as a reflex sensory and motor neurosis. We may safely say that the pathogenesis of the disease will not be satisfactorily elucidated until the nerve supply of the colon with its relations has been worked out.

Trauma.—Cases referable to trauma have been reported, but they do not bear analysis, although it is easy to conceive that resultant mechanical intra-abdominal conditions and nervous shock may bring on the disease when the soil is fruitful.

Cases have been reported in connection with carcinoma of the intestinal tract, following the injection of tannic acid, and Einhorn reports twelve cases in which achylia gastrica was present. The disease commonly exists with hyperchlorhydria. The defective elaboration and division of food in the stomach and its resultant mechanical irritation may be factors.

Arthritic Diathesis.—The French and English make much of the gouty diathesis and see a hereditary and diathetic connection between gout, chronic nephritis, nephrolithiasis, cholelithiasis and intestinal lithiasis. Dieulafoy and his school report intestinal sand present in the majority of cases. This is only another way of stating the individual differences in cellular physiology and its susceptibility to noxious influence based on heredity. Others have not noted the frequent presence of intestinal lithiasis.

Pathology.—The pathology of the disease may be considered as (1) pathology of the colon, (2) pathology of the exciting causes. The latter has been hurriedly discussed under etiology.

Colon.—There are no pathognomonic findings. In most of the autopsies there have been neither macroscopic nor microscopic changes (Osler, Edwards, Francke and others). Inconsiderable interstitial changes only were present in Weigert and Rothmann's cases. Hemmeter has reported two cases in which interstitial changes were present. One case brought on by injection of tannin showed desquamation of the epithelium and slight round cell infiltration in the submucosa. Nothnagel explains this in another case in which there were the same findings, as abrasions of the mucosa due to the scybala present. Commonly shreds or pieces of mucus have been found tightly adherent to the bowel—they extend into the crypts and are deficient in water. In my autopsy there was a tendency to adhesion formation (*Schwartenbildung*). There were numerous thread-like adhesions along the colon, extending from the striæ to the sacculi. The omentum and small intestine were adherent at the site of the old and recent laparotomy scars. No adherent mucus, ulcers, erosions or other gross changes in the mucosa of the large intestine. Microscopic examination of sections from the descending colon showed no changes.

Symptomatology and Diagnosis.—The disease is protean in its manifestations. First a careful and painstaking history is essential to the diagnosis, as it is of much more importance than the physical findings. There should be a careful inquiry into the digestive and dietetic life of the patient. Constipation will usually be found extending over many years, with hard stools, sometimes alternatingly large and small, with "sheep's dung" and with colicky pains preceding or accompanying defecation, with a resort to clysters, and *abusus purgantium*, such as the taking of large quantities of salts, cascara, proprietary cathartics and liver medicines. The patient may complain of sensations of fulness in the abdomen, dulness of intellect, dyspepsia, neuralgia and cephalalgia, attacks of heat and cold, weakness, and later the whole train of neurotic symptoms. The onset of the disease is gradual. If it has progressed to the later stages we have attacks of dull, heavy or severe paroxysmal pain, localized in some definite region of the abdomen. If carefully inquired into, its radiation will be found to follow the course of the colon in part or whole. It is common for the pain to end in the hypogastric, splenic or hepatic areas. It may radiate to the back along the costal region; it may even radiate toward the shoulder. Its character is twisting, tearing, griping or aching—it is often paroxysmal. Backache is not uncommon. Febrile manifestations and leucocytosis are usually absent; nausea is occasionally present, vomiting rarely so. Tenderness is usually found in the sigmoid, cecal, hepatic or splenic flexures, one or several. These points of tenderness are of great importance in making a diagnosis, and it is they which lead most commonly to error. Tender, contracted, spastic segments of the colon are generally palpable. In the cecal region it may simulate the tumor sensation given by appendicitis. Mucus may be passed in the stools, although it is not indispensable to a diagnosis. Patients are so seldom observant of their stools that it is only after having a patient under observation or by calling his attention to the importance of observing the dejecta that the masses of mucus will be found. It may have the appearance of spaghetti or vermicelli. There is always spastic constipation when the mucus is passed in this form—it represents the rolling and twisting due to the tonic contraction of a spastic bowel. Jelly or sago-like masses often occur. Some of these unfolded in water may give us a complete cast of the bowel. Membranous flakes or thin slimy casts enveloping the scybala are more common.

Neurasthenia is always present in advanced cases. A discussion of this manifestation of the disease would be as extensive as a treatise on neurasthenia itself.

Differential Diagnosis.—When approached with a spirit free from prejudice, and when a careful anamnesis is taken, and an examination is made, the diagnosis is comparatively easy.

(1) Appendicitis: Mucous colitis is easily diagnosed from acute appendicitis if sufficient care is taken. One should hesitate to diagnose the latter without pain, def-

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[5] Vinay (Ch.): Lyon Med., 1904, 649, et seq.

inite and sudden in onset, becoming localized at McBurney's point. Pain at McBurney's point without temperature or leucocytosis is scarcely acute appendicitis. Again nausea and vomiting are practically always present. In mucous colitis we can get a history of a long standing constipation and digestive disturbances, of pains present heretofore and in other parts of the abdomen. The problem is more difficult in chronic appendicitis. Here a history is often obtained of a previous acute attack with a localization of more or less trouble at the same point ever after, or a careful anamnesis tells us that the trouble has always been in the region of the appendix; observations carried on over a considerable period of time will always bring us back to the same point of localized tenderness, while in mucous colitis the points of tenderness are inclined to shift from one part of the abdomen to another, although they may be present for days in the same locality. A spastic, tender cecum and ascending colon are palpable at times. In chronic appendicitis the appendix can often be felt as an enlarged and tender cord. If adhesions are present pain often occurs on forcible contraction of the psoas.

(2) Renal Colic and Dietl's Crisis: The urine examination and a history in the former, and a physical examination in the latter, will usually settle the diagnosis.

(3) Cholecystitis and Gallstones: There should be no trouble in differentiating it from acute gall bladder disease, but I am convinced the mistake is occasionally made. Attacks of pain in the right hypochondriac region without chills or temperature, without radiation of pain to the shoulder or chest, without a tender point to the right of the eleventh or twelfth dorsal spine, and without nausea and vomiting, are not gallstone colic. Unless one finds at least a majority of the above signs and symptoms one should be chary in diagnosing acute cholelithiasis. (Jaundice is of value in only 14 per cent. of the cases.)

Chronic Cholelithiasis.—Here careful history-taking as to previous acute attacks, character of pain, constipation, Murphy's sign, with repeated examinations of the patient, and with some attention paid to the colon, will usually keep us out of trouble. The disease must also occasionally be differentiated from most of the other conditions causing acute or chronic abdominal pain, but these are legion and too numerous to even mention here. The incrimination of pelvic conditions for the symptoms of mucous colitis is a daily occurrence.

Treatment.—To be successful the treatment must be founded on an accurate diagnostic. If an exciting anatomic cause exists it should receive proper operative attention. In many cases the neurasthenia must be our point of attack. A Weir Mitchell treatment may be necessary. Psychotherapy is often of the greatest importance in individual cases. In other cases the malnutrition must be the point of attack with a roborant and appetizing dietary. A change of climate, a vacation, freedom from household or domestic cares, laying aside the duties of society, or the mere leading of a natural life, will often accomplish remarkable improvement. Visceroptotics usually demand fattening, and an increase of intra-abdominal ballast alone brings about the desired result. In this condition a Rose bandage or a straight front supporting corset may accomplish much. The constipation must always receive attention, and here one must emphasize that *qui bene purgat, male curat.* Various diets have been advanced, and there is still some controversy as to whether the patient should be put on a bland diet (Westphalen) or one rich in cellulose (von Noorden). In cases where the spasticity is marked the diet should *a priori* be at first of a bland character, switching as rapidly as possible to a diet rich in cellulose. Where the spasticity is slight, and the constipation tends toward the atonic, a diet rich in cellulose is in order. In the spastic cases opium and belladonna will often bring about desired results. One procedure, however, is generally applicable, that is nocturnal injections of one-half pint to one quart of olive or cotton-seed oil after Kussmaul to be retained until morning. Hot fomentations in the painful stages are agreeable and tend to allay spasm. In combating the constipation we may be compelled to resort to our entire therapeutic armamentarium, that is massage, electricity, habit, mineral waters, etc. In severe cases a period in bed should initiate the treatment. Time and trouble is often wasted in a temporizing, ambulatory therapy. The treatment of each case is a problem in itself as varied as is that of neurasthenia, and often solved only after much study. Results can be obtained, however, which, if not as spectacular as in some other fields of medicine, are nevertheless fully as gratifying and permanent.

THE TREATMENT OF GONORRHEAL INFECTIONS BY A SPECIFIC ANTISERUM.*

JOHN ROGERS, M.D.

AND

JOHN C. TORREY, Ph.D.

NEW YORK CITY.

In previous communications[1] we described briefly an antigonococcic serum which had been found efficacious in the treatment of some cases of gonorrheal arthritis. The results were so promising that it seemed advisable to give the serum a more thorough test in these cases and also on patients suffering with other forms of gonorrheal infection. The wider experience thus gained has confirmed our earlier conclusions and seems to justify us in the opinion that this serum exercises a specific curative influence on a high percentage of cases of certain forms of infection by the gonococcus. So far as we have been able to determine in a review of the literature, this method of treatment had not been employed previous to our preliminary communication.

PREPARATION OF THE SERUM.

At the beginning of these experiments it was considered possible that an antigonococcic serum, to be effective, should exercise some antitoxic influence. Accordingly, as was stated, ascitic broth cultures, from six to fifteen days old, were exclusively used in the inoculation of the animals. A satisfactory serum may be produced in this way, but not as potent a one as by a method which will be described below. The use of ascitic broth cultures was abandoned principally for the following reasons: In the first place protective experiments with guinea-pigs indicated that the immune antigonococcic serum did not exercise the slightest antitoxic activity; and, secondly, the repeated injection of the free gonotoxin in the culture media had a disastrous effect on the rabbits which were used in the production of the serum. Although they suffered little from the first five or six inoculations, soon after they reached a condition of hyper-sensitiveness to the toxin and finally succumbed to a dose that would never have proved fatal to a normal animal. This seems to indicate, as Wassermann and others have pointed out, that the toxin in the culture media is not produced in diffusible form by the living gonococcus cells, but is an endotoxin derived from the dead and disintegrated gonococci.

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*From the Department of Experimental Pathology, Loomis Laboratory, Cornell University Medical College.

[1] The Journal A. M. A., Jan. 27, 1906, 261 and 263.

At this time it was noted that some rabbits, which were being immunized to twenty-four-hour ascitic agar cultures, withstood the inoculations very well and raised a serum, which in high dilutions agglutinated the micro-organisms. Accordingly, a similar method of procedure was followed in producing a serum for therapeutic purposes. The cultures were grown for from eighteen to twenty-four hours on large slants of ascitic agar, the culture tubes averaging one inch in diameter. It is essential to obtain a luxuriant growth. This is best accomplished by planting from an eighteen to twenty-four hour stock culture to medium of the following composition: Meat, peptone, 2 per cent. agar is prepared in the usual way and titrated to 1.5 per cent. acid to phenolphthalein. One part of rich sterile ascitic fluid is then added to two parts of this agar. For the first inoculation the growth from one of these tubes, about three square inches of surface, was emulsified in physiologic salt solution and injected living into the peritoneal cavity of a large rabbit. For the next inoculation the emulsion from two tubes was given. This was continued until the animal had received seven or eight inoculations, about fifteen tubes in all, during a period of two months. All the blood was then drawn from the carotid. The rabbits withstood inoculations of this character far better than when ascitic broth cultures were used.

In producing the first sera various rabbits were given different strains of the gonococcus with the idea of determining if certain cultures were better adapted for the purpose than others. It was soon evident that some cultures raised a far better serum than others, and also that a patient might respond favorably to a serum produced by culture A, but not to that from a rabbit immunized to some other strain, as G. On the other hand, the patient from which culture G was isolated was not benefited by injections of serum produced with culture A. The probability suggested by such data, that the gonococcus family is heterogeneous rather than homogeneous, has been substantiated by agglutination experiments, which have shown that various strains of gonococcus may raise agglutinins which are entirely distinct. The details of these experiments have been published elsewhere.[2] Because of this evidence of the existence of several groups in the gonococcus family the serum has recently been made as far as possible polyvalent. Cultures representative of the three principal groups, which have been found in the gonococcus family, are employed in immunizing the animals. This procedure seems to have found justification in a higher percentage of favorable therapeutic results.

As far as our experience has gone the agglutination test has proved to be a valuable index of therapeutic potency. A serum which agglutinated in high dilutions the various strains used in its production, always proved to be markedly curative. Such a serum agglutinated some cultures in dilutions as high as one to twenty thousand or fifty thousand. This test, of course, merely indicates that the animal is highly immunized, for the agglutinins themselves have probably nothing to do with the curative properties of the serum. In fact some sera with a low agglutination power may prove moderately effective. Others, however, are valueless and no feasible laboratory method has yet been found of distinguishing between them.

Rabbits were at first used exclusively in producing the serum. Although a very potent serum may be obtained from these animals, it was found that the serum itself is decidedly toxic for some individuals and may produce a rather alarming reaction. This matter will be discussed presently in greater detail. In order to obviate this serious objection we have experimented with goats and sheep. Similar objectionable properties, although less in degree, were found to be present in goat serum, but from sheep serum they seem to be entirely absent. Accordingly in later work only these animals have been used. They should be full grown, uncastrated males. In immunizing these animals it has been found advantageous to pursue the following plan: The first inoculation may consist of the twenty-four-hour surface growth from eighteen square inches of solid culture medium, emulsified in about 30 c.c. of physiologic saline solution, and heated for one-half hour at 65° C.

We have always employed ascitic agar, made according to the method described. There seems, however, to be no reason, *a priori*, why any solid medium on which the gonococcus grows luxuriantly should not be substituted for ascitic agar, although no experiments have been carried out to determine this point. The inoculations are always given intraperitoneally. After an interval of about a week the second injection should be given consisting of the growth from about thirty square inches, heated as before. On the third inoculation, after the same time interval, about eighteen square inches of unheated culture may be used. On the fourth this is increased to thirty square inches of culture, and on the following inoculations thirty-six to forty-five square inches of unheated culture should be employed. A record should be kept of the weight and general condition of the animal and the amount and the time of the inoculations varied accordingly. It is sometimes necessary to revert to the use of heated cultures. After nine or ten inoculations have been given a little blood should be drawn and the serum tested for agglutinin. If the animal gives evidence of being highly immunized it is bled to death from the carotid and the serum collected. This serum is then filtered and tested for sterility.

The strains of the gonococcus which have been used in producing this serum were selected because, after an extended series of experiments, they gave evidence of being distinct varieties as far as agglutination was concerned. Such a selection of varieties is a long and tedious process, but is essential for the best results. Some strains are much more toxic than others, and obviously the less toxic ones should be used in the first inoculations. If no attempt is to be made to produce a polyvalent serum a strain should be used which raises agglutinins readily and is decidedly toxic. A few experiments will show that there is a great difference in these respects between various cultures of the gonococcus.

TREATMENT.

This serum has been found to be efficacious in the treatment of some of the complications arising from the primary gonorrheal infection. Acute urethritis, vaginitis and conjunctivitis are not markedly benefited by the serum, and for the treatment of these infections it is necessary to resort to other agents. A probable explanation of this peculiarity may lie in the fact that many of the infecting micro-organisms are not reached by the serum circulating in the blood and lymph. However this may be, acute urethritis should be allayed by the usual methods in order to obviate the possibility of a subsequent relapse.

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[2] Torrey (J. C.): Jour. Med. Research, 1907, xvi, 2.

The complications which are amenable to serum treatment may be conveniently grouped according to their mode of origin in two classes: 1, Those arising by direct extension of the primary infection into organs like the prostate, epididymis, testicle, bladder and Fallopian tubes, in direct continuity with the primary focus; 2, those due to the entrance of the micro-organism into the circulation, either directly or through the lymphatics. These lesions include arthritis, iritis and the rarer endocarditis, pleuritis and meningitis. Gonorrheal peritonitis may generally be more correctly placed in the first group.

In cases which are pyemic or suppurative in character with abscesses in the joints, tendon sheaths, subcutaneous tissues, periosteum and viscera, there is always the possibility of a mixed infection, and the usual surgical treatment is necessary. After the pus has been freely evacuated the serum may prove useful in freeing the body from any gonococci which have not been eliminated by this treatment.

The pathology and diagnosis of these lesions need not be discussed here as they are matters of text-book knowledge. It is sufficient to call attention to the fact that all of the above complications are more or less amenable to treatment with an antigonococcic serum according to the degree of accessibility of the parts involved to the systemic protectic fluids. The major part of our experimental work has been directed to the treatment of gonorrheal inflammations of the joints. The measure of success which has been attained in this field is indicated in the appended report of cases.

METHOD OF ADMINISTRATION.

The serum has always been given in small doses, viz., 2 c.c. or about 40 minims. No experiments have been carried out with larger amounts, as this quantity of potent serum has been found sufficient to act destructively on the gonococci without danger to the patient. This dose has generally been injected into the loose subcutaneous tissue between the deep fasciæ and the skin in the upper arm, using the other arm on the second injection. Any other convenient point, however, may be used. In the treatment of some of the patients the injections have been given in the neighborhood of the affected joints or deep in buttock. It seems doubtful, however, whether any special advantage attaches to this method. The injections have been repeated, as a rule, every other day. In this regard one must be guided by the general condition of the patient and the degree of the reaction to the serum. In some instances it is necessary to allow an interval of four to six days to elapse between the injections.

With ram serum the only reaction that one may anticipate is a varying amount of local swelling, redness, heat and soreness around the point of injection. This does not occur, by any means, in every individual, and is not caused by any antibody in the serum, but is due to the local toxic action of the serum itself. As the same serum has been found to cause reaction in one individual but not in another, it is partly referable to the idiosyncrasy of the patient.

TOXIC EFFECT OF RABBIT SERUM.

As has been stated, rabbit serum was found to be far more toxic to some individuals than that of the sheep. This marked toxicity, however, manifested itself in only ten of the seventy-five cases treated with rabbit serum. With sixty-five patients there occurred either no local reaction or a very mild erythema. The toxicity may be exhibited by a more intense local reaction, which increases in degree with each injection, or it may take the form of a rather alarming general reaction. The local reaction generally appears in a mild manner after the first injection by moderate pain, redness and swelling. This increases, however, with subsequent treatments and reaches its maximum after three or four have been given. The severe local disturbance occurred in five cases out of seventy-five treated with rabbit serum. As an example of this type the following case may be cited:

Case 1.—Male, with chronic gonorrheal arthritis and cystitis for five years. Feb. 27, 1906, 2 c.c. rabbit serum injected into the left arm. Moderate pain and swelling for forty-eight hours. March 1, second injection of 2 c.c. rabbit serum into the same arm; pain and swelling as before. March 3, third injection of the same amount or serum. Next day the arm was greatly swollen and very painful. Patient feverish. An abscess feared, but none formed. The fourth and fifth injections, on March 12 and March 17, respectively, were followed by only moderate local reactions.

The generalized systematic reaction which appeared in five cases is of a much more serious nature. It is worthy of note that four of these patients were in a very poor physical condition, having suffered from a gonorrheal infection for several years. The details of two of these cases follow:

Case 2.—C. W., exhibited the prolonged chronic form of gonorrheal rheumatism with involvement of nearly all the joints of the extremities. He received the first injection of 30 minims of rabbit serum Oct. 27, 1905. This was repeated October 29, October 31 and November 3. Then on account of the local inflammation, the injections were suspended until November 11. On this date he received 40 minims of rabbit serum, and in less than a half a minute suffered from a feeling of suffocation, which was accompanied by a general superficial "flush." At the same time there was an effort at coughing. The pulse was very rapid and feeble, and the patient was greatly prostrated. After the administration of a little aromatic spirits of ammonia, the cutaneous blush and the severe dyspnea subsided, but the weakness and rapid heart action continued some hours. The following morning all these alarming symptoms had disappeared, but on the next day, the administration of 20 minims of the rabbit serum caused a repetition of the disturbance, though not quite as severe. Two weeks later, 20 minims of the serum was given without uncomfortable results. When the quantity of serum was again raised to 40 minims, however, a similar train of symptoms, in quite a severe form, resulted. Again, after the lapse of two weeks, 20 minims were given without any toxemia. Thus the quantity of the serum and possibly the time of administration were factors in this peculiar and sudden intoxication.

Case 3.—S. had suffered from gonorrheal arthritis for several years. Beginning March 26, 1906, the injection of 2 c.c. of rabbit serum was given every other day for three doses without any reaction, but after the fourth injection of the same amount of serum, about eight days after the first treatment, the patient suffered from chills every afternoon. Temperature 102 F. in the afternoon and 100 F. in the morning. The chills were accompanied by general prostration and aggravation of pain in the joints. The same symptoms followed the next three weekly doses, but after that, twelve injections of the same amount of serum were given until September 1, without any general disturbance. About September 23, the patient received an injection of 2 c.c. of goat serum. Within half an hour he became semi-comatose and remained so for about twenty-four hours. Later treatments with sheep serum produced no ill effects.

The histories of these cases have been given in detail for the reason that some of the symptoms are decidedly suggestive of those occurring in guinea-pigs which have received injections of foreign serum at certain definite intervals. It has been determined by Rosenau and Anderson,[3] and also by other investigators, that, although a single injection of normal horse serum may be entirely harmless to the animal, a second injection of a certain amount of the same serum after an interval of over ten days will often prove fatal within an hour. Some of the symptoms of this intoxication are coughing, retching, respiratory distress and coma. This condition of hyper-susceptibility or anaphylaxis (Richet) does not manifest itself, however, if the second injection is given in less than the incubation period indicated. Furthermore, if the injections of serum are repeated every few days the guinea-pigs become immune or, more correctly, refractory (Gay and Southard[4]) to the toxin in the serum instead of anaphylactic. Such being the case, it seems unlikely that the toxemias which arose in these patients after several injections of rabbit serum may be brought in line with the serum anaphylaxis of these animals, for the primary treatments have been given at much shorter intervals than the essential incubation period and should have induced refractory rather than a hyper-sensitive condition. Although some of the symptoms, such as dyspnea and semi-coma, occurring in these intoxications are suggestive of anaphylaxis, they are also characteristic of the poisonous action of endotoxins derived from various proteid substances, such as bacteria and tissue cells. It is possible, then, that we are dealing here with toxemia of this character. As we have stated, sheep serum has never given rise to the slightest generalized toxemia and may be used without fear of untoward results.

REPORT OF CASES.

During the past two years the serum has been distributed widely to applicants from all parts of the country and especially to many of the hospitals in this city. Histories and reports of the cases have been obtained in nearly every instance. About 22 per cent. of them have been treated personally by one of us (Rogers). We have spared no effort to obtain reports from as many cases as possible, whether we had reason to anticipate that the result would be negative or positive. The majority of the patients who have been treated with the serum were suffering with gonorrheal arthritis. We have collected reports of ninety of these cases, in which the diagnosis was reasonably sure and on whom the serum had received a fair test. These were of all degrees of severity and had lasted from a few days to several years. Forty-seven were mono-articular cases and forty-three poly-articular. By the use of the serum seventy-two or 80 per cent. of these patients were entirely cured, or much improved, and eighteen or 20 per cent. showed very slight or no improvement. Fifty-seven of these patients had received other forms of treatment for periods of a week to several years with slight or no improvement and were very much improved or entirely cured by the serum.

For further discussion these cases may be divided into: (*a*) acute, subacute and early chronic, (*b*) prolonged chronic.

(*a*) *Acute, Subacute and Early Chronic Cases of Gonorrheal Arthritis.*—In this list are included those of six months or less duration. Of cases of this character there were seventy-five. Of these sixty-four of the patients, or about 85 per cent., reacted very favorably to the serum, while with eleven, or approximately 15 per cent., the result was negative. These cases were for the most part of two to eight weeks' duration. The number of injections required averaged five. Thirteen of the patients were cured with three or fewer injections, and of these, four with only two injections. One patient recovered quickly after one treatment. Twenty-three patients were cured in ten days or less, and of these, six in six days or less.

The first injection often causes a transitory increase in the soreness of the joints and sometimes a moderate rise in temperature. Some improvement may be manifest at this point, but it generally appears first after the second or, at most, after the third injection. This is indicated by an approximation of the temperature to normal and a lessening of pain, and sometimes of the swelling. Often, however, the pain disappears from the joint much more rapidly than the swelling. The latter may then be advantageously treated by massage.

With two patients whose ankles were involved a periosteal tenderness on the plantar surface of the os calcis persisted, although the other symptoms were greatly or entirely relieved. Our statistics seem to show that the serum acted quite as effectively in cases in which there was a marked swelling of the joints with more or less redness, as on those in which the joint symptoms were less acute. There may be room, possibly, for a difference of opinion on this point. The following case reported by Dr. G. W. Webster of Chicago on Feb. 2, 1906, illustrates well the rapidity with which the serum acts on some of these acute cases:

Case 4.—Patient, male, adult. First attack of gonorrhea two months before. Severe arthritis involving the right knee had been present for three weeks. The joint was much swollen, and the extreme pain rendered it almost immovable. The treatments during this time had included hot air, aspirin, nux vomica, protargol, urotropin, methylene blue, and oil of sandalwood. The patient was doing badly. At this time several injections of antigonococcic serum were given. After the first injection the pain almost entirely disappeared. It was completely gone at the end of the second day. On the third day he was able to move about freely and put some weight on his foot. At the end of a week the effusion was gone and the patient was walking about the house without the aid of a cane. In ten days from the beginning of the treatment he was completely well.

There seems to be no doubt in such a case that the rapid recovery was entirely due to the specific action of the serum. A second case is similar in character, with the exception that the patient had had several previous attacks of gonorrheal urethritis and the rheumatism was becoming chronic. The serum, it may be said, has acted as favorably in such cases as in those in which the patient was suffering from a primary attack of gonorrhea, but if there have been several previous infections of the joints the case always proves very obstinate. This case was reported from the third medical division of Bellevue Hospital, New York, by Dr. Satchwell, house physician, July 30, 1906:

Case 5.—Patient, male, single, 30 years old. Has had five previous attacks of gonorrhea; the first ten years previously and the last ten weeks previously. The last attack was treated with injections at a dispensary. A slight discharge continued to time of admission to hospital. Eight weeks ago, after the discharge had diminished, the left wrist and the right knee began to swell. The swelling became marked, but redness was absent. Pains severe, aching in character. Three days later the left hip became painful and stiff. Patient felt feverish, but had no chills. Two weeks previously one of the toes of the left foot began to swell and became very painful. Since then the patient had been unable to move either lower extremity or the left hand on account of pain and stiffness.

July 14, Gram-negative intracellular diplococci were found in smear from the urethra. On July 16, the left thigh was held in position of flexion and internal rotation. Marked tenderness about the joint; temperature 99 F. July 17, antigonococcic serum injected deep into left buttock. Severe aching pains in the joints, lasting for two hours, followed the injection. A slight rise in temperature. Joint conditions unchanged.

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[3] Jour. of Med. Research, xv, No. 1.
[4] Jour. of Med. Research, xvi,, No. 2.

July 18. Tenderness in hip and wrist very much less. Motion in hip greater. July 19. Temperature normal. Serum given into the left buttock. Similar pains as on July 17 for two hours. July 20. Up in a chair. Tenderness in hip and wrist very much less. None in knee. July 21. Serum given into buttock. Pain again for several hours. (Note: This transitory pain in the lower extremities is apt to follow the deep injection of the serum into the buttock.) No tenderness. Up and about the ward. Temperature 99 to 100 F.

July 22. Up and about the ward; No pain or tenderness except at the site of the injection of the serum. Walks with a slight limp. July 23. Serum given as before. Pain for several hours. Temperature 100 F. July 30. Discharged from hospital, cured. No pain. No tenderness. Walked well. No limitation in any of the affected joints. Temperature normal. The following leucocytic counts show little change before and after the serum was administered, except an increase in the number of lymphocytes and a drop in the polynuclear neutrophiles.

	Before. July 14.	After. July 24.
Leucocytes	11,200	12,000
Polynuc. neut	65 per cent.	56.5 per cent.
Lymphocytes	28 per cent.	36 per cent.
Large monouclears	6 per cent.	5.5 per cent.
Eosinophiles	1 per cent.	.5 per cent.

(*b*) *Prolonged Chronic Cases of Gonorrheal Arthritis.*—The very chronic or protracted examples of this form of the disease, which may persist for months or years, do not readily recover under any treatment, and when there are pronounced deformities or ankyloses a complete cure is impossible. But with perseverance and the judicious use of a potent antigonococcic serum a great deal of good may be accomplished in a fair percentage of these otherwise hopeless invalids through the cessation of pain and active inflammation. To these patients the serum should be given twice a week for a month and then at intervals regulated by the symptoms. Ordinarily it is not wise to give a second injection before the reaction from the first has entirely subsided, as the discomfort may be considerable.

At the end of a month or more in a favorable case there is a gradual lengthening of the period of well-being after each administration of serum, and it may be necessary to give it only once in two or three weeks. In one of these cases the administration of the serum caused after a time the disappearance of shreds, apparently prostatic, from the urine. The pain in the joints followed a parallel course, decreasing with the disappearance of the shreds. After an interval when no serum was given, signs of recurring inflammation appeared, preceded by the appearance of the shreds. Another injection of serum, however, brought relief again, which continued for a longer period than before. The patient is still under the treatment and is steadily improving.

If there is no sign of a change for the better in a chronic case after four injections, we have found it useless to continue the treatment. It is impossible, of course, to explain every negative result, but if there is no improvement after treatment with a potent serum there is a possibility of an error in diagnosis or of infection by a strain of gonococcus for which the serum contains no specific antibodies.

As an example of the treatment of these prolonged cases, the following history may be cited:

Case 6.—J. H., aged 31, single, male, had a first attack of gonorrhea in October, 1897. There was a constant urethral discharge for about one year, during which an epididymitis occurred and persisted for some weeks. In March, 1899, there still existed a moderate gleet. At this time the right hip became painful and stiff. Some months afterward, the left hip became involved and then the joints of the feet and spine. The patient tried every available "cure," including a severe course of mercury and iodid of potash at Hot Springs, Ark., but the rheumatism persisted, sometimes a little better and again worse. In March, 1907, he was able to dress himself only with assistance and was just able to get about. Both shoulders were stiff and painful; the "knuckles" of the hands were painful and swollen; the knees and ankles were in the same condition and showed over each joint one or two sharply limited areas of maximum tenderness. The urine contained an abundance of shreds, but in them no gonococci could be definitely identified. There was an increased frequency of urination and the prostate was slightly sensitive, but not appreciably enlarged.

During March, April and May, 1907, sheep antigonococcic serum has been administered about every eighth day. After each injection there occurred a noticeable improvement in the joint symptoms and the patient was able to put on his shirt and coat without assistance for the first time in years. As the pain decreased, the sleeplessness was greatly improved. The symptoms, however, would recur several days after receiving the serum, but was relieved by another injection. At first there was no change in the second glass of urine and it was not until the end of April that the shreds became noticeably less. This patient is still under treatment, but at present attends to all his affairs and moves about like a normal man. There is only a moderate amount of thickening around the basal joints of the right index and middle fingers, and some tenderness around the arches of both feet. The latter seems to be incipient flat-foot condition, as it is made worse by long standing or walking, and the muscular condition is poor.

In the following case, reported by Dr. W. A. Germain, of Sioux Falls, S. D., the recovery was rapid and complete:

Case 7.—Patient, male, suffering with chronic gonorrheal arthritis and cystitis, had been under treatment for five years. During this period he had received almost every form of treatment, including deep injections, prostatic massage and thermotherapy. The patient received six tubes of antigonococcic serum during the period from Feb. 27, 1906, to March 30, 1906. After the first injection a quantity of shredded mucus was voided with the urine and the pain in the neck of the bladder entirely disappeared. The rheumatism was not improved. After the second injection, there were pus and shreddy mucus in the urine, but no improvement in the rheumatism. The urine became clear after the third injection, but the joint symptoms remained the same. The fourth injection brought about a decrease in the rheumatic pains, and after the fifth they disappeared. The patient since then has not had any return of the symptoms. The rabbit serum, which was used, caused a marked local swelling, which soon subsided.

Tendosynovitis.—Reports have been received from six cases of tendosynovitis which were treated with the serum. In four instances a cure was effected, while in two a primary improvement was followed later by a relapse. As a rule, these cases have responded very quickly to the serum and have required only three or four injections.

Infections of the Genito-Urinary Organs.—Dr. George K. Swinburne,[5] of New York, has already published a report of the treatment of several cases of epididymitis with antigonococcic serum. Further experience has borne out the promise of the earlier results. We have received reports from eight cases of this character. Six were entirely cured within a few days, one was very much improved, and in one there was no improvement. One to three injections have generally proved sufficient to effect a cure. The pain has markedly lessened or ceased in nearly every instance after the first injection. The following case, reported by Dr. Swinburne, is of interest:

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[5] The Journal A. M. A., Jan. 26, 1907.

Case 8.—The patient appeared at 10 p. m. with a first attack of epididymitis, which had started at 2 p. m. of that day and had steadily increased. The epididymis (left) was exquisitely tender, and distinctly enlarged. An injection of serum was given. At noon on the next day there was no pain and the testicle was not nearly as tender. On the following day there was no trace of any trouble. Another injection of serum was given. Two days later the urine was clear for the first time in a month.

This case illustrates the value of the serum in aborting incipient cases. The following report on a case of chronic gonorrheal cystitis is also furnished by Dr. Swinburne:

Case 9.—W. K., aged 28, single, contracted gonorrhea first in 1902. This was followed by some prostatitis and cystitis. In May, 1906, massage of the prostate was begun and followed by some improvement, but there was a constant slight urethral discharge and the urine was always cloudy with pus. In November, 1906, the prostate was practically normal, but both the first and second glasses of urine were cloudy with pus and contained Gram-negative intracellular diplococci. Massage of the prostate and bladder irrigations with 10 per cent. argyrol solution were continued for four weeks, without improvement. Between January 5 and Feb. 2, 1907, the patient received nine injections of antigonococcic serum (sheep), and on February 9 all traces of the disease had disappeared. One month later, after a "beer test," the urine was found to be clear.

The history of our only case of gonorrheal salpingitis, which recovered quickly after operation and one injection, indicates that the serum may prove of value in this condition. It is, of course, impossible to determine exactly to what extent the serum hastened recovery after the evacuation of the pus:

Case 10.—E. J., aged 21, domestic, entered St. Francis Hospital April 29, 1907, with a history of leucorrhea and cystitis for the past week. Five days previous to admission pain began in the pelvic region and later forced her to go to bed. Examination showed a moderate purulent leucorrhea, extreme tenderness and marked rigidity in the hypogastrium, uterus fixed and immovable, lateral fornices very tender, and a large, painful and tender mass behind and at the sides of the uterus. Temperature 103 F, pulse 120. April 30, under ether, a small puncture was made in the vault of the vagina behind the cervix and about six ounces of creamy, thick puss evacuated. Irrigation and drainage tube. This pus contained a very few organisms resembling gonococci, but no growth could be obtained.

May 1: Temperature 102 F. in the morning and the patient still complained of pain and tenderness. Considerable purulent discharge. In the afternoon 40 minims of antigonococcic serum (sheep) was injected.

May 2: Temperature 100 F., discharge much less.

May 3: Temperature normal, no discharge, no complaints, drainage tube removed. After this there was rapid improvement and on May 8 vaginal examination revealed nothing abnormal except the small granulating wound in the vault.

With three cases of orchitis, this serum therapy has effected a cure after two to four injections. Chronic urethritis, however, has not yielded readily to serum treatment. In two out of the three cases of this character, there was no improvement after a few injections of serum had been given, but in one the symptoms disappeared. In this case of fourteen months' standing, the first injection caused a profuse discharge from the urethra, but this gradually subsided until after the third injection it entirely ceased and did not reappear. As has been explained in treating cases of acute urethritis, it is useless to employ the serum.

Infections of the Eye.—A number of cases of conjunctivitis have been treated with the serum, both by local application and by injection, with little or no benefit. The negative results with such patients is doubtless due to conditions similar to those present in acute urethritis. With iritis, on the other hand, the results have been very promising in the two cases treated by the method. One of these, reported by Dr. Arnold Knapp, of New York, has the following history:

Case 11.—Male, aged 22, gonorrhea two years previously, chronic discharge for eight months. One year previously, iritis in left eye, lasting two months. Recovered. Feb. 24, 1907, left eye became inflamed. Entered hospital. March 1, 1907, ciliary congestion, retina hazy, urine normal. Three injections of serum were given on consecutive days. This resulted in more congestion and the appearance of fibrinous exudate in the anterior chamber. Two more injections were given on the following days, resulting in the disappearance of the exudate. Patient felt better. During the week, March 8 to March 15, four injections were given. As a result the congestion of the conjunctiva became less, the iris normal, the pupil fully dilated, but some opacity existed in the retina. A week later the patient was discharged with the left eye practically normal. Since then there has been no relapse.

MODE OF ACTION OF THE SERUM.

The question remains: What particular properties of this serum exercise the curative influence? In attempting to discuss this point the following clinical phenomena, sometimes accompanying the administration, are of importance. With four patients who had had a more or less chronic discharge from the urethra, the first injection greatly increased this discharge, but after the second or third the flow of pus stopped entirely. Again, in a case of iritis, the first three injections of serum caused a greater congestion and the production of a fibrinous exudate in the anterior chamber of the eye, but after two more injections this all disappeared and the eye was much improved. Finally, in many cases of gonorrheal arthritis, especially in cases of long standing, the first two or three injections cause a transitory increase of pain and inflammation in the affected joints and may, in fact, "awaken" other articulations which have lain dormant for some time, but after a few more injections the pain and swelling generally disappear and the joints regain their normal condition.

At least two possible explanations may be offered of this frequent transitory increase of inflammation, occurring in some instances within a few hours after the administration of the serum. Wassermann and Bruck[6] have advanced the theory that the increase of inflammation and rise of temperature after the injection of tuberculin into a tuberculous patient is due to the interaction of the tuberculin with an antituberculin present in the tissues. If a similar explanation is advanced for the phenomena under consideration, it would be necessary to prove that the antigonococcic serum contains a derivative from the gonococcus analogous to tuberculin. Although our experiments in this direction are incomplete, we have thus far found no evidence that this serum contains any appreciable amount of gonotoxin.

A second explanatory hypothesis, which may be advanced, is that the serum injected into the patient has brought about a local disintegration of the gonococci and a liberation of endotoxins. The presence of this toxin in the tissues would cause an inflow of exudate and pus, as has been determined by Schaffer[7] and others in man, and by Malvoski[8] through experiments on animals. From the evidence at hand this second view seems to us the more probable.

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[6] Deutsche med. Wochschr., March 22, 1906.
[7] Fortschr. d. Med., 1897.
[8] Ann. de Gynecol. et Obstet., 1899, iii.

Granting the probability that the serum brings about the destruction of the gonococci in the tissues, two views may be taken of its mode of action: First, that the primary bactericidal action has taken place directly through the presence of specific immune bodies in the serum injected; second, that it has been brought about indirectly by phagocytes, which have been aided by an opsonic action of the serum. The weight of evidence seems to be rather in favor of the first hypothesis, because the increase in inflammation occurs often so soon after the injection of the serum, indicating that the endotoxins have been liberated directly into the fluids and not into the protoplasm of the leucocytes. Experiments, which will be published in detail later, also indicate that immune bodies are present in abundance in this serum. And, finally, because it is evident that the primary destruction of gonococci in immunized guinea-pigs takes place directly through the agency of the fluids and not by phagocytosis. An objection might be raised to this view on the ground that 2 c.c. (the usual dose) of serum would be diluted several thousand times by the blood and serous fluid of an adult man. Other potent bactericidal sera, however, have been found to act as at high dilutions *in vitro,* and antigonococcic serum to be effective must come from very highly immunized animals.

It is quite possible, furthermore, that the gonotoxin liberated in the tissues may play indirectly an important part in the curative process, in that it causes an inflow of exudate containing leucocytes. These phagocytic cells are then able to take up and digest more readily the remaining gonococci through their having been acted on by the serum. This idea is not an hypothesis unsupported by evidence, but it is substantiated by the increase of specific phagocytic action in guinea-pigs immunized to gonococcus. The details of these experiments will be given elsewhere. As has already been emphasized, there is no evidence that this serum is in any sense an antitoxin.

414 East Twenty-sixth Street.

THE LARYNX IN LOCOMOTOR ATAXIA.*

W. B. G. HARLAND, M.D.
Associate in Otology at the Philadelphia Polyclinic and School for Graduates in Medicine; Instructor in Laryngology, University of Pennsylvania.
PHILADELPHIA.

About five years ago, at the suggestion of Dr. Charles W. Burr, I examined the larynges of patients with tabes dorsalis at the Philadelphia Home for Incurables. Later I examined all the cases of that disease under Dr. Burr's care at the Philadelphia General Hospital, and also the cases then under the care of Drs. Spiller and Weisenburg at that hospital, these gentlemen having kindly placed their patients at my disposal for the purpose. This report of the examination in these cases may be considered a negative one, for practically nothing of great interest was discovered, but it seems worth while to bring up the subject for discussion because, in the text-books and elsewhere, one is led to believe that laryngeal trouble is rather frequently found in locomotor ataxia.

Of the cases at the Home for Incurables examination was possible in four, and the results are given in detail.

Case 1.—E., male, tabes for eleven years; no history of throat involvement. Arytenoids swollen and edematous. If there was any paralysis of vocal cords it was on the right side; left cord came past middle line and approximation of cords was good.

Case 2.—W., female, married; tabes for twelve years. Ptosis of eyelids; no throat involvement; cords normal.

Case 3.—L., male; tabes for eight years; no throat involvement; cords somewhat thickened.

Case 4.—G., male; tabes for nine years; arytenoids thickened and swollen; cords normal. No history of throat trouble.

A summary of the cases at the Philadelphia General Hospital can be tabulated as follows:

Total cases examined	27
View of larynx imperfect in	7
Cases in which examination was satisfactory	20
Larynx normal in	6

In twelve cases the left cord was found hyperabducted during respiration, its movements restricted during phonation; the ventricular bands had lost their tonicity and were flabby. In two cases the right cord was thus affected but not the left.

Of the twenty cases two were women, one having the left cord in the hyperabducted position. In none of the twenty cases was there any evidence of loss of sensibility. All patients suffered from chronic nasopharyngitis of various kinds and degrees, and the condition of the larynx was what one might expect to find in the average individual of their age and class of life. No constant lesion was observed except the one noted above, namely, hyperabduction of the vocal cord, and that was present on the left side in 60 per cent. and on the right side in 10 per cent., making a total of 70 per cent.

I have been unable to find a tabetic case with laryngeal crisis, and neurologists of my acquaintance say that they have rarely seen cases of that kind. To show the trend of opinion on this subject I shall quote from some of the recent books and periodicals:

Touche[1] states that twelve out of forty cases studied by him had laryngeal crises. Of these twelve one only did not have visceral crises also. Ten had gastric crises, three had crises of diarrhea and three had rectal crises. No record is given of laryngeal examination in Touche's cases.

A case is cited[2] in which the onset of tabes in an actor was heralded by laryngeal crises induced by overuse of the voice, and this suggests that the crises of locomotor ataxia may arise in a point weakened by previous strain or disease.

Dorendorf[3] reported the case of a man aged thirty-three, who suffered from bilateral posticus paralysis caused by tabes dorsalis. There was marked narrowing of the glottis with every inspiration. The condition persisted after tracheotomy, and was due to active contraction of the adductor muscles.

A case of bilateral abductor paralysis of the larynx in a tabetic was reported by Wishart.[4] The paralysis came on slowly in the first years of the disease and persisted after tracheotomy.

Greene reported[5] the results of examinations made in sixty cases of tabes. Out of the sixty cases examined nine (15 per cent.) presented laryngeal complications; six (10 per cent.) showed undoubted paralysis of one or both vocal cords; seven (12 per cent.) were affected with the laryngeal crises, three of these without evident paralysis of either cord, and one presented a jerky movement of the cord in moving from the median line. (This wavering motion was also present in one of my cases.) The only form of paralysis which Greene saw was abductor paralysis. Of the six cases five were unilateral and one bilateral. These were further divided into three with partial and three with complete abductor paralysis; that is to say, in the former there was marked limitation in the outward excursion of the cord and in the latter there was absolute fixation of the cord in the median position. Greene found that laryngeal crises occurred among the earliest symptoms in all of his cases. In two the crises led to an examination of the larynx and subsequent detection of the disease of the nervous system.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Presse Méd., August, 1899, lxix, 121.
[2] Deutsche med. Wochschr., April 16, 1905, xxxi.
[3] Berliner klin. Wochschr., Sept. 15, 1902.
[4] Laryngoscope, October, 1902, 756.
[5] Boston Med. and Surg. Jour., Jan. 25, 1906, 97.

Taking up now the text-books we find as follows: Coakley states that in the first stages of tabes there is occasionally seen a spasm of the laryngeal muscles resembling laryngismus stridulus. Such a symptom in an adult in the absence of foreign bodies should lead one to seek for other symptoms of tabes. Again he states tabes and bulbar paralysis may produce abductor paralysis, and that tabes sometimes causes complete recurrent paralysis, unilateral or bilateral.

Grünwald asserts that tonic spasm of the abductors is frequently seen in tabes, giving rise to the well-known laryngeal crises. The condition is characterized by sudden attacks of dyspnea with loud inspiration, the cords often remaining fixed in adduction for a considerable length of time.

Shurly thinks that spasm of the pharynx and soft palate may be a prominent symptom in locomotor ataxia, that vertigo with glottic spasm is frequently an expression of a crisis in this disease. Again he says that tabes is a frequent cause of recurrent paralysis, syphilis being the primary cause of the tabes. He quotes Avellis, who found in eighty-five cases of recurrent paralysis that five were due to cerebral affections and only two were due to diseases of the nervous system (such as locomotor ataxia?).

Burnett, Ingals and Newcomb state that anesthesia of the larynx is sometimes due to locomotor ataxia, as is also paralysis of the vocal cords, and that rarely laryngeal crises come as a first symptom of tabes.

Kyle speaks of laryngismus stridulus as occurring in the laryngeal crises of tabes, and that locomotor ataxia may produce absence of sensation in the larynx, or it may produce paralysis of the vocal cords, either unilateral or bilateral abductor paralysis.

Osler writes that in his experience the gastric and laryngeal crises are the most common forms of crises, but that even so laryngeal crises are rare. There may be true spasms with dyspnea and noisy inspiration. In one instance at least the patient died during the attack. He states that deafness and attacks of vertigo may be due to locomotor ataxia and that olfactory symptoms are rare in the disease.

The treatment of laryngeal crises of the spasmodic variety is variously given by the writers already quoted. Osler recommends that cocain be applied during the attack or the patient be given a few whiffs of chloroform or amyl nitrite. Grünwald recommends morphin, as he believes that the forced inspirations tend to increase dyspnea by exerting a sucking action on the vocal cords. Coakley speaks of using bromid of potassium and strontium, valerian, asafetida, and also advises the use of the galvanic or faradic current in the larynx in chronic cases.

CONCLUSIONS.

1. The larynx is very seldom seriously affected in locomotor ataxia.
2. Rarely, early in the disease, spasmodic abductor paralysis may sometimes arise, and should suggest to the laryngologist the possibility of tabes as its cause.
3. Late in locomotor ataxia one or the other cord (generally the left) is often found in a hyperabducted position.

223 South Seventeenth Street.

DISCUSSION.

Dr. J. F. Byington, Battle Creek, Mich., said that, in view of Dr. Harland's statements that he has been unable to find a case of tabes with laryngeal crisis, and that neurologists of his acquaintance say that they have rarely seen cases of that kind, he would report the history and symptoms of one patient of this class, examined two years ago. A man, about 45 years of age, in the initial preataxic stage of locomotor ataxia, was referred to him for laryngeal examination. The examination was negative except for some inflammatory thickening of the mucous membrane covering the arytenoids and of the vocal cords, due doubtless to the irritation caused by the laryngeal crises. No cause for the laryngeal spasm could be discovered other than the nervous trouble. The spasms occurred every day or two, and Dr. Byington was able to give a fairly accurate description of the attacks, since the patient had a spasm in his examination chair. He first complained of a burning, tickling sensation, which was very quickly followed by an attack of coughing and dyspnea. Inspiration was very stridulent, the patient was much agitated, grasping with both hands the seat of his chair, and apparently fearful of impending suffocation. The attack lasted for a minute or less, until the patient's respiratory muscles were sufficiently exhausted to relieve the spasm. He soon regained normal breathing, although he was considerably prostrated from the attack. Dr. W. H. Riley described a similar case which he had had some years before. The patient was a man about 45 years of age, in the first stages of tabes. The attacks came regularly, once in about three weeks, and were similar to those in the case above described. During the attack the patient was much prostrated and cyanotic. Between attacks he was free from dyspnea. Dr. Riley stated that the patient was not of a neurotic temperament.

Dr. Emil Mayer, New York City, considered it an important matter to which Dr. Harland had called attention because the possibility of laryngeal crises being associated with or following locomotor ataxia is frequently overlooked by laryngologists. Dr. Mayer had a very interesting case presented to him some four years ago, a man who had been suffering from locomotor ataxia to such an extent that he had to be aided at every step. He had a number of attacks of suffocation which were said to be laryngeal spasm as a result of his tabes. Examination showed that the man had a polypus within the larynx, the removal of which stopped all symptoms, and although slightly ataxic, he never had a recurrence of his so-called laryngeal crises.

Dr. William E. Casselberry, Chicago, said that the word "frequently," no doubt, has been used rather loosely by authors, as one might infer that these laryngeal manifestations occur in a larger proportion of ataxic patients than is actually the case. As yet they do occur occasionally. He had observed a case of laryngeal crisis in a patient who was not at first noticeably ataxic, but who some years afterward did develop tabes in pronounced degree. The laryngeal crises in the form of choking and strangling attacks happened to be associated with an enlarged lingual tonsil by which Dr. Casselberry was misled into the belief that contact of it with the epiglottis caused reflex spasm, only to find finally that it was an advanced sysptoms of his tabes. But in proportion to the vast number of cases of tabes without laryngeal symptoms, those who have seen them can not be said to be numerous, and to this extent the essayist's point is well taken.

Dr. J. Solis-Cohen, Philadelphia, said that in many cases laryngeal paralysis is the first manifestation of the disease. If the disease begins in a center which leads to the larynx a laryngeal crisis will be the first manifestation. In such cases he gives pearls of amyl nitrite to overcome the laryngismus, constitutional doses of strontium bromid, and large doses of potassium iodid.

Dr. W. G. B. Harland, Philadelphia, said that he did not wish to question the statistics or the insight of anybody who has written on the subject, but it seemed to him necessary to emphasize the rarity of the disease, which had been brought out in the discussion and he thought it proved by the fact that men of large experience have seen only one or two cases, and these they remember very clearly.

CLEANSING TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR.*

W. SOHIER BRYANT, A.M., M.D.
NEW YORK.

During an experience of twenty years' duration I have found that chronic suppuration of the middle ear will yield to cleansing treatment in the majority of cases, whether they be acute, chronic or perennial in type. In this statement I wish also to include those cases in which the infected area is spreading and those with acute exacerbation, both of which conditions are rightly considered very dangerous. The exceptions that do not yield comprise those cases in which the caries present is extensive enough to require more than a reasonable time for removal by natural processes; those in which there is an active osteitis; those in which the sepsis has spread to parts outside the bone; those in which the inflammation is due to some special form of infection, such as tuberculosis or syphilis, or, finally, cases in which vital parts are involved and demand immediate operation. All other cases are amenable to this cleansing treatment.

The cases must be selected with judgment according to the foregoing limitations. First of all, the tympanic drainage must be made sufficient, and this, of necessity, must depend on the location and size of the perforation in the drum membrane, as well as on the condition within the tympanum and attic. There may be a free opening in the drum membrane and yet the rest of the tympanum may be filled with granulations, epithelial masses, or cheesy pus, causing inadequate drainage. The antrum and cells may be filled with inspissated material. The condition of the Eustachian tube is of prime importance, since one of its functions is that of a drain for the tympanum, and also because when diseased it offers a road for the spread of bacteria from the pharynx. The nasopharynx must be attended to for the sake of the Eustachian tube.

If the drainage be sufficient and there are no collections of inspissated material, dry wiping followed by application of boracic acid powder gives rapid satisfactory results. If there is cheesy material within the tympanum, it may be wiped out or syringed out by means of Blake's middle-ear syringe with a strong solution of bicarbonate of soda in neutral salt solution. If on repeated trial this method does not seem to clean the middle-ear cavities sufficiently, and the physician believes that there is still some accumulation within, suction may be applied to the ear with advantage. This produces serous exudation and possibly some hemorrhage and there follows an edema of all the tissues which does not at once subside. The serous exudation and hemorrhage act as an antiseptic wash which neutralizes some of the bacterial elements and at the same time removes some of the solid particles. An advantageous hyperemia of the parts is also thus brought about. A persistent dirty discharge may require the use of hydrogen peroxid, followed by normal salt solution or alcohol or nitrate of silver.

When there is an area of caries, this should be treated by cleanliness, and, if the granulation tissue is not vigorous, stimulated with nitrate of silver.

After these various methods of treatment the ear ordinarily becomes sweet and clean; but in a certain number of cases a serous discharge continues. In order to stop this we must avoid all unnecessary irritation of the tympanum and make use of astringents either as dry powders or in solution. Powders of boracic acid and xeroformbismuth tribrom-phenolate are the best. Solutions of nitrate of silver, from 0.5 to 2 per cent. strength, are of value. When relapses occur they are treated according to the indication the ear presents at the time. The cases in which a perforation of the drum membrane remains after cessation of the inflammation require periodic examination and the removal of epithelium which may have accumulated within the perforation. This is necessary to insure against recurrence of inflammation. In Case 7, in which a relapse occurred, this very necessary precaution was neglected. The following cases are typical of the course and result of this treatment in some of the varieties of chronic middle-ear suppuration.

Case 1.—Patient, a women, aged 51. A fetid perennial otorrhea had been treated by many specialists in many cities, in spite of which it persisted fifty years. The tympanic structures were lacking except a portion of the membrana tympani, which shut off the mouth of the tube and cloaked a remnant of the malleus. The incus was absent. There had been periods of mastoid tenderness. When I first saw the patient granulations were protruding from the antrum. Proper cleansing treatment was used and in two days the ear was dry and remains so. Hearing is fair.

Case 6.—Patient, a man, aged 27, with otorrhea and mastoiditis. For at least thirty-seven days prior to consulting me, and probably much longer, he had had aspergillus in the canal and a perforation of the membrana tympani with accumulations of soft detritus. Watch was heard 13 inches from the left ear. There was tenderness on pressure over the mastoid antrum, and perforation of the inferior posterior quadrant of the membrana tympani. Air inflated by Valsalva's method passed readily through a capillary perforation in the drum membrane. On the third day of treatment, the second visit, the left ear heard a watch at 23 inches. Tenderness was still present over the mastoid antrum. The perforation was closed. Four months later left ear hears watch at a distance of 15 feet.

Case 13.—A man, aged 25. At the first visit the temperature was 99.8 F. and pulse 90 at 12 m. The patient had had a running ear for four weeks. On the second day and second visit he had thick discharge and tenderness over the digastric groove behind the mastoid process, and at the tip of the mastoid process. On the third day and third visit there was pain in the ear, mastoid and temporal regions; the lymph glands below the ear were a little enlarged and sore. Dry cups were applied; there was no pus. The ear was permanently dry two days later. The perforation subsequently closed with improvement in hearing.

Case 21.—The patient, an anemic, delicate woman, was one of Isador Müller's most famous cases. A perennial otorrhea since childhood had been treated by specialists in many cities. All tympanic structures were lacking except the stump of the malleus and a narrow border of the membrana tympani. Black sordes were removed from fundus of canal disclosing a dark bleb in the region of the antrum. There was a dark viscid discharge from the antrum; the bleb was opened and thick, dark blood escaped. The promontory was pale and waxy. Some soft detritus in the antrum was wiped out and boric acid was insufflated. Watch was not heard. At the next visit, eight days later, there was a little bloody discharge from the meatus. The next day, third visit, there was a little bloody discharge from the mastoid antrum; tympanum and antrum were wiped with alcohol. There was no further trouble.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Case 24.—This case demonstrates the treatment of fetid otorrhea of many years' duration. The patient was a merchant, aged 29. The discharge came from the mastoid antrum through a perforation of the superior posterior quadrant of the membrana tympani of the left ear. When first seen by me the man had a scanty, thin, purulent discharge from the left ear. In spite of prolonged and various treatment, this ear had discharged for many years. There was a perforation of the superior posterior quadrant of the membrane, allowing a free passage up into the mastoid antrum, which contained some small granulations and cheesy detritus. The cavum tympani was shut off from the perforation by a cicatricial membrane.

Treatment.—The external auditory canal was cleansed by cotton pledgets, and, after a Blake's canula had been passed as far as possible through the perforation, a strong solution of bicarbonate of soda was syringed in. A considerable quantity of desquamated epithelial flakes and sheets were brought away. After the cavity had been thoroughly dried with cotton pledgets on a fine bent silver applicator, a solution of nitrate of silver, 2 grains to the ounce, was syringed in. On the second day at the second visit the discharge was no longer fetid, its consistency was better and quantity less. The cavity was again cleansed by the same method. Very little epithelium came out. After two days the patient was seen again. There was no discharge; the walls of the antrum were damp. The cavity was syringed as before, this time with nitrate of silver solution; the soda solution was omitted.

It was then dried with cotton and a little boric acid powder was insufflated through a small canula passed well into the cavity. Two days later the perforation was dry and lined with glistening epithelium. The hearing improved from 3 to 8 inches for the acumeter, and the patient's general health improved rapidly. The ear has remained in the same good condition for three years.

Case 25.—In this case the ear had discharged for four years. The acumeter was heard at a distance of 3 feet. There was a very small perforation in the center of the posterior half of the membrana tympani, allowing a fetid, thin, purulent discharge; the membrane was very thick. Valsalva's inflation sent air through the perforation; the tympanic syringe was used. On the twenty-sixth day, the fourth visit, the perforation was enlarged. The tympanic cavity was found filled with flabby granulations. On the thirtieth day, the fifth visit, granulations were still in the tympanum; there was also tenderness over the antrum. On the forty-sixth day, the ninth visit, the condition was improved. On the forty-eighth day, the tenth visit, the perforation was again enlarged. On the fiftieth day, the eleventh visit, the patient was improved; dry cups were applied. On the fifty-first day, the twelfth visit, the patient was better; fetor was nearly gone; suction was used. On the fifty-fourth day, the thirteenth visit, there was no discharge or fetor; suction was used. On the fifty-eighth day, sixteenth visit, the acumeter could be heard at a distance of 15 feet; the middle ear was apparently dry. On the sixty-first day, the nineteenth visit, the middle ear was not yet healed. On the sixty-second day, the twentieth visit, the perforation was nearly closed; there was a profuse seropurulent discharge; suction was used. On the sixty-fifth day, the twenty-second visit, the patient was better; the perforation had spontaneously enlarged; there were still granulations in the tympanum. On the sixty-ninth day, the twenty-sixth visit, patient was better; the middle ear was nearly dry. On the seventieth day, the twenty-seventh visit, the ear was moist again and the perforation spontaneously enlarged. The granulations did not bleed so readily as formerly. On the seventy-second day, the twenty-ninth visit, the perforations were larger and the granulations less. On the seventy-third day, the thirtieth visit, the general condition was poor, tonics were presented and suction used; the middle ear discharge was chiefly yellow serum. On the seventy-fifth day, the thirty-second visit, patient was better; on the seventy-sixth day, the thirty-third visit, condition was worse again. On the seventy-seventh day, the thirty-fourth visit, it was much better, and on the seventy-ninth day, the thirty-sixth visit, the ear was permanently dry; the perforation was large.

Case 27.—This case was referred to me by Dr. Clarence J. Blake of Boston, who had made the diagnosis of perforation of Shrapnell's membrane with caries of the neck of the malleus and a purulent discharge. The patient was a captain in the United States Army, aged 34. The purulent discharge had commenced in the right ear during service in Cuba in 1898, and, in spite of varied treatment, had continued more or less abundantly ever since. The disease had been much aggravated by subsequent service in the Philippines. Examination of the ear showed a small perforation in the center of Shrapnell's membrane, choked with granulations and a mucopurulent discharge.

Treatment.—Tiny pledgets of cotton on a fine bent silver applicator were passed through the perforation as far as possible in every direction, wiping it out as clean as could be and abraiding the granulations. The cotton could be passed easily into the antrum. Then, with a Blake's middle ear syringe and a specially fine canula, the tip of which had been bent and carried in as far as possible, a strong solution of bicarbonate of soda was syringed in all directions. By this means a considerable amount of desquamated epithelium was evacuated, particularly from the direction of the antrum. After the cavity had again been wiped with cotton pledgets, a saturated solution of boric acid in alcohol was syringed in.

Subsequent Treatment.—When no more epithelium could be dislodged, the bicarbonate of soda solution was not used, but the alcohol was continued. As the discharge diminished in quantity and became more transparent, syringing with nitrate of silver, 3 grains to the ounce, was substituted for the alcohol. After the discharge had ceased, and as long as the perforation still contained moisture, it was wiped out with cotton pledgets, and boric acid powder was blown in through a fine Buck's middle ear glass canula until the cavity was filled. On the next visit, since the boric acid filling was found undissolved, it was left intact and nothing more was done. After the boric acid had remained undissolved for six days it was gradually picked out and the perforation was left to contract, which it finally did. During the various relapses that occurred the treatment was resumed whenever the nature of the discharge so indicated.

Result.—After four days of treatment the acumeter was heard 3 feet away. In ten days the discharge had ceased and the acumeter was heard at a distance of 7½ feet. The discharge soon reappeared, but was brought under control once more. After a month the acumeter was heard 15 feet away. Again the discharge reappeared and again it was stopped. Finally the ear became permanently dry and the treatment was discontinued after a period of 66 days of treatment and office visits. No further discomfort or trouble in the ear has arisen since that time. Two weeks after final healing the acumeter was heard at a distance of 35 feet. The ear remains in the same good condition after an elapse of three years.

The accompanying table shows thirty consecutive cases of chronic purulent otitis media in adults treated by the cleansing method in my private practice. All the patients had received more or less prolonged attention from other practitioners before my treatment was commenced. Relapse occurred in one case. The longest period of suppuration was fifty years, the shortest five weeks. The longest period of convalescence was ten months, the shortest two days. The smallest number of treatments was one, the largest number sixty-five.

Since convalescence was established the cases have been under observation not less than nine months. During the period of this series a young woman was treated who had an ear which had discharged several years.

The perforation was small and the discharge fetid. After trying the cleansing treatment a short time without any particular change in the discharge, ossiculectomy and curettage were done and much carious bone removed from the outer tympanic wall, which was followed by permanent healing of the ear. This case is not included in the series because the cleansing treatment was discontinued as soon as the diagnosis was established.

Patients 24 and 27 were shown at the annual meeting of the American Otological Society, held in Boston, May 10, 1905. Cases 1, 3, 5, 8, 10, 11, 12, 14, 18, 20, 21, 23, 24 and 30 show a period of convalescence absurdly short compared with the shortest possible convalescence following a radical operation. The period of convalescence in Cases 4, 9, 15, 16, 17, 26 is about the same length as that following the ordinary radical operation, but instead of being subjected to the great discomforts of a capital operation and the loss of weeks from business, the patient suffers no added inconvenience and continues his daily avocation. In Cases 7, 19, 25, 27, 28 and 29 the patients had a prolonged convalescence, but were saved the discomfort, strain and risk of a serious operation.

In these days, when the radical operation is often performed for obstinate otorrhea, it is especially inter-

THE CLEANING METHOD IN THIRTY CASES OF CHRONIC OTITIS.

No.	Description.	Duration of Otorrhea.	Duration of treatment and number of office visits before permanent cessation of inflammation.	Final results.
1.	Large posterior perforation; incus absent; fetid discharge.	Since infancy; fifty years.	Two days; one visit.	No recurrence of inflammation.
2.	Discharge through double perforation, one anterior and one posterior to manubrium.	Seven weeks.........	Two days; one visit.	Perforation closed; hearing improved; no recurrence of inflammation.
3.	Slight fetid discharge.............	For years............	Ten days; two visits.	Hearing improved with artificial membrane. No recurrence of inflammation.
4.	Discharge through large anterior perforation.	Since childhood.......	Twenty-one days; four visits.	Hearing much improved, with cotton pledget; no recurrence of inflammation.
5.	Recurrent otitis media purulenta chronica; small perforation of posterior superior quadrant; fetid discharge.	Six years............	Three days; three visits.	Perforation closed; hearing improved; no recurrence of inflammation.
6.	Perforation of posterior inferior quadrant; thin purulent discharge; long standing mastoid tenderness.	Five weeks...........	Two days; one visit.	Perforation closed; normal hearing; mastoid tenderness ceased in 4 days; no recurrence of inflammation.
7.	Complete destruction of tympanic contents; tegmen, tympani and antra absent; slight, very fetid discharge which stopped after 5 months' treatment with 9 visits. A non-fetid discharge appeared 12 months later when patient was much run down; it was checked at one visit.	Six years............	Fifteen days; four visits.	No recurrence of inflammation.
8.	Recurrent fetid discharge; extensive tympanic destruction.	Many years..........	Nine days; two visits.	Hearing improved; no recurrence of inflammation.
9.	Discharge from large anterior perforation.	Years	Three weeks; one visit.	Hearing a little improved; no recurrence of inflammation.
10.	Thin discharge from small perforation.	Years	Seven days; six visits.	Perforation healed; hearing improved; no recurrence of inflammation.
11.	Slight fetid discharge..............	Years	Ten days; two visits.	Hearing improved, with artificial membrane; no return of inflammation.
12.	Large inferior perforation; scanty discharge.	Fifteen years.........	Four days; one visit.	Hearing improved; no return of inflammation.
13.	Mastoiditis and purulent discharge.	Four weeks..........	Five days; three visits.	Perforation closed; hearing improved; recovery from mastoiditis; no recurrence of otitis media.
14.	Perforation of Shrapnell's membrane and lower half of membrana tympani.	Many years..........	Two days; one visit.	No recurrence of inflammation.
15.	Perforation posterior superior quadrant and granulations of tympanum.	Many years..........	Forty-two days; one visit.	No recurrence of inflammation.
16.	Fetid discharge; severe temporal and occipital headaches.	Sixteen years.........	Eighteen days; two visits.	Improved hearing; cessation of headaches; no return of inflammation.
17.	Diabetic; both ears show thin purulent discharge through small perforations.	Many years..........	Eighteen days; three treatments.	No return of inflammation.
18.	Mucopurulent discharge through nipple occluded by granulations.	Six weeks............	Eight days; three treatments	No return of inflammation.
19.	Fetid discharge and granulations of antrum; very large perforation.	Twenty-three years....	Eight weeks; nine visits.	Good hearing; perforation healed; no return of inflammation.
20.	Otorrhea; destruction of anterior half of membrana tympani.	Discharged several months.	Twelve days; three visits.	Hearing distance increased 7 times; no return of inflammation.
21.	Thick bloody discharge from antrum; destruction of membrana tympani.	Since childhood.......	Nine days; three visits.	No return of inflammation.
22.	Small perforation; thin mucopurulent discharge.	Several weeks........	Two days; one visit.	Perforation healed; hearing much improved; no return of inflammation.
23.	Discharge through large perforation.	Many years..........	Six days; one visit.	Much improved hearing; no recurrence of inflammation.
24.	Fetid discharge from antrum through perforation of posterior superior quadrant; granulations in atrium.	Many years..........	Five days; three treatments.	Hearing improved; 7 pounds gain in weight; no return of inflammation.
25.	Fetid discharge; small perforation..	Four years...........	Seventy-nine days; 35 treatments.	Improvement in hearing; no return of inflammation.
26.	Variable discharge from posterior perforation in thick cicatricial membrane.	Many years..........	Three weeks; one visit.	No recurrence of inflammation.
27.	Perforation of Shrapnell's membrane; purulent discharge.	Seven years..........	Nine and a half weeks; 65 treatments.	Great improvement in hearing: closure of perforation; no recurrence of inflammation.
28.	Capillary stricture of external meatus; fetid purulent discharge; mastoid tenderness.	Ten years............	Eight weeks; two visits.	Hearing very much improved; external canal widely opened; no recurrence of inflammation.
29.	Granulations and soft epithelial masses in tympanum and antrum; destruction of membrana tympani; granulations protruding at fenestræ.	From childhood.......	Ten months; seventeen visits.	Hearing slightly improved; no return of inflammation.
30.	Discharge through large perforation.	Eight years..........	Two days; one visit.	Closed perforation; improved hearing; no recurrence of inflammation.

esting to note that it is possible to get a favorable termination of the disease even in some of the most difficult and complicated cases by the use of conservative methods of treatment, which aim at aiding Nature in her effort to expel the focus of infection.

Some one has said that the hearing should be conserved after a radical operation by preserving the annulus, ossicles, etc. That does very well if one is fond of fine dissection, but, as a matter of fact, there is a surer way to cure the otorrhea and to save the hearing without a radical operation in the cases in which the tympanic contents are in place. Only the rare cases of extensive acute osteomyelitis really require this *tour de force* in dissection.[1]

I first became familiar with the cleansing treatment of otitis media purulenta at the Massachusetts Charity Eye and Ear Infirmary in 1887 under the instruction of Surgeons J. Orne Green, Clarence J. Blake, Edmund D. Spear, Frederick L. Jack and Henry L. Morse and have practiced it ever since.

The lesson one may learn from a study of this method is that cleanliness or cleansing methods carefully applied in chronic middle-ear suppurations can give very satisfactory results and in some cases a rapid convalescence with good hearing.

DISCUSSION.

Dr. J. F. Byington, Battle Creek, Mich., said that no doubt in the hands of Dr. Bryant peroxid of hydrogen may be employed with impunity, but he protested against the indiscriminate use of this drug. In his ear practice it occupies but little place. He has found it efficacious occasionally in breaking up a hardened plug of wax, but he does not use it in the tympanic cavity. This fluid in the presence of pus goes off suddenly in all directions, much on the same principle as dynamite, and Dr. Byington believes that it is apt to open up new avenues of infection in any infected cavity and has little or no lasting antiseptic effect. Its action is purely mechanical, and he prefers to use dry air inflation of the Eustachian tube, or suction through the external auditory canal, to remove secretions from the tympanic cavity. In his experience the dry cleansing treatment advocated by Dr. Bryant has been most gratifying. He mentioned one case which forcibly illustrates its effectiveness. The patient had had an otorrhea for many years and had recently undergone an operation by a competent surgeon for removal of the ossicles. The discharge continued in an aggravated form after the operation, in spite of continuous treatment for some months. Both patient and doctor naturally were disappointed in the result, and the patient, a woman, was advised to make a change of climate. She came from Texas to Michigan. Dr. Byington does not know whether the Michigan climate was a factor in her improvement or not. At any rate the discharge entirely ceased and remained so after the second treatment, which consisted simply of dry wiping, inflation and blowing a very little boric acid into the outer canal. Her previous treatment had been the daily use of peroxid of hydrogen and syringing. Syringing simply dilutes what antitoxic fluids the tissues are able to produce, and lessens the resistance of the epithelium, to say nothing of the moist warm chamber it affords for the favorable growth of bacteria.

[Note: In addition to this discussion, the whole subject of middle ear disease received a general discussion which will follow later.]

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[1] The Radical Mastoid Operation Modified to Allow the Preservation of Normal Hearing, Trans. Amer. Otol. Soc., 1906, vol. x, part 2, pp. 292-295, N. Y. Med. Jour., Oct. 20, 1906, pp. 780, 781.

Race Culture.—We take vastly more pains in the study of the best conditions for the life and fine development of both plants and animals than we do in the growing of strong, beautiful, finely balanced children.—J. F. Rogers, M.D., in *Dietetic and Hygienic Gaz.*

OTITIC PHLEBITIS; ITS SYMPTOMATOLOGY, DIAGNOSIS AND TREATMENT.*

JAMES F. McKERNON, M.D.
NEW YORK CITY.

During the past ten years much has been written on the symptomatology of this disease, part of which has been of inestimable value to those of us whose work lies along these lines, so that at the present time we are enabled to classify various symptoms, which, combined with our clinical experience, places at the disposal of the practical otologist a group of fairly definite symptoms from which to make a positive diagnosis of the disease.

In speaking of the symptomatology of otitic phlebitis I shall follow the lines of my personal experience and do so under three heads. First, the symptomatology in the typical cases; second, in the atypical, and third, in those where the bulb and sinus are primarily involved, without macroscopic disease of the mastoid process. As the majority of cases coming under our observation are those secondary to a mastoid involvement, or developing after the mastoid operation has been done, there are a few definite symptoms present which are fairly constant and which enable us without delay to recognize this condition.

SYMPTOMATOLOGY.

Temperature.—The symptom which I consider by far the most important is that of temperature; it depends on the amount of septic material entering the general circulation. If this be large in amount it is at once followed by a rise from normal to 104, 105 or even 106 F., and frequently higher, and this is quickly followed by a remission to near the normal point or below. There may be only one rise during a period of twenty-four hours, or several may take place, depending on the rapidity and the quantity with which the poison is entering the general circulation. If the patient is kept under observation for several days these exacerbations of temperature become more frequent and the variations greater.

Chills.—These are present in only a proportion of the cases seen, possibly 50 per cent., and I incline to the belief that this percentage is high. When present they usually precede the rise in temperature, and in some patients are followed by profuse sweating. In many of the cases coming under our observation the patients exhibit no definite chill; they merely complain of a slight chilly sensation, and frequently this is overlooked unless the nurse in attendance is on her guard and watching for such a manifestation. In a postoperative mastoid case, with frequent variations of temperature, these slight chilly sensations are quite as important as though a decided rigor were present. In a communication before the American Otological Society in July, 1899, particular stress was laid on this point, and during the intervening years at least one-third of all the cases observed has borne out the importance of watching for this but infrequently spoken of symptom.

Pulse.—In cases of phlebitis, when there is a sudden marked elevation of temperature, there is a corresponding rapidity of the pulse rate ranging from 120 to 160 per minute. In cases exhibiting a lower temperature range the pulse is often between 100 and 130, and when the existing phlebitis is complicated by a collection of pus in the brain it is much slower.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Respiration.—In the earlier stages of this disease the respiratory changes are but slight, but increase during the hyperpyrexia, at times becoming as rapid as 40 or 50 a minute. This is especially noticeable in the younger patients.

Pain.—In many of the cases of phlebitis coming under our observation the degree of pain is greater than that present when only an ordinary mastoiditis exists or that subsequent to a postoperative case. The pain is usually referred to the side of the head and to the occipital region, and is many times localized in the region of the torcular. In a few of the cases where the internal jugular vein becomes infected early there is decided pain in the neck along its course, and occasionally that pain will radiate down over the chest of the affected side. During the past year I have seen two cases where such pain was pronounced in this region, and in each instance the pleura and lung were negative. In many of the cases the pain present in the neck is caused, I believe, by an infected chain of lymphatic glands rather than by any obstruction in the vein.

Nausea and Vomiting.—These symptoms are usually present at some stage of the disease in a moderate or pronounced degree. The patient usually complains of nausea first, particularly on being aroused or on moving the head. This may be followed by slight vomiting, which later becomes more pronounced after the drinking of fluids. It may, however, occur at any time independently of the taking of solids or fluids and the amount ejected is usually small.

Intraocular.—In only about one-third of the cases coming under my observation have eye symptoms been present. This may be due to the fact that the patients in many of the cases were seen and operated on early, and had they been left until a later period of the disease intraocular changes might have taken place. In a small number of cases, when the phlebitis has extended to the cavernous sinus, there is pronounced swelling and puffiness of the eye and lid on the affected side.

Vertigo.—This I have observed only in those cases of long-standing purulent middle-ear involvement or where the meninges were affected.

Cerebration.—This has invariably been normal except in advanced cases. While some of the patients are drowsy and do not wish to be disturbed, yet they answer questions intelligently when aroused. If, however, the disease be allowed to progress this drowsiness increases and is followed by evidence of impaired cerebration.

Physical Signs.—We occasionally find the presence of edema in the mastoid region and edema over and around the exit of the emissary and occipital veins. The sign described by Gerhardt, and to which has been given his name, namely, that when pressure is exerted over both the external jugular veins it will show a marked increase of blood passing through the vein of the unaffected side, I have never seen demonstrated. In some of the well-advanced cases, both in adults and children, there is a marked stiffness of the muscles of the neck on the affected side and the head of the patient is drawn well over toward the shoulder of this side, showing a marked torticollis, as it were. Combined with this there is a well-marked rigidity of the neck muscles present. A physical sign which the books tell us to look for in phlebitis of the vein is a hard, cordlike swelling in the neck. While unquestionably such a physical sign does occur, in my experience it is an infrequent one and only present in patients far advanced in the disease. I have been able to demonstrate such a condition but once, though I have tried to do so repeatedly before operation.

Metastatic Deposits.—In patients in which the disease is well advanced metastatic deposits may occur in any joint of the body, either single or multiple, closely adjacent to or remote from the original focus of infection.

General Symptoms.—Among these may be mentioned loss of appetite, a dry and heavily-furred tongue and a foul breath. The face is anxious, there is a pallid look, the skin is dry and later presents a yellowish tinge indicative of sepsis.

Atypical Cases.—These are cases invariably following a mastoid operation in which the patients usually do well for a few days after the mastoid has been opened. Then they become restless, irritable and disinclined to take food. The tongue, which before was clean and free from any coating, becomes dry around the edges and presents a whitish, glazed appearance in the center. The pulse increases from 100 to 130 or 140 a minute and there is a slow, gradual rise in temperature to 103, 104, 105 F. or higher, remaining so for several days. In some of the cases it will not vary a degree in twenty-four or forty-eight hours, while in others there is a little more variation, but there are no sudden drops and no sudden rises. The patient complains of headache and occasionally of nausea, but few reach the vomiting stage. They are unable to sleep for any considerable period of time, and if surgical measures are not instituted they later show all the signs of pyemia. There is no chill or chilly sensation present, cerebration is clear, the only evidence of any mental disturbance being an occasional irritability of temper, this being especially noticeable when they are first aroused. Later they become exceedingly drowsy, the skin begins to take on a yellowish hue and there is profuse sweating.

Physical Signs.—A physical sign which I consider of the utmost importance in this class of patients is that when we inspect the mastoid wound, in the early stages of the disease, we find every portion of it apparently doing well and covered with granulations except at one point, and this point is the bone forming the sigmoid groove. We will find the bone in this region darker in color than when it was first exposed at the time of the operation and there will be no granulations found on any part of it. In other words, we have a mastoid cavity showing all the evidences of healing except the bone over the sigmoid sinus. Should the infection progress farther and be allowed to go unchecked we shall find in three or four days that the mastoid wound presents an altogether different picture. The parts that formerly were covered with healthy, firm granulations have now become pale and flabby, with a tendency to soften and break down, while the bone over the sinus still remains dark in color, perfectly dry and devoid of any reparative process. If during the mastoid operation the sinus was exposed we find that at this stage the dura covering it presents a whitish or gray appearance, devoid of luster, and at times covered with a plastic exudate, and is pressure be exerted on this exposed area of the sinus it will be found easily compressible.

Bulb and Sinus Primarily Involved.[1]—In this third class of cases there is an acute purulent otitis present with the usual symptoms found accompanying this condition in an aggravated form. The subsequent symptoms detailed are, I believe, the result of a direct infection from the tympanic cavity to the blood current closely adjacent, namely, through the floor of the tympanum to the jugular bulb. The explanation of the possibility of this is quite clear if we bear in mind the fact that in a certain percentage of the skulls examined we find an unusually high dome encroaching on the middle-ear cavity or a dehiscence existing in this region. Under such conditions as these it can readily be seen how an active purulent infection of the middle-ear cavity can primarily affect the blood current. Without having to travel its usual course through the venous structure of the mastoid bone, its pathway of infection is through the small communicating veins and lymphatics or by a process of absorption directly through the thin wall of bone in this region.

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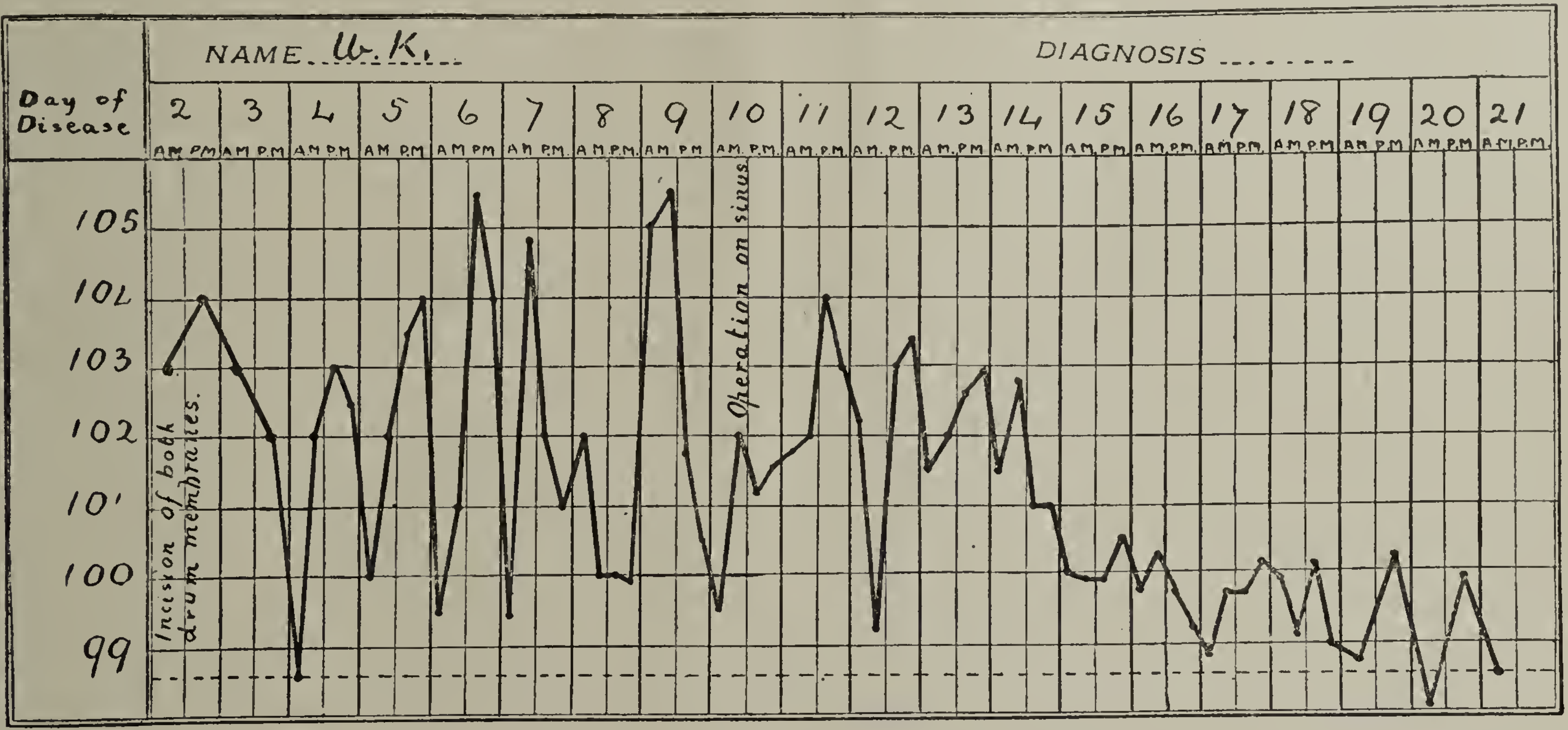
[1] Abstract from paper read before the Amer. Otol. Soc., May, 1905.

The symptom in these cases of greatest importance is an unusually rapid rise in temperature (see chart), from 99 or 100 to 104, 105 or 106 F., and quite as sudden as the rise, a fall to 97, 98 or 99 F., or possibly 100 F. The temperature may remain low for several hours and then quickly rise again to the points first mentioned, to be followed by a rapid remission, and this may go on indefinitely. During the exacerbations of temperature the pulse rate is rapid, ranging from 120 to 170 per minute. There is no chill present. The only evidence of one found in these patients is that if seen when the temperature begins to rise they will be found to have cold feet and hands. They are exceedingly fretful and irritable and later become drowsy. The eye signs are negative. If the temperature range is allowed to repeat itself for several days the tongue becomes white and dry. During the temperature remissions these patients, who are usually young children, feel remarkably well, will ask for food and wish to sit up and play with their toys. This is one of the phases of the disease which the parents and uninitiated find hard to comprehend. They see such an apparent improvement in the little ones that they are misled as to the dangers existing and often believe they are well on the road to recovery until the next rise of temperature occurs.[2]



DIAGNOSIS.

The first class of cases is easily recognized, our diagnosis being based on the temperature changes and the presence of a chill or chilly sensation preceding the rise in temperature and following an operation on the mastoid. If most of the symptoms given in this class be present it is, of course, a comparatively easy matter to make a diagnosis, but if several are absent the diagnosis can be made from those given above. In those cases where the sinus is operated on at the same time that the mastoid operation is done, and we have no previous symptoms to guide us as to its involvement, we determine whether or not it is necessary to open the sinus at the time by the physical signs which are found presenting when the mastoid is opened. Briefly they are, at times the presence of a necrotic area of bone over and around the sinus, with usually an epidural collection of pus, commonly called a perisinuous abscess. The dura covering the sinus wall is at times thicker than normal and darker in color, or it may present a lusterless appearance, darker at one point than another, and usually the lower end toward the bulb is a whitish or gray color. At times there is a grayish plastic exudate adherent to the sinus wall, the sinus looks flat and does not present a rounded appearance when divested of its bony covering, is easily compressible, and does not fill quickly when pressure is removed. In the absence of previous symptoms referable to sinus involvement the presence of an epidural or perisinuous abscess is not a positive indication for opening the sinus; it is only when the physical signs above described are present, with or without the epidural collection of pus. Neither should the sinus be molested if the dura covering it be protected by granulations, for this is Nature's effort to combat the presence of disease.

Bacteriologic examination of the discharge from the ear is of value in certain cases, as when the bacillus of Friedlander is found the infection is prone to greater activity, travels more rapidly, and the sinus and vein are involved earlier than in many of the other forms of infection. Another valuable aid in diagnosis is the differential blood count, not so much for determining whether a leucocytosis is present as to determine the polynuclear percentage. For example, if we find a differential count showing a polynuclear percentage of over 80, no matter what the leucocyte count may be, whether great or small, we are almost certain to find an infective process which calls for surgical intervention. The leucocyte count is of value only in giving us information as to the patient's resistence to the disease.

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[2] Since the original communication on Primary Jugular Bulb Thrombosis was published, thirty-six cases have been reported to me from different sections of the United States, Canada and Great Britain.

In the third class of cases, namely, when the bulb and sinus are primarily involved, the diagnosis is made almost entirely from the rapid excursions of temperature closely following an acute purulent otitis. Bacteriologic examination of the discharge from the ear is of value here as in the other cases. The same is true of the differential blood count, and the utmost importance should be attached to it; when the polynuclear proportion is found to be between 85 and 95 per cent. I believe this is a positive evidence that the patient is suffering from an acute septic process. As a still further aid in diagnosis all diseases should be ruled out by a process of elimination before operation is decided on.

TREATMENT.

No hard and fast lines can be laid down by saying that the same method should be followed in all cases, but we should treat each individual case as seems best to us at the time we are dealing with it. The treatment in the first and second class of cases does not materially differ. When a diagnosis of sinus phlebitis has been made the bony covering should be removed from the sinus from a point above the bend or knee down to the region of the bulb. Too much bone should not be removed posteriorly so as to uncover a large dural area over the cerebellum, as it is in this region that a hernia is liable to occur rather than at other points, and its occurrence is usually invited when a large amount of the bony covering posterior to the sinus has been removed. After the sinus has been exposed a small piece of iodoform gauze should be rolled up and placed over the upper end of the exposed sinus and pressed firmly under the edge of the bony groove so as to cut off the circulation in the vessel, should it be present. A similar piece of gauze should now be placed over the sinus in the region of the bulb and pressure exerted here, after which the dura forming the anterior sinus wall should be incised freely with a scalpel or scissors, between these points, and the contents of the sinus evacuated. Should we be unable to obtain a flow of blood from the distal end of the sinus after the pressure has been removed in this region by taking the roll of gauze away, then we should make a further exposure and proceed backward as far as the torcular, providing we do not secure a free return flow of blood before reaching it. For if we do not obtain a blood current in this region sufficiently free to show that all obstruction has been removed our patients do badly subsequently, either from an extension of the infective process to other blood channels or from an encephalitis which may develop one or two weeks later, caused by an extension from the infection we have left in this region.

When pressure has been removed from the bulbous portion of the sinus we at times encounter a free return flow of blood, but whether the source of such hemorrhage be from the internal jugular vein or from the inferior petrosal sinus, we are unable to say, for it is as likely to come from one as the other. Nevertheless, when such a free return flow is present, and the sinus above contained, on opening it, a parietal or firm and non-disintegrated clot, we usually end the operation here by packing gauze into the sinus and await further developments. If, on the other hand, we find on opening the sinus, pus or a disintegrated clot present, we should desist from any further manipulations above at once, protect our already exposed field of operation and proceed at once to expose, ligate and resect the internal jugular vein from a point below at the clavicle to its exit from the skull. Should any of its tributaries be found involved they also should be ligated and resected well beyond any point of visible involvement. All diseased glands encountered during the resection of the vein should be removed. After this has been done the contents of the sinus should be evacuated above.

In many cases where the vein has been removed primarily before the evacuation of the sinus contents from above we find that the return flow from the bulb region is quite as free as we would expect to find it if we had the internal jugular vein carrying on its usual function, the blood coming no doubt from the inferior petrosal sinus. If, as occasionally occurs in this region, we are unable to obtain a return flow of blood from the bulb after the vein has been removed below it means that the inferior petrosal sinus is involved in the phlebitis. When such a condition confronts us (which, fortunately, is not frequent) we should, if the patient's general condition will allow it, expose the inferior petrosal sinus and remove the obstruction, as otherwise we are courting danger by allowing an infective process to remain, which may at any time cause further trouble. Should the superior petrosal sinus be found involved in the phlebitis it should be exposed and treated in a like manner.

In phlebitis of the internal jugular vein, complicating a similar condition of the sinus above, the first step in the treatment should be the exposure, ligation and removal of the vein, and this should be followed by evacuation of the contents of the sinus above. The method of treating the neck wound is optional, whether by the open method—to be later drawn together by straps, or by suturing at the time of the operation and inserting a large cigarette drain. I prefer the latter method, with wet saline dressings, changing every twenty-four hours, and each time the dressings are re-applied a small portion of the drain is removed, so that at the end of the fourth or fifth dressing the drain has all been removed and, in the majority of cases, primary union accomplished.

In the cases of primary involvement of the bulb and sinus, the patients being nearly all young children, the ideal treatment would be the same as in our other cases, but here we must remember that these cases are caused by a primary infection of the blood current, and when operated on early the percentage of recoveries is in favor of removing the clot without ligating the vein. For these little patients do not bear prolonged operations well, and it is a matter of much more difficulty to ligate and resect the internal jugular vein in a very young child than it is in an adult, for we have to deal with a neck that is short and chubby, and usually a number of enlarged glands to encounter, which prolong the operation, many times beyond the safety point. If, however, ligation becomes necessary later, owing to lack of favorable progress in our patient's condition, it can be done rapidly without subjecting these little ones to the added risk of a prolonged operation.

It must be said, however, that in this class of cases, when a so-called free hemorrhage is obtained from below, we can never be sure that all infective material has been removed, for so far it has been an impossibility to pass a curette from above into the jugular bulb, and in all probability a large number of our patients operated on without ligation of the vein have some infective material left in this region, not, however, in such quantity that the system can not care for it, for were this so such cases would all be fatal. There is a type of cases in these young children to which strong exception must be taken to the conservative method of treatment, namely, those cases when on opening the sinus pus or a broken down clot be found. When such a condition exists, whether there be free hemorrhage at the bulb or not, I believe it is imperative for the safety of the patient that the vein be removed at once.

The treatment of the metastatic deposits may be either palliative or operative. When palliative the ice pack is used or the affected part may be enveloped in cloths saturated with the oil of gaultheria. A solution of lead and opium has also been used with good results. If pus once forms in the tissues affected the parts should be opened freely, drained and treated on general surgical principles.

A word about those cases of otitic phlebitis that show, prior to the operation, all of the positive evidences of an infective process present in the sinus and yet when we explore the sinus no clot can be demonstrated, but the patient begins to improve and goes on to complete recovery. What is the explanation? Simply that we had a small parietal or central thrombus to deal with and that when the sinus wall was freely incised there was a sudden gush of blood outward, which carried the clot with it, and many times careful search will reveal such a thrombus adherent to the towels surrounding the patient's head or neck or to the gauze that has been used in sponging.

In all cases of otitic phlebitis in which the patients were operated on with or without ligation and removal of the vein, when a varying postoperative temperature curve is shown, it means that there is still some infective material being displaced from time to time. The patients improve, notwithstanding, because the greater part of it has been removed and the system, thus strengthened, is enabled successfully to care for what remains. In all operative cases the time element is one that enters largely into a favorable prognosis, for the shorter the time that we keep our patients on the operating table the quicker will be their convalescence. I am convinced that our results would be better did we operate during the temperature remissions rather than when the temperature is at its height, for if operation takes place while the temperature is low the system certainly has more reactive power, there is less depression, and a more rapid convalescence surely follows.

62 West Fifty-second Street.

DISCUSSION.

Dr. E. E. Holt, Portland, Me., said that he agreed with Dr. McKernon's arrangement of the symptomatology and that the variations in the temperature from the normal were of first importance. In typical cases, the sudden rise of temperature, together with the quickened pulse, furred tongue, glassy eyes, dry, yellowish skin, give a clinical picture that points to involvement of the veins in connection with inflammation of the middle ear. Not infrequently the otologist opens the mastoid and removes the outer bony wall of the lateral sinus to find nothing to warrant him in opening the membranous lateral sinus. The patients, too, make good recoveries. It is probable that the free drainage gives the patient a better chance to recover. There are other cases in which the clinical picture is as complete, in which from one cause or another no operation is done and the patient finally makes a good recovery. Dr. Osler says: "Pyemia is a disease frequently overlooked and often mistaken for other affections." If this is true in general it is especially true in regard to sepsis from inflammation of the middle ear, and it must follow that there are many cases of otitic phlebitis in which Nature overcomes the difficulty, but this is not mentioned as an excuse for not treating these patients according to well-established surgical principles. As the variation in the temperature from normal is one of the greatest sources of information in phlebitis it can not be too strongly urged that the clinical thermometer should be used frequently. Dr. Holt has no doubt, he asserted, that this variation in temperature has been missed many times, because it has not been taken often enough. But, however important the variation in the temperature may be, it must not be depended on alone, but keep constantly in view other symptoms and the general condition of the patient.

In this connection he referred to a case in which ablation of both mastoids was followed by one of the most remarkable variations on record in the temperature of the different parts of the body at the same time, and of the whole body at different times. There existed extreme high temperature in the mouth, with extreme low temperature in the rectum, then changing to low temperature in the mouth, with extreme high temperature in the rectum, again changing to extreme high temperature in both mouth and rectum, to be followed by extreme low temperature in both. The extremes of temperatures were not measured by any available thermometers that registered from 94° F. to 114° F., and four thermometers were broken by the intense heat. Later amblyopia developed in both eyes. There was complete recovery. (The report was published in the *Journal of Medicine and Science*, May, 1902.)

In septicemia in general, chills are regarded as one of the most important diagnostic points to determine. He is inclined to think that they were present in a larger percentage of the cases he has observed than that given by Dr. McKernon. It is often very difficult to find out that they did occur, because that stage is passed and more serious conditions engage the attention of the patient and his attendants. The pulse usually increases in frequency with the rise in temperature, but in Dr. Holt's experience it has not, in some cases, shown a corresponding variation from the normal. In older persons the respirations may not be noticeably increased except in the more serious cases. Pain in the posterior part of the mastoid and occipital region, loss of appetite, nausea and vomiting are usually present. Dr. Holt has repeatedly examined the eyes, and only in a few cases has he seen any inflammation of the fundus referable to the middle ear. The atypical cases, or those following operations on the mastoid, in which apparently every indication was met at the time of operation are the cases that give us the greatest concern. The mastoid operations, as Dr. McKermon says, usually do well for a time, then symptoms come on indicating involvement of the veins. These cases are a source of great concern both to the surgeon and to the patient, because they are so unexpected, and instead of the patient getting better he is getting worse. This is often apparent to the friends and relatives of the patient, as it is to the surgeon, and it gives rise to doubt and anxiety on the part of all concerned. As surgeons we must expect to take our share of such cases and we must be prepared to explain the cause and act for the best interests of the patient, though it involves another operation on a patient whom the relatives and friends think can hardly survive it. It is a satisfaction to the surgeon to know that in almost all the cases health is finally restored to these patients, but it takes courage and prompt action to carry them through. In regard to cases in which the bulb and sinus are primarily involved in acute purulent inflammation of the middle ear, Dr. Holt's thinks that Dr. McKernon's explanation of the cause is acceptable, for it gives a reasonable explanation of the etiology of this unusual complication. The wonder is that it does not happen oftener, for earache followed by suppuration is common to almost every child some time during adolescence.

[Note: In addition to this discussion, the whole subject of middle ear disease received a general discussion which will follow later.]

SERUM DIAGNOSIS OF SYPHILIS.*

PAUL FLEISCHMANN, M.D.
Clinical Assistant, First Medical Clinic, University of Berlin.
BERLIN.

AND

WILLIAM J. BUTLER, M.D.
Assistant Professor of Diseases of Children, Rush Medical College, in Affiliation with University of Chicago.
CHICAGO.

Of the recent advances in serology there is hardly any phenomena which seems to promise the attainment of such practical clinical importance as the method developed by Wassermann for the demonstration of antibodies in the body fluids of syphilitics.

By this method, of the value of which we have been persuaded as the result of our own investigations, one is enabled to determine with almost positive certainty, in a large number of cases, the existence of syphilis in an individual irrespective of the length of time he has had his infection.

It may be asserted, but with reserve, that the scope of this test seems to extend beyond diagnosis and to allow one to judge in some degree the efficacy of previous treatment and also to venture some judgment as to prognosis.

The first communication on this subject was published by Wassermann, Neisser and Bruck.[1] They called attention in this article to the possibility of demonstrating *in vitro* syphilitic antibodies in blood serum and specific material in syphilitic tissues.

Through further extensive experimental work of Wassermann and his school[2] this matter was placed on a broad basis, not restricted to the finding of antibodies only, but also syphilitic virus. For this latter purpose Neisser, Bruck and Schuch made extensive examinations of extracts of red corpuscles of luetics. These examinations, however, do not seem to us to be convincing.

Its first application in clinical medicine was made by Wassermann and Plaut.[3] They found syphilitic antibodies in the spinal fluid of 78 per cent. in forty-one cases of progressive dementia.

The demonstration of specific antibodies in the spinal fluid and serum of luetics was confirmed by Detre,[4] Schutze,[5] Morgenroth and Stertz[6] and Marie and Levaditi.[7] The three last named authors examined the spinal fluid of dementia paralytics and tabetics. Through the demonstration of luetic antibodies in a large percentage of the cases they were able to confirm the syphilitic etiology of a large proportion of these diseases. During the examination of a considerable number of control cases not dependent on a luetic infection Marie and Levaditi obtained uniformly negative results.

The examination for antibodies was applied by Bab[8] to the milk of syphilitic women, and in all four examined he was able to demonstrate syphilitic antibodies. Citron[9] has recently applied this reaction to a large number of clinical cases with striking results.

Before entering into a discussion of our own examinations we will attempt to explain the principle and technic of the method employed by Wassermann.

The principle consists in the fixation of complement, a phenomena first observed by Bordet and Gengou.[10] In order to make clear the method it would be best to describe it in detail.

It is a well-known fact that if you introduce the red blood corpuscles of one animal *a* into another of a different species *b*, the blood of the latter acquires the power to dissolve the blood corpuscles of *a* when mixed with them in a reagent glass. This reaction is termed hemolysis. The acquired hemolytic property is dependent on two substances. One of these is present in the blood of every animal and is known as complement. It is thermo-labile, that means it is rendered "inactive" by heating the blood to 132 F. for half an hour. The other substance, which results from the reaction of the injected animal against the injected blood corpuscles, is thermo-stabile (withstands heating to 132 F.) and is known as "immune-body" or "hemolytic amboceptor."

The name amboceptor is derived from the fact that it has affinity on one side for blood corpuscles of the species of animal *b* from which they were taken for injection, and on the other side for the substance described above as complement, this latter union taking place only after the first mentioned affinity has been satisfied.

These three substances comprise what is known as a hemolytic system and their combination leads to hemolysis, which means that an opaque suspension of blood corpuscles is rendered transparent or "laked."

If an hemolytic serum is inactivated (by heating to 132 F.) before adding to the suspension of blood corpuscles, hemolysis will not occur. But if to this mixture of inactivated blood serum and blood corpuscles the serum of any other animal (every fresh blood serum contains complement) is added, reactivation of the inactivated serum takes place and hemolysis follows.

Parallel with the production of an hemolytic amboceptor by the injection of blood corpuscles the injection of other bodies, as bacteria (or albuminoid substances), gives rise to the formation of a corresponding amboceptor which likewise has the property to fix itself on the one hand to the corresponding bacteria, if the anti-serum is mixed with the bacteria or an extract of them, and on the other hand to complement. Bordet and Gengou took advantage of this principle to determine the nature of an infection by mixing the inactivated serum of the infected animal with the supposed bacteria and adding complement. If the serum in question contained immune bodies (amboceptor) against the bacteria, a union between bacteria, amboceptor and complement took place. If to such a mixture, after some time, blood corpuscles + inactivated specific hemolytic serum is added, solution of the blood corpuscles can not take place because the complement necessary for the hemolysis has been absorbed by the combination of bacteria + bacterial amboceptor. A solution would occur, however, in case that the serum did not contain immune bodies against the bacteria, as in this case free complement would persist and be ready for union with the hemolytic amboceptor + blood corpuscles. It is clear that this method not only admits of demonstrating antibodies (immune bodies) in a serum containing them, but also admits, in case we have a serum of known antibodies, of demonstrating the substances which gave rise to their formation.[11] The above is the principle of the method applied by Wassermann, Neisser and Bruck to the demonstration of antibodies in the body fluid of syphilitics or of antigen in syphilitic organs.

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* From the First Medical Clinic of the University of Berlin.

[1] Deutsche med. Wochschr., 1906, xix, p. 745.

[2] Neisser, Bruck and Schuch: Deutsche med. Wochschr., 1906, xlviii, 1937. Wassermann, Neisser, Bruck and Schuch: Zeitschr. f. Hygiene, vol. lv, 3d part, p. 451.

[3] Deutsche med. Wochschr., 1906, xliv, 1769.

[4] Wien. klin. Wochschr., 1906, xxi.

[5] Berl. klin. Wochschr., 1907, v.

[6] Virchow Archiv., clxxxviii, No. 1.

[7] Anns. de l'Institut Pasteur, 1907, No. 2.

[8] Fol. hæmat., 1907, iii, p. 437.

[9] Verhandl. d. Ver. f. inn. Mediz., June 3, 1907. Will appear in the Deutsche med. Wochschr.

[10] Anns. de l'Institut Pasteur, 1902.

For the carrying out of the reaction the following substances are necessary:

1. As antigen: Extract of liver or spleen of a syphilitic new-born, and as control similar extracts of normal organs.
2. As antibodies: The serum or spinal fluid of the suspected syphilitic person, and as control the serum of a non-syphilitis.
3. As complement: Guinea-pig serum (or any other fresh normal serum).
4. As hemolytic inactivated serum: Preferably the serum of a rabbit previously treated with washed lamb's blood corpuscles.
5. A 5 per cent. suspension of washed, defibrinated lamb's blood corpuscles.

ORGAN EXTRACTS.

In detail the preparation of the necessary substances is, according to Wassermann, as follows:

1. The syphilitic and also the normal organs are, as quickly and aseptically as possible, cut up finely and dropped into physiologic salt solution in the proportion of 1 gram organ to 5 c.c., to which phenol (carbolic acid) is added to the extent of ½ of 1 per cent. This ½ per cent. phenol salt solution is placed in a shaking apparatus and constantly shaken for twenty-four hours. The organ extract so obtained is centrifugated to complete clearness of the overlying liquid, which is decanted off and kept on ice ready for use.[12]

2. The sera, secured either by coagulation or by immediate defibrination and centrifugation, and the spinal fluid are, as soon as possible after obtaining them, inactivated.

COMPLEMENT.

3. Guinea-pig blood is defibrinated and centrifugated, or obtained by coagulation.

4. Hemolytic serum, prepared as previously indicated by injecting a rabbit with washed lamb's blood corpuscles. This injection is usually repeated at intervals of one to several weeks, two injections being usually sufficient, and the blood taken from rabbit about eight to ten days after last injection. It is necessary that this serum be of high power, that is, that 1 c.c. dissolves, in attenuation of 1 part of serum in 1,000 to 2,000 parts of salt solution, with guinea-pig serum in the quantity of 0.1 c.c. as complement, 1 c.c. of a 5 per cent. suspension of red blood corpuscles in two hours.

5. The red blood corpuscles are prepared by defibrinating. To 5 c.c. of the blood so prepared, salt solution is added and the mixture centrifugated. This process is repeated two or three times in order to remove all serum. After pouring off the salt solution 100 c.c. of salt solution are added to the blood corpuscles, making a 5 per cent. suspension. It is necessary to note that the quantities of the different substances employed may at times have to be varied because of the varying power of the active constituents of same.

In general the following proportions are used and usually prove satisfactory. The substances are so diluted with salt solution that each c.c. represents the necessary quantity employed in the reaction. Into a test tube pour 1 c.c. of a 20 per cent. physiologic salt solution of the syphilitic liver extract (= 0.2). Add to this 1 c.c. of a 20 per cent. solution of the suspected syphilitic serum (= 0.2). Then add 1 c.c. of a 10 per cent. solution of the guinea-pig serum (= 0.1), shake and place in incubator for forty-five minutes. Remove and add hemolytic amboceptor (the quantity of the latter used is twice the amount found necessary, with the above quantity of complement, to dissolve 1 c.c. of a 5 per cent. suspension of red blood corpuscles in an incubator in two hours) and 1 c.c. of the suspended erythrocytes. The result of the reaction is determined after the reagents have been two hours in an incubator and twenty-four hours on ice.

To assure accuracy of the test, all tubes should contain the same quantity of fluid, and where one or more of the substances are not used in the controls mentioned below the difference should be made up with salt solution.

A series of controls absolutely essential to judging the result of the reaction are carried on at the same time. The essentials to be fulfilled by the controls are as follows: 1, That none of the employed substances alone (as sometimes occur) bind complement; 2, that the absorption of complement occurs only between the specific liver extract and syphilitic serum.

It is, therefore, evident that the following controls are necessary (also see protocol):

1. Suspected syphilitic and normal serum (Tubes 4, 5 and 8, 9).
2. Suspected syphilitic serum with normal liver extract (Tubes 10, 11).
3. Syphilitic liver extract without serum (Tube 3).
4. Normal liver extract without serum (Tube 12).
5. Syphilitic liver extract with normal serum (Tubes 6, 7).
6. Suspected serum and control serum alone, without liver extract or complement, in order to see if they were sufficiently inactivated (Tubes 19, 20).
7. Liver extract (both syphilitic and normal), without complement and hemolytic amboceptor, to see that they do not dissolve blood corpuscles alone (Tubes 15, 16).
8. Complement, amboceptor and blood corpuscles to demonstrate the hemolytic action (Tube 17).
9. (a) Amboceptor and blood corpuscles (Tube 21) and (b) complement and blood corpuscles (Tube 18) alone. Solution should not occur.
10. Normal liver extract and normal serum (Tubes 13 and 14).

The application of the reaction is at times accompanied by certain difficulties which render its interpretation uncertain. Chief among these may be mentioned the organ extracts which, aside from the variability of the amount of specific material they contain, sometimes undergo suddenly such change that they lose their antigen, or they begin of themselves to fix so much complement that they can not be further used in the quantities necessary for the reaction.

The specific luetic reaction of Wassermann has been questioned by Weil,[13] who, proceeding from the observation of Levaditi that luetic serum caused a slight binding of complement when mixed with normal liver extract, experimented with carcinoma extract and claims to have observed a binding of the complement when same was substituted for luetic liver extract in the reaction with luetic serum. Reasoning on this basis, he questions the specificity of the complement fixation with luetic liver extract and luetic serum.

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[11] All substances which, when injected into animals, are capable of producing antibodies are in general called "antigen."

[12] Other methods of preparing the extract, with which we have no personal experience, are described by: 1. Levaditi and Marie, who dried the organs in a vacuum, pulverized them and took for every experiment as much as was required. 2. Morgenroth, who conserved the organs by freezing them and prepared the extract as needed by rubbing up with sea sand and salt solution and filtrating and centrifugating to complete clearness.

[13] Wien. klin. Wochschr., 1907, 18.

So far as the slight complement fixation noticed with normal liver extract is concerned, we can confirm the observation of Levaditi, but this slight complement fixation manifests itself only through a little retardation of the hemolysis and does not in any manner lessen the value of the method.

In regard to the explanation of this phenomena, one of us (Fleischmann[14]) has expressed the opinion that we do not prove by this method antibodies against *Spirochæta pallida,* but against metabolic products which appear in a large proportion in the syphilitic organism, and which give rise to the formation of antibodies, but which seem to be present in much less quantity, not giving rise to the building of antibodies, in the normal liver and spleen.

The protocol of an examination with positive results would, therefore, read as follows:

PROTOCOL.

Numbers of the tubes.	Congenital luetic liver extract (0.2 = 1.0 of the attenuation 1:5).	Serum of the tabetic K (0.2 = 1.0 of the attenuation 1:5).	Normal guinea-pig's serum (0.1 = 1.0 of the attenuation 1:10).		Hemolytic amboceptor (0.001 = 1.0 containing double the dissolving dose).	Lamb's blood, 5 per cent.	Result after two hours in incubator and twenty-four hours on ice.
1..	0.2	0.2	0.1	Tubes were then incubated for 45 minutes at 37° C.	0.001	1.0	No solution.
2..	0.2	0.1	0.1		0.001	1.0	Tr. of solution.
3..	0.2	...	0.1		0.001	1.0	Comp. solution.
4..	...	0.2	0.1		0.001	1.0	Comp. solution.
5..	...	0.1	0.1		0.001	1.0	Comp. solution.
	Congenital luetic extract.	Serum of a non-luetic person.					
6..	0.2	0.2	0.1		0.001	1.0	Comp. solution.
7..	0.2	0.1	0.1		0.001	1.0	Comp. solution.
8..	...	0.2	0.1		0.001	1.0	Comp. solution.
9..	...	0.1	0.1		0.001	1.0	Comp. solution.
	Normal liver extract of newborn.	Serum of the tabetic K.					
10..	0.2	0.2	0.1		0.001	1.0	Comp. solution.
11..	0.2	0.1	0.1		0.001	1.0	Comp. solution.
12..	0.2	...	0.1		0.001	1.0	Comp. solution.
	Normal liver extract of newborn.	Serum of a non-luetic person.					
13..	0.2	0.2	0.1		0.001	1.0	Comp. solution.
14..	0.2	0.1	0.1		0.001	1.0	Comp. solution.
15..	0.2	...	..		....	1.0	No solution.
	Congenital luetic liver extract.						
16..	0.2	...	..		....	1.0	No solution.
17..	...	...	0.1		0.001	1.0	Comp. solution.
18..	...	...	0.1		....	1.0	No solution.
19..	...	0.2	...		0.001	1.0	No solution.
		Serum K.					
20..	...	0.2	...		0.001	1.0	No solution.
21..	...	...	...		0.001	1.0	No solution.

After this exposition of the method we will present the results of our own investigations in the following cases:

A. Cases with Syphilitic Anamnesia, in Whom the Blood Serum or Spinal Fluid Gave a Positive Reaction for Syphilitic Antibodies.

CASE 1.—G., aged 35, slaughterer. Acquired syphilis in 1895. Received treatment at several different times. Last treatment 1902. Examination of the spinal fluid for antibodies negative. Examination of serum for antibodies gave marked positive reaction.

CASE 2.—B., aged 39, waiter. Syphilis at 18 years; received eight inunctions following his infection; at 26 years had large ulcer on hip and back. Inunction cure. Present diagnosis: Liver cirrhosis. Examination of serum gave positive result.

CASE 3.—B., aged 44, tailor. Syphilis in 1894. Injection cure at that time. Apoplexy in 1902. Injection cure. Improvement. Present diagnosis: Cerebrospinal syphilis. Inunction treatment from March to June of this year. Serum gave slight positive reaction.

CASE 4.—S., aged 42, carpenter. Syphilis acquired 20 years ago. Following infection received potassium iodid; thereafter untreated. Present diagnosis: Tabes. Serum gave slight positive reaction.

CASE 5.—G. N., aged 34, barber. Syphilitic infection in 1894. First half-year treated continuously. Thereafter free from symptoms, and untreated. Syphilitic manifestations present. Reaction, markedly positive.

CASE 6.—A. W., aged 21, laborer. Syphilis acquired October, 1906, had inunction and injection treatment after infection. When seen single papule on skin of abdomen. Reaction, slightly positive.

CASE 7.—G. K., aged 43. Syphilis in 1897. Two injection and inunction cures following the infection. Diagnosis: Tabes. Inunction cure started June 5. Serum test made June 19. Marked positive reaction.

CASE 8.—U., aged 42, widow. Syphilis 18 years ago. Inunction cure at time for two or three weeks. In 1900 potassium iodid. In 1903 apoplectic seizure. Diagnosis: Tabes. Treated from February, 1907, to May with inunctions and injections. June 25, serum gave marked positive reaction.

CASE 9.—M., aged 49, leather worker. Syphilis in 1878; one injection cure following. Free from symptoms thereafter. Diagnosis: Arteriosclerosis and myocarditis, with stasis. June 26, serum gave slight positive reaction.

CASE 10.—C. W., aged 29, artist. Syphilis 1899; eight injections following infection. June 17, 1907; hemiplegia. Spinal fluid, marked positive reaction.

CASE 11.—T., aged 33. Syphilis in 1899. Well treated. Status: Enlarged inguinal glands; otherwise free from symptoms since 1901. Serum, slight positive reaction.

CASE 12.—L., aged 26, musician. Syphilis 1902. Cure in Charité followed and several cures thereafter. Last cure completed fourteen days previously. Complained of headache; otherwise free from symptoms. Serum, marked positive reaction.

CASE 13.—K., aged 53, merchant. Lues at 23 years. Inunction cure. Fifteen years later, ulcer. Diagnosis: Tabes. Serum, very marked positive reaction.

CASE 14.—D., agd 57, brewer. Acquired syphilis in 1882. Hemiplegia 1886. Second apoplexy in 1904. Diagnosis: Anteriosclerosis with cerebral softening. Serum; slight positive reaction.

CASE 15.—P. K., male, aged 26. Infection six years ago. Well treated. Neurasthenic symptoms. Serum reaction slightly positive.

CASE 16.—H. L., male, aged 30. Had chancre on lip five and one-half years ago. No treatment for a considerable time. Reaction marked.

CASE 17.—W. S., male. One week following Easter, 1907, had hard chancre. Untreated. Said not to have any symptoms when seen. Reaction, marked.

CASE 18.—J. G., aged 39, merchant. Last treatment year and a half ago. Had in all eight or nine cures and, with one exception, when he received injections, always was treated by inunctions. Reaction, moderate.

CASE 19.—W. G., male. May 6, 1906, hard chancre. Two thorough inunction cures, each consisting of 30 rubbings of 3 grams each. When seen had mucous patches on tongue and in mouth. In treatment recently started had had twenty inunctions and had taken internally twelve bottles of a potassium iodid solution. Reaction, marked.

CASE 20.—O. H. G., clothing cutter. Syphilis in 1902. Treated at this time. Had just completed an inunction cure when seen. Reaction, marked.

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[14] Verhandl. d. Ver. f. Inn. Med., June 3, 1907.

Case 21.—K. K., aged 39, woodworker. End of January, 1907, had chancre. In March inunction cure (twenty-two rubbings). During three weeks of April treated internally with pills; thereafter potassium iodid. When seen, inguinal glands of left side swollen. Reaction, slight.

Case 22.—L. K., aged 27, merchant. September 18, 1906, chancre. Had two inunction cures (consisting of thirty rubbings of 3 grams each). When seen, cervical gland swelling; angina, the latter apparently unassociated with specific infection. Reaction, very slight.

Case 23.—K. S., aged 21, woodworker. One year ago chancre durum. From May 16, 1907, to June 18, inunction cure thirty rubbings). Status: Alopecia; papules on neck. Reaction, marked.

Case 24.—H. H., aged 32, farm hand. Ten years ago ulcer on penis. Jan. 17, 1907, fissure ani. Never treated for lues. Mucous patches on margins of tongue. Reaction, very marked.

Case 25.—W. V., aged 25, photographer. February, 1907, chancre. Manifestations: Alopecia and adenopathy. Had had thirty inunctions. Reaction, slight.

Case 26.—W. F., aged 25, laborer. Had chancre in 1901. Noticed three weeks ago papule on tongue. Inunction cure recently started, when seen. Reaction, marked.

Case 27.—M., aged 37, housewife. Diagnosis: Tabes. Reaction, marked.

Case 28.—F. M., aged 27, tinsmith. Chancre November, 1905. First cure in December, 1905. In all five inunction cures. The last was finished at Christmas. Recent manifestations. Reaction, marked.

Case 29.—O. K., male. Syphilis twelve years ago. No treatment. Present status: Liver enlarged. Gastric symptoms. Lost greatly in weight in past six months. Reaction, marked.

B. *Cases with a Syphilitic Anamnesia that Gave a Negative Result.*

Case 30.—X., aged 32, gold worker. Syphilis in 1895. Well treated. In past two years sixty steam baths. Last cure in 1907. Status: Free from specific symptoms or manifestations; neurasthenic. Serum reaction negative.

Case 31.—W. M., male, aged 37. Lues in 1893. Had two courses of treatment with hydrargyri salycilicum. In 1905 endarteritis obliterans, with speech disturbance. Treated with inunctions and injections. Diagnosis: Tabes incipiens.

Case 32.—E. L., aged 25, wife of H. L. (Case No. 16). Primary lesion on lip. Inunction cure just finished.

Case 33.—A. R., aged 21, carpenter. October, 1906, had hard chancre. Treated since January. Cure just completed when seen.

Case 34.—O. L., cabinet maker. Acquired lues two years previously. Not thoroughly treated at time. Last year one inunction cure and one injection cure. Was taking potassium iodid when seen.

Case 35.—H. A., aged 20, carpenter. About nine months previously had chancre. Treated in Charité, received 20 injections. In past four weeks had been treated by inunction (already had had 20 rubbings).

Case 36.—G. B., aged 22, leather worker. In March, 1907, had ulcer on penis. Adenopathy. No other manifestations. Being treated, when seen, by inunctions, having had 15 of 5 grams each.

Case 37.—G. B., aged 24, laborer. Feb. 20, 1907, had chancre. Alopecia. Treated by inunctions; had had 50 rubbings.

Case 38.—Z., 38, painter. Lues in 1878. Cure, 1904. June 18 to 26 inunction cure. Diagnosis: Tabes. Serum examination June 28, negative.

C. *Cases with a Negative Anamnesia as to Syphilis, in Whom the Reaction for Syphilitic Antibodies was Found Positive.*

Case 39.—P., aged 43, housework. No knowledge of syphilitic infection. Diagnosis: Aortic aneurysm, dating back four years. Marked positive reaction.

Case 40.—M. B., male, aged 45. No knowledge of infection. Three weeks previously an eruption appeared on body which was diagnosed as luetic. Reaction very marked.

Case 41.—W. K., aged 23, office clerk. No recollection of chancre. For 14 days previously, eruption; also noticed couple of small papules on anterior part of penis. Untreated. Doubt as to cause of eruption exists. Reaction, marked.

D. *Uncertain Anamnesia with Negative Results.*

Case 42.—B., aged 32, mechanic. Four years previously had what his physician termed inflammation of the prepuce. For past six weeks pain and burning on the tongue. Never treated. Sent for diagnosis.

Case 43.—K., aged 46, housewife. Several abortions. Diagnosis: Mitral stenosis; tabes dorsalis. Treated for long time with potassium iodid. Serum reaction negative.

Case 44.—A. K., aged 53, housewife. Therapy: Potassium iodid. Diagnosis: Taboparalytic. Spinal fluid, reaction negative.

Case 45.—M. M., aged 33, housewife. History of five abortions and two births. In March, 1907, inunction cure. Diagnosis: Tabes. Spinal fluid gave negative reaction.

E. *Control Cases.*

Case 46.—Sepsis. Spinal fluid negative.

Case 47.—Commotio cerebri. Spinal fluid negative.

Case 48.—Myelitis. Serum reaction negative.

Case 49.—Tuberculous meningitis. Serum reaction negative.

Case 50.—Arteriosclerosis (80 years old). Serum reaction negative.

Case 51.—Pulmonary tuberculosis with amyloid. Serum reaction negative.

Case 52.—Appendicitis. Serum reaction negative.

Case 53.—Cerebral tumor. Serum reaction negative.

Case 54.—Pneumonia. Serum reaction negative.

In entering into a discussion of the above cases we will consider them in the order above employed, taking up, however, *Class A* and *Class B* together.

Class A and *Class B.*—Of the thirty-eight cases with syphilitic anamnesia twenty-nine gave a positive reaction. The remaining nine cases (*Class B*) with luetic anamnesia gave a negative reaction. Inquiry into the history of these revealed that all had been either recently treated or under treatment at time of examination. Also the cases that gave a slight reaction had either lately undergone a cure or were being treated (note Cases 21, 22 and 25). At least two of the latter show specific manifestations at present.

On the other hand the most marked reaction was found in those cases that were either untreated or had not been well treated (note Case 24). In no instance did we examine a case with syphilitic manifestations that gave a negative result (except cases of tabes; see later). These results would suggest that the presence and strength of antibodies are influenced in a high degree by treatment and undoubtedly by the intensity of the infection and reaction of the individual. We are in this first mentioned observation and in its significance in full accord with Citron.[9]

Class C.—These cases are likewise of great interest and importance because the patients did not have any knowledge of previous syphilitic infection. The diagnosis of the etiologic relation of the diseases could only be decided by the sero-diagnosis (note Cases 39, aneurism; and 40 and 41, skin eruptions).

Class D.—Of no less importance appear the cases in whom, with a questionable anamnesia, the reaction proved negative. Note Case 42, in whom, with a questionable anamnese and no previous treatment, the reaction proved negative. The other cases of this class are tabetics, in two of whom we examined the lumbar fluid and in the other the serum. If we consider all cases of tabes examined by us we had out of ten cases five positive (all serum reactions) and five negative results (three with the serum, 2 with spinal fluid). It has been the experience of other observers that while in some instances the spinal fluid may prove negative, the serum may prove positive.

The results obtained in tabes do not, however, seem quite uniform in that Schutze[5] found antibodies in the lumbar fluid in eight out of ten cases examined. On the other hand, Citron had positive results chiefly with the serum and not with the spinal fluid; Levaditi found a positive reaction in the spinal fluid of two out of four cases.

We might mention that while symptoms of tabes, of course, on account of irreparable changes persist, the antibodies may as result of antiluetic treatment or other causes disappear. Much more uniform are the results obtained by authors in progressive dementia, with which, however, we have no experience.

Control Cases.—These cases, in whom the history and findings were absolutely negative as to specific infection, proved in every instance negative.

CONCLUSIONS.

If from our present examinations any conclusions are allowable it appears to us that the value of the reaction as a diagnostic measure is incontestable. A sure conclusion from a positive reaction seems certain. This is especially valuable in diseases in which the determination of their etiologic relation to syphilis is in question, and in which, if certain, so much depends on prompt antiluetic treatment.

Less definite conclusions can at present be deduced from the serum reaction as to other factors of the syphilis question, to-wit, contagiousness, indications for treatment and judgment of cure. It is self-evident that any statement as to the contagiousness of syphilis during the absence of the antibodies could hardly be made.

We do not think we would err in saying that the demonstration of antibodies in syphilitics is a tenable indication for treatment, as we must look on the presence of antibodies as evidence that the syphilis is still active. On the other hand, we have not the means of determining at present how far we can use the disappearance of antibodies in judging a cure.

It is true that during the course of, or following, treatment we may find either none at all or only a slight reaction, but we have not yet been able to follow the subsequent course of such cases. As to whether antibodies later appear, or their continued failure assures a cure, it is evident that this question could only be solved by the observation of a large number of cases over a long period.

We are aware that our investigations are too incomplete to admit of definite conclusions in every direction, but it appears to us that the importance of the subject has not up to this time been sufficiently appreciated, and can only be treated in a satisfactory manner by numerous and widespread workers in this field. This has been the chief incentive at this time for the publication of our examinations, hoping that they may stimulate others to similar investigations.

In conclusion we wish to extend our hearty thanks to Dr. Max Joseph of Berlin, who has been kind enough to place at our disposal his large polyclinic material.

The Outdoor Conscience.—Life in the open air, looked at from afar, is surrounded by as many terrors as the stairs of our childhood at night. Familiarity soon dispels these imaginary fears and in a short while we can not bear the close, stuffy rooms of our houses. We quickly acquire a fresh-air hunger that nothing else can satisfy. The fresh-air conscience is then awakened and the most important factor in the recovery of health has become a habit.—*Journal of the Outdoor Life.*

Special Article

TRAVEL NOTES FROM SOUTH AMERICA.

NICHOLAS SENN, M.D.
CHICAGO.

I. BRAZIL AND BAHIA.

INTRODUCTION—THE TWIN CONTINENTS OF AMERICA.

As an American and one who has seen much of the world, it has always seemed strange to me that the people of the twin continents of America know so little about each other. It is safe to make the statement that the average North American is more familiar with all the countries of Europe, Egypt, India and the Holy Land, than he is with his next-door neighbors, the sister republics of South America. North and South America are still parts of the same continent and will remain so until the connecting link is severed by the construction of the Panama Canal, when each twin will become a separate continent.

In glancing over the early history of the New World it becomes clear why the two continents have failed in cultivating closer relationships in commercial and educational affairs, and remain comparative strangers to each other. The estrangement came with the beginning of immigration to this continent. Soon after the discovery of America by Columbus the daring and adventurous Portuguese and Spanish explorers followed the coast of America southward, where they found the rich tropical vegetation, the climate congenial to them, and the prospects for finding gold and other treasures more promising than if they had turned their attention in the opposite direction. The glowing accounts which these early explorers brought to their respective countries insured an early and numerous immigration from Portugal and Spain, the former establishing settlements on the east, the latter on the west coast of South America, where their descendants remain until this day. These immigrants naturally kept in close touch with their mother countries, which at that time were mistresses of the sea. They adopted European architecture, continued to read the literature of their native tongues and remained true to their ancient customs and habits. Latin South America is to-day the prototype of Portugal and Spain.

On the other hand, North America attracted immigration from England, Scotland, Ireland, Germany, Holland and Scandinavia, and was settled by people who came not in search of fabulous treasures but to find new homes where they could cultivate the soil. Forests had to be cleared away, the great prairies had to be brought under cultivation, new waterways had to be established, great railway systems had to be constructed to bring within easy reach of access the remote parts of the country. All this meant hard and persevering work, but it procured a rapidly increasing population bent on speedy development of the vast and varied resources of the new country. Money and labor had to be borrowed from the mother countries to bring into existence our vast industrial enterprices.

The amalgamation of the different nationalities resulted in the formation of a new nation characteristic of the United States, a nation which established its own habits and customs, a nation noted for its energy and spirit of enterprise. Foreign customs and habits were soon cast off and a people has grown up with common interests and a common language.

The Church of Rome, so powerful an institution in all of the South American republics, has had very little influence in molding our political and social life and in controlling our educational institutions. Under the influence of religious liberty, our schools of all grades, public and private, have flourished and have reached a degree of perfection which many nations counting their age by centuries have failed to attain. Foreign languages are soon lost in the United States and are gladly exchanged for English, the common language, while the Portuguese and Spanish languages have obtained permanent footholds on the South American continent. During colonial times and when our nation was young and busily engaged in developing the varied resources of the country, we borrowed our literature not from any one country but from all countries whose immigrants came here to establish new homes. So in the course of time there has grown up a literature distinctly American, a rich literature the work of American authors. We have our own text-books written by American authors and specially adapted for the needs of our schools of all grades. The time is now opportune to cultivate closer affiliations with our sister republics in South America personally, commercially and in all matters pertaining to education.

I am sure the time is now at hand when it will be of mutual benefit to bring the members of the medical profession of both continents in closer touch. The Pan-American Medical Congress has not yielded the expected results. The last meeting, held in the city of Panama, from the point of attendance at least, was a complete failure. The only way to reach our South American colleagues and interest them in mutual scientific work and in the exchange of clinical observations and experiences is by cultivating their personal acquaintance, by visiting their medical schools, their clinics and their hospitals. Instead of making their customary visits to the old institutions of learning in Europe, let the American physicians visit more and more the medical men and medical institutions of the South American republics, and I am confident that the personal acquaintances made will be an inducement to our colleagues on the other side of the equator to become more familiar with our medical institutions and with the practice of our physicians and surgeons.

With the intention of becoming more familiar with medical affairs in the South American republics and with a desire to become acquainted personally with their leading medical men, I decided to spend my summer vacation this year in circumnavigating the South American continent and making excursions from different points into its interior. The tour will give me an opportunity to visit all the large cities at and near the east and west coasts and the inland trip from Mollendo, Peru, on the west coast, will bring me on the highest point of the great range of the Andes Mountains and to the interesting city of La Paz, the capital of Bolivia. My observations commenced with the city of Bahia.

BAHIA.

I left New York in company with Dr. Louis Livingston Seaman of New York City, on the Lamport and Holt S. S. *Byron* July 3, and landed at Bahia, Friday morning, July 20. The voyage was uneventful, but the heat in the cabins at times was very oppressive. Bahia is the oldest city in South America, the Bay of All Saints, on which it is located, having been discovered by Amerigo Vespucci in 1503. The present site of the city was chosen as the first settlement of the Portuguese in 1513. Bahia became the capital of Brazil in 1549 and remained as such until 1763, when the seat of government was removed to Rio de Janeiro. It holds its position as the stronghold of the Roman Catholic Church, as the archbishop of Bahia is the primate of Brazil. As a commercial city it antedates Rio de Janeiro, and has retained its share of the commerce with foreign nations, as its harbor is second only to that of the former, among Brazilian cities. Its present population is 225,000, the negro contingent being the largest. Negro slaves were first brought from Africa to the east coast of South America to cultivate the sugar plantations. Slavery was gradually restricted and was completely abolished in 1888. The negro has found in this part of Brazil a congenial climate, and political and social conditions most favorable to his happiness and prosperity. He has multiplied and flourished here like the most aggressive and persistent weeds of our fields and meadows. Many of the former slaves are now occupying important public positions, and there is nothing in the way of a negro attaining the highest rank in the army. His social position is on a level with that of the white man, and he enjoys the same privileges. He is an important element in the political affairs of the republic and his influence is eagerly sought by those who aspire to political honors. The native Indians have disappeared in this part of Brazil. I saw only a few men and women whose jet black straight hair and prominent malar eminences betrayed their aboriginal descent. The half-castes, the issue of amalgamation between Portuguese, natives and negroes, form a large part of the population of Bahia, while the pure blood Europeans are in the minority.

The city of Bahia has a beautiful location, occupying the narrow strip of low land in the form of a crescent, following the shore of the bay and the rugged bluffs behind it. The perennial verdure is strongly suggestive of its tropical location and the constant moisture from the heavy rains and vapors of the sea. For years Bahia was the hotbed of yellow fever and dreaded as such. The sanitary improvements which a more stable and enlightened government has inaugurated and enforced for a number of years have succeeded in removing this scourge and have made of Bahia a healthful city. The city is typical of all South American cities, in architecture, streets, sidewalks, parks, etc., all modeled after those of the mother country. Electric and mule tramways intersect the city in all directions, reducing the necessity of walking to a minimum. A complete system of sewerage and an abundant supply of pure drinking water have done much toward eradicating the diseases due to water pollution. The poor people obtain their drinking water from flowing wells which are to be found in different parts of the city. Water vendors obtain their supply from these wells and dispense it in small kegs, four of which the little darkies can carry, and for which the consumer pays a small sum, just enough for the seller to gain a meager day's wages. Public buildings and private residences are supplied with pure water by a private company. The general aspect of all the people of Bahia is one of contentment and moderate prosperity. The lower classes of the people are fairly well dressed and street begging is almost unknown. The men are below the average size, thin and wiry, while many of the women, especially the negresses, become very fat before they reach middle life. I saw very few cases of kyphosis or lameness, and no scarred necks, nor enlarged cervical glands, all of which would suggest that tuberculosis is not common. The ravages of tertiary syphilis are not infrequently seen, especially among the negroes.

THE MEDICAL SCHOOL.

The Medical School of Bahia is an old institution and one which enjoys a national reputation, as it draws many of its students from Rio de Janeiro, the much larger and capital city of the republic. It is the medical department of the ancient University of Bahia. It has an excellent location in the center of the city, facing the same public park as the cathedral. Recently it lost a number of its buildings by fire. All of these are now being rebuilt in more modern style and are nearing completion. The teaching is now confined to the main building, a large, square two-story building with numerous large windows, insuring an abundance of light for all the wide hallways and lecture rooms. For the visitor a very interesting feature of this building is the faculty room, the walls of which are covered with portraits in oil of the most distinguished professors of the past, all in academic dress. The hall for public lectures and exercises is large and exquisitely furnished. In the anatomy room I found three cadavers on marble slabs in process of dissection; although the weather was very warm the atmosphere was absolutely free from any offensive smell. All the lecture rooms are practically in the open air when all the large windows are opened. The present number of students is 500, including five women. The students are obliged to attend five years before they can come up for final examinations. The laboratory facilities are not what they should be, but this defect will undoubtedly be remedied after the completion of the new buildings.

THE MISERICORDIA CHARITY HOSPITAL.

Bahia has three hospitals, of which two, the Military Hospital and the Portuguese Hospital, are small. The Misericordia can accommodate 300 patients, all in large wards, as this hospital makes no special provision for private patients. The hospital is in charge of the Sisters of Charity of St. Vincent de Paul, twenty-five in number, and all French. The hospital is a large, square snow-white building, two stories high, in the center of grounds enclosed by a high wall surmounted by an iron picket fence, which gives the hospital the appearance rather of a prison than of a home for the sick. The hospital is divided into two equal parts by a court. One side is occupied by male, the other by female, patients. Each part has again its own open square decorated with shrubs and flowers. A broad hallway runs all around this court on both floors, where patients can enjoy the outside air and from which the different wards open. The wards are very large and high. The low, narrow iron cots are supplied with bedding adapted to the warm climate, as Bahia is one of the hottest places in Brazil. The hospital has no trained nurses, and the twenty-five sisters are assisted in their ward work by male helpers who have received no previous training. The medical and surgical attendance is furnished by the faculty of the medical college, and the internes are selected from the senior class. A surgical clinic is given every day, at which from two to three operations are performed. The new operating amphitheater is an exact copy of one I saw in Lisbon. The students are separated from it by a glass partition, and every window is sealed with one pane of glass, the object of this uncommon architecture of the operating room being to exclude the germ-laden atmosphere. The operating room is supplied with all appliances for aseptic work. Spinal anesthesia is being practiced on a large scale and seems to have found favor with the profession here, evidently in consequence of recent visits of members of the faculty to the surgical clinics of Paris. The Maternity Hospital is on the opposite side of the street from the Misericordia Hospital. It is a modern one-story building which furnishes ample obstetric material for clinical instruction in the art and science of this very important branch of medicine.

Bahia, Brazil, July 19, 1907.

(To be continued.)

Clinical Notes

A SPORADIC CASE DIAGNOSED AS PELLAGRA.

T. C. MERRILL, M.D.
COLORADO, TEXAS.

In connection with the report of a series of troublesome and indeterminate cases recently observed and studied at the Alabama Hospital for (colored) Insane, the following account may be of interest:

History.—Male, aged 42. Family history, except for the occurrence of epilepsy in a sister, was negative. Patient's history, prior to his present condition, was one of good health. He was first seen on July 4, 1907, and stated that he had been ill with a sore mouth for two or three weeks. He had been employing various mouth-washes without relief and there had been a progressive increase in bodily prostration. Aid had been summoned to his home at this time on account of his weakness and inability to travel from his dwelling to town. He complained of seeing spots before his eyes, was dizzy and had nausea without vomiting. Bowel movements were regular, feces varying in color from dark to light. Headache and backache were absent. There were no especial urinary symptoms and neither hemorrhages nor swelling, cuticular or otherwise. There had been a steady loss of weight, with a concomitant decrease in strength.

Examination.—The patient was noticeably emaciated and weak. Temperature 99 F., pulse 100. The pharynx, throat, mouth and tongue were dark red in color and very sore. The tongue was swollen and blisters of a herpetic character made the lips very uncomfortable. Salivation was marked, but the teeth were not loosened, and there was no sponginess, softening nor bleeding of the gums. There was a slight cough, and friction and moist râles, with bronchial breathing, over both sides of chest, anteriorly, without significant expectoration.

The backs of both hands and of the phalanges were deeply pigmented from the radio-carpal articulation to the finger-nails. The color was dark brownish red and even purplish and was accompanied by a thickening and scaling of the epidermis, which had a dry and glabrous surface when the outer layers separated. There was some itching, which incited the patient to assist in this separation. Palmar surfaces, feet and the remainder of the skin surface were unaffected. Cardiac and urinary examinations were negative. No examination of the blood was made. In addition to the oral condition and the pigmentation, the prostration was a third and very striking characteristic, and out of all proportion to any cause apparent at the time.

Treatment.—Cardiac, renal, and syphilitic disease, diabetes, and scurvy being eliminated from the diagnosis, the disease seemed to be that of some obscure intoxication, and the patient was placed under eliminative and tonic treatment. At about this time I noticed in The Journal the paper referring to the Alabama outbreak and the similarity of this case to those described attracted my attention. Some corn-meal which had been rather prominent in the patient's diet was referred to the Laboratory of Plant Pathology at Washington. The pathologist's report stated that the corn-meal was unfit for a regular diet, being "unquestionably in bad condition and too rancid to eat, at least for a regular diet." On the strength of this report a provisional diagnosis of pellagra or grain poisoning has been made. A point counting to some extent against it is the fact that the patient's wife and two children are in very good health, although they have been more or less devoted to corn-bread made of the suspected meal. Under the treatment mentioned, together with removal of the meal from the diet, the patient has steadily improved and is now almost well. The sore mouth and pigmentation have disappeared, the weight has been largely regained and the bodily activity has been restored to the extent of allowing a two hundred mile camping trip in a wagon.

Whether or not the condition thus described can be properly called pellagra, possibly those who can speak more authoritatively than I can say. The pathologist remarks that in these cases "the definite toxic substances that are in the corn-meal have not been determined as far as I know, so that any rancid meal is suspicious." I wish to thank him here for his cordial assistance, and I hope that the publication of this case will be followed by that of others, following the lead of the Alabama series.

MAGNESIUM SULPHATE SUCCESSFUL IN TWO CASES OF TETANUS.

HORACE GREELEY, M.D.
BROOKLYN.

Case 1.—*History.*—R., a healthy boy, aged 2 years, residing with his parents on Court street, Brooklyn, stepped on an old garden rake and lacerated the web between the great and the adjoining toe of the left foot. Healing progressed under home treatment and the wound was completely closed by the tenth day, when the child was seized, in the morning, by a severe muscular spasm involving, I deduced from hearsay evidence, the muscles of the throat, face, neck and even extending down the trunk and legs. I was sent for, but, being unable to attend at once deputized a friend, who, not being told about the injury, surmised that gastrointestinal troubles were responsible and administered a dose of calomel.

In the afternoon of July 16, 1907, when I called, I was informed that the mother had taken the patient out for an airing, as the severe spasms seemed to have modified, so returning in an hour I found that while out repeated spasms had compelled her to take the child into a convenient clinic, where she was induced to place him immediately in the hospital. Here tetanus was diagnosed, 1,500 units of tetanus antitoxin and two grains of chloral and ten of bromid given, but the case was adjudged to be hopeless, as I was told.

As the father had been informed that the child would undoubtedly die he decided to bring it home, and did so at once. Examination disclosed tonic contractions of the jaw muscles, those of the neck and back and inability to swallow anything but a little water and that with great difficulty, and crying, which latter increased the tetanic contractions above, and extended them below, to the legs. Sweating was profuse, and the pulse rapid but strong. Temperature 102 F.

Treatment.—I gave the patient 6,000 units more of antitoxin, and ten grains of chloral, with fifteen grains of potassium bromid by mouth, and left instructions to repeat the bromid in milk every two hours and to give a diet of milk and water only. The next morning he was about the same, only that in addition slight contractions were persistent in the extensor muscles of the legs, sweating was more profuse, and the bladder and bowels had not emptied themselves. I now administered a saline enema, which remedied the last two conditions, and owing to the patient's increased difficulty in swallowing, gave orders that the bromid was to be given every hour per rectum. The dose of antitoxin also was repeated.

The afternoon found patient worse, crying continually, with difficult breathing and at times becoming cyanosed. Opisthotonos was marked and the facial muscles typically contracted.

I gave one-twentieth of a grain of apomorphin hypodermatically, which, although it made the child vomit once, markedly relaxed the spasms and exercised its good action for twelve hours, when it was repeated, but with diminished effect, so that on the third day of the onset I felt that I must turn to morphin as the sole remaining remedy, and one-eighth of a grain was given immediately, with quieting effect. In the afternoon I found the child even worse, crying, struggling for breath, and head and legs in constant more or less rigid extension, so I determined to at least make another attempt (having acquiesced in the accepted opinion that regards tetanus antitoxin as practically valueless except as a prophylactic), and so gave by hypodermoclysis (under skin of abdomen) one pint of distilled water containing two drams of magnesium sulphate in solution. Almost an hour was consumed in the injection, but within thirty minutes thereafter a marked amelioration of all symptoms was evidenced, and continued till within an hour the child fell asleep, with nearly a total relaxation of the affected muscles. Cyanosis disappeared, and even the jaws were loosened, while the pulse, which had become rapid and feeble before the operation, returned to an almost normal condition. Patient perspired most profusely and his urine increased in amount and was passed on the bedding, staining it, the attendant said, yellow.

Improvement was continued the next day, but the day after that, noticing that the muscular contractions were returning, I repeated the procedure, with a like result, patient's condition improving still further, but no tendency to relapse appeared, and recovery was complete thenceforth. Temperature, however, fell only to 101 F., gradually subsiding to normal, which it reached at the end of five days. Control of muscles used in walking seemed to be imperfect, as the gait was irregular for some days.

Case 2.—*History.*—This was one of chronic tetanus, coming on in August of this year, four weeks after a Fourth of July accident to a longshoreman of about 45, whose hand had been badly injured by a cannon cracker, he said. He complained of stiffness in neck, inability to open his mouth properly or to swallow solid food, at night a difficulty in breathing, and excessive perspiration, which sensations had troubled him for over a week. Examination confirmed these symptoms and found a temperature of 100 F.

Treatment.—Patient received an injection, in the abdomen, of a solution of three drams of magnesium sulphate in a pint of water, and was given instructions to take one dram of the same salt three times a day, in water, by the mouth. All symptoms disappeared within twelve hours and did not return.

If the good result of these cases is attributed, and it seems only reasonable to do so, to the hypodermoclysis operations, how was it accomplished? Was it only owing to a dilution of the poisons till they no longer were able to act on the nervous system and to an increase in their elimination, to a neutralizing action of the magnesium sulphate on the toxins of the tetanus bacillus, or to its antagonizing effect on the nerve centers, or what? If the first, then why should not the measure be of great value generally in such diseases as scarlatina, variola, typhoid or in any infectious condition whatever? At least I think it may be successfully employed in tetanus of even the gravest form.

TWO CASES OF ACUTE DILATATION OF THE STOMACH FOLLOWING ABDOMINAL OPERATION.

STAFFORD B. SMITH, M.D.
GOLDFIELD, NEV.

Case 1.—Miss A., aged 28, entered the hospital with a diagnosis of acute appendicitis. The abdomen was opened and an apparently normal appendix was removed. The wound was sealed. Till the tenth day the patient did well, but had very little appetite and was constipated; temperature normal.

Postoperative History.—On the eleventh day following the operation the patient felt some distress in the epigastrium, vomited copiously and was much relieved. Later in the day, I was notified that she was pulseless. A few minutes later, I counted the pulse in the carotid and found it 200. The patient was breathing a little hard and complained of slight abdominal pain. I looked at the wound and found it in excellent condition. The abdomen, however, was considerably distended and generally tympanitic. Stimulants were given hypodermically and warmth was applied to the cold extremities. While I was at the bedside, the patient again vomited—nearly a quart of brownish-green, watery fluid, and subsequent examination showed the presence of much bile. Fifteen minutes later she died.

Postmortem Examination.—Autopsy showed a dilated stomach of such a size that it occupied nearly all of the abdominal cavity. The intestines, small and large, were collapsed and prolapsed into the pelvis, the duodenal portion turning on itself (in the process of prolapse) below the opening for the common bile duct in such a way as to obliterate its lumen, preventing the bile from flowing downward, and, consequently, causing it to be regurgitated into the stomach.

The diagnosis was not made until autopsy.

Case 2.—Mrs. B., aged 35, was operated on for appendicitis about six weeks after the patient in Case 1. A congested appendix containing fecal matter was removed and the abdomen was sealed.

Postoperative History.—The patient made an uneventful recovery until the fourteenth day, when the wound, which was apparently healed (the sutures were removed on the eleventh day), spontaneously opened at its upper extremity. It was clean, however. Further examination showed a distended abdomen, generally tympanitic. The bowels had been kept open by enemas and cathartics, but for the last few days poor results had been obtained. The patient suffered little or no pain, but later in the day vomited a large amount of bile-stained fluid. The pulse was growing more rapid and was weaker; the temperature was normal. Careful abdominal palpation revealed a large, smooth mass occupying the upper part of the abdomen and extending below the umbilicus. The abdomen was more tympanitic after the vomiting than before; the fecal color was good. A diagnosis of acute dilatation of the stomach was made.

Treatment.—The patient was turned over on her abdomen and the foot of the bed raised one foot. A high enema was given and small doses of croton oil. Diet was restricted to small quantities of water and milk; stimulants were given.

Results.—In twelve hours she had a good movement of the bowels (the enema being repeated) and the distension of the abdomen was greatly reduced. The next day, or twenty-four hours after treatment, she was entirely free from any abnormal distension—her pulse returned to normal and she made a rapid and uneventful recovery.

The Incision for Goiter.—Martin B. Tinker, in the *American Journal of the Medical Sciences*, states that the incision should be long. He prefers the transverse incision of Kocher, which, with careful closure, leaves little scar, and that located so low that it is easily covered. In order to avoid scars Tinker closes the wound with the finest embroidery needle, using very fine horsehair as a suture material. Such careful closure requires much time, but if local anesthesia is used this, he says, is a matter of little importance.

A CASE OF TUBERCULOSIS INVOLVING THE NOSE WITH DESTRUCTION OF THE DEEPER TISSUES.

JOHN V. SHOEMAKER, M.D., LL.D.
Professor of Materia Medica, Therapeutics, Clinical Medicine and Diseases of the Skin in the Medico-Chirurgical College and Hospital.
PHILADELPHIA.

The following is the report of the patient whom I presented for consideration to the Section on Cutaneous Medicine and Surgery of the American Medical Association at the session held in Atlantic City, June, 1907. The description of the case then given was informal and I now present a detailed history:

Patient.—Mrs. J. C. M., aged 43, housewife; nativity, United States.

Family History.—Mother died of paralysis at the age of 55 years, father of nephritis at the age of 50 years. The family history is negative as regards cancer, tuberculosis, gout and rheumatism.

Previous History.—As a child she had measles, chickenpox, mumps and scarlet fever. Three years ago she had ulceration of the stomach. She denies venereal disease.

Present Illness.—Two years ago she walked against the edge of a door and received a fracture of the nose, which did not unite until one year after the injury, but during this time the nose was in a constant state of inflammation. Six weeks after the fracture united a papule the size of a split pea developed on the left ala of the nose, which on rupturing was rapidly followed by ulceration. The ulceration spread quickly to the left cheek and upper left half of the lip. Later the ulceration further spread over the tip of the nose to the right ala and now involves the entire nose with destruction of the cartilage and deeper tissues.

Physical Signs.—Lungs apparently normal. Heart: A mitral systolic murmur, compensation good. Abdominal viscera normal. Lymphatic glands not enlarged and the skin over the body shows no scars of previous syphilitic infection.

Laboratory Findings.—Urinalysis: Albumin, negative; sugar, negative; indican, slight trace; reaction, acid; specific gravity, 1018; color, amber.

Blood Examination: Hemoglobin, 87 per cent.; leucocytes, 8,000; erythrocytes, 4,273,460.

Microscopic Examination.—A section of the diseased tissue was examined by Dr. L. Napoleon Boston, Philadelphia, with the following results: (1) Superficially the tissue resembled that ordinarily present in cutaneous ulcerations, e. g., consisted of débris and many polymorphonuclear cells. (2) The deeper structures showed some increase in the epithelium, and there were here and there what appeared histologically to be distinct tubercles, with the presence of giant cells. (3) Sections stained for bacillus tuberculosis were positive in but one instance, and but few tubercle bacilli were found, but sufficient, however, to make the diagnosis positive.

The sections of the skin were unusual, says Dr. Boston; a number of skin specialists who had seen this case with me agreed that it is extremely uncommon to find tubercle bacilli in the skin, and one man went so far as to say that he thought they were never found. In view of the frank statements of these workers, I had a specimen sectioned and stained up for tubercle bacilli by Dr. Rosenburg, pathologist and bacteriologist for the Philadelphia City Hospital, one of the best workers in Philadelphia. In proof of my own findings Dr. Rosenburg found bacilli in the skin from this case. I also had another pathologist look at some of the sections, and in fact nearly all the physicians at the Philadelphia City Hospital saw them, as they were unusually good specimens of cutaneous tuberculosis.

The first examination of a section did not reveal the tubercle bacillus, but many polymorphonuclear and giant cells.

Thus, the second examination of the tissue confirms the suspected diagnosis of tuberculosis, which was based on the fact that the lesion showed no tendency to heal, but slowly and steadily increased in size by peripheral extension. The ulcer looks bright red in color, with slightly infiltrated edges, is uneven, granular, and covered with a thin yellowish secretion. At the beginning of the ulceration the spot was very painful, but did not tend to bleed even when touched.

As a rule, patients having tubercular ulcers have pulmonary tuberculosis, whence the infection, which is not the case in this patient. It is possible that she received the infection at the time she met with the accident, because the fracture did not unite for a year, during which time the nose was constantly in a stage of active inflammation.

Treatment.—Her family physician in Atlantic City thought the patient had syphilis and gave her, before she came under my care, a full course of iodids, to which the inflammation did not yield in the least. A thorough course of iodid as well as mercury was also given her again before she came under my observation, but without any good effect. The treatment thus far has been of no avail to stop the destructive action of the ulceration. The following greatly relieved the pain of the ulceration and lessened the thin yellowish discharge.

℞.	Creosoti (beechwood)	m. x		60
	Atropinæ sulphatis	gr. ii		13
	Cocainæ hydrochlorici	gr. v		32
	Aquæ hamamelidis	fl℥ii	60	
	Liquoris calcis	fl℥iv	120	

M. Sig.: Apply locally on a cloth.

Believing, as I stated at the demonstration that I made at Atlantic City, that I was dealing with a case of ulceration due to tuberculosis, I cauterized the surface with pure phenol (carbolic acid) every three or four days and applied constantly the solution just named. At the same time, as the patient's blood test showed decided deterioration, blood tonics with antiseptics were given daily, together with good food. The food, which is all important in all such cases, as it is in general tuberculosis, consisted of plenty of animal food, such as soft-boiled eggs (not raw eggs). The latter, as I have shown time and again in previous reports, are hard to digest and often so disgust the patients as to have them refuse all kinds of food or to give them bad indigestion. Very often in forced feeding with raw eggs, I have been able to collect the eggs in the fecal discharges of the patients. In addition to eggs, plenty of animal broths, especially of beef juice, and a moderate amount of milk were given. In addition, a few well-cooked vegetables and fruits were permitted. Medicinally, the patient was given small doses of paraldehyd, from one-half to one dram at bedtime in order to obtain sleep. The paraldehyd was mixed with aromatic and wild cherry syrups. The addition of these syrups disguises to a large extent the unpleasant taste of paraldehyd. In nervous patients, suffering as this patient has for weeks from this irritable ulceration of the face, paraldehyd is one of the very best of all hypnotics. It is well borne by the mucous membrane and has no unpleasant action on the heart and circulation. Further, paraldehyd can be given for a great length of time and has no bad after-effects, either at the time of administration or the following day. It is one of the best and most stable hypnotics or sleep-producing agents. Small doses of beechwood creosote were administered, beginning with one drop and increasing to eight and ten drops three times daily in a bitter tonic. Under this treatment, I am happy to add that my patient at once improved, her pallor lessened, the ulceration looked better, her appetite and strength were increased with each succeeding day. When she left the hospital some weeks after the meeting I ordered the following tonic and antiseptic:

℞.	Ferri lactatis	gr. xxx	1	95
	Arsenii trioxidi	gr. i		06
	Quinin sulphatis	gr. xxx	1	95

M. et ft. pilulæ No. xxx. Sig.: One pill three times a day after meals.

I hope, if the patient will present herself at stated intervals at the hospital, with the local and constitutional treatment given, to heal up and restore the tuberculous ulceration to the state of at least scarred tissue.

1805 Walnut Street.

DISCUSSION.

Dr. Joseph Zeisler, Chicago, said that lupus could be excluded in this case from the fact that the bone had been destroyed to a considerable extent. Such destructive bone lesions are not seen in lupus. Epithelioma and blastomycosis could also be excluded. The medication indicated in such a case is potassium iodid and mercury and mercurial plaster.

DR. R. A. McDONNELL, New Haven, agreed entirely with Dr. Zeisler as to diagnosis and treatment.

DR. HENRY J. F. WALLHAUSER, Newark, N. J., also agreed with Dr. Zeisler's diagnosis. He asked Dr. Shoemaker if the microscope showed the tubercle bacilli. Both in the disease referred to by Dr. Zeisler and in tuberculosis, the microscope shows plasma and giant cells, so that, unless the tubercle bacillus was found, the histologic findings would not be of any value in the differential diagnosis between the disease mentioned and tuberculosis.

DR. A. RAVOGLI, Cincinnati, said that he saw two cases similar, the result of lupus. One patient had since died; the other is still living. In both the disease began with a small nodule of lupus affecting the auricle of the ear, then extending to the zygomatic arch, involving the temporal and occipital bones, and in the patient who is still living the nerves and blood vessels of the parts have become exposed. A part of the temporal bone had been destroyed. Death is expected.

Dr. Ravogli believes the case shown by Dr. Shoemaker to be one of true tuberculosis, and the microscopic examinations thus far made seem to confirm that diagnosis. Tubercle bacilli affecting the papillary layer or derma remain limited there, and form what is called lupus vulgaris, but when they extend beyond the domain of the derma and affect the subcutaneous tissues, then true tuberculosis exists. Even if in the case presented no tubercle bacilli were found that would not prove that it is not a case of tuberculosis. In the skin it is very difficult to find the tubercle bacilli, even after an examination of hundreds of sections. In these cases, the micro-organism is in spore form, and we are unable to stain it as when it is found in the lungs. He said there seems no doubt that in the case presented the tubercle bacillus is the essential agent, and that it has left the derma and invaded subcutaneous tissues.

DR. JAY F. SCHAMBERG, Philadelphia, said that while one can not be positive beyond doubt as to the nature of the lesion in the patient presented, the condition looks so strongly luetic that nothing but the failure of vigorous doses of mercury and potassium iodid would negative that diagnosis. Potassium iodid alone would not prove an adequate therapeutic test.

DR. J. B. KESSLER, Iowa City, agreed with Dr. Zeisler that vigorous specific treatment should be given a trial in this case. It seemed to be a promising case for the use of injections of either the soluble or insoluble preparations of mercury.

DR. GRANVILLE MAC GOWAN, Los Angeles, Cal., said that if the patient presented came to him for treatment he would not restrict himself to the use of mercury and potassium iodid. The lesion is evidently rapidly destroying the face, and from the appearance and history, it is tuberculous. The statement, frequently made, that the diagnosis of luetic disease can be established or excluded by the use of potassium iodid and mercury is only a half truth. No two other drugs are more valuable than these in the treatment of tuberculosis of the skin, and then it is possible to have tuberculosis engrafted on pre-existing syphilis. He suggested that further sections be taken and submitted to a competent bacteriologist, and if the bacilli are found, or the microscopic picture is characteristic of tuberculosis, surgical means should be resorted to. This would include a thorough curettage of the bones, and the removal, as completely as possible, of all the diseased tissues. After this a 50 per cent. solution of chlorid of zinc should be applied, at the same time giving intradermic injections of the soluble salts of mercury, with potassium iodid internally. The case seemed to him a surgical one.

DR. R. W. TAYLOR, New York City, said that there might be a syphilitic basis to the lesion, and he would be disposed to try Zippmann's decoction.

DR. J. V. SHOEMAKER, Philadelphia, said that he saw the patient in this case only two or three times while she was in the hospital, and did not see her again until he presented her to the Section. Her physician had informed him that she had been under all forms of anti-syphilitic treatment, and that it had had no effect on the course of the disease. When the patient came to the hospital she had a good deal of pain, which may have been due to the exuberant granulations or the disease itself; at all events, it was very severe, and the only internal remedy that allowed her to sleep was paraldehyd, in one or two dram doses. Dr. Shoemaker was led to believe, by the result of the pathologic findings, that the necrosis and changes in the tissues were of a tuberculous character.

ABDOMINAL PREGNANCY.

JOHN C. MURPHY, M.D.
Professor of Obstetrics, College of Physicians and Surgeons.
ST. LOUIS.

Patient.—Mrs. J. S., aged 28, was seen June 2, 1907, and the following history obtained:

History.—Married in 1903, always enjoyed perfect health. No history of pelvic disease. Menstruation regular until July, 1906, when menstruation ceased. Soon the usual symptoms of pregnancy appeared. Fetal movements were manifest in December, continuing till April, 1907. About April 14, pains simulating normal labor occurred, followed by a bloody and vaginal discharge. Her physician told her the normal period for labor had not arrived and gave sufficient morphin to stop the pains. From this time all fetal activity ceased and the general health of the patient became bad. May 21 three physicians in consultation decided that the woman was not pregnant (despite her insistence to the contrary), but was suffering from abdominal dropsy, and arrangements were made to tap the abdomen the following day. This operation the patient declined. When I saw her on the date mentioned her abdomen was enormously distended, pulse 140, temperature 103 F., respiration 44. The picture suggested infected ovarian cyst, but the history pointed to pregnancy.

Operation.—After removal to the hospital examination showed the uterus to be empty and not over four inches deep. On palpation a mass could be felt on the left side of the abdomen. A diagnosis of abdominal pregnancy was verified by operation the following day. A medium incision was made down to the gestation sac, which was closely adherent to the parietal peritoneum. The next cut opened the sac from which gushed a huge quantity of stinking amniotic fluid, doubtless infected by the colon bacillus. The incision was enlarged and a badly decomposed but mature male child weighing nine pounds extracted, which from the history must have been dead for about seven weeks. The gestation sac was flushed with physiologic salt solution, mopped dry and loosely packed with sterile gauze. For fear of hemorrhage and the danger of opening the general cavity no attempt was made to remove the placenta which was attached to the abdominal wall and apparently to the under surface of the liver.

Postoperative History.—On the day following operation the condition of patient was much improved—temperature 100 F., pulse 108. Every second day the sac was cleaned with gauze and repacked. On June 16 placenta was found to be detached and was readily extracted without hemorrhage. Sac now collapsed and healed rapidly. Bowels moved freely by the use of salines. By July 1 obliteration of sac and closure of wound was complete, pulse and temperature normal, Considering the patient safe, I left the city for a few days, and was amazed to find on my return, July 5, that complete intestinal obstruction had occurred. Non-surgical measures proving ineffectual, I reopened the abdomen, but on account of patient's condition did not persist in effort to locate obstruction, but brought up a loop of colon which was stitched into wound and opened; considerable fecal matter escaped. Patient was returned to bed in bad shape and died at midnight.

It is impossible to say whether this case could be classified as a primary abdominal pregnancy. The absence of previous pelvic disease and the location of the placenta suggests the probability of that rare condition. The uterus, tubes and ovaries could be felt outside the sac, but did not participate in its formation. If the condition had been recognized in time the life of the fetus could doubtless have been saved, as it was alive at full term.

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SATURDAY, SEPTEMBER 14, 1907.

MEDICAL COLLEGES AND STATE PRACTICE ACTS.

Undoubtedly there is a steady advancement in the standards of medical education in the United States. Whereas a year ago only seven medical colleges were requiring for admission anything more than a high-school education, now there are over fifty[1] which, beginning with the session of 1910 or earlier, will require one or more years' work in a college of liberal arts. This work, it is presumed, will include thorough courses in physics, chemistry and biology. Twenty or more of these schools have decided to require two or more years of college work before admission to medical study. Of the fifty schools mentioned a few are weak, but the great majority are among the best-equipped medical schools in the country. Some state examining boards are likewise doing their part. Already the Minnesota and North Dakota boards have secured amendments to their laws requiring two years' work in a college of arts preliminary to the study of medicine, thus supporting the medical departments of their state universities which have adopted that requirement. After 1912 Connecticut will require that all graduates in medicine in order to locate in that state must have had a preliminary education of at least one year in physics, chemistry, biology and one modern language in addition to the four-year high school course. It is encouraging to note that the past year has seen many important changes in medical laws. That all sections of the country have been represented in this endeavor to secure better conditions is as gratifying as it is significant.

On the other hand, new medical schools are still being organized solely for profit. These schools are generally devoid of any equipment and have no hospital facilities, but still each in time will turn into the profession from ten to forty or more "physicians" each year. Besides these there are the osteopathic schools, schools of optics, chiropractic schools, schools of vitopathy and other nondescript institutions which are apt to become more numerous as a direct result of the self-sacrificing effort of our better medical schools to raise their requirements.

Graduates of these irregular schools, while supposedly limited in their practice, are in reality unlimited, at least in many states. Therefore all individuals who hold themselves out as ready to treat disease by whatever manner or means should be required to undergo the same test as to their ability and knowledge of those branches of medical science which are essential to an understanding of the human body in health and in disease. Special rules or provisions for any particular system of medicine constitute class legislation and are vicious in their results. All applicants for license should be required to have the same minimum amount of preliminary education; all should be graduates of schools having the same minimum standard of requirements. If the college of one system of medicine is required to have a course covering four years of at least thirty weeks each, excluding holidays, as well as to have thoroughly equipped laboratories and ample clinical facilities, then the schools of all systems of practice should be required to have the same.

Stronger safeguards should be placed about admission to medical practice in many of the states. The examining boards should be given supervision of all medical colleges within their respective states, with authority to pass on the entrance requirements of prospective medical students and to issue or to have issued to medical students entrance certificates. They should have the right to inspect the medical colleges and to close such as are not sufficiently equipped or are not doing satisfactory work. At least the boards should have authority to say what medical schools should be recognized. Some boards already have this power, but the majority do not. Without this right the boards are not in position to protect the public from incompetent physicians.

PREDISPOSITION OR IMMUNITY IN THE CHILDREN OF THE TUBERCULOUS.

The theory that individuals suffering from tuberculosis transmit to their offspring a predisposition to a similar infection seems to have established itself firmly. If this theory be accepted, the proposition that these individuals at the same time transmit a partial immunity, or at least an increased power of resistance to this infection after it has been acquired, seems at first glance rather paradoxical. Yet in recent years a number of observers have taken the position that the children of tuberculous parents possess a degree of protection against this disease which results in a favorable outcome more frequently than may be hoped for among patients whose parents were more fortunate. Numerous statistical studies intended to support this theory have been published since Reibmayr[1] directed attention to the subject in 1892.

So many factors are to be considered in determining the truth of this question that it is difficult to present evidence which is at all conclusive. For instance, a table which gives the history of a series of patients who are said to present a history of tuberculous ancestors, and which does not state whether the parents suffered from tuberculosis previous to the birth of the patient or afterward, is evidently of no value whatever. The matter is further complicated by the well-recognized fact that a considerable number of people are at one time or another subject to some unrecognized tuberculous infection. The most striking illustration of this fact is found in the report of Naegeli[2] on a series of 500 autopsies performed at the Pathologic Institute at Zurich. Naegeli found evidences of either a healed or an active tuberculous process in 100 per cent. of all persons over 18 years of age. While this is a higher proportion than has been reported by most other observers, the fact remains that probably many patients are reported as having a negative family history, one or both of whose parents were suffering from an unrecognized tuberculous lesion.

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[1] The Journal A. M. A., Aug. 17, 1907, p. 600.

[1] Mittellungen über die Erblichkeit und Infektion der Schwindsucht, Braunschweig, 1892.

More or less confusion is caused by the difference in the methods of presenting the statistics adopted by the different observers. A recent report,[3] following the method of several previous observers, compares the percentage of those having a positive family history in the total of all who showed improvement to the percentage of like patients in the total of those who did not improve, and points out that the balance is in favor of the former. If the same figures are used to compare the proportion of all patients having a bad family history who improved with the percentage of those having a negative family history who improved, the balance is seen to favor those presenting a negative family history.

Most of the statistics have been drawn from the reports of institutions devoted to the treatment of pulmonary tuberculosis and, therefore, presumably dealing for the most part with adults, or at least excluding the very young. While pulmonary tuberculosis is relatively rare among young children, tuberculosis in its varying manifestations is responsible for a not inconsiderable proportion of deaths among infants. Baginsky[4] found it in 17.7 per cent. of 1,383 autopsies on children under 1 year; Heubner,[4] in 26.6 per cent. of 75 children from 9 to 12 months old; Heller,[4] in 29 per cent. under 2 years. Tuberculosis in the first few months is almost unknown and it is reasonable to suppose, therefore, that the numerous instances of tuberculosis in older infants is due to infection rather than to heredity. The infection in most instances must occur from some member of the household, as there is little chance for other exposure. The children of tuberculous parents are particularly exposed to this danger of infection, and the chances are that such children constitute a majority of the infant victims of tuberculosis. Those children of tuberculous parents who have been favored by the agency of "variation" with a sufficient degree of natural immunity to withstand the perils of infancy under such conditions, we should naturally expect to exhibit an unusual degree of resistance if they later became infected, while their unfortunate brothers and sisters who were not so favored did not live long enough to have their names enrolled on the statistics of our institutions.

It will be seen that the difficulties of solving this problem are very great. To draw a fair comparison, it would be necessary to contrast the course of the disease in all the tuberculous children of a certain number of tuberculous parents, with the course of the disease in patients whose parents, it was reasonably certain, were not tuberculous. Differences of age, of race, of treatment, etc., must be considered and, finally, unless the number were very large the statistics might in the end point ironically away from the truth.

THE UNFULFILLED PREMONITION.

Sensational stories are so often concocted, in which the turning point of interest lies in the fulfillment of a premonition that has come over the individual and can not be shaken off, that many nervous persons suffer extreme tortures as the result of having such premonitions. In moments of danger, indeed, the presence of them often causes a loss of presence of mind which is so important for safety in times of crisis. In spite of the frequent disappointment as to their fulfillment, some persons still continue to harbor the thought that some time their worst fears will be realized, and so they go through many anxious hours. The ordinary run of stories in this matter only serves to feed fuel to their nervous excitement and make them ever more timorous. It has been well said that most of our troubles never happen, and this is a sort of consolation that can be used with effect for these patients, but in addition physicians may welcome striking incidents that make for disbelief in the value of premonitions. There is a noteworthy example of this antidotal kind in the last installment of Carl Schurz's recollections in the September *McClure's*.

On the morning before the battle of Missionary Ridge General Schurz's first thought on waking from a quiet sleep was that on that day he should be killed. In spite of every effort to shake off the depression and to laugh at his own weakness, he found that the voice of premonition would always come back. He even came very near sitting down to write "a last letter" to his wife and children, but a feeling of shame at his superstitious emotion enabled him to desist from this. In spite of constant occupation, the voice that told him "this day I shall be killed," would not be silent. A restless impatience came over him and this increased during the long hours before his command was called into action. When the order came that would bring him under fire, the voice within said, with startling distinctness, "now is the time." The shells were flying over the position occupied by his troops, and finally one of them seemed to be coming directly toward him and he could not avoid it. It struck the ground under his horse, broke the forelegs of the horse of one of his orderlies, but did not explode until it struck an embankment twenty yards behind him and hurt no one. The effect was electric. The voice within him said, "This was the one and it did not kill after all." and instantly the premonition of death vanished and his usual good spirits returned. He never again had another such premonition.

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[2] Virchow's Archiv., cix.

[3] von Ruck: Amer. Jour. Med. Sci., 1907.

[4] Quoted by van Amstel: Beiträge zur Klinik der Tuberk., vii, Part II.

The remedial effect of a story like this on patients who insist persistently on finding food for melancholy thoughts in their premonitions can be readily understood. Unfortunately the stories in which the premonitions fail as strikingly as this are so rare compared to those of opposite character, that our ordinary literature provides little of therapeutic material of this kind and, therefore, General Schurz's experience may prove well worth treasuring in the doctor's notebook for use on proper occasions.

NATIONAL SANITARY DEPARTMENT IN CUBA.

In the official gazette of Aug. 27, 1907, Governor Magoon publishes a decree establishing the national sanitary department in Cuba. He begins by stating that it has been found that the municipal governments have not been able to provide sufficient funds for the support of an efficient sanitary service nor has it been possible to obtain such concerted action as was necessary to that end. The organization of the new department includes: 1. A chief sanitary officer who is to be the head of the sanitary department and executive officer of the national sanitary board. 2. A national sanitary board of six members, including a qualified engineer. 3. A local sanitary officer for each municipality, reporting and taking instructions from the chief sanitary officer. The decree also provides penalties for failing to comply with sanitary ordinances and, most important of all, makes a liberal appropriation for carrying out the purposes of the decree. Now that a proper organization has been provided, together with the necessary funds, it is hoped and believed that there will soon be manifested a great improvement in the sanitary conditions in Cuba, and that yellow fever will disappear as it did under the former American administration.

INTERNATIONAL MILITARY MEDICAL STATISTICS.

The supplement to the annual report of the Surgeon General of the Army for 1907, a copy of which is just received, contains international military medical statistics for 1906. The tables are those agreed on at the meeting of the International Commission for the Unification of Military Medical Statistics of Armies, held at Budapest in 1894, and modified by the last meeting held at Madrid in 1903. They are calculated for the United States Army proper, white and colored, and include enlisted men only. A comparison is made of the morbidity and mortality statistics of the army by countries, by arms of service and by seasons, and a statement is also made of the number and ratios of certain special diseases which were agreed on by the International Commission. It appears that the highest admission and death rates occurred in the Philippines Division. The lowest admission rate in Alaska, the lowest death rate in Cuba. Comparing the various army posts, the highest admission rate occurred at Camp Stotsenberg, Luzon, P. I., a post notoriously unhealthy on account of the prevalence of malarial fever in epidemic form. The lowest admission rate occurred at Camp Columbia, Cuba. By arms of service the highest admission rate was found in the field artillery and the lowest, just about one-half of the former, in the ordnance. The lowest death rate was also found in the ordnance and the highest in the infantry. According to seasonal prevalence, the highest admission rate was found in August and the lowest in February, while the highest death rate occurred in March and the lowest in November.

THE "CONSCIENTIOUS OBJECTOR" TO VACCINATION.

The complexity of modern life makes it difficult at times to reconcile the preservation of public safety with individual liberty. This is nowhere more marked than in the enforcement of regulations for the control of infectious diseases. In the matter of protection against smallpox by vaccination the importunities of the ignorant majority have resulted, in most countries, in the adoption of a "conscientious objectors'" clause to the regulations regarding inoculation. This clause allows those individuals who have "conscientious objections" to vaccination to dispense with this most essential prophylactic measure, both for themselves and their children. Did such dictates of conscience react only to the detriment of those who are old enough to hold such opinions, little objection could possibly be raised. Unfortunately, the ones most liable to suffer are the helpless children of such individuals. This point is well brought out by the recent outbreak of smallpox in Vienna,[1] a city that has been so free from this disease that, in the past decade, the presence of only 22 cases has been officially recognized. Careful investigation on the part of the board of health of Vienna revealed the fact that there are three times as many unvaccinated children at present in that city as in any previous year of recent times. These children, generally speaking, are the offspring of the poor and ignorant, who make up the greater number of "conscientious objectors" to vaccination. These children also are the ones who are suffering from the present epidemic of smallpox. While these conditions furnish further evidence of that inviolable but brutal law of the survival of the fittest, modern humanitarianism would seem to dictate that the helpless offspring should at least be protected from the results of parental folly and ignorance.

THE PLAGUE IN SAN FRANCISCO.

The reported recrudescence of plague[2] in San Francisco is a matter of somewhat more than merely local importance, and while there may not be great danger of spread to other parts, even in California, any neglect of precautions would be culpable. It may be that under proper conditions of living the plague would find a rather limited field in most parts of this country, but urban conditions are by no means uniformly such as would insure us against such a visitation, and the addition of plague to the list of diseases would be most unwelcome in any locality, even though the cases were isolated and few. Although handicapped by the disgraceful conditions reported in the City and County Hospital, and by the apathy and inefficiency that is charged to the local board of health, it is fortunate that San Francisco now has a mayor who can be expected to appreciate its needs properly, instead of the one who was in control during the plague prevalence of several years ago. The San Francisco County Medical Society is also fully awake to the situation and is taking active steps to aid in the enforcement of recognized principles of plague control. These facts give us confidence to believe that the present outbreak will soon be under control.

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[1] See Vienna Letter, page 952, this issue.
[2] See General news, this issue, page 951.

Medical News

ARKANSAS.

Society Meeting.—At the annual meeting of the Fifth District Medical Society, held at Dardanelle late last month, Dr. Norborn H. Jackson, Pontoon, was elected president; Dr. James S. Kolb, Clarksville, vice-president, and Dr. S. Paul Vaughter, Little Rock, secretary and treasurer.

The Water Question.—At a meeting of the Pulaski County Medical Society, in Little Rock, August 26, the committee of public health and sanitation was directed to investigate the condition of the city water and report its findings to the society, at a meeting to be called within ten days or two weeks.

Personal.—Dr. John P. Runyan was re-elected dean of the College of Physicians and Surgeons, Little Rock, at the meeting of the stockholders, September 2.——Dr. Leonce J. Kosminsky, city physician of Texarkana, has been made professor of histology and bacteriology in the college. Dr. W. Turnor Wootton, Hot Springs, has announced his intention of retiring from the Federal Medical Board.——Dr. Elmer LeR. Biggs, Hot Springs, has returned from Europe.

Physician Fined.—Dr. James C. Parish, Hot Springs, is reported to have been fined $50 in police court, August 26, for failing to warn a patient that he was unable to prescribe water from the hot springs because he had not been registered by the government. He is also said to have used insulting and abusive language toward the detective who secured the evidence on which conviction was obtained. This is the first conviction under the new city ordinance, which aims at extending protection to visitors to Hot Springs and especially to invalids.

CONNECTICUT.

Personal.—Dr. William G. Daggett, New Haven, is reported to be seriously ill with typhoid fever.——Drs. John Weldon, Theodore R. Parker, Frank E. Guild, Windham, and Robert C. White, Willimantic, have been appointed members of the hospital board of St. Joseph's Hospital, Willimantic.

Infectious Diseases.—During July 143 cases of measles were reported in 13 towns; 64 cases of scarlet fever in 28 towns; one case of cerebrospinal fever; 117 cases of diphtheria in 34 towns; 69 or more cases of whooping-cough in 16 towns; 55 cases of typhoid fever in 28 towns, and 29 cases of consumption in 18 towns.

July Mortality.—During July 1,508 deaths were reported in the state, equivalent to an annual mortality rate of 17.8 per 1,000. Of the decedents 459 were under one year of age, and 117 between 1 and 5 years of age, the percentage of mortality under 5 years of age being 38.2. Among the general causes of death were: Diarrhea, 320; heart disease and diseases of the nervous system, each 130; accidents and violence, 127; consumption, 94; pneumonia, 49; and of communicable diseases: Typhoid fever, 11; measles, 10; diphtheria and whooping-cough, each 8; scarlet fever and cerebrospinal fever, each 6; erysipelas, 3, and influenza, 2.

DISTRICT OF COLUMBIA.

Personal.—Dr. Charles M. Emmons has been appointed a member of the board of police and fire surgeons of Washington, to fill the vacancy caused by the resignation of Dr. Birch.——Dr. James F. R. Appleby, Washington, underwent an operation at the George Washington Hospital, August 26, and is reported to be improved.

More Typhoid.—Local health officials report that there is a decided increase in the number of typhoid fever cases in the District of Columbia, but there is no cause for alarm, as the amount of typhoid in Washington is comparatively slight, and the health officials expect that there will be nothing approaching an epidemic of the disease. On August 21 there were 173 cases of typhoid fever under treatment, and during the week ended August 17, 34 new cases were reported to the health officials. During the corresponding week of 1906, 75 cases of typhoid fever were reported, making a decided improvement over the situation of a year ago.

FLORIDA.

Society Organized.—The medical fraternity of Lafayette County met August 1 at Mayo and organized the Medical Association of Lafayette County, electing the following officers: President, Dr. Charles A. O'Quinn; vice-president, Dr. Oveida F. Green, and secretary and treasurer, Dr. George E. Bothwell, all of Mayo.

Personal.—Dr. C. E. Thompson, De Funiak Springs, has returned from a trip abroad.——Drs. Charles E. Terry, Hiram Byrd and Robert H. McGinnis were appointed at a recent meeting of the Duval County Medical Association a committee to investigate the social evil in Jacksonville and to report on the advisability of making an effort to check the evil.

GEORGIA.

Protest Against Poor Telephone Service.—The physicians of Atlanta are taking a hand in the protest against poor telephone service. A committee has been appointed by the Fulton County Medical Society to investigate and to take steps toward the correction of the abuse.

Personal.—Dr. Lodrick M. Jones has been appointed superintendent of the State Sanitarium, Milledgeville, vice the late Dr. Theophilus O. Powell.——Dr. James M. Kelley, Griffin, has purchased from Dr. J. M. Head, Lifsey Springs, in Pike County, and will establish a sanitarium and health resort.——Dr. W. B. Speyn has resigned from the house staff of the Macon City Hospital on account of ill health.

ILLINOIS.

Communicable Diseases.—A case of smallpox is reported from Kankakee.——Dr. Elvin F. Baker, Jacksonville, inspector of the State Board of Health, has discovered five cases of smallpox in Kilbourne and has ordered a quarantine established.——Dr. Charles E. Crawford, Rockford, inspector of the State Board of Health, has gone to investigate an outbreak of smallpox in Cole Valley.——Diphtheria is reported in St. Anne, where three cases have appeared.

Personal.—Dr. T. H. D. Griffith, Cairo, has resigned from the United States Public Health and Marine-Hospital Service to accept a position as medical inspector and assistant secretary in the office of the State Board of Health, Springfield.——Dr. T. M. McMichael, Monmouth, who has been ill with erysipelas, is reported to be better.——Dr. and Mrs. R. M. Charles Ball, Monmouth, have returned after a summer spent on the Pacific Coast.——At a farewell reception given to Dr. Samuel A. Graham, retiring assistant superintendent of the Illinois Eastern Hospital for Insane, September 2, he was presented with a carving set and smoking jar.——Dr. and Mrs. Frank Allport, Chicago, have returned from Europe.——Dr. and Mrs. George E. Fosberg, Chicago, are spending September in Atlantic City.——Dr. John Segsworth, Wilmette, who was badly injured some weeks ago by being thrown from his buggy, has recovered.

Chicago.

Assessment Against Hospitals.—The board of reviews has announced assessments against hospitals in Chicago amounting to more than $2,000,000, the tax on which will be approximately $27,000. This assessment followed the recent decision that the hospitals come within the scope of the law.

South Chicago Now Disease Center.—The department of health says that the territory surrounding the steel plant of South Chicago is now the storm center of disease. During the first six days of September six cases of scarlet fever and one case of diphtheria were reported from this district.

August Mortality.—During August 2,783 deaths were reported, 566 more than for the preceding month, and 296 more than for the corresponding month of 1906, the respective annual death rates per 1,000 being 15.55, 12.29 and 14.33. The deaths from acute intestinal diseases far outnumbered all others, with 796; then followed consumption, with 222; violence (including suicide), with 199; pneumonia, with 186; heart disease, with 180, and nephritis, with 169.

Deaths of the Week.—During the week ended September 7, 574 deaths were reported, 42 fewer than for the preceding week and 59 more than for the corresponding week of 1906, the respective annual death rates per 1,000 being 14.20, 15.24 and 13.10. Acute intestinal diseases heads the death list with 137, followed by consumption and cancer, each with 36; heart disease, with 38; violence (including suicide), with 32; pneumonia, with 30; nervous diseases, with 26, and nephritis, with 22. During the week typhoid fever caused 13 deaths; scarlet fever, 9, and whooping-cough, diphtheria and measles, each 4.

Medical Inspection of Schools.—The department of health has divided the city into eleven general districts, each of which has nine subdivisions. Each district is in charge of a medical inspector and each subdivision under the charge of a school medical inspector. Every district medical inspector will direct the work of nine school medical inspectors and will be held responsible for the health of their district. The school medical inspectors will visit every school in the city every school day during the year and will, in addition, do all things calculated to safeguard the health of the pupils and of the families. The vaccination of school children will not begin until after October 15.

INDIANA.

Local Organization.—The physicians of Kendallville, on August 20, organized the Kendallville Medical Association, with the following temporary officers: Chairman, Dr. Cyrus A. Gardner; and secretary, Dr. Albert G. Coyner.

Personal.—Dr. William A. Wildman, San Jacinto, is reported to be ill with typhoid fever.——Dr. Leonard F. Schmauss and family, Alexandria, have started for Germany.——Dr. John D. Chambers, Fort Wayne, returned from Europe August 19.

Smallpox.—The presence of smallpox at Orestes, near Alexandria, has caused 15 persons to be placed in quarantine and a dozen others to be placed under surveillance by the health authorities.——Several cases of smallpox are said to exist in Washington Township and Deer Creek.

Praise for Dr. Fletcher.—At the celebration of Founder's Day at "Neuronhurst," Indianapolis, August 18, the exercises were in the nature of memorial services for the late Dr. William B. Fletcher. Addresses were made and letters read, praising the life and the work of Dr. Fletcher.

New Name for College.—By the affiliation of the Indiana University and the State College of Physicians and Surgeons, Indianapolis, the name of the medical school is dropped and that of the "Indiana University School of Medicine" substituted. It is specified that the board of trustees of the state university shall have full control of the medical college, but there will be no change in the course of instruction nor in the faculty. The first two years of work are to be given at the state university, Bloomington, and the last two at Indianapolis.

IOWA.

Typhoid Fever.—It is reported that nearly 100 people in Des Moines are ill with typhoid fever.

Personal.—Dr. William S. Osborn, superintendent of the State Hospital for Inebriates, Knoxville, has resigned.——Dr. Delmer L. Davis has been elected general medical director of the Helping Hand Mission, Sioux City.——Dr. Charles G. Tilden, Riverside, has been chosen as college physician of the Iowa State College, Ames, vice Dr. Wilbert G. Harriman, resigned.——Dr. John R. Rudis-Jicinsky, Cedar Rapids, has been presented by the Bohemian Sokols of America with a gold and silver medal in appreciation of his services for Bohemian Americans.——Dr. and Mrs. Percy R. Wood, Marshalltown, returned from Europe August 24.——Dr. Charles J. Plonske, Bancroft, has started for Europe.

KANSAS.

Typhoid Fever.—On account of the prevalence of typhoid fever in Leavenworth, Dr. Joseph F. Wallace, secretary of the local board of health, has issued a circular letter to physicians, insisting on the reporting of all cases of typhoid fever, as required by law.

Vital Statistics for August.—During July there were reported to the Kansas Board of Health 75 cases of tuberculosis, with 51 deaths; 163 cases of typhoid fever, and 25 deaths; 43 cases of diphtheria, and 8 deaths; 14 cases of scarlet fever, and 2 deaths; 76 cases of smallpox and one death, and 74 cases of measles, and 4 deaths.

Organization.—The practitioners of Morris County met in Council Grove, August 10, and organized the Morris County Medical Society, with an initial membership of nine. Dr. William E. Crawford, Council Grove, was elected president; Dr. William A. McCollough, Delavan, vice-president; Dr. J. Wilson Evans, Council Grove, secretary, and Dr. Bert E. Miller, Council Grove, treasurer.

Personal.—Drs. Walter P. Keene and C. C. Elliott have been appointed assistant surgeons in the Soldiers' Home Hospital, Leavenworth.——Dr. William B. DeWees, Salina, has gone to Chicago, Rochester, Minn., and New York for postgraduate work.——Dr. Clyde Appleby, Meriden, has become a member of the staff of the National Military Home, Leavenworth.——Dr. Samuel M. Myers, Potter, recently had his nose broken by being struck with a horseshoe.——Dr. John H. Outland, Topeka, is reported to be seriously ill.

KENTUCKY.

Epidemic of Typhoid.—The town of Milford, Bracken County, is reported to be suffering from an epidemic of typhoid fever. Twenty cases have been reported so far, with four deaths.

Milkman Barred from City.—The city health department of Louisville, as the result of an investigation of samples of milk obtained from Hagen Bros., Elizabethtown, is reported to have notified milk dealers that they must not handle milk from this dairy, and has ordered the sanitary inspectors to stop all milk from this dairy at the city limits.

Antituberculosis Association.—At a recent meeting of the Louisville Antituberculosis Association a membership of 858 was reported. Dr. George W. F. Rembert, physician in charge of the association's sanatorium at Hazelwood, expressed his approval of the administration building and other buildings of the sanatorium, and stated the location was ideal. The sanatorium will soon be ready to receive patients.

Personal.—Dr. Zach. A. Thompson, Pikeville, has been appointed medical referee of Pike County.——Dr. Joseph R. Anderson, Owensboro, who was recently operated on in Louisville, has entirely recovered and returned to his home.——Dr. W. R. Pinnell has been appointed assistant superintendent of the Louisville City Hospital, vice Dr. C. Louis Moir, resigned. Dr. J. Monett Menefee has been appointed superintendent of the hospital.——Dr. Henry V. Pennington, London, is reported to be critically ill with typhoid fever.

Protest Against Hospital.—A protest has been prepared and filed with the Antituberculosis Association by residents in the neighborhood of Waverly Hill, which point has been selected by the association for the antituberculosis hospital. The meeting of the residents was presided over by Dr. J. W. Blanton of Valley Station, and a petition was signed by practically all the residents of the neighborhood. It is claimed that the neighborhood now has the almshouse, the eruptive hospital and a private sanitarium for the treatment of tuberculosis cases, and placing among them a public sanitarium would depreciate the value of their land, and would place in that community all the contagious hospitals of the county.

MARYLAND.

Tuberculosis Exhibit.—The traveling exhibit of the Maryland Association for the Prevention and Relief of Tuberculosis is a popular feature of the Baltimore County Fair, and is being visited by great numbers of people. Daily lectures are given and demonstrations made, and literature is distributed. The exhibit consists of photographs, charts, appliances, models of shacks, window-tents, etc.

Baltimore.

Increase in Typhoid Fever.—During the week ended September 7, 137 cases of typhoid fever were reported, 94 more than for the preceding week.

Ill and Injured.—Drs. Charles W. Hennington, Franklin W. Griffith and Percy T. Watson, internes at the Johns Hopkins Hospital, are ill with typhoid fever.——Dr. H. Stanley Gorsuch, while running for a car, September 5, broke his leg, the second time this accident has occurred within three months.

Personal.—Dr. Stephen H. Watts of Johns Hopkins Hospital, has been made surgeon-in-chief of the University of Virginia Hospital, Charlottesville.——Dr. N. Trigant Burrow has been appointed assistant in experimental psychology at the Johns Hopkins Hospital.——Dr. H. Barton Jacobs will sail from Europe, September 25.——Dr. W. C. Pennington has returned from Europe.——Dr. James J. Mills is in Paris.

MASSACHUSETTS.

Hospital Notes.—St. Elizabeth's Hospital, Boston, has purchased 5,000 feet of land and buildings thereon, adjacent to the present site, on which an addition to the hospital is to be built.——Lawrence General Hospital has been given a complete *x*-ray outfit.

Personal.—Dr. John H. Bannon, Lawrence, who resigned from the school board to become a school physician, has been dropped from that position by a peculiar interpretation of the city ordinance.——Dr. John J. Sullivan has been appointed ward physician of Lawrence.

MINNESOTA.

Smallpox.—During the nine weeks ended August 19, 360 cases of smallpox were reported to the State Board of Health, an average of 40 cases a week, the highest summer rate for several years.

Internes Strike.—The entire staff of internes of St. Joseph's Hospital, St. Paul, resigned during the night of August 22, on account of alleged grievances. The communication addressed to the mother superior expressed general dissatisfaction with methods employed in the institution, and especially with the status of the internes.

Personal.—Dr. Edward W. Buckley, St. Paul, has been appointed medical director of the Knights of Columbus.——Dr. David E. Seashore, Duluth, was rendered unconscious and sustained severe wounds of the forehead in a runaway accident, August 27.——Dr. John C. Harding, St. Paul, was operated on for appendicitis at St. Luke's Hospital, August 28.

Sanatorium Soon to Open.—The State Sanatorium for Consumptives, Walker, will be ready to open October 1. It is expected that a charge of $1 a day for maintenance will be made to patients who enter the institution. As a condition for admission the patient must have resided in the state for a year, and must be in the incipient stages of pulmonary tuberculosis. Applications are made to Dr. Walter Macley, superintendent, who will have the applicant examined by local physicians. If the applicant has no funds, admission will be granted by the county board, who will pay the cost of treatment and care.

NEBRASKA.

Personal.—Dr. H. Douglas Singer, assistant superintendent of the Northern Hospital for the Insane of Nebraska, Norfolk, has been appointed director of the Illinois State Psychopathic Institute, to be built at Kankakee, the Illinois Eastern Hospital for the Insane.——Dr. Frank E. Osborn, Beatrice, has been appointed superintendent of the State Home for Feeble-Minded, vice Dr. Andrew Johnson.

NEW YORK.

July Death Rate of State.—The total number of deaths in this state in July was 11,959, equivalent to an annual death rate of 17.4 per 1,000, which is slightly below the average for the past five years. An epidemic of measles nearly doubled the number of fatal cases of that disease, and there was an increase in the number of deaths from scarlet fever.

Sight and Hearing of School Children.—The state health and educational departments will act jointly in testing the sight and hearing of the school children in 5 000 school rooms in the incorporated villages of the state. The teachers will conduct the examinations of all children over 7 years of age. Eventually the tests will be extended to all schools in the state.

New York City.

Ellis Island Hospital.—The contract to complete the contagious disease hospital at the Ellis Island immigration station has been awarded for $260,000.

Personal.—Dr. and Mrs. L. Duncan Bulkley gave a reception in honor of the members of the Sixth International Dermatological Congress, September 10.——Dr. Reynold W. Wilcox returned from Europe, September 3.

Cocain Users.—It is claimed that there are more than 80,000 users of cocain in this city. It is unlawful for any person to sell cocain or any of its admixtures except on the written prescription of a reputable physician, such prescription to be filled only once. Violations of this law are punishable by imprisonment for not more than one year, or a fine of not more than $1,000, or both.

Typhoid Spreading at New Brighton.—There were 30 cases of typhoid fever under treatment during the week ended August 31, as compared with 17 for the week ended August 17. Conditions there are discouraging in that there is no general sewer system. The principal water supply is from driven wells, but there are also individual wells and cisterns. The disease in nearly every case is due to the use of surface water.

Money for Hospitals.—The total amount asked for by the trustees of the city hospitals for 1908 is $985,858, which is $211,910.79 in excess of the appropriations for 1907. The item of salaries and wages shows an increase of $131,579 above the appropriation for 1907. In the budget of the department of public charities the total estimate amounts to $2,700,188.63, an increase of $363,917.07 over the estimated expenses for 1907. Of this amount the increase desired for salaries is $204,066.07.

NORTH CAROLINA.

Clinical Laboratory Open.—The Southern Clinical Laboratory, for more critical study of pathology and for the examinations of morbid specimens for the profession at large, was opened September 1, at Wake Forest.

July Mortality.—The reports for July from 20 towns, aggregating a population of 174,300, showed 271 deaths, equivalent to an annual death rate of 18.6 per 1,000. Diarrheal diseases caused 42 deaths; consumption, 36; heart disease, 25; typhoid fever, 23; brain diseases, 13; nervous diseases, 11, and violence (including suicide), 10.

Morbidity for July.—During July measles was reported from 24 counties, whooping-cough from 7 counties, scarlet fever from 6, diphtheria from 17 counties, typhoid fever from 72 counties, malarial fever from 21 counties, cerebrospinal meningitis from 7 counties, intestinal diseases from 8 counties, pneumonia from 13 counties, and smallpox from 17.

Medical Schools Open.—The annual session of the Medical Department of the State University, Raleigh, opened September 9, with the largest class on record.——The North Carolina Medical College, Charlotte, will open for its nineteenth annual session September 16. The new buildings are now in occupancy, and the work of the first two years of the medical course, formerly taken at Davidson, will now be taken in the new building at Charlotte.

Personal.—Dr. Charles M. Clodfelter, Lexington, was seriously injured recently while making a night call, by falling into an open ditch.——Dr. Hubert A. Royster, Raleigh, has been made a member of the board of trustees of the State Reformatory. The board will shortly meet and proceed to take steps to establish the reformatory as authorized by the legislature at its recent session.——Dr. and Mrs. Hillary M. Wilder, Charlotte, sail from New York for Europe, September 18.——Dr. J. D. McDowell, Charlotte, has gone to the Adirondacks for his health.

PENNSYLVANIA.

Alumni Officers Elected.—The following officers have been elected to serve the Alumni Association of the Medical Department of the University of Pennsylvania: President, Dr. James B. Walker; vice-president, Dr. Henry R. Wharton; secretary, Dr. Wilkes O'Neill, and treasurer, Dr. O. G. Levis.

Typhoid Fever in Ridgway.—It is reported that Ridgway, a city of 6,000 people, is infected with typhoid fever and that there are at present 225 cases in the city. One out of every three houses is said to bear a typhoid fever placard, and many houses contain from three to five cases of the disease. The hospitals are all overcrowded and many emergency institutions have been opened.

Society Organized.—Through the efforts of the district officers of the sixth censorial and fourth councilor districts of Pennsylvania, the Juniata County Medical Society was organized at Mifflintown, August 7. A large number of members of the Huntingdon and Mifflin County medical societies were present. Dr. Luther B. Kline, Catawissa, councilor for the fourth district; Dr. Alexander S. Harshberger, Lewistown, censor of Mifflin County, and Dr. William H. Sears, Huntingdon, censor for Huntingdon County, were present and assisted in the organization. Eleven members were enrolled and the following officers elected: President, Dr. Isaac N. Grubb, Thompsontown; secretary, Dr. B. T. Long, Mifflin. The organization of the new society completes the work of organization in the fourth councilor district, as every county in the district now has an active organization.

Philadelphia.

Health Report.—The total number of deaths reported for the week ended September 7 was 462, an increase of 28 over the number reported the preceding week and a decrease of 27 from the number reported the corresponding week of last year. Of the whole number 244 were males and 218 females. The principal causes of death were: Typhoid fever, 11; scarlet fever, 3; pertussis, 5; diphtheria, 5; consumption, 43; cancer, 13; apoplexy, 21; heart disease, 39; respiratory diseases, 32; enteritis, 185; Bright's disease, 28; congenital debility, 18; suicide, 4; accidents, 14; and marasmus, 18. There were 150 cases of contagious disease reported, with 18 deaths, as compared with 156 cases and 11 deaths reported in the previous week.

Consumptive Deaths Reduced.—One of the most important features in the report of the Henry Phipps Institute is the statistical study of the influence of the institute on the death rate from tuberculosis in this city. This report shows that the death rate, from tuberculosis, in the wards of the city containing institutions for the treatment of the disease, has been reduced, while some of the adjoining wards have had an increase. The Sixth ward has had the greatest reduction in death rate. For the period between 1903 and 1905, inclusive, there was a reduction of 2,591 per 1,000, and during the years 1904 and 1905, inclusive, a reduction of 1,474 per 1,000. The greatest reductions have been in the slum district, the foreign district, the colored districts and the manufacturing districts. A comparative table contained in the report shows that the average death rate in the ten years 1896 to 1905 has been reduced from 2,151 per 1,000 in the first-named year to 1,932 per 1,000 in the last. The highest was in 1899, when the rate was 2,224 per 1,000. From 1896 to 1897 there was an abrupt fall: from 1897 to 1898 a rise; from 1898 to 1899 a decided rise; from 1899 to 1900 a considerable fall, with varying gradations in the intervening years, until from 1904 to 1905 there was a very marked fall. The periodicity of the rise and fall, the report says, applies to all diseases and the death rate in general. And although the fall since 1903 was doubtless in part cyclic, it is significant that the most rapid reduction of the ten years is in the period since the scientific study for the prevention of the disease has been actively carried on.

Club for Medical Students.—Recognizing the great need of a house for its undergraduate students and alumni, the Medico-Chirurgical College has procured the club house recently vacated by the Order of Elks at 1609 Arch Street, and has established a club similar to Houston Hall of the University of Pennsylvania. The building has been completely renovated and furnished and offers every advantage for a thoroughly equipped club. The officers and chairmen of the committees of the club are: President, Dr. Watson B. Greene; honorary president, Hon. John E. Reyburn; vice-president, Dr. Benjamin F. Devitt; secretary, G. H. Shuman; assistant to the treasurer, F. R. Magowan; house committee, Dr. W. Easterly Ashton; membership committee, Dr. Seneca Egbert; library committee, Dr. James M. Anders; committee on ways and means, Dr. Arthur C. Morgan; discipline committee, Undergraduate Student; committee on care of the club house, Dr. B. F. Devitt; committee on café, Dr. R. Walter Starr; committee on sale of tobacco, books, etc., Dr. John A. McGlinn; committee on billiards and bowls, Dr. Joseph A. Cramp; committee on society room, Dr. I. N. Broomell, and committee on complaints, Dr. Seneca Egbert. The board of governors is composed of thirty-five members, constituted as follows: Three from the board of trustees of the college; ten from the faculties of medicine, dentistry and pharmacy; ten undergraduate students; and eleven alumni representing the departments of medicine, dentistry, pharmacy and pharmaceutic chemistry. The opening of the club marks a new era in the history of the college and is an evidence that the board of trustees is determined to give its students the same advantages and privileges that are enjoyed by university graduates.

RHODE ISLAND.

Personal.—Dr. Thomas F. Kennedy, Woonsocket, returned from Europe August 24.——Dr. Fred B. Jewett, the retiring superintendent of the State Hospital for the Insane, Howard, was presented by the employés and associates with a handsome roll-top desk, medicine chest and two medical books. The presentation address was made by Dr. George E. Simpson, deputy superintendent.

Albany Alumni Meet.—The Albany Medical College Alumni Association of New England held its ninth annual meeting in Rhode Island Hall, Brown University, Providence, September 5. The secretary's report showed a total membership of 112. The following officers were elected: President, Dr. Creighton W. Skelton, Providence, R. I.; vice-president, Dr. John J. Osterhout, Keene, N. H.; secretary, Dr. Edgar C. Collins, Springfield, Mass.; treasurer, Dr. Alfred H. Hoadley, Northampton, Mass., and board of governors, Drs. George B. McGraw, Rhode Island; Eliphalet Wright, Massachusetts; F. T. Clarke, Maine; George J. Holmes, New Hampshire; Leonard Fillmore, Vermont, and George James, Connecticut. The association was the guest of the president, Dr. Skelton, Providence, at a shore dinner at Field's Point, after the completion of the business of the session.

VIRGINIA.

Increase in Medical Students.—Both the Medical College of Virginia and University College of Medicine, which begin their annual session this month, report that indications at present are that their classes will be larger than at any time in the history of the institutions.

Personal.—Dr. William F. Drewry, Petersburg, has been elected president of the Virginia Home and Industrial School for Girls, Richmond, vice Capt. John L. Roper, Norfolk, resigned.——Dr. Robert L. Kern, Richmond, who has been seriously ill, is reported to be convalescent.——Dr. Ralph W. Brown, Roanoke, who was recently operated on for appendicitis in Richmond, is reported to be convalescent.——Dr. McCandlesh M. Moran, Portsmouth, has been appointed coroner of Norfolk County.

GENERAL.

Trachoma Victims Barred.—The Mexican-American Steamship Company has issued a notice that the government quarantine physicians at the ports of Tampico and Vera Cruz will not permit any immigrants to Mexico to disembark if they are found to be suffering from trachoma.

Yellow Fever in Cuba.—The local board of health of Havana reports that from August 1 to 27 inclusive there were 54 cases of yellow fever in Cuba. Twelve of the patients were Americans, 25 Spaniards and the balance Cubans. During the same period 11 deaths were reported.——On September 3 Governor Magoon reported that 4 cases of yellow fever remained in Cienfuegos and one case in Havana, all of Spaniards.——On September 5, 2 cases of yellow fever were reported, one at Cienfuegos and one at Campoflorid. No new case was reported in Havana.

Cholera in Manila.—Chief Quarantine Officer Heiser reports that during the week ended July 20 two patients with suspicious symptoms were taken from a lighter and from a launch to the San Lazare Hospital for observation. Both were found to have plague. Both died. The first patient attacked had been in Manila for several weeks, and so far as could be ascertained he did not come in contact with any person who had recently arrived from a foreign port, nor did he partake of any imported foods. The bureau of health made a searching daily house-to-house inspection of the city, but so far no further cases have been detected. It was thought best to await further developments before imposing any outgoing quarantine detention on vessels leaving Manila. Seven days after the last case no further cases had been reported, nor had there been any marked increase in the daily death rate for the city of Manila.

Society Meetings.—The twentieth annual meeting of the Medical Society of the Missouri Valley was held in Council Bluffs, Iowa, September 5 and 6. Resolutions were adopted by the society on the death of Dr. Donald Macrae, Council Bluffs, one of the founders and first president of the society, and then treasurer for many years. The following officers were elected: President, Dr. William F. Milroy, Omaha; vice-presidents, Dr. Charles B. Hardin, Kansas City, Mo., and Dr. Albert E. King, Blockton, Iowa; secretary, Dr. Charles Wood Fassett, St. Joseph, Mo. (re-elected), and treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa. A report of the scientific work of the meeting will appear in a later issue of The Journal.——The Cumberland Valley Medical Association, composed of physicians of Maryland and Pennsylvania, held its fifth annual meeting at the Blue Mountain House, September 5. The following officers were elected: Dr. Americus R. Allen, Carlisle, Pa., president; Drs. W. Preston Miller, Hagerstown, Md., John W. Bowman, Le Moyne, Pa., and John W. Croft, Waynesboro, Pa., vice-presidents; Dr. John J. Coffman, Scotland, Pa., secretary; Drs. Edward S. Berry, Shippensburg, Pa., DeWitt C. R. Miller, Mason and Dixon, Pa., and Henry C. Devilbiss, Chambersburg, Pa., assistant secretaries, and Dr. John J. Koser, Shippensburg, Pa., treasurer. The next meeting is to be held in Cumberland County, Pa., probably at Mount Holly Park, in September, 1908.

National Sanitary Department.—The provisional government of Cuba has created a national sanitary department. The Department of Sanitation, as organized, consists of a chief sanitary officer; a national sanitary board; the necessary personnel for the office of the department and the institutions under its control; a local sanitary officer for each municipality with such office personnel, assistants and employés as may be necessary, and such temporary personnel and employés as may be authorized for the study and control of epidemic diseases, and to meet obligations imposed by the decree. The chief sanitary officer, executive officer of the national sanitary board, will exercise general supervision over the sanitary service of the republic. The other members of the national sanitary board are the president of the board of diagnosis of contagious diseases, the chief of the section of hygiene, the sanitary officer of Havana, a qualified lawyer and a qualified engineer. The members of the board hold office for four years, and are to meet once a month or at the call of the president. The department is created because the municipal governments have not been able to provide sufficient funds for the support of an efficient sanitary service; because under local control it is not possible to obtain such uniformity of methods and concert as is necessary to an efficient sanitary service; and because the health of the entire republic is endangered by neglect of proper sanitary service.

Plague in San Francisco.—The first case of bubonic plague reported in San Francisco was on May 27; on August 12 a second case was reported; August 13, 3 cases; on August 16, 1 case; on August 26, 1 case; August 27, 2 cases; August 31, 5 cases; September 2, 3 cases, and September 9, 3 cases. Up to September 10, 21 cases had been reported, with 9 deaths. Two of these originated at the City and County Hospital, one being Dr. Clifton Jones, an interne, and the other a hospital steward. The hospital is said to be in a filthy and disgraceful condition, there being many rats, fleas and vermin of various kinds. During last week 80 rats were caught there, six of which were infected with the plague. Dr. Jones is said to be improving, as his case was mild. The locations of origin of various cases are widely distributed, from North Beach to the Mission district, Point Lobos camp, and two cases were found in Lombard Street, several blocks west of Van Ness Avenue, in the unburnt district. One death is reported from Berkeley and one from San José, and one case developed on a steamer between San Francisco and Honolulu, evidently having originated at the former place. These three cases are not included in the account given. Of the 17 cases reported in San Francisco up to September 2, four patients were born in Italy, three in Ireland, two each in Spain and California, and one each in Finland, Russia, Germany, England, Holland and Greece. For the past three weeks large numbers of rats have been noticed in the city, and in the streets and stables from 10 to 30 dead rats a day have been found. Our San Francisco correspondent advises us that a strong committee from the San Francisco County Medical Society is looking after the matter of the plague and has waited on the mayor and asked him to dismiss the present board of health, which is said to be, at least, inefficient, and to appoint competent men on the board. The mayor has stated that if the matters which the committee believes should be attended to, and to which attention has been called, are not given prompt attention, he will summarily dismiss the board. At a recent meeting the county society instructed the committee to request the mayor, in the name of the society, to discharge the board of health, providing that body at the end of one week was not doing this duty. Latest advices are that the board of health has resigned and that Mayor Taylor has appointed a new board, consisting of Dr. Thomas W. Huntington, professor of surgery in the University of California; Dr. Dudley Tait, secretary of the State Board of Medical Examiners; Dr. William Ophüls, professor of pathology in Cooper Medical College, and Drs. Thomas G. McConkey and Guy E. Manning, who were members of the old board. The board is strong and well equipped and has the entire confidence of the medical profession and the community. The United States Public Health and Marine-Hospital Service has assumed charge of the measures to stamp out the plague, the request being made by the mayor of San Francisco, who added that the city would do all things possible to provide funds to carry on the work. Passed Assistant Surgeon Rupert Blue, U. S. P. H. and M.-H. Service, arrived and assumed charge on September 10. Four service officers, in addition to those already there, are en route to assist him. The city has been divided into 12 districts, each in charge of a competent inspector, who has had practical experience with bubonic plague. Under each district inspector are sanitary inspectors and rat catchers. This organization is in addition to the ordinary sanitary equipment of the city. Kitasato's plans, successfully used in Japan, have been adopted with modifications to meet local conditions, and the plague situation seems to be in a fair way to be abated. An attempt is to be made to disinfect the City and County Hospital, but, our correspondent thinks, it is not likely to be successful. As the disease appeared on the water front, arrangements were perfected and have been in force since September 2, to fumigate all vessels before loading and departure from San Francisco, for the destruction of rats. The City and County Hospital and other infected places have been fumigated.

CANADA.

Encouragement in Treatment of Leprosy.—Dr. Fred Montizambert, Director-General of Public Health at Ottawa, who recently visited the Hospital for Lepers in New Brunswick, was very favorably impressed with the treatment used there, as one patient was recently discharged cured and another is progressing favorably.

New Sanatoria.—The new King Edward Sanatorium, near Toronto, for advanced pay cases of tuberculosis, erected under the auspices of the National Sanitarium Association of Canada, through the generosity of two citizens of Toronto, was opened August 28. This makes the fourth institution conducted by this association, two at Gravenhurst, Muskoka, and two near Toronto, the two former for incipient cases, the latter for advanced and far advanced cases.——Dr. Fagan, provincial medical health officer for British Columbia, in writing to the government of that province for the $5,000 promised for a consumption sanatorium, states that $70,000 has now been subscribed.

Montreal General Hospital Quarterly Meeting.—For the quarter ended June 30, 1907, the revenue of the Montreal General Hospital amounted to $23,075, while the expenditure was $31,024. Bequests to the reserve fund were $10,000 and the endowment fund $15,282. Dr. Fred J. Tees, acting medical superintendent, reported that 896 patients had been treated to a conclusion in the wards as against 881 for the corresponding period of 1906. There were 80 deaths, 40 occurring within three days of their admission. The average number of patients in the hospital per day was 186. In the outdoor departments there were 12,677 consultations.

FOREIGN.

No Fever in Mexico.—The state health officer of Texas has received a report from E. Liceaga, president of the Superior Board of Mexico, stating that during the week, August 10 to 17, there were no cases of yellow fever in the republic.

Epidemics in Europe.—Cholera is reported at several points in Russia and the authorities of western Europe are on the alert to prevent its introduction. A smallpox scare in Vienna has led to prohibition of public meetings and processions, and the cable states that 166,000 have already been vaccinated and that the crowds almost mob the vaccination stations in their eagerness. A number of cases of smallpox have occurred in the poorer quarters.

The Work of the International Association of the Medical Press.—The *Lancet* gives a report of a committee meeting of this association, held in London, August 3-4. There were representatives from Austria, Germany, Belgium, France, Norway and Great Britain. The president, Professor Posner, Berlin, in his address explained that one of the objects of the association is to provide necessary facilities and privileges for members at all international congresses, so that their difficult work of reporting the congress might be done with as little trouble as possible. Dr. Blondel of Paris, secretary of the association, called attention to the medical papers, so-called, issued and distributed gratuitously by manufacturers, and declared that this has become a real plague in France. Firms prefer to spend large sums yearly in issuing publications of their own in preference to spending the same amount in advertising in genuine medical journals. Consequently the income from advertisements is decreasing. A committee, he said, has been appointed to look into the matter, but so far nothing has been done. Dr. Doléris said that one firm interested in ferruginous products publishes a paper which often contains good articles by good men, who are well paid. He added that such things should not be, and that medical men who write for manufacturers of drugs should not be admitted to the association of the medical press. Professor Posner stated that there are medical men who offer to sell to manufacturers articles describing cures supposed to have been effected by means of some one of that manufacturer's drugs. If the article is refused, the name of the drug is changed and the article is offered to some other firm. The German Association of the Medical Press conferred with the manufacturers. The members were courteously received and shown evidence of the disreputable practices described. A list was therefore drawn up comprising about forty names—not all Germans; Austrians, Italians and others were also willing to sell their services to drug manufacturers—and the German members of the association have decided not to publish any contributions from these individuals. In Germany a "black list" is not illegal if it can be proved that it is for the public good and not due to personal animosity. The German papers, he said, are also being brought into line regarding the rejection of certain advertisements. As an example of this he mentioned a remedy which presented exaggerated claims and therefore all the papers refused to accept the advertisement until modified. The Belgian delegate said that editors in that country have also been trying to elevate the moral tone of the medical press. The great difficulty, he said, is to find disciplinary powers, as the law against boycotting is very severe in Belgium. Very little has been accomplished in other countries besides Germany. The fear of compromising themselves politically may explain the non-cooperation of the Russians. Dr. Blondel stated that the Russians are as bad as the Americans in the matter of infringement of copyright, which may help to explain their absence from the conference. The manufacturing druggists in France are unwilling to cooperate with the association, as did the German manufacturers when approached by committees.

LONDON LETTER.

(From Our Regular Correspondent.)

London, Aug. 24, 1907.

New Plans to Combat Plague in India.

The appalling magnitude of the plague in India and the futility of the means taken by the government have been pointed out in a previous letter to The Journal. The government has now made a new departure and proposes to use native aid more in the struggle. This will help to disarm the prejudices of the natives, which have constituted the great obstacle to preventive measures. Indeed, in the recent political agitation in India several of the agitators told the natives that the Europeans were disseminating the plague, pointing out that this was the reason why the natives suffered while the Europeans remained comparatively immune. The government proposes to create a special medical and sanitary organization with a large staff of male and female native assistants under the control of officers of the Indian Medical Service; the use of educated natives in a sanitary service in infected areas, and the grant of scholarships to natives to enable them to study medicine in England, with a view to their return to India as health officers.

Health of Glasgow.

A report published recently states that the death rate of Glasgow for 1906 increased 0.5 per 1,000 over the rate for 1905. This increase, however, is due neither to zymotic ailments nor to respiratory diseases. The most important cause for the increase has undoubtedly been the epidemic of cerebrospinal meningitis which has prevailed in Glasgow for some time. The distribution of these cases has been somewhat puzzling, some of the most congested districts of the city having escaped much more lightly than others.

VIENNA LETTER.

(From Our Regular Correspondent.)

Vienna, Aug. 24, 1907.

National Committee on Sanitary Affairs.

The Austrian house of parliament is going to appoint a committee consisting of 26 members, to be known as the committee on sanitary affairs. The committee will consider all questions dealing with the sanitary aspect of public affairs. This is looked on as the first step toward the creation of a minister of medical affairs.

Smallpox in Vienna.

Within the past eight days 55 cases of smallpox have been reported in Vienna. This has caused some alarm from the fact that within the last ten years not more than 22 cases of this disease have been seen in this city. Many of the younger physicians have not seen a case o fsmallpox, thanks to the care with which vaccination has been carried out. Of the 55 patients, most of whom are children, 90 per cent. have not been vaccinated. The disease is running a very mild course and the mortality is low, two having succumbed. The most stringent measures have been adopted by the authorities to prevent the spread of the disease, the importation of which seems to be due to the immigration of large numbers of Russian fugitives. The fact has been disclosed that within the last three years the number of unvaccinated children is four times greater than that of previous years; this is notably among the poorer classes, the members of which furnish the bulk of the "conscientious objectors" to vaccination. These classes are now paying the penalty for their "objections."

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Treatment of Burns.

(Continued from page 863.)

If the burns are serious the treatment, as previously stated, will differ according to the way in which they were received. When caused by flames a large area is usually involved presenting all degrees of severity. Systemic treatment has already been considered, and the primary dressing may be any one of those suggested for superficial burns, preferably the picric acid or the boric acid in liquid petroleum.

The dressings should be kept moist and changed no oftener than necessary. Depending on the amount of sloughing, the first one may remain from two to five days; it should then be renewed, and best in sections, so as not to expose a considerable area at one time. At each dressing precaution should be taken against infection, all slough should be removed and the part irrigated with warm physiologic saline solution. Frequently an area of slough will become detached at its center while adherent at its border. Such a slough should be carefully lifted at its center with dressing forceps, incised and the detached portion trimmed free with scissors.

As soon as there is the first sign of granulation tissue, practically as soon as the slough separates, gauze dressings should be discontinued, for the tiny new-formed vessels will penetrate the interstices of the gauze with incredible rapidity, and its removal without their laceration and profuse hemorrhage is impossible. The best dressing at this stage, and until healing is complete, and the one requiring the least frequent changing, is silver foil. It should be placed directly on the granulating surfaces, covered with several layers of dry sterile gauze, and held in place with gauze bandages. Next best is gutta-percha tissue, applied in the same manner.

If advisable, skin grafting may be done at this stage and, in conjunction with the use of silver foil, will greatly hasten the process of repair. There are still some surgeons who prefer to use an ointment, even after all slough is removed, in which case it must not be applied on any open-mesh fabric. The following ointments have been recommended:

Dr. George P. Dale, Dayton, Ohio (*New York Med. Jour.*, Sept. 29, 1906), recommends the following:

℞.

	gm.		
Zinci oxidi	20		ʒv
Ichthyol	5	or	ʒi
Petrolati	20		ʒv

M. Sig.: Use externally as directed.

Dr. Walter Lathrop, Hazleton, Pa. (*Therapeutic Gazette*, June 15, 1907), recommends the following:

℞.

Cerati resinæ.......................q. s.

Sig.: Use externally as directed.

Burns from steam generally involve a large area, are not usually so deep as those from other sources unless the exposure is long, but are often more serious by reason of inhaled steam causing a fatal pneumonia. Their treatment should be the same as for those caused by flame.

Gunpowder burns usually require a long and tedious first dressing, particularly if they involve the face and hands. The removal of the powder particles is best done at this time, and, after the general cleaning up of the patient, probably there is no more satisfactory method than to administer an anesthetic, and with soap and water and a moderately stiff brush, scrub the powder-blackened areas. To one who has not seen this tried it will be a surprise to note the rapidity with which the end is accomplished. The boric acid ointment of the Pharmacopeia, or a cold cream having a petroleum base, should be used on the face and is best applied on a mask. For the hands, picric acid may be used. If the eyes are involved, all foreign particles should be removed immediately as completely as possible, then the eyes should be copiously flushed with:

℞.	gm. or c.c.		
Acidi borici	5|		gr. lxxv
Aquæ camphoræ	300|	or	fl℥x
Aquæ	ad 500|		ad Oi

M. Sig.: Eye wash.

Next, with the eyes closed, the eyelashes are smeared freely with sterile petroleum and bandaged. The bandage should be removed and the eyes flushed once or twice in twenty-four hours, depending on the amount of inflammation present. If this is considerable and there appears any danger of an iritis, one or two drops of a 1 per cent. solution of atropin should be instilled at each dressing. If an eye is destroyed, enucleation should be immediate.

In dressing the hands after powder or any other burn, the fingers, of course, should be separated by gauze and kept so until healing is complete, otherwise "webbing" may result.

In burns caused by explosions of any kind there are liable to be all varieties of traumatic complications. Of these Dr. Walter Lathrop, of the State Hospital, Hazleton, Pa. (*Therapeutic Gazette*, June 14, 1907), says: "These patients are treated first for the hemorrhage and shock, which are always present, and when possible the injured parts are thoroughly cleansed. The patient is then anesthetized and coal and other foreign matter extracted from his body, but it is impossible to remove all, and subsequently small pieces are thrown off by Nature, through suppuration. Amputation is done when necessary. The eyes are usually filled with fine dirt and minute particles of coal. These particles are removed as completely as possible and boric acid wash used. . . . Treatment of the body or injured parts consists of sterile dressings, renewed daily for the first week, then followed by . . . petroleum spread on lint with a small quantity of iodoform or acetanilid dusted over it, but not enough to produce dangerous symptoms from absorption." He thinks acetanilid "very valuable, but requires watching where a large surface is involved," and recommends in obstinate cases a combination of ichthyol, balsam of Peru and petroleum. The following proportions will be found satisfactory:

℞.	gm.		
Ichthyol	25|		
Balsami peruviani	25|	or	āā, ℥i
Petrolati	50|		℥ii

M. Sig.: Spread on lint and apply to burn.

Burns caused by hot or molten metal are usually circumscribed and characterized by complete tissue destruction and unusual depth. Their treatment calls for nothing out of the ordinary.

Burns caused by electricity are peculiar only in the shock that accompanies them. Frequently the victim falls, apparently dead. Artificial respiration should be started immediately and kept up while the usual procedures are carried out to combat shock. At the same time advantage may be taken of the unconscious condition to do a painless dressing.

Chemical and x-ray burns belong in a special class. If at all serious, their appearance gives almost no indication of the amount of necrosis which may follow and to which they seem particularly prone. They manifest a marked inhibition of all reparative processes, and the x-ray burn causes an amount of pain out of all proportion to the lesion. Ointments are of little use except for the purpose of relieving the pain. The curette followed by skin grafting is frequently necessary to effect a cure. The following ointments have all been used, with benefit in some cases and failure in others:

℞.	gm.		
Mentholis	|50	or	gr. x
Petrolati	50|		℥ii

M. Sig.: Use externally as directed. Or:

℞.	gm.		
Cocainæ hydrochloridi	|50 to 2	or	gr. x to xxx
Petrolati	50|		℥ii

M. Sig.: Use externally as directed.

Any cocain preparation must be used on excoriated surfaces, with care lest too much be absorbed.

℞.	gm.		
Acetanilidi	2|5	or	gr. xl
Petrolati	50|		℥ii

M. Sig.: Use externally as directed.

Large burned surfaces should not be dressed with acetanilid preparations, lest a dangerous amount be absorbed.

SPECIAL TREATMENTS.

Under this head may be mentioned yeast and the continuous bath. When a burn shows extensive sloughing, when the odor is particularly offensive, or when the dressings are very painful, ordinary brewer's yeast makes an excellent dressing. It immediately removes all odor, lessens the discharge, is remarkably soothing, and appears to hasten the reparative process. In burns about the genitals and anus, which it is difficult or impossible to keep clean, no dressing is superior to yeast.

The continuous bath treatment consists simply in immersing the patient in a tub of water and keeping him there till all slough has separated. The water is kept at, or slightly above, the body temperature, and changed as frequently as is necessary to keep it clean. The patient is removed daily, but only long enough to permit removal of loosened slough. This appears to be an ideal form of treatment and is said to give excellent results; certainly it reduces the patient's suffering to a minimum.

Cough in Bronchitis.

℞.	gm. or c.c.		
Ammonii chloridi	5|		ʒiss
Tincturæ hyoscyami	10|		flʒiii
Syrupi ipecacuanhæ	5|	or	flʒiss
Spiritus frumenti	25|		fl℥i
Aquæ chloroformi	ad 100|		ad fl℥iv

M. et sig.: A teaspoonful, in water, every two hours.

Or:

℞.	c.c.		
Codeinæ sulphatis	|20		gr. iv
Ammonii chloridi	5|		ʒiss
Syrupi ipecacuanhæ	5|	or	flʒiss
Syrupi acidi citrici	25|		fl℥i
Aquæ	ad 100|		ad fl℥iv

M. et sig.: One teaspoonful, in water, every two or three hours.

Cough in Tuberculosis.

℞.	gm. or c.c.		
Codeinæ sulphatis	|20		gr. iv
Acidi hydrochlorici diluti	2|		flʒss
Spiritus chloroformi	5|	or	flʒiss
Syrupi acidi citrici	25|		fl℥i
Aquæ	ad 100|		ad fl℥iv

M. et sig.: A teaspoonful, in water, every two hours.

The following is recommended by D. E. Hughes:

℞.	gm. or c.c.	
Morphinæ sulphatis	|10	gr. ii
Ammonii et potassii tartratis	|10	gr. ii
Ammonii chloridi	8|	ʒii
Syrupi glycyrrhizæ	ad 100|	ad fl ℥iv

M. et sig.: A teaspoonful in water, every four hours.

Edema Caused by Potassium Iodid.—N. E. Aronstam says that potassium iodid at times may produce an angioneurotic edema of the eyes and face. This furnishes a serious drawback to its administration in syphilis. It can be avoided, however, by combining it with tincture of belladonna or hyoscyamus, as correctives.

Pharmacology

Purgen Now Being Exploited in this Country.

The physicians of the United States are receiving a neat package containing samples of a German proprietary—Purgen. The container is an ingenious one and, besides the tablets, includes a circular in English, although mailed in Europe, describing the remarkable virtues of this "new synthetic aperient." It has been considered strange that this proprietary, which has been advertised so thoroughly in Europe, Australia, etc., should not have made its appearance in this country. Now it is here, and it is well that physicians should know what Purgen is and not be mystified or misled by the literature that they may receive regarding the preparation.

The following appeared in The Journal, Jan. 5, 1907, page 64, and is reprinted now as being especially timely:

> The report of a case of poisoning by purgen (phenolophthalein) is the occasion for some pertinent observations by Dr. G. Brasch as to the proper introduction of such remedies to the medical profession (*Zeitschrift für Medizinalbeamte*, Abst. in *Apotheker-Zeitung*, No. 59, 1906). He agrees with Best that all such remedies should first receive a thorough trial in an institution subject to state supervision, before they are advertised to the medical profession, so that their harmlessness in appropriate doses may be ascertained by a method free from liability to error. The manner in which the manufacturers introduced purgen to the profession and to the laity is to be condemned, and probably led to the symptoms of poisoning exhibited in the case of Dr. Best and tends to discredit a remedy which is harmless and efficient if used in proper doses. The manufacturer of such a preparation is inclined, for obvious reasons, to put the dose of his preparation much too high. The most important point, however, is the objectionable character of the names given to such articles. The organic compound phenolophthalein has been known for a long time and has been widely used as an indicator. Accidentally it was discovered that phenolophthalein possessed laxative properties and thereon it was proposed (1901) as a medicine under the name "purgen." It is sold in tablets containing 0.05, 0.1 and 0.5 grain phenolphthalein mixed with sugar and flavored with vanilla. The author says: "But it is very desirable—and I regard this as the most important part of my communication—that phenolphthalein should be received into the materia medica under its own name. The addition of vanilla and sugar and the designation as 'purgen' by the manufacturers is to the highest degree superfluous and the arbitrary dosage in three strengths with the ridiculous designations 'baby,' 'for adults,' 'for patients confined to bed,' are merely calculated to prejudice the physician who is accustomed to individualize in his prescriptions, against a remedy which is in itself an excellent one."

As explanatory to the last sentence, it should be stated that in Europe purgen is put up in three dosage forms, "infant purgen for children," containing ¾ of a grain; "adult purgen for chronic constipation," containing 1½ grains, and "strong purgen for invalids," containing 7½ grains. The form in which it is being sampled in this country is in the medium dose, 1½ grains.

Physcians should remember that the promoters of purgen are simply introducing a chemical well known to laboratory workers for the last twenty years, which has been recognized as an aperient for at least seven years, and which can be purchased for 40 cents an ounce, whereas an ounce of phenolphthalein in the form of purgen will cost $3.20 wholesale. The enthusiastic praise of the remedy, found in the advertising circulars, should be subjected to critical judgment on account of its source and motives.

It is undoubtedly true, however, as we have previously stated, that phenolphthalein is worthy of a trial. In the *British Medical Journal*, Oct. 18, 1902, F. W. Tunnicliffe speaks of the virtues of phenolphthalein, and the conclusions reached by him were that it is a useful aperient, without irritating action on the kidneys, and is especially valuable in jaundice, its depressing action on the circulation being less than sulphate of magnesia.

Phenolphthalein is not in the Pharmacopeia, but has been included in "New and Non-Official Remedies" by the Council on Pharmacy and Chemistry. From this we quote:

> *Actions and Uses.*—Phenolphthalein acts as a purgative, but appears to possess no further physiologic action. A case of poisoning from taking 1 gm. (15 grains) is reported.
>
> *Dosage.*—For adults the average dose is 0.1 to 0.2 gm. (1.5 to 3 grains) given as powder, in cachets, capsules or pills. It may be given with safety in doses of 0.5 gm. (8 grains), and these doses seem to be necessary to secure its effects in bedridden patients or in obstinate cases.

We have gone into this matter again so that our readers may have some knowledge of this remedy, and we hope that if they conclude to try it they will use the chemical itself and under its own name.

Correspondence

The Cause of the Nostrum Evil as Seen by a Recent Graduate.

Huntsville, Utah, Aug. 25, 1907.

To the Editor:—The growth of the nostrum evil is due either to a defect in the education of the physician or else to carelessness and neglect on his part. To-day a large proportion of the young men just out of medical college can not write half a dozen correct prescriptions; that branch of their education has been woefully neglected.

The detail man from the proprietary house is one of the first visitors to the young physician's office. Before he has been practicing many months he has received enough samples to cure, if the literature which accompanies them is to be believed, all the diseases he is liable ever to be called on to treat. The practitioner who uses such therapeutic agents does not prescribe, he dispenses; the proprietary manufacturer prescribes and the physician becomes the dispensing agent for the manufacturer.

The name on the prescription for proprietary remedies is usually a catchy and easily remembered one; the patient is very liable to receive the preparation in the original bottle together with its "cure-all" label and circular. When another member of the family is taken sick with a disease symptomatically similar to the one previously prescribed for, the physician is not called, but another bottle in the "original package" is purchased at the drug store and self-medication is established. Many nostrum manufacturers after thoroughly introducing their preparations to the medical profession and receiving testimonials from physicians, begin to advertise them on a large scale to the public. The older men in the profession are in no small part to blame for this state of affairs. The recent graduate is surprised to find the more experienced men believing that a certain antiseptic powder is a more powerful germicide than any drug in his therapeutic armamentarium, that another nostrum is the safest and surest hypnotic he has at his command, and that one of the rankest acetanilid preparations is the safest of coal-tar derivatives. Two examples that came under my observation are as follows: One physician prescribed "anurep," a transposition of the letters of the nostrum peruna; another prescribed "Syrupus Winsli" for Winslow's soothing syrup. Can one imagine a physician with an adequate knowledge of therapeutics going to such extremes? My experience in the first two years of practice is probably no different from that of others: I received 307 samples and nineteen pounds of literature from proprietary houses. So long as the proprietary manufacturers continue to be as aggressive as they now are, and the teaching of therapeutics in medical colleges remains as indifferent as it now is, can we expect different results?

W. J. Browning, M.D.

The Preparation of the Specialist.

Iowa City, Iowa, Sept. 5, 1907.

To the Editor:—I have read with interest the note of Dr. Frank in The Journal, Aug. 31, 1907, referring especially to Dr. Shambaugh's article on "The Preparation of the Specialist." Both the articles furnish much food for thought and I believe that it would be well if our higher educational institutions would take cognizance of the sentiments expressed. Dr. Frank says: "Where is the university which offers courses toward the Ph.D. degree for investigations in internal medicine, in diseases of the eye, ear, nose or throat, or diseases of the nervous system, or even pathology?" The graduate college of the University of Iowa recognizes that the work done in various department of the College of Medicine is of such a character as to warrant the college offering courses leading to the degrees of M.S. and Ph.D. Since 1900 various departments of the medical college have offered courses leading to the degrees mentioned. A number of the M.S. degrees have already been given; as yet no Ph.D. degrees have been granted.

Again, Dr. Frank asks the question: "Is it justifiable that the possession of an academic degree be absolutely necessary before a man may engage on the work for his Ph.D.?" I believe that many of us will agree with the doctor when he states: "It is far better that he hold one; but it is wrong to make it absolute."

It will be of interest to know that a few years ago the board of regents of the University of Iowa voted that the degree of M.S. (master of science, in medicine), may be granted to any one holding the degree of M.D. even though he does not hold an academic degree; provided, of course, that he does the prescribed amount of work, which is the same whether the applicant holds or does not hold the baccalaureate degree. This is like placing the baccalaureate degree and the medical degree, so far as educational requirements are concerned, on a par. With the present-day requirements of a one or two years' course, as a necessary preliminary for entrance on a medical course, it will not be long before the medical degree will be placed above the baccalaureate degree. Considering this in connection with the tendency of the present day to place the study and practice of medicine on an exact scientific basis, it seems that the contention made in the article quoted, viz., that certain changes in regard to the relation between medical studies and advanced degrees should be made, is entirely justifiable.

J. R. Guthrie.

Accident with Therapeutic Electric Lamp.

Elmhurst, Ill., Sept. 6, 1907.

To the Editor:—I wish to report a mishap which occurred during the use of a therapeutic lamp. The lamp used was a small portable one. While administering a treatment over the abdomen, for a diffuse peritonitis, without any known cause the globe exploded, severely frightening and burning the patient.

The therapeutic lamp is frequently used about the face in the treament of boils, infections, eczema, neuralgia, enlarged glands, etc. Since the incandescent globe may explode, light and heat should be administered through a different medium.

Henry F. Langhorst, M.D.

Book Notices

The Essential Similarity of Innocent and Malignant Tumors. A Study of Tumor Growth. By Charles W. Cathcart, M.A., M.B., etc., Surgeon Royal Infirmary, Edinburgh. Illustrated. Cloth. Pp. 79. Price, $2.50. New York: William Wood & Co., 1907.

This monograph is devoted to a description of specimens and cases illustrating the fact that there is no sharp line separating malignant from benign tumors. Much valuable information bearing on this point is collected in this book from the author's experience with museum collections. It is illustrated by numerous photographs, some of which are good. Why writers will waste money and good white paper publishing photomicrographs which show, at least in the reproductions, nothing but a mass of blurred splotches which mean nothing or next to nothing, even to a trained pathologist, has always been an irritating incomprehensibility to the reviewer! There are numerous citations from the literature which illustrate various features of the relationship between benign and malignant growths, but no comprehensive bibliography has been accumulated. The author's conclusion that innocent and malignant tumors are similar to one another in their nature and mode of growth will find few opponents, if any, among modern pathologists. We can particularly commend the discussion of the interesting variations in malignancy exhibited by giant-cell sarcoma of bone.

Abdominal Pain, Its Causes and Clinical Significance. By A. E. Maylard, M.B., B.S. Second Edition, revised. Cloth. pp. 301. Price, $2.50 net. Philadelphia: P. Blakiston's Son & Company, 1906.

Endeavoring to put the clinician's estimate of pain as a subjective symptom on a scientific basis, Maylard, already well known for his work on the "Surgery of the Alimentary Canal," in 1905 issued the book of which the second and revised edition is now before us. The appearance of the second edition so soon after the publication of the first is evidence of the appreciation by the profession of the value of the work. The whole work has undergone revision. Instead of certain matter on abdominal operations, which appeared in the first edition, there have been inserted chapters on abdominal neuroses and postoperative pain, constituting a valuable addition to the work and putting its entire text into harmony with its title.

Infectious and Parasitic Diseases, Their Cause and Manner of Transmission. By Millard Langfeld, A.B., M.B. (Johns Hopkins): Professor of Bacteriology and Clinical Medicine, Creighton Medical College, Omaha. With an Introduction by L. F. Barker, Professor of Medicine, Johns Hopkins University. Illustrated. Cloth. Pp. 260. Price, $1.25 net. Philadelphia: P. Blakiston's Son & Co., 1907.

According to the author, this book was written primarily for the use of nurses, but its scope has been enlarged so that it serves admirably for the use of such persons as are interested in bacteriology, but lack training in this subject. The text is simple and clear, and the author has avoided the use of terms and the discussion of questions which would be unintelligible to beginners. It is doubtful whether the book can be used as a text-book for the medical student, although the chapter on the collection and examination of secretions and excretions is very explicit, and can not fail to be of service.

Miscellany

Eleventh International Anti-Alcoholic Congress at Stockholm.

These congresses began over a quarter of a century ago, and for many years were confined largely to temperance reformers and philanthropists. During the last ten years, at the Paris and Budapest meetings, the scientific side of the subject has come into great prominence. We are indebted to Dr. T. D. Crothers, Hartford, Conn., for a report of the eleventh congress, recently held at Stockholm. The proceedings were divided into three distinct sections, scientific, sociologic and popular.

Dr. Delbruck of Bremen, Germany, in a paper on "The Medicinal Value of Alcohol," concluded that its stimulating properties were delusional, that its only value was that of a narcotic. Other speakers followed, showing its limited value as a drug, and its exceeding danger as a beverage. Dr. Forel of Switzerland discussed at some length the "Influence of Alcohol in Sexual Life and Human Productiveness," showing by statistics that drinking parents are always followed by degenerate and imperfect progeny. "Alcohol and Criminality" was the subject of several papers, all showing its intimate connection with crime and pauperism. Professor Hartman of Leipzig pointed out the evils and dangers from alcohol in student life. He showed from statistics that the use of beer and spirits was dangerous to all forms of study and culture. The subject of heredity was treated by a number of very exhaustive papers, giving statistics of school children and others, who were considered degenerate from moderate and excessive drinking parents. Dr. MacNicholl of New York contributed an excellent paper on this topic.

Another subject discussed by both physicians and laymen was "The Influence of Alcohol in the Production of Railway and Other Accidents." Reference was made to a recent paper on this subject by Dr. H. O. Marcy of Boston and its statements confirmed in a most flattering way. Army surgeons and military men expressed the conclusion that alcohol is an evil that must be eradicated before the full efficiency of armies can be obtained. Several eminent physicians proved conclusively that total abstinence should be insisted on by all life insurance companies as a matter of economy, and that no moderate drinker should be insured except on extra hazardous rates. On the accountability of alcoholics there seemed to be a wide difference of opinion.

In the popular section the Gothenburg system was discussed and the different methods of treating alcoholics, the value of society movements and the influence of papers, tracts and the recent bill-poster crusade which began in Paris a few years ago and has now extended to England. Interesting papers and discussions pointing out the value of public teachings of the evils of alcohol were read. On the question of institutional treatment of inebriates, Dr. Crothers gave a history of the movement in America and Dr. Ellsworth spoke of the first institution in the world and its growth and progress.

A number of continental physicians and the president of the University at St. Petersburg, Russia, described the efforts being made in different countries, all referring to America as having been the pioneer in this field. Resolutions were passed requesting that some American delegate present an exhaustive historical paper on this subject at the next congress.

"Alcohol as a Nutrient" was the subject of nearly two hours' discussion by a number of physicians and physiologists, with most elaborate tables, charts and drawings. The general conclusion was that its nutrient properties were very doubtful, and so far could not be sustained by the best modern research.

In another section some very strong papers were presented on the duty of the press to do everything possible to educate the public concerning the evils of alcohol. In this connection it will be interesting to note that in the exhibit room in the congress buildings were copies of eleven hundred papers published throughout the world, devoted to the temperance cause. It was a curious fact that a great majority of these papers were published in the wine and beer-drinking countries of Europe. It was interesting to note that of temperance periodicals the United States and Canada furnished less than one hundred, Great Britain and the Colonies less than a hundred, Russia about thirty and Continental Europe the balance. These periodicals impress one very vividly with the magnitude of the movement against alcohol as a beverage.

In one room there was a somewhat startling exhibit of flaming advertisements that were posted on the bill boards in France and England. These advertisements consisted of statements and exclamations regarding the ill effects of alcohol, published in colors so as to attract attention. Most of them were quotations from medical men and some of them were very startling in their graphic presentation. This new crusade has not reached this country yet.

There were fifteen hundred persons registered as members of the congress. Over four hundred were physicians, teachers, scientists and persons interested in the hygienic and sociologic aspects of the subject. The congress was one of the most significant gatherings of the year, and shows a growing appreciation of the importance of the alcohol question, especially in the great wine-drinking countries of Europe. The congress attracted the attention of the press, which published long accounts of the transactions and gave some of the papers in full.

A bureau was organized, with Dr. Hercord of Zurich, Switzerland, as secretary, for the collection and dissemination of all papers having scientific interest on this subject. Many of these papers will appear in the German and English magazines in the near future.

Rate at which Physicians Speak.—Mr. William Whitford, Chicago, who was elected president of the National Shorthand Reporters' Association at the ninth annual meeting, held at Biltmore, near Asheville, N. C., August 6-9, read a paper embodying twenty years of observation and researches on the rate of public speaking. The list of speakers includes noted preachers, university professors, lawyers, dentists and physicians. Following is a tabulated record of some of the physicians Whitford has reported, the number of times he has reported them, the lengths of the speeches and the average speed per minute:

PHYSICIANS AND SURGEONS.

Speaker.	Number of takes.	Length of takes. Minutes.	Average speed per minute.	Total average.
W. W. Keen	3	5, 10, 15	122, 142, 136	133⅓
Jos. D. Bryant	2	5, 10	140, 132	136
Robert T. Morris	3	10, 15, 20	135, 122, 128	128⅓
Maurice H. Richardson	2	10, 5	135, 146	140½
Samuel J. Mixter	2	5, 10	138, 126	132
Henry O. Marcy	2	10, 20	142, 156	149
Wm. B. Coley	3	5, 10, 20	168, 148, 149	155
Herman J. Boldt	4	10, 5, 10, 20	116, 126, 128, 126	124
James M. Baldy	3	10, 5, 15	172, 182, 165	173
Philander A. Harris	2	10, 5	138, 146	142
Edward J. Ill	2	5, 10	120, 116	118
Willis F. Westmoreland	2	30, 10	136, 128	132
J. B. S. Holmes	2	10, 5	132, 146	139
Howard A. Kelly	4	10, 5, 10, 15	164, 152, 146, 148	152½
J. M. T. Finney	2	10, 15	136, 142	139
Wm. H. Welch	2	20, 10	165, 164	164½
Frank Billings	3	15, 10, 5	128, 132, 146	135⅓
James B. Herrick	2	35, 10	132, 146	139
Robert B. Preble	2	10, 5	148, 164	156
Arthur R. Elliott	2	10, 15	146, 138	142
Geo. W. Webster	2	5, 10	138, 128	133
A. J. Ochsner	4	5, 10, 15, 5	106, 92, 86, 98	95½
D. A. K. Steele	2	10, 5	146, 162	144
Wm. E. Quine	4	10, 15, 5, 50	120, 122, 130, 132	126
G. Frank Lydston	2	10, 20	142, 156	149
J. Henry Carstens	4	10, 15, 10, 10	152, 162, 170, 146	157½
H. O. Walker	2	10, 5	136, 132	134
Victor C. Vaughan	3	5, 10, 10	134, 145, 137	138⅔
Daniel R. Brower	3	10, 15, 30	126, 128, 136	130
Nicholas Senn	4	10, 50, 10, 100	164, 162, 161, 156	160¾
Joseph M. Mathews	4	10, 15, 10, 5	126, 122, 130, 128	126½
George Ben Johnson	2	10, 15	122, 118	120
F. W. McRae	3	10, 5, 10	132, 136, 124	134
W. E. B. Davis	2	10, 10	132, 126	129
Chas. A. L. Reed	3	10, 10, 20	135, 142, 128	138⅓
Arthur Dean Bevan	3	50, 50, 10	126, 122, 138	128⅔
T. J. Happel	3	10, 10, 5	135, 142, 152	143
Richard Douglas	2	10, 15	138, 142	140
Henry M. Lyman	2	40, 15	161, 146	153½
James F. Baldwin	3	15, 10, 15	165, 148, 142	151⅔
John B. Murphy	3	15, 10, 10	160, 138, 148	148⅔
A. M. Cartledge	3	10, 5, 10	165, 180, 172	172⅓
Harold N. Moyer	3	10, 5, 10	136, 132, 135	134⅓
Frederick Montizambert	2	15, 10	138, 127	132½
Walter Wyman	2	10, 15	132, 140	136
Weller Van Hook	2	10, 10	136, 142	129
Charles T. Parkes	4	50, 50, 50, 50	175, 165, 172, 176	172
Wm. A. Evans	2	10, 10	134, 138	136
James F. W. Ross	2	10, 15	142, 128	135
Hugh T. Patrick	2	10, 20	142, 146	144
R. M. Cunningham	2	15, 40	138, 146	142
D. N. Eisendrath	2	10, 15	164, 158	161
Joseph Eastman	1	15	138	138
Mathew D. Mann	2	15, 10	142, 138	140
M. L. Harris	3	10, 5, 10	122, 136, 128	128⅔

DISTINGUISHED BRITISH PHYSICIANS AND SURGEONS.

Speaker.	Number of takes.	Length of takes. Minutes.	Average speed per minute.	Total average.
Sir Victor Horsley	2	20, 10	146, 138	142
Sir Andrew Clark	2	10, 20	126, 138	132
Sir Wm. Broadbent	2	10, 15	128, 136	132
Sir T. Granger Stewart	1	20	136	136
Lawson Tait	2	10, 15	152, 139	145½
Sir Wm. Macewen	2	20, 15	135, 142	138½
Ernest Hart	2	40, 10	126, 132	128⅔

Old Bottles and the Public Health.—The National Glass Bottle Workers' Trade Union, says the *Lancet* (London), sent a deputation to the president of the Local Government Board to call his attention to the indiscriminate manner in which old bottles are utilized to the danger of the public health. The spokesman pointed out that these old bottles are frequently collected from ashpits and other receptacles for rubbish and sold for use after being imperfectly washed out with hot water. It was further stated that many of these bottles come from places where infectious disease exists, and that they afford a possible channel for its dissemination. It was urged that some system of sterilization should be enforced in the case of such bottles before they are allowed to be sold and used again. Mr. Burns replied that he was in sympathy with the object of the deputation and promised to give his careful attention to the possibility of carrying out the practical suggestion placed before him. It is only necessary to reach this protest, says the *Lancet*, to be in accord with it: there is no doubt that the practice complained of may well be a source of infection. We should like to think that no one purchasing such bottles would fill them with any liquid for public consumption without first satisfying himself of their cleanliness, but unfortunately our experience of other unchecked industrial processes, as witness the use of loathsome bed stuffing, does not make us too sanguine in the matter. It is surely not too much to demand that these old bottles should undergo a prolonged and efficient scalding either at the hands of the sellers or the buyers before being refilled, and we trust that official action will be taken to secure this or some equally precautionary measure. The National Glass Bottle Workers' Trade Union, even though its action was undertaken with one eye to its own interests and one eye to the public's, has done good service in calling attention to the matter.

Vital Statistics of Ceylon.—The *Journal of Tropical Medicine*, August 1, gives some interesting information regarding Ceylon. The statistics quoted are those given by Dr. A. J. Chalmers, in his inaugural address to the Ceylon branch of the British Medical Association. The difference between the town and country death rates for infants is most marked in the municipality of Colombo, where it amounts to 395 per 1,000, while in the country districts it is but 149 per 1,000. The prevalence of diarrhea and dysentery indicate the need of better water and better sanitation. Ankylostomiasis probably causes many more deaths per annum than is realized, while faulty diagnosis may be ascribing more deaths to this cause than really occur. The increase in the number of cases of phthisis and its importance to the community are emphasized. Attention is directed to the high death rate of women in childbirth, and Chalmers considers that this should be diminished by the trained midwives who are being distributed over the island. Malaria causes a great deal of illness, but has a comparatively low death rate. Leprosy, while not a frequent causes of death, is prevalent in the island. There is an unknown number of lepers in their own homes. Old age, according to the statistics, causes 2.1 per cent. of the mortality, and this, the *Journal of Tropical Medicine* says, is satisfactory, if true. It is noted that the more healthy the province the greater the number of people who die of old age.

Yeast in Furunculosis.—Aronstam (*Medical Fortnightly*) confirms the statement that baker's yeast is occasionally of signal service in furuncles. It should be administered in one-half dram doses three hours after meals, just at the time when the food has undergone chylification in the small intestines. This remedy, he asserts, is especially indicated when indican is detected in the urine of patients afflicted with repeated outbreaks of this affection.

Superalimentation in Phthisis.—It is well and good to feed tuberculous patients abundantly; but I question the wisdom of excessive overfeeding, which so often causes the patient great distress and produces a sense of disgust for any kind of food. We should be guided in directing dietetic treatment by the patient's digestive and assimilative powers. . . . Let us never forget that an increase of adipose without concomitant improvement of pulmonary lesions is of little value.—Knopf.

Marriages

F. L. Corson, M.D., to Miss Metta Hunt, both of Shawnee, Okla., August 21.

William A. Teveluwe, M.D., to Miss Martha Scheve, both of Cincinnati, August 28.

Erwin C. Garber, M.D., to Miss Ella Mae O'Neil, both of Dunkirk, Ind., August 26.

Charles E. Thompson, M.D., to Miss Katherine McMillan, both of Cincinnati, August 29.

Clay W. Weimer, M.D., Shamokin, Pa., to Miss Janet Hicks of Harrisburg, Pa., September 4.

Stanley R. Perkins, M.D., Mishawaka, Ind., to Miss Cora Etta Hill of Chicago, September 11.

Wilbur G. Ruble, M.D., to Miss Ethel Lynn Murphey, both of Morristown, Tenn., September 4.

Harry R. Folckemer, M.D., Bowen, Ill., to Miss Nell E. Byers of Dallas City, Ill., August 22.

Thomas Evans, M.D., Jr., to Miss Helen Foster Harrison, both of Pittsburg, Pa., September 14.

George A. McLane, M.D., Walworth, Wis., to Miss Agnes Mahoney of Elkhorn, Wis., August 28.

Harry Edward Purcell, M.D., Madison, Wis., to Miss Susan Prindiville of Chicago, September 12.

Walter Wellman Graves, M.D., La Salle, Ill., to Miss Clara Belle Cavell of Mendota, Ill., September 2.

Robert H. Hayes, M.D., Brockton, Mass., to Miss Gertrude A. Luce of New Vineyard, Maine, September 4.

Charles J. Sorsen, M.D., Calumet, Mich., to Miss Jerski Lang of Finland, in London, England, August 26.

William Beverley Mason, M.D., Washington, D. C., to Miss Agnes Gray Kennedy at Warren, Va., August 20.

Clark Barrows Hatch, M.D., Newark, Ohio, to Miss Esabel Martin of The Pines, Franklin County, Ohio, September 11.

J. Livingston Pitman, M.D., Orange, N. J., to Miss Rita Simpson Murphy of Springfield, Mass., September 4.

Capt. George Macy Ekwurzel, assistant surgeon, U. S. Army, to Miss Lucile Thorpe of Philadelphia, at Lead, S. D., August 10.

Joseph M. Boyer, M.D., Springfield, Mass., to Miss Seraphine Cecilia Le Tourneau of Hartford, Conn., at Marlboro, Mass., September 11.

Deaths

Charles Franklin Branch, M.D. University of Vermont, College of Medicine, Burlington, 1879; a member of the Massachusetts Medical Society and of the Hampshire County Medical Society; a veteran of the Civil War; surgeon general of Vermont from 1886 to 1888; United States pension examiner; professor of hygiene in the University of Vermont; department commander of Vermont, G. A. R., in 1894, and in 1895 president of the Vermont State Medical Society; for the last 11 years a practitioner of Amherst, Mass., and medical examiner for the district; died at his home in Amherst, August 27, from nephritis, aged 61.

Michael Beshoar, M.D. University of Michigan, Department of Medicine and Surgery, 1853; a member of the Colorado State and Las Animas County medical societies; formerly president of the Southern Colorado Medical Association; surgeon and medical director in the Confederate service during the Civil War, and acting assistant surgeon in the United States Army; formerly a member of the Colorado State Board of Health and superintendent of schools of Las Animas County; founder of the Pueblo *Chieftain* and Trinidad *Advertiser*, died at his home in Trinidad, September 5, aged 74.

James Crerar Dunn, M.D. Jefferson Medical College, Philadelphia, 1871; a member of the American Medical Association; formerly professor of dermatology and materia medica and therapeutics in the Medical Department of Western University of Pennsylvania, Pittsburg; for 10 years physician at St. Francis Hospital, and for eight years assistant physician to the West Penn Hospital, and for a number of years president of the Pittsburg board of health; a noted specialist in diseases of the skin; died at his home in Pittsburg, September 3, aged 59.

Nathaniel Wilbur Webber, M.D. Chicago Medical College, 1866; hospital steward and later assistant surgeon and surgeon to the Third Colorado Volunteer Infantry during the Civil War; professor of anatomy and later of gynecology in the Detroit College of Medicine; for one year county physician of Cook County, Illinois; and in 1866 physician in charge of the Cholera Hospital, Chicago, during the epidemic; formerly health officer of Detroit; died at Grace Hospital in that city, August 30, after an illness of six weeks, aged 67.

Robert Bruce Smith, M.D. Long Island College Hospital, Brooklyn, 1866; of Tioga, Pa.; a member of the Medical Society of the State of Pennsylvania and Tioga County Medical Society; a veteran of the Civil War; for three years president of the Tioga County board of pension examiners; died suddenly, August 23, from heart disease, at the home of his daughter, in New Haven, Conn., aged 67.

Lansing B. Winne, M.D. College of Physicians and Surgeons in the City of New York, 1878; a member of the medical societies of the State of New York and Albany County; who is said to have been suffering some time from mental trouble; was found dead in the chapel adjoining Holy Innocents Episcopal church, Albany, September 2, from gunshot wound of the head, supposed to have been self-inflicted, aged 51.

Carl A. Klemer, M.D. University of Minnesota, College of Medicine and Surgery, Minneapolis, 1904; of Minot, N. D.; a member of the North Dakota Medical Association, Northwest District Medical Society and Ward County Medical Society; formerly an interne at the Luther Hospital, St. Paul, Minn.; died in Berlin, Germany, where he was taking postgraduate work, August 22, aged 26.

Gaylord Parsons Clark, M.D. College of Medicine, Syracuse (N. Y.) University, 1880; a member of the American Medical Association, American Physiological Society and American Microscopical Society; dean of the College of Medicine, Syracuse University, and a member of its faculty for 27 years; died suddenly at his home in Syracuse, September 1, from acute gastritis, aged 50.

Charles J. Sorsen, M.D. Rush Medical College, Chicago, 1898; of Calumet, Mich.; founder and proprietor of the Northern Michigan Hospital, Laurium, which was afterward known as Dr. Sorsen's private hospital; a member of the Michigan State and Houghton County medical societies; who was married in London, Eng., August 26, died in that city, September 1, from heart disease, aged 37.

Henry O'Donnell, M.D. Bellevue Hospital Medical College, New York City, 1891; of Ellsworth, Kan.; surgeon general of that state in 1895 and 1896; representative in the legislature from Ellsworth County in 1905 and 1906; who took a principal part in the compilation of the present medical practice act of Kansas; died in St. Margaret's Hospital, Kansas City, Kan., August 23, aged 41.

Albert Benedict Lyman, M.D. *magna cum laude* University of Giessen, Germany, 1874; a member of the Medical Society of University College, London, Eng.; a surgeon in the Red Cross service during the Franco-Prussian War; physician in charge of the Southern Dispensary, Baltimore; died at his home in that city, from diabetes, August 29, after a short illness, aged 61.

Augustus Coe Van Duyn, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1862; contract surgeon and surgeon of volunteers in the Army during the Civil War; assistant surgeon at Fort Leavenworth, Kan., in 1892, and for four years coroner of Leavenworth County; died at his home in Kansas City, Mo., August 28, from dropsy, aged 74.

George H. Cannon, M.D. University of Louisville (Ky.) Medical Department, 1897; a member of the American Medical Association, and a prominent practitioner of New Albany, Ind.; died at his home in that city, August 28, from intestinal obstruction, after an illness of eight days, aged 55. The Floyd County Medical Society attended his funeral in a body.

Edward J. Messemer, M.D. New York University Medical College, New York City, 1871; of New York City; a member of the medical societies of the state and county of New York, the New York Neurological Society and German Medical Society; for many years attending physician at the Mount Sinai Hospital; died in Marburg, Germany, August 5.

George Waldron, M.D. University of Buffalo (N. Y.) Medical Department, 1881; of Rochester, N. Y.; a member of the Medical Society of the State of New York and Monroe Medical Society; was instantly killed in a collision between an automobile which he was driving and a trolley car near Canandaigua, N. Y., August 28.

Samuel C. Henszey, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1870; for more than 30 years a practitioner of West Philadelphia; physician for many years to the Home for Aged and Infirm Colored People; died at the home of his son, in West Philadelphia, August 25, from senile debility, aged 78.

John T. Sutphen, M.D. Hahnemann Medical College and Hospital, Philadelphia, 1871; for four years surgeon of the Fourth Infantry, Ohio National Guard, and for many years health officer and a member of the board of education of Middletown, Ohio; died at the home of his mother in that city, August 29, aged 57.

John Wesley Drake, M.D. Hospital College of Medicine, Louisville, 1881; of Louisville, Ky.; a member of the Kentucky State Medical Association and Jefferson County Medical Society; once a member of the city council; died August 31, from acute gastritis, at the Deaconess Hospital, Louisville, aged 53.

Andrew J. Alleman, M.D. New York University Medical College, 1854; of McDougall, N. Y.; a life-long resident of Seneca County, N. Y., and for half a century a practitioner of West Fayette; died at the Geneva City Hospital, August 29, from shock following a surgical operation, aged 78.

Koert D. Hawley, M.D. Medical College of Ohio, Medical Department, University of Cincinnati, 1866; a veteran of the Civil War; for many years a practitioner of Columbus, Ind.; died at his home in Indianapolis, August 28, from anemia, after an illness of nine months, aged 66.

Frank H. Moyer, M.D. University of Buffalo, Medical Department, 1872; a member of the Medical Society of the State of New York, and Livingston County Medical Society; died at his home in Moscow, August 28, after a prolonged period of invalidism, from paralysis, aged 60.

Richard Botsford, M.D. University of Vermont, College of Medicine, Burlington, 1898; of Lake City, Iowa; a member of the Iowa State and Calhoun County medical societies; died at the City Hospital, Fort Dodge, Iowa, August 30, a few hours after an operation for cholelithiasis, aged 33.

Frank T. Gaffney, M.D. Yale University, Medical Department, New Haven, Conn., 1905; house surgeon in Long Island City Hospital; died at the home of his father in Meriden, Conn., August 23, from disease of the liver and heart, after an illness of three months, aged 26.

Bernard Zweighaft, M.D. University of Pennsylvania, Department of Medicine, 1891; a member of the American Medical Association and a prominent practitioner of New York City; died suddenly, from heart disease, at Kennebunk Beach, Maine, September 3, aged 41.

Franklin L. Green, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1869; police magistrate of Kangley, Ill., and a member of the board of education for that school district; died suddenly at his home, August 26, from heart disease, aged 67.

William Davison, M.D. University of Maryland School of Medicine, Baltimore, 1876; a member of the Medical Society of Virginia and the Frederick County Medical Society; for many years justice of the peace; died at his home in Middletown, Va., September 1, aged 58.

John N. Coons, M.D. Denver and Gross College of Medicine, Medical Department, University of Colorado, 1904; formerly a practitioner of Brush, Colo., died at his home near West Grove, Iowa, August 27, from tuberculosis, after a long illness, aged 28.

Arthur Clay Blain, M.D. College of Physicians and Surgeons in the City of New York, 1888; formerly president of the Macon (Ga.) Medical Society, died at his home in Brunswick, Ga., August 28, from nephritis, after an illness of two years, aged 40.

William Gutch, M.D. Western Reserve University Medical College, Cleveland, 1855; senior member of the Monroe County (Iowa) Medical Society; died at his home in Albia, August 24, from disease of the stomach, after an illness of nine days; aged 83.

John B. Hawes, M.D. Georgetown University School of Medicine, Washington, D. C., 1886; United States consul at Reichenberg, Bohemia, and thereafter a practitioner of Ithaca, N. Y., from 1886 to 1894; died at his home in Denver, August 20, aged 51.

George S. McGhie, M.D. Faculty of Medicine of Queens University and Royal College of Physicians and Surgeons, Kingston, Ontario; died at his home in Elgin, Ont., August 24, from nephritis, after an illness of a few days, aged 47.

Robert Cochran Beatty, M.D. College of Physicians and Surgeons, Baltimore, 1882; a member of the American Medical Association, and for 15 years a practitioner of Pittsburg, Pa.; died at his home in that city, August 25, aged 51.

William P. Chalmers, M.D. University of California, Medical Department, San Francisco, 1886; at one time state quarantine officer and chief sanitary inspector of San Francisco; died recently, and was buried at San Mateo, August 24.

Milton S. Richards, M.D. Jefferson Medical College, Philadelphia, 1867; justice of the peace of Maxatawny Township, Pa., for 15 years; died at his home in Maxatawny, August 24, from dropsy, after a long illness, aged 63.

James E. Lindsey, M.D. University of Louisville, Medical Department, 1882; formerly a practitioner of Haskell, Abilene and Rule, Texas; died at the home of his son-in-law in Haskell, August 24, from heart disease, aged 59.

Edward Cuyler Bunker, M.D. Eclectic Medical Institute, Cincinnati, 1853; a veteran of the Mexican War; died at his home near Greensburg, Ind., August 27, after an illness of several weeks, aged 86.

William A. Rocap, M.D. Jefferson Medical College, Philadelphia, 1888; a member of the American Medical Association;

died at his home in Olney, Philadelphia, August 29, from diabetes, aged 38.

Martin Duke Hendricks, M.D. Medical Department, University of Nashville, Tenn., 1904; of Westdale, La., is reported to have been killed by falling from a train in Arkansas, August 30, aged 34.

John Redmon Awbrey, M.D. University of Louisville, Medical Department, 1875; died at his home in Louisville, August 30, from kidney disease, after an illness of three years, aged 76.

Samuel J. Martin, M.D. Eclectic Medical College of Philadelphia; a practitioner of Racine, Wis., for more than 50 years; died in California, during a surgical operation, September 4, aged 76.

Katherine Parsons, M.D. Cleveland Homeopathic Medical College, 1873; died at her home in Cleveland, September 3, from cerebral hemorrhage, after an illness of several weeks, aged 75.

Patrick E. Maley, M.D. Cincinnati College of Medicine and Surgery, 1862; formerly coroner of Hamilton County, Ohio, and a practitioner of Cincinnati; died in Chicago, July 22.

Joseph C. Thomas, M.D. Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; died at his home in Cincinnati, August 15, from senile debility, aged 82.

James Franklin Price, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1882; died at his home in Six-mile Run, Pa., June 13, aged 43.

George H. Kemp, M.D. University of Wooster, Medical Department, Cleveland, 1870; died at his home in Barnesville, Ohio, August 31, aged 65.

Mary Mitchell Stokes, M.D. Hahnemann Medical College and Hospital of Chicago, 1896; died at her home in Rockford, Ill., June 26, aged 37.

Gilbert B. Trublood (Years of Practice, Illinois, 1878); formerly of Hurricane, Ill.; died at his home in Granite, Idaho, May 8, aged 79.

Charles Louis Frankel, M.D. St. Louis College of Physicians and Surgeons, 1892; died at his home in Boston, August 27, aged 41.

William E. Johnson (Registration, Monmouth Co., N. J.); formerly of Keyport, N. J.; died suddenly August 26, in Ontario.

J. P. Legg (License Tenn., 1889); of Morristown, Tenn., died August 28, aged 72.

Queries and Minor Notes

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

ETIQUETTE IN CASE OF SUBSTITUTE ATTENDANT.

Memphis, Tenn., Aug. 26, 1907.

To the Editor:—Will you kindly decide a question as to ethics in the following case? Dr. A is engaged to attend a patient during her confinement, but, while he is out of the city, labor comes on sooner than the expected time. Dr. A's wife rings up Dr. B and asks him to attend the case. On the third day after the birth of the child, Dr. A returns to the city; does not notify Dr. B he has returned, but goes to see the patient, finds a temperature of 101.6, says things look bad, leaves a prescription and says he will take charge of the case. The family tell him that Dr. B is in charge and he and the family both ring up Dr. B, who meets Dr. A at the house in less than an hour. He takes the patient's temperature with A's thermometer and finds it 100.4 and says that he does not see anything to be alarmed about. Now, on Dr. B entering the room, A said: "Here is B now. Which one of us do you want?" The family selected B without giving him a chance to resign in A's favor. A shows he is angry; says he did not propose to give up to B, as it is his case, and B can not wait on them unless he (A) permits him to. B requests A to leave the room with him and not to discuss the case in the patient's presence, as she is considerably excited. B then calls the father into the next room with A and tells him it is A's case, but they still say they don't want A. B then says he can not see to the case without A's consent and will have to resign in his favor. The father then asks B if he would not continue if they should discharge A; or, rather, if he would come back in the case if they should discharge A. He replies that he would rather not, but as the woman must have attention, he supposes that he would have to do it for humanity's sake, if requested, even if it were against professional ethics. Now, the questions are these:

1. Should B have retired from the case after A asked the family to choose and they selected B, or after A had asked them to choose their attendant, should he have retired?

2. Did not A do wrong in discussiong the case in front of the patient?

(3) Whose should be the fee, the attendant B or the one engaged for the case, A?

(4) Was not A wrong in telling the family things were looking bad without first notifying B? The next day the temperature was 99.4, when A withdrew from the case. This was on the fourth day.

Kindly express your opinion on this case. H. S. Wolff.

Answer: Basing our judgment on the facts as stated, we answer:

1. B was entitled to remain in charge of the case after the family, at the request of A, had expressed their preference for B over A. The right of a person to choose his own physician, as also to change his physician, with or without good reason, as often as he pleases, can not be gainsaid. The duty of every physician toward a fellow practitioner is limited to the avoidance of everything in word or deed that might act as a suggestion to the patient or the patient's friends to change physicians; and, in the event that the motives for a proposed change seem trivial and inadequate or based on misapprehension, to endeavor to protect a professional brother from adverse action due to ignorance by explaining the actual facts to the patient. A should have retired when, the family having been asked to choose their attendant, they chose B.

2. A should certainly not have discussed the case in front of the patient. Such a course could effect no possible good, and might be prejudicial to the patient, whose interests should ever be paramount in the physician's mind.

3. This is a matter of custom which varies with locality. The ideal course, and one adopted in many places, is that when one physician attends in a case on behalf of another who was either engaged or previously in charge, the fee should be paid to the latter, leaving it to the decision of the latter, in the absence of any agreement between them on the subject, to decide whether all, or what portion of the fee should be given to the physician who actually attended. This is not a commercial transaction, but is an instance of that fraternal feeling that is one of the essential distinguishing marks between the respective ideals of a profession and a trade. Theoretically, the service in such a case was rendered by B not on behalf of the patient, but of A. It was, therefore, for A to claim the fee and to make a suitable recognition to B for his friendly assistance.

4. A was certainly to blame for telling the family that things were looking bad, without previously discussing the matter with B, who might have supplied information that would have prevented A's making a mistake. The subsequent course of the case seems to show that there was no occasion for the remark.

TREATMENT OF GOITER.

Elyria, Ohio, Aug. 24, 1907.

To the Editor:—1. Is Beebe's serum ever used for simple goiter? 2. Is thyroidectin (P., D. & Co.) ever used for simple goiter? 3. Is there any treatment (besides surgical) that will reduce the size of a simple goiter? Patient has tried iodin and says she took "thyroids" for six months without effect. 4. Does the administration of thyroid extract ever cause a simple goiter to decrease in size? H. M. Metcalf, M.D.

Answer.—1. No. Since the serum treatment for exophthalmic goiter is based on a theory of autotoxemia, there is no reason to expect it to apply to simple goiter. 2. So far as we know, thyroidectin has not been used for simple goiter, its use being confined to Graves' disease. 3. Various treatments have been suggested, and good results have been claimed for them, but the reports have been conflicting. An ointment of iodin and potassium iodid rubbed into the goiter, with exposure of the skin for a short time to direct sunlight, has been lauded and good results have been reported. Care must be taken that the exposure to the sun is not continued long enough to produce severe burning of the skin. Iodin with potassium iodid, introduced by cataphoresis, has also been highly spoken of. 4. Osborne (The Journal, Nov. 3, 1906, p. 1476), considers that thyroid extract will often do harm in ordinary goiter by stimulating the gland to increased secretion and perhaps causing the exophthalmic form to develop from the simple goiter. If the goiter consists largely of cystic degeneration, small doses of thyroid may be physiologic, while large doses have, in some instances, caused the goiter to decrease in size, but this can be effected as well and more safely with iodid. In the discussion on Osborne's paper above referred to, Dr. John Rogers spoke positively on the fact of exophthalmic goiter following on thyroid feeding in simple goiter. If thyroid is used, it should be remembered that cerebral excitement, palpitation, loss of weight, sweatings and flushings are contraindications, while a slow pulse and a gain of weight, combined with a drowsy, apathetic condition indicate a possibility that benefit may ensue. Attention is directed to the following articles: Preparation of a Serum for Treatment of Exophthalmic Goiter, Beebe, The Journal, Feb. 17, 1906, p. 484. Treatment of Exophthalmic Goiter by Specific Serum, Rogers, The Journal, Feb. 17, 1906, p. 487. Treatment of Thyroidism by Specific Serum, Rogers, The Journal, Sept. 1, 1906, p. 655. Serum Having Therapeutic Value in the Treatment of Exophthalmic Goiter, Beebe, The Journal, Sept. 1, 1906, p. 661. Therapeutic Uses of Thyroid Preparations, O. T. Osborne, The Journal, Nov. 3, 1906, p. 1475. See also answer to correspondent, The Journal, Feb. 9, 1907, p. 538. Several other papers on the subject will shortly appear in The Journal.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Sept. 7, 1907:

Snoddy, C. A., asst.-surg., sick leave further extended one month.

Byrne, C. B., asst.-surg. gen., is assigned to temporary duty in Washington, D. C., for a period not to exceed ten days, for consultation with the Surgeon General of the Army, and on completion of this duty will proceed to Governor's Island, as heretofore ordered.

Vedder, E. B., asst.-surg., ordered to proceed from Fort Walla Walla, Wash., to Rockford, Wash., for duty with squadron, Fourteenth Cavalry, on practice march.

Fife, J. D., asst.-surg., will repair to this city and report to the Adjutant General of the Army, and will then proceed to Fort De Soto, Fla., and thence to Jackson Barracks, La., for the purpose of instructing medical officers and members of the Hospital Corps at those posts in the methods of making identification records.

Cowper, H. W., asst.-surg., leave of absence extended two months.

Whitmore, E. R., asst.-surg., left Fort Riley, Kan., on thirty days leave of absence.

Halloran, P. S., asst.-surg., leave of absence extended to include Sept. 23, 1907.

Whitmore, E. R., Krebs, L. Le R., and Halloran, P. S., asst.-surgs., ordered to report in person to the commanding officer of the Eighteenth Infantry, Fort Leavenworth, Kan., to accompany that regiment to the Philippine Islands, and on arrival at Manila will report in person to the commanding general, Philippines Division, as heretofore ordered.

Wells, F. M., cont. surg., arrived at Fort Leavenworth, Kan., for temporary duty.

Kierulff, H. N., cont. surg., granted leave of absence for one month and relieved from duty in Philippines Division.

Hasseltine, H. E., cont. surg., left Camp Perry, Ohio, with Third Battalion, Fourth Infantry, en route to Fort Thomas, Ky.

Dade, W. H., cont. surg., returned to duty at Fort D. A. Russell, Wyo., from leave of absence.

Dickenson, C. F., cont. surg., relieved from duty in Philippines Division, and on expiration of present leave of absence will proceed to Presidio of San Francisco for duty.

Cullen, C. W., cont. surg., will proceed from Fort Sam Houston, Texas, to Fort Logan H. Roots, Ark., for temporary duty.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending Sept. 7, 1907:

Surgeon E. J. Grow, detached from duty at the naval hospital, Washington, D. C., and ordered to the bureau of medicine and surgery, Navy Department.

Medical Director W. G. Farwell, retired, detached from duty at the Navy recruiting station, Philadelphia, and ordered home.

Assistant Surgeon H. Butts, detached from the *Maryland* and ordered to the naval station, Cavite, P. I.

Medical Director T. H. Streets, ordered to additional duty as a member of the naval retiring board, Washington, D. C.

Medical Director W. A. McClurg, detached from the marine barracks, Washington, D. C., and ordered to duty as president of the naval examining and medical examining boards, Washington, D. C.

Surgeon C. D. Langhorne, detached from the navy yard, Washington, D. C., and ordered to the marine barracks, Washington, D. C.

Surgeon C. J. Decker, having been examined and found incapacitated for active service on account of disability incident thereto by a retiring board, is retired from active service, from Aug. 31, 1907, under the provisions of section 1453, Revised Statutes.

Assistant Surgeon C. G. Alderman, detached from the naval hospital, Puget Sound, Wash., September 15, and ordered to the naval medical school, Washington, D. C., October 1, for instruction.

Assistant Surgeon F. X. Koltes, detached from the naval hospital, Mare Island, Cal., September 15, and ordered to the naval medical school, Washington, D. C., October 1, for instruction.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Sept. 4, 1907:

White, J. H., surgeon, granted leave of absence for one month from Aug. 29, 1907.

Sweet, E. A., asst.-surg., directed to proceed to El Paso, Texas, for special temporary duty, on completion of which to rejoin his station at Fort Stanton, N. M.

Ashford, F. A., asst.-surg., granted leave of absence for seven days from Sept. 6, 1907.

Tappan, J. W., acting asst.-surg., directed to proceed along Mexican border from Brownsville, Texas, to Nogales, Ariz., on special temporary duty, on completion of which to rejoin his station at El Paso, Texas.

CASUALTY.

Acting Assistant Surgeon A. C. Blain died at Brunswick, Ga., Aug. 28, 1907.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Sept. 6, 1907:

SMALLPOX—UNITED STATES.

California: General, July 1-31, 2 deaths.
Colorado: Colorado Springs, June 1-30, 2 cases.
Illinois: Winslow, July 1-August 3, 25 cases.
Iowa: Ottumwa, August 18-24, 1 case.
Louisiana: New Orleans, August 18-24, 2 cases.
Michigan: Saginaw, August 18-24, 3 cases.
New Jersey: Newark, August 18-24, 2 cases.
South Dakota: Sioux Falls, August 18-24, 1 case.
Wisconsin: Milwaukee, August 4-10, 11 cases.

SMALLPOX FOREIGN.

Algiers: Algeria, July 1-31, 5 deaths.
Austria: Galicia, July 18-August 3, 1 case; Vienna, August 2-10, 3 cases, 1 death.
Brazil: Para, June 28-August 17, 40 cases, 14 deaths.
Canada: Halifax, August 18-24, 1 case.
Chile: Iquique, July 16-21, present.
China: Chefoo, July 1-27, 1 case; Hongkong, June 23-July 6, 6 cases, 5 deaths.
France: Marseilles, July 1-31, 98 deaths; Paris, August 11-17, 19 cases, 5 deaths.
Great Britain: London, August 4-10, 1 case.
India: Calcutta, July 14-20, 4 deaths.
Italy: General, August 13-19, 7 cases; Genoa, July 1-31, 2 cases; Naples, August 11-17, 1 case, 1 death; Turin, August 5-11, 1 case.
Java: Batavia, July 7-20, 7 cases.
Madeira: Funchal, August 12-18, 10 cases, 2 deaths.
Mexico: Aguas Calientes, August 18-24, 2 deaths; Mexico City, July 1-3, 18 deaths.
Portugal: Lisbon, August 4-10, 4 cases.
Russia: Odessa, July 28-August 3, 2 cases; Warsaw, July 28-August 3, 4 deaths.
Spain: Malaga, July 1-31, 6 deaths; Valencia, August 6-18, 31 cases, 5 deaths.
Turkey in Asia: Bassorah, July 27, present.
Turkey in Europe: Constantinople, August 5-11, 3 deaths.

CHOLERA.

India: Calcutta, July 14-20, 38 deaths; Cochin, July 6-19, 13 deaths; Madras, July 20-26, 2 deaths; Rangoon, July 14-20, 1 death.
Russia: Astrachan, August 8-14, present; Saratoff, August 5-14, present.
Straits Settlements: Singapore, June 30-July 13, 4 deaths.

YELLOW FEVER.

Brazil: Para, July 28-August 17, 9 cases, 8 deaths.
Cuba: Cienfuegos, August 14-20, 12 cases, 5 deaths; Campo Florida, August 28, 1 case; Habana, August 30, 1 case.
Ecuador: Guayaquil, August 4-10, 1 death.

PLAGUE.

Argentina: Cordoba, June 4, present.
China: Amoy, July 20-27, 1 case, 1 death; Foo-Choo, July 20-27, present; Hongkong, June 22-July 6, 45 cases, 46 deaths.
Egypt: Alexandria, August 2-15, 22 cases, 16 deaths; Port Said, August 2-15, 1 case, 1 death; Province of Behera, August 2-15, 3 cases, 1 death.
French Indo-China: Saigon, July 12-16, 10 cases, 10 deaths.
India: General, July 14-20, 3,411 cases, 2,760 deaths; Calcutta, July 14-20, 11 deaths.
Japan: Yokahama, July 9-13, 2 cases, 2 deaths.
Madagascar: Majunga, August 26, present.
Peru: Callao, July 25-August 7, 1 case, 1 death; Chosica, July 25-31, 1 case; Ferrenhafe, July 18-24, 1 case; Lima, July 18-31, 5 cases, 3 deaths; Puira, July 25-August 7, 5 cases, 1 death; Quenocotillo, July 25-August 7, 1 case; Trujillo, July 18-August 7, 21 cases, 15 deaths.
Straits Settlements: Singapore, July 6, 1 case, 1 death.

PLAGUE—UNITED STATES.

California: San Francisco, August 30-September 12, 7 cases, 1 death (total from August 14 to September 4, 17 cases and 7 deaths).

Association News

NEW MEMBERS.

List of new members of the American Medical Association for the month of August, 1907:

ALABAMA.

Bancroft, J. D., East Lake.
Comer, R. T., Birmingham.
Greil, G. J., Montgomery.
Jerigan, C. H., Birmingham.
Martin, H. L., Avondale.
Smith, R. A., Nadawah.
Staples, J. G., Birmingham.
Wynne, W. H. Ensley.

ARKANSAS.

Arnold, W. E., Prescott.
Didier, F. W., Fourche.
Chastain, J. B., Prescott.
McCray, E. H., Malvern.
Sylar, T. B., Hollygrove.

CALIFORNIA.

Beebe, J. L., Anaheim.
Dukes, C. A., Oakland.
Musser, F. R., Oakland.
Ragan, D. F., San Francisco.
Ray, D. F., Stockton.
Strong, D. C., San Bernardino.

CONNECTICUT.

Deming, D. B., Waterbury.
White, B. W., Bridgeport.

DELAWARE.

Vaughan, E. M., Middletown.

FLORIDA.

Wilcox, C. R., Clearwater.

IDAHO.

Dunlap, R. E., Mohler.

ILLINOIS.

Boddiger, C. E., Chicago.
Cleverdon, Ernest, Chicago.
Cottral, G. H., Hanover.
Estes, R. L., Meredosia.

Kiser, Chas. R., Madison.
Lincoln, Mary C., Chicago.
Munsell, W. W., Urbana.
Nelson, N. C., Chicago.
Van Kirk, F. W., Chicago.
Vall, Ruth, Chicago.

INDIANA.

Willis, J. H., Evansville.

INDIAN TERRITORY.

Ivie, C. W., Bokoshe.
Shackelford, C. E. Ardmore.
Waters, G. A., Lenapah.

IOWA.

Garland, H. S., Oskaloosa.
Negus, Alvah, Keswick.
Netolicky, Wesley, Cedar Rapids.
Steelsmith, D. C., Melvin.

KANSAS.

Haas, A. R., Ellinwood.

KENTUCKY.

Ewing, W. M., Smith's Grove.
Hamlitt, G. A., Paducah.
Sory, J. D., Madisonville.
Vance, C. A., Lexington.
Weathers, E. W., Elkton.

LOUISIANA.

Lloyd, T. P., Shreveport.
Polk, W. T., Alexandria.
Pope, B. A., New Orleans.

MAINE.

Haney, O. E., Boothbay Harbor.
O'Connor, J. M., Biddeford.

MARYLAND.

Coggins, J. C., Laurel.
Stubbs, W. P., Baltimore.
Foutz, C. R., Westminster.
Reneh, V. B., Baltimore.
Willis, Mary C., Baltimore.
Hopkins, W. H., Annapolis.

MASSACHUSETTS.

Boothby, W. M., Boston.
Carley, F. J., New Bedford.
Harris, W. D., Lynn.
Hoit, H. A., Holden.
Kirkpatrick, G. H., Lynn.
Shotswell, J. A., Beverly.

MICHIGAN.

Manwaring, J. G. R., Flint.
Smithers, Frank, Ann Arbor.
Whiteside, J. W., Ironwood.

MINNESOTA.

Armstrong, J. M., St. Paul.
Boyer, S. H., Duluth.
Cleveland, H. E., Osakis.
Holbrook, J. S., Mankato.
Kelly, T. C., Mankato.
Macnie, J. S., Minneapolis.
Morrison, W. R., Bemidji.

MISSOURI.

Donnell, R. E., DeSoto.
Griffith, A. C., Kansas City.
Knox, A. C., Kansas City.
Marchildon, J. W., St. Louis.
McAmis, L. C., St. Louis.
Millican, K. W., St. Louis.
Rogers, F. B., Kansas City.
Rogers, J. C., Kansas City.
Wilson, C. A., St. Louis.

MISSISSIPPI.

Reid, H. P., Penalara.
Thomas, S. S., Maben.

NEBRASKA.

Pedersen, H. C., Farwell.

NEW JERSEY.

Maas, M. A., Newark.
McClendon, C. P., Paterson.

NEW MEXICO.

Kaser W. E., East Las Vegas.
McClanahan, R. K., East Las Vegas.

NEW YORK.

Benedict, W. G., Cameron.
Deavor, T. L., Syracuse.
Echeverria, M. J., New York City.
Farrell, T. H., Utica.
Frost, C. A., Utica.
Harper, W. F., New York City.
Hubbell, H. H., Corning.
Hull, T. A., Troy.
Hutchinson, H. F., Hulburton.
Jackson, Meyer, New York City.
Kobler, E. W., New York City.
Kellogg, W. C., Syracuse.
Kreuder, Henry, New York City.
MacMillan, I. T., New York City.
Mallett, G. H., New York City.
Mooney, H. W., New York City.
Neumann, W. F., New York City.
Rome, R. M., Brooklyn.
Ryder, G. H., New York City.
Ryon, W. G., Ogdensburg.
Taylor, J. M., Brooklyn.
Tucker, C. F., Syracuse.
Witherspoon, C. R., Rochester.

NORTH CAROLINA.

Misenheimer, C. A., Charlotte.
Ringer, P. H., Asheville.

NORTH DAKOTA.

Godfrey, W. H., Russell.

OHIO.

Albers, H. W., Cincinnati.
Casto, F. M., Cleveland.
Clark, H. B., Columbus.
Firmin, J. M. Findlay.
Furrer, A. F., Cleveland.
Jump, J. S., Tiffin.
Lawlor, R. J., Cleveland.
McKinniss, C. R., Columbus.
Miller, J. H., Wauseon.
Varnum, J. H., Benton Ridge.
Willson, C. H., Idaho.

OKLAHOMA.

Stinson, J. E., Chickasha.

PENNSYLVANIA.

Bird, G. C., Philadelphia.
Brav, Aaron, Philadelphia.
Dean, A. H., Scranton.
Farquhar, D. C., Monessen.
Hargett, W. S., Philadelphia.
McGinty, E. F., Pittston.
Nisbet, Verner, Philadelphia.
Patterson, B. H., Wilkinsburg.
Rowand, A. H. C., Philadelphia.
Snively, A. F., Philadelphia.
Starkey, F. R., Philadelphia.
Wirts, C. W., Allegheny.
Zimlick, A. J., Philadelphia.

SOUTH DAKOTA.

McCauley, C. E., Aberdeen.
Walker, F. E., Hot Springs.

TENNESSEE.

Ferguson, L. F., Nutbush.

TEXAS.

Agee, W. A., Fairy.
Armstrong, A. M., Crawford.
Armstrong, Marvin, Merkel.
Atkinson, W. H., Killeen.
Baldwin, J. G., Honey Grove.
Bourland, F. M., Houston.
Campbell, W. E., Crowley.
Cocke, R., Marshall.
Compton, W. J., Crawford.
Conwally, W. A., Pendletonville.
Ellis, J. W., Lampasas.
Fisher, W. C., Galveston.
Fountain, W. D., Corsicana.
Glass, J. T., Clifton.
Grant, J. H., Ballinger.
Harris, B. A., Boyd.
Hobdy, Will, Hamilton.
Johnson, J. C., Richmond.
Marshall, O. R., Meridian.
McCelvey, J. S., Temple.
Mügge, O. J., Cuero.
O'Farrell, J. M., Richmond.
Redford, W. E., Boyd.
Standifer, T. E., Clarendon.
Stoops, J. N., Estacado.
Thornton, C. W., Dalhart.
Tottenham, J. W., Jr., Brownwood.
Winn, J. B., Hamilton.
Witte, W. S., Waco.
Wysong, J. H., Hico.

UTAH.

Browning, W. J., Huntsville.

VERMONT.

Elliott, H. A., Barnet.

VIRGINIA.

Gannaway, W. L., Abingdon.
James, R. B., Danville.
Scott, R. H., Richmond.

WASHINGTON.

Ganson, Lee, Odessa.
Underwood, F. R., Seattle.

WEST VIRGINIA.

Morris, J. S., Charleston.

WISCONSIN.

Gates, Eugene, Two Rivers.
Lockhart, C. W., Mellen.
Montgomery, Wm. Eau Claire.
Saucier, J. T. O., Bruce.
Shehan, L. B., Superior.
Wenzel, J. V., Ashland.
Williams, H. H., Sparta.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

Iowa State Board of Medical Examiners, Capitol Building, Des Moines, September 17-19. Secretary, Dr. Louis A. Thomas, Des Moines.

Colorado State Board of Medical Examiners, 1723 Tremont St., Denver, October 1. Secretary, Dr. S. D. Van Meter, Denver.

Idaho State Board of Medical Examiners, Capitol Building, Boise, October 1. Secretary, Dr. W. F. Howard, Pocatello.

Minnesota State Board of Medical Examiners, Old Capitol, St. Paul, October 1. Secretary, Dr. W. S. Fullerton, St. Paul.

Montana Board of Medical Examiners, The Capitol, Helena, October 1. Secretary, Dr. W. C. Riddell, Helena.

North Dakota State Board of Medical Examiners, Grand Forks, October 1-3. Secretary, Dr. H. M. Wheeler, Grand Forks.

New York State Board of Medical Examiners, Albany, October 1-4. Chief of Examining Division, Charles F. Wheelock, Albany.

Indian Territory, Western District Board of Medical Examiners, Muskogee, October 7. Secretary, Dr. M. F. Williams, Muskogee.

Utah State Board of Medical Examiners, Salt Lake City, October 7-8. Secretary, Dr. R. W. Fisher, Salt Lake City.

Arkansas State Board of Medical Examiners, State Capitol Building, Little Rock, October 8. Secretary, Dr. F. T. Murphy, Brinkley.

Arkansas Homeopathic Board of Medical Examiners, Little Rock, October 8. Secretary, Dr. V. H. Hallman, Hot Springs.

Georgia Board of Medical Examiners (Regular), Capitol Building, Atlanta, October 8. Secretary, Dr. E. R. Anthony, Griffin.

Michigan State Board of Registration in Medicine, Lansing, October 8. Secretary, Dr. B. D. Harison, 205 Whitney Building, Detroit.

Mississippi State Board of Health, Jackson, October 8. Secretary, Dr. J. F. Hunter, Jackson.

Wyoming State Board of Medical Examiners, Laramie, October 9. Secretary, Dr. S. B. Miller, Laramie.

Rhode Island State Board of Health, Room 313, State House, Providence, October 10-11. Secretary, Dr. Gardner T. Swarts, Providence.

District of Columbia Board of Medical Supervisors, Law School of Georgetown University, Washington, October 10-14. Secretary, Dr. Geo. C. Ober, Washington.

Georgia Board of Eclectic Medical Examiners, Senate Chamber, Atlanta, about October 15. Secretary, Dr. C. H. Field, Marietta.

Indiana Board of Medical Registration and Examination, Indianapolis, October 22-24. Secretary, Dr. W. T. Gott, Crawfordsville.

Illinois State Board of Health, Great Northern Hotel, Chicago, October 23-25. Secretary, Dr. J. A. Egan, Springfield.

Rules Governing Examinations in Mississippi.—Dr. J. F. Hunter, secretary of the Mississippi State Board of Health, sends us the following list of rules governing examinations for license to practice medicine in that state:

1. The statute of the State of Mississippi requires of applicants to practice medicine, an examination on the following branches: Anatomy, physiology, chemistry, obstetrics, surgery, materia medica, hygiene and pathology.
2. Eight questions shall be given on each of the above branches.
3. The questions on each branch shall be given the applicant at the beginning of the examination and the applicant shall have until 10 o'clock p. m. of the day given to answer them.
4. No applicant shall withdraw himself from the presence of the examiners during his examination without permission. For cause an applicant may withdraw temporarily, but shall be accompanied in such retirement by a member of the examining board.
5. No applicant shall communicate in any way with any other applicant, nor have books or helps of any kind.
6. A correct set of answers to the questions propounded on a subject shall entitle the applicant to the full mark for that subject, viz.: 100 points, each full and correct answer rating 12½ points. Partial or imperfect answers shall be rated by the examiners in accordance with their degree of fulness and correctness.
7. A general average of not less than 75 of a possible 100 points shall entitle the applicant to a license to practice medicine in this state, provided that he has otherwise complied with the law.
8. The examiners shall not know the name of the applicant whose paper they are grading, nor the school he attended.
9. No applicant shall take from the room a copy of the examination questions.
10. The names of the applicants who fail before this board, as well as the names of those who pass, shall be given out for publication with the names of the medical colleges of which they are graduates. No member of the board shall be permitted to tell an applicant the result of his examination until after the adjournment of the board.
11. After examination papers have been handed in by the applicant, they shall be held as the property of the board and shall not be given out to the applicant nor to any other person.
12. The handwriting of the applicant must be legible.
13. Any applicant violating any of the above rules may be dismissed from the room or have his paper for the entire work canceled.

14. The secretary shall give the applicant the number of his application and the applicant shall place this number at the head of each sheet of his paper and not write his name thereon.

Oregon January Report.—Dr. Byron E. Miller, secretary of the Oregon Board of Medical Examiners, reports the written examination held at Portland, Jan. 8-10, 1907. The number of subjects examined in was 15; percentage required to pass, 75. The total number of candidates examined was 36, of whom 23 passed and 13 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Medical Coll. of Georgia	(1902)	76
Northwestern Univ. Med. School	(1884)	77
Rush Med. Coll.	(1899) 75; (1904) 84; (1904)	80
College of P. and S., Chicago	(1899)	83
Keokuk Med. Coll.	(1902)*	
Kentucky School of Med.	(1896)	78
Harvard Med. School	(1905)	81, 86
University of Michigan	(1896), 78; (1906)	77
Washington University, St. Louis	(1887)*	
Lincoln Med. Coll.	(1903)	78
Toledo Med. Coll.	(1898)	75.
Willamette University	(1906)	75, 79, 80
University of Oregon	(1906)	82
Jefferson Med. Coll., Philadelphia	(1906)	83
Temple Coll. of Med.	(1905)	83
Imperial Alexander University, Finland	(1903)*	
Victoria College, Toronto	(1867)	78
FAILED.		
College of P. and S., San Francisco	(1898)	72
Bennett Coll. of Ecl. Med. and Surg.	(1906)	58, 68
American Med. Miss. Coll.	(1899)	68
University of Iowa, Homeo. Dept.	(1891)	74
Kentucky School of Med.	(1886)	57
Barnes Med. Coll.	(1906)	74
Ensworth-Central Med. Coll.	(1906)	64
University of Oregon	(1906)	61, 70
Willamette University	(1905)	53
University of Vermont	(1905)	58
Laval University, Montreal	(1904)	63

* Percentage not given.

Oregon May Report.—Dr. Byron E. Miller, secretary of the Board of Medical Examiners of the State of Oregon, reports the written examination held at Portland May 8-10, 1907. The number of subjects examined in was 15; percentage required to pass, 75. The total number of candidates examined was 55, of whom 25 passed and 30 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Georgetown University	(1905)	78.
Colorado School of Medicine	(1904)	77.3
Rush Medical College	(1900)	75.8
College of P. and S., Kansas City	(1897)	76.8
Kentucky School of Medicine	(1902)	75.4
Baltimore University	(1897)	75.
Omaha Medical College	(1882)	75.
University of Oregon	(1890) 76.3; (1907)	75.1, 75.2, 75.7, 75.9, 75.9, 76.4, 76.8, 77.7, 80.6, 81.5, 82.5, 89.6.
Willamette University	(1907)	75, 75.9, 80.3
Hahnemann Med. Coll., Philadelphia	(1879)	75.
Trinity Medical College, Ontario	(1895)	79.4
FAILED.		
College of P. and S., Chicago	(1906)	68.8
American Medical Miss. College	(1899)	72.7
American Coll. of Med. and Surg., Chicago	(1904)	62.8
University Med. Coll., Kansas City	(1904) 64.8; (1906)	74.4
University of Minnesota	(1901)	71.8
Willamette University	(1904) 55.5; (1906) 59; (1907)	64.5, 65.8, 67.4, 67.8, 67.8, 67.8, 68.3, 70.2, 70.3, 70.8, 71.5, 72.3, 73.4, 73.5.
University of Oregon	(1906) 64.2, 67.2; (1907)	73.5, 74.3, 74.3, 74.8
Western University, London, Ont.	(1894)	66.1
University of Vermont	(1905)	58.5

Arkansas July Report.—Dr. F. T. Murphy, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, July 9, 1907. The total number of subjects examined in was 7; total number of questions asked; 65; percentage required to pass, 75. The total number of candidates examined was 35, of whom 15 passed, including 6 non-graduates, and 20 failed, including 10 non-graduates. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Arkansas University	(1907)	86.2
Northwestern Univ. Med. School	(1907)	84.4
University of Louisville	(1907)	85.8
Washington University, St. Louis	(1907)	90.1
Jefferson Medical College, Philadelphia	(1877)	80.4
Vanderbilt University	(1907)	86.7
Memphis Hospital Medical College	(1907)	88.2
University of Nashville	(1901)	76.5
University of Virginia	(1902)	76.5
FAILED.		
Barnes Medical College	(1907)	70.7
Meharry Medical College	(1907)	63.7, 65.4, 73, 73.2
University of Tennessee	(1903)	50
University of West Tennessee	(1907)	41.7, 49.5
Memphis Hospital Medical College	(1907)	58.1
College of P. and S., Memphis	(1907)	64.8

LICENSED WITHOUT EXAMINATION.

There were also licensed at this examination three old practitioners, who were granted license by reason of having been registered under old law. The following colleges were represented:

College.	Year of Grad.
Arkansas University	(1897)
University of Louisville	(1897)
University of Tennessee	(1891)

Michigan Reciprocity Report.—Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, sends us the following list of reciprocal licenses issued by that board from Jan. 1 to Aug. 1, 1907, inclusive:

LICENSED THROUGH RECIPROCITY.

College.	Year Grad.	Reciprocity with.
Medical College of Georgia	(1905)	Georgia
American Coll. of Med. and Surg., Chicago	(2, 1906)	Illinois
Hering Medical College	(1906)	Illinois
Rush Medical College	(1894) (1906)	Illinois
Chicago Homeopathic Medical College	(1887)	Ohio
Chicago Homeopathic Medical College	(1904)	Indiana
Dunham Med. College	(1902)	S. Carolina
College of P. and S., Chicago	(1901)	Indiana
College of P. and S., Chicago	(4, 1906)	Illinois
College of P. and S., Chicago	(1907)	Missouri
Northwestern Univ. Med. School	(1906)	Illinois
Hahnemann Medical College, Chicago	(1906)	Texas
Illinois Med. College	(1903)	Illinois
Bennett Coll. of Ecl. Med. and Surg.	(1907)	Illinois
College of P. and S., Keokuk	(1878)	Iowa
University of Iowa	(1887)	Iowa
Keokuk Medical College	(1904)	Iowa
Louisville Medical College	(1899)	Kentucky
Johns Hopkins Medical School	(1906)	Maryland
Baltimore Medical College	(1895)	Ohio
Baltimore Medical College	(1906)	Indiana
Michigan College of Medicine and Surgery	(1895)	Nebraska
University of Michigan	(1866)	Ohio
University of Michigan	(1891)	New York
University of Michigan	(1900)	Iowa
Ensworth-Central Medical College	(1901)	Kansas
Homeopathic Medical College of Missouri	(1881)	Maine
Eclectic Med. University Kansas City	(1906)	Missouri
University Med. Coll., Kansas City	(1903)	Missouri
University of Buffalo	(1903)	New York
College of P. and S., New York	(1904)	New York
University and Bellevue Hosp. Med. Coll.	(1905)	Maine
Albany Medical College	(1896)	New York
Miami Medical College	(1896)	Ohio
Western Reserve University	(1896)	Ohio
Starling Medical College	(1898)	Ohio
Cincinnati Coll. of Med. and Surg.	(1885)	Ohio
Toledo Medical College	(1896)	Ohio
University of Wooster, Medical Dept.*	(1893)	Ohio
Cleveland Homeo. Med. College	(1905)	Ohio
Hahnemann Med. Coll., Philadelphia	(1907)	Maryland
University of Vermont	(1906)	Vermont
Wisconsin Coll. of P. and S.	(1902)	Wisconsin
Laval University, Quebec	(1890)	Wisconsin
Royal Hungarian University	(1887)	Missouri

*In 1896 this school united with Cleveland College of Physicians and Surgeons to form the Medical Department of the Ohio Wesleyan University.

Vermont July Report.—Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, July 9-11, 1907. The number of subjects examined in was 13; total number of questions asked, 95; percentage required to pass, 75. The total number of candidates examined was 38, of whom 32 passed and 6 failed. The following colleges were represented:

College.	Year Grad.	Per Cent.
PASSED.		
Baltimore Med. Coll.	(1905) 81.7; (1907)	85.8
College of P. and S., Boston	(1906)	83.9
Dartmouth Med. Coll.	(1903)	75.1
Hahnemann Med. Coll., Philadelphia	(1898) 82.1; (1905)	82.5
Jefferson Med. Coll.	(1906) 85.8; (1907)	82, 84.7
College of P. and S., New York	(1907)	80.1
University of Vermont	(1903) 85; (1905) 75.1; (1906) 84.8; (1907)	76, 76.1, 77.6, 77.9, 78.3, 78.4, 78.8, 79.2, 79.3, 79.6, 80.1, 81.1, 81.4, 82, 82.1, 84.6, 84.8, 85.3, 86.1.
FAILED.		
University of Maryland	(1906)	71.9
University of Vermont	(1907)	72.3, 73.1, 73.9, 74
Queen's University, Ontario	(1906)	68.4

The following questions were asked:

ANATOMY.

1. Describe the femur. 2. Describe the radiocarpal articulation. 3. Name the extensor muscles of the thigh, and describe any one of them. 4. Give the origin, course, and distribution of the renal arteries. 5. Give the origin, course, and termination of the saphenous veins. 6. Describe the fourth ventricle. 7. Give the origin, course, and distribution of the great sciatic nerve. 8. Give the gross anatomy of the lungs. 9. Describe the inguinal canal, and name the coverings from without inward, of an oblique inguinal hernia. 10. Describe the mammary glands.

BACTERIOLOGY.

1. Name and describe the two most common pyogenic organisms. 2. What is a pure culture? State how a pure culture is made.

3. Describe toxins, antitoxins, and ptomains. 4. Discuss pathologic conditions produced by the colon bacillus. 5. Give a reliable method of cultivating and staining the bacillus of diphtheria.

PHYSIOLOGY.

1. Describe protoplasm. 2. What are the functions of epithelium? 3. Give the varieties of muscle tissues, and give example of each. 4. What conditions retard the coagulation of the blood? 5. Describe normal heart sounds. How and where should the stethoscope or ear be placed to hear these sounds to best advantage? 6. Give the characteristics of the secretions of the parotid, submaxillary, and sublingual glands. 7. How many types of glands in the small intestines? Name them. 8. What nerves are distributed to the lung tissue? 9. Discuss the function of the tenth nerve. 10. Give the physiology of menstruation, and describe the menopause.

HYGIENE.

1. How should a patient who has been rendered unconscious by heat be treated? 2. Mention some of the remote consequences of epidemic influenza on public health. 3. What are the diseases the predisposition to which is greatly increased by the continual use of alcoholics? 4. What physical training would you recommend for persons with weak respiration. 5. Describe the effects of a hot and moist atmosphere on the human system, and state the class of disease this atmosphere is likely to induce.

PATHOLOGY.

1. What may be the results of hemorrhage? .2. In what seats may calcification take place in disease? 3. Give the distribution of the typhoid bacillus. 4. Give the pathologic anatomy in contracted kidney. 5. What is the pathology of cretinism?

CHEMISTRY.

1. What is allotropy? In what elements is it exhibited? 2. Describe three elements belonging to the nitrogen group. 3. Describe the properties of ozone. At what time of year is it most abundant in the air? 4. Give an explanation of the processes of fermentation and putrefaction. 5. State important differences in composition of human and cow's milk. Describe in detail tests for albumin in urine.

OBSTETRICS.

1. a. Describe briefly the bony pelvis, giving the important diameters. b. Give method of computing time of labor. 2. Give etiology and treatment of albuminuria of pregnancy. 3. Give diagnosis of breech presentation and management of same. 4. Describe management of a normal R. O. A. presentation. 5. Give causes and treatment of retained placenta. 6. Give indications for podalic version and describe operation. 7. Give prophylactic and curative treatment of ophthalmia neonatorum. 8. Define puerperal sepsis and give prophylaxis. 9. Give directions for the preparation of a patient at the onset of labor. 10. Name four conditions calling for the application of forceps and describe mode of application.

GYNECOLOGY.

1. Define subinvolution and give causes. 2. State what you would expect to determine by a digital examination. 3. a. Enumerate the most common symptoms arising from a lacerated cervix. b. Describe operation for lacerated cervix. 4. Give diagnosis and treatment of uterine fibroids. 5. Give etiology and treatment of: a. Dysmenorrhea. b. Menorrhagia.

THERAPY.

1. In what diseased conditions would you prescribe: cocain, chloral, quinin, belladonna. 2. Write a formula for the following diseases: chlorosis, hiccough, gout, pertussis, gastritis, endocarditis. 3. How would you manage a case of infantile convulsions? How would you manage a case of angina pectoris? 4. Name four diseased conditions in which counter-irritation might do good? What would you use for the same? 5. Give your treatment for the following: cholera infantum, tuberculous meningitis, neuralgia, edema of glottis.

MATERIA MEDICA.

1. What is antipyrin? Discuss the physiologic action and the adult and child dose of same. 2. Name four preparations of the following drugs and give their dose: aloes, arsenic, aconite, iodin, phenol, phosphorus, rhubarb, lead, opium. 3. Discuss the action of tuberculin. 4. Name the active principles of the following drugs and give their dose: veratrum viride, hydrastis, digitalis. 5. What are the alteratives? Name four and give dose of same.

LEGAL MEDICINE.

1. What is meant by cadaveric rigidity and cadaveric lividity? 2. On what grounds would you form your opinion that a child was legitimate or illegitimate? 3. What bearing has medicine on life insurance? 4. Give examples of medicolegal cases. 5. What facts would you note in being called to a case of gunshot wound?

PRACTICE.

1. Discuss the use of the Brand bath in typhoid fever. 2. Give (a) the etiology of malaria fever, (b) of yellow fever. 3. Give the symptomatology of variola. 4. Give prognosis and treatment for a child congenitally syphilitic. 5. Differentiate between septic intoxication and septic infection. 6. Discuss the possibility of involvement of organs remote from the urethra in gonorrhea in the male. 7. Give the differences, as revealed by microscopic blood examination, between anemia and chlorosis. 8. Write a short article on tachycardia. 9. What are the symptoms and prognosis in Bell's palsy? 10. What differences would you expect to find between urine from a patient with chronic parenchymatous nephritis and urine from one with chronic interstitial nephritis?

SURGERY.

1. What is leukocytosis? What is its value in surgery? 2. Differentiate between an abscess and a tumor over an artery. 3. Make a diagnosis of hip-joint disease. 4. Describe the changes that take place during inflammation. 5. Give the etiology, pathology, symptoms and treatment of erysipelas. 6. How would you reduce a dislocation of the hip? 7. Give the etiology, pathology, symptoms and treatment of synovitis. 8. What are the dangers liable to follow gonorrhea? 9. Give the symptoms of fracture and name varieties. 10. Describe in detail the operative treatment in a case of empyema.

Society Proceedings

COMING MEETINGS.

Colorado State Medical Society, Glenwood Springs, Sept. 17-19.
Amer. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 17-19.
American Electro-Therapeutic Assn., Boston, Sept. 17-19.
Medical Society of the State of Pennsylvania, Reading, Sept. 23-26.
Southern Medical Association, Birmingham, Ala., Sept. 24-26.
Amer. Acad. of Ophthal. and Oto-Laryng., Louisville, Sept. 26-28.
American Public Health Assn., Atlantic City, Sept. 30-Oct. 4.
Medical Assn. of District of Columbia, Washington, Oct. 1.
American Roentgen Ray Society, Cincinnati, Oct. 2-4.
Idaho State Medical Society, Boise, Oct. 3-4.
Delaware State Medical Society, Wilmington, Oct. 8.
Nevada State Medical Society, Reno, Oct. 8-9.
Mississippi Valley Medical Association, Columbus, O., Oct. 8-10.
Vermont State Medical Society, St. Johnsbury, Oct. 10-11.
Kentucky State Medical Association, Louisville, Oct. 15-17.
Assn. of Military Surgeons of the U. S., Norfolk, Va., Oct. 15-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.

OHIO STATE MEDICAL ASSOCIATION.

Annual Meeting, held in Cedar Point, Aug. 28-30, 1907.

PROCEEDINGS OF THE HOUSE OF DELEGATES.

The House of Delegates met first on Wednesday morning, August 28, with the president, Dr. B. R. McClellan, Xenia, in the chair. In the absence of Dr. Winders, Dr. J. H. J. Upham, Columbus, was made temporary secretary.

The report of the treasurer showed the membership in detail in each county society for the last fifteen years. In 1893 the membership for the entire state was 707. In 1902, the year before reorganization in Ohio, it had fallen to 656. The following year it had risen to 2,259, a gain of nearly 300 per cent., while the present membership is 3,453. The total receipts of the secretary's office for the year were $5,429.93, disbursements $4,487.61, balance on hand $942,32. Hereafter, the fiscal year will run from January 1 to December 31.

To Cooperate with A. M. A. Council on Medical Education.

Dr. Grube reported on the meeting of the Council on Medical Education held in Chicago and reviewed the work of the council for the past year, presenting the following resolution, which was adopted:

Resolved, That the Ohio State Medical Association commends the efforts of the national Council on Medical Education to raise the standard of medical education in this country and pledges its hearty cooperation to bring about these reforms. In the furtherance of this resolution, we recommend the creation of a standing committee of three to cooperate with the Council on Medical Education in the medical educational affairs within our state.

Seek to Improve Milk.

Dr. Sherman of Cleveland offered a resolution declaring it to be an important and imperative public duty to safeguard the source of the milk supply of the cities of Ohio and authorizing the appointment of a committee to consider the advisability of legislation providing for the inspection of milch cows, dairy farms and diseased cattle; compensation to owners of condemned cattle and protection of the cattle of the state against the importation of disease. These resolutions were referred to the legislative committee.

The report of the Publication Committee was read and adopted.

Good Reports from Councilors.

Dr. Brooks F. Beebe, Cincinnati, reported every county in his district as organized and working. A most excellent district meeting was held during the past year. Dr. Beebe, as chairman of the council, emphasized the importance of postgraduate work in county societies and of popular lectures held under the auspices of county societies. He also emphasized the relative importance which ethical questions are coming to have in society discussions. During the last year over 200 papers were read in the various county societies on ethical and medicolegal subjects.

Dr. Horace Bonner, councilor for the second district, reported increased membership, better attendance and more interest and enthusiasm in the county societies in his district this year than ever before.

Dr. J. H. Jacobson, Toledo, councilor for the fourth district, reported all counties but one organized. He emphasized the importance of systematic postgraduate work and of care in the selection of officers for county societies. In some of the counties in his district the plan has been adopted, in making up the program, of appointing an "understudy" for the essayist so that, in case the principal is absent, there will be some one to take his part in the program. One county in his district has adopted a rule whereby officers absent from three consecutive meetings forfeit their office without any action on the part of the society. This permits the election of new and active officers.

Drs. T. Clarke Miller, Massillon, Charles S. McDougall, Athens, John E. Sylvester, Wellston, and T. W. Rankin, Columbus, councilors for the sixth, eighth, ninth and tenth districts, respectively, reported that most of the county societies in their districts are organized and at work.

An amendment to the constitution, changing the term of office of councilors from five to two years, failed of adoption. An amendment establishing a "Central Secretaries Committee," to devise ways and means of assisting and simulating the work of the county secretaries, was adopted.

To Promote Graduate Work.

Dr. Beebe, chairman of the council, introduced a resolution which was adopted, approving the efforts of the council to institute a general graduate course in every county society in Ohio, and to advance the education of the laity by popular lectures on medical subjects.

Election of Officers.

The officers elected were given in The Journal last week, page 859. The Committee on Public Policy and Legislation now consists of Drs. J. W. Clemmer, Columbus, George H. Matson, Columbus, and W. H. Snyder, Toledo; the Committee on Publication of Drs. C. F. Clark, Columbus; Charles S. Hamilton, Columbus, and the secretary, *ex officio*.

Dr. Frank Winders, for several years secretary of the association, declined re-election on account of ill health. Dr. Winders expects to be abroad for some time.

Columbus was selected as the next place of meeting.

Approve Public Health Defense League.

Dr. Silver announced that the Hon. Champe Andrews, New York City, would deliver an address regarding the organization and work of the Public Health Defense League and that, at the same time, a report from the Ohio State League for the Suppression of Fraudulent Advertisements would be presented. He therefore introduced the following resolution, which was adopted:

Whereas, To protect the public health, and to educate the public in public health matters, it is generally recognized that the physician and the layman must organize and work together, and

Whereas, The Public Health Defense League is a national society, providing an efficient organization in which layman and physician are working together effectively for the laudable ends desired, therefore, be it

Resolved, That the Ohio State Medical Association heartily desires the progress of the Public Health Defense League, especially in the state of Ohio, and, to that end, offers the use of its journal for the purpose of spreading the propaganda of the league and urges all the members of the profession throughout the state to become members of this society.

Active Campaign for Legislation Committee.

Resolutions were offered from the Reference Committee on Public Policy and Legislation, recommending the employment of an attorney whose duty it shall be to advise in legislative and other matters concerning the profession, and that the House of Delegates appropriate $1,000 for this purpose. The resolutions were adopted.

Dr. Clyde Ford, Cleveland, presented an amendment to the by-laws providing for an annual meeting of the Committee on Public Policy and Legislation, and authorizing it to report to the state association in matters of public policy and legislation. This amendment was adopted.

Dr. Brown, Toledo, introduced a resolution, requesting each county society to make a special contribution of not less than 50 cents per capita for a fund for the Committee on Public Health and Legislation. This was adopted.

Records of Congressmen on National Legislation.

Dr. Charles A. L. Reed, Cincinnati, read the report from the Committee on Medical Legislation and offered the following resolutions, which were unanimously adopted:

Resolved, That the attitude of Senator Foraker, Senator Dick, and Mr. Southard, of the Ohio delegation to Congress, with reference to the pure food and drugs bill, as shown by the *Congressional Record*, merits and hereby receives the emphatic disapproval of the Ohio State Medical Association, and should receive the similar disapproval not only of every physician, but of every citizen of the state of Ohio.

Resolved, That the attitude of Messrs. Goebel, Campbell, Keifer, Bannon, Taylor, Mouser, Webber, Dawes, Weems, Smyser, Kennedy, Thomas, Beidler and Burton in supporting and voting for the pure food and drug bill merits and hereby receives the cordial approval of the Ohio State Medical Association, and should receive the similar approval not only of every physician but of every citizen of the state of Ohio.

Resolved, That Senator Dick merits and is hereby tendered the thanks of the Ohio State Medical Association for his activity and interest in behalf of the bill for the relief of Dr. James Carroll.

Scientific Work Divided into Sections.

Dr. Ford offered an amendment to the by-laws, providing for scientific meetings of the association under the following sections: 1, General Medicine; 2, General Surgery and Gynecology; 3, Obstetrics and Pediatrics; 4, Dermatology and Genitourinary Diseases; 5, Eye, Ear, Nose and Throat; and also providing for registration of members and for the election of the officers of these sections. This amendment was adopted.

(*To be continued.*)

Medicolegal

Essentials of Privileged Communications—Communications to Physicians of Railway Company—Waiver.

The United States Circuit Court of Appeals, Eighth Circuit, says, on the appeal of Union Pacific Railroad Company vs. Thomas, a personal injury case brought by the latter party, that the plaintiff was injured in a collision on the railroad, and was taken to the surgeon's room in the Union station at Omaha, where two of the physicians of the company attended her. There was evidence that the physicians went to the station on behalf of the company to render professional services to any who had been injured by this collision who were in need of such services, that the questions which they asked, the examinations which they made, and the information which the plaintiff gave to them were proper and necessary to enable them to treat her as physicians in a skilful way, and that they were made and given for this purpose; but that the plaintiff refused to permit any extended examination of her person in the station, and when one of the physicians gave her a sedative she refused to take it, and demanded that she be removed to her home. The Circuit Court refused, on her objection, to permit the medical men to testify to the examinations of her which they made, to their conversations with her, and to the treatment which they gave her at the station, on the ground that these were confidential communications under Section 5907 of the Compiled Statutes of Nebraska of 1901, which provides that no physician, surgeon, etc., shall be allowed, in giving testimony, to disclose any confidential communication, properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice.

The Circuit Court of Appeals does not think that there was any error in the ruling stated. It says that the essential elements of a privileged or a confidential communication to a physician under the Nebraska statue are: 1, The relation of physician and patient; 2, information acquired during this relation; and 3, the necessity and propriety of the information to enable the physician to treat the patient skilfully in his professional capacity. These attributes characterized the communications which the defendant sought to prove by the physicians, and they were not deprived of their privileged character by the fact that the relation of physician and patient was established at the request of the defendant and against the protest of the plaintiff. Confidential communications by a patient to a physician are not less privileged because the relation is established at the request of a third person. The physicians who testified in this case attended the plaintiff for the purpose of treating her in their professional capacity, in the discharge of their duty to the company which employed them. All the information which they acquired from her was necessary or proper to enable them to do so. This information was obtained during the existence of the relation of physician and patient, which they themselves established and by virtue of that relation alone, and it was rightfully excluded under the statute of Nebraska.

In other words, the court holds that information which is proper and necessary to enable the physicians of a railroad company to treat an injured person, which is acquired by them from such person for that purpose while they are endeavoring to treat her professionally, although against her protest, is a privileged communication, under such a statute.

One of the questions and one of the answers excluded read in this way: "Q. You may state what Mrs. Thomas said to you. A. She said she had been injured in the wreck by being struck on the back of the neck." In view of the probability that it was necessary and proper for the physician to learn in what part of her person the plaintiff had been injured in order to properly treat her the court sees no sound reason why the information which this answer conveyed was not privileged. It says that it may be unnecessary for a physician to learn by what force an injury was inflicted on the patient, while it may be indispensable for him to know on what portion of his person this force was imposed in order to treat him skilfully. The question and answer were a part of a communication between the physician and his patient which consisted of the statement in the answer, of other conversation and of a limited examination. They were all of a privileged character and properly excluded.

The court further says that testimony voluntarily produced on behalf of a patient of communications between him and his physician undoubtedly waives his privilege and exempts the evidence of the physician relative to the communication from all objections on the ground that it is confidential or privileged, because the patient has thereby made it public. But the reason for this rule is that the patient has deprived the communication of its confidential character by voluntarily causing it to be recited in public. But testimony that is not voluntarily given and evidence that does not recite the communication works no waiver, because the reason for the rule there ceases, and the rule becomes inapplicable. On her direct examination the plaintiff testified that some one whom she did not know came into the station, wanted to examine her, took hold of her feet and felt them, and put his hand under the back of her neck, and she told him she did not want him to touch her, but gave no evidence that this person was a physician, or that there was any farther communication between them. There was no other evidence on this subject in her direct examination, and this constituted no waiver of the privilege, because it did not recite or set forth any of the conversation with her or any of the information relative to her condition or her injury, which the physicians secured by virtue of their professional relation and the defendant sought to introduce by means of them.

Rights of Purchaser of Office and Good Will.

The Supreme Judicial Court of Massachusetts has, in Foss and another vs. Roby, rendered a decision which it would seem should apply in principle as much between physicians as between dentists, although this case was one between dentists. It says that it appeared that one of the plaintiffs and the defendant had been partners engaged in the practice of dentistry, at 132 Court Street, in the city of Boston, and on a dissolution of the firm the defendant sold to him his interest in the office furniture and dental equipment with the good will of the business; that such plaintiff had subsequently formed a partnership with the other plaintiff, to whom he conveyed a half interest in the personal property, including the good will, and that they had continued business at 101 Tremont Street. After a lapse of about three years the defendant opened an office at 88 Boylston Street, where he carried on the practice of his profession. By solicitation he obtained many of the patients of the old firm, and his business substantially consisted of this patronage. The important questions for decision were, whether the defendant was precluded by his agreement from setting up a competing business, and the measure of relief to which the plaintiffs were entitled.

By the contract of sale, while the defendant explicitly conveyed his interest in the good will, he did not expressly covenant to refrain from competition, either as to time or territory. But the sale being of an established practice, described in the instrument as "the dental business" then carried on at "Court Street in said Boston," it was implied, even if not expressed, that thereafter the defendant would so practice his profession as not to injure and perhaps destroy the business he had sold.

In a mercantile partnership the sale of the good will conveys an interest in a commercial business, the trade of which may be largely, if not wholly, dependent on locality, and the right which the buyer acquires under such a purchase, is the chance of being able to retain the trade, connected with the business where it has been conducted. But in a partnership for the practice of dentistry, the personal qualities of integrity, professional skill, and ability attach to, and follow the person, not the place.

The object to be obtained was the protection of the purchaser, and the agreement was to be construed as if the defendant had expressly convenanted to render the old practice secure, not by competing himself, under conditions by which it might either be impaired or destroyed. If this were permitted, then while retaining the consideration, the defendant might also deprive the plaintiffs of the benefit of their purchase by regaining the customers.

Neither was the agreement, under this construction, invalid because unlimited in time, for the consideration paid must be treated as having been accepted by the defendant as a full equivalent for a release of his right to compete within a restricted area, if by such competition the good will sold was, or might be rendered insecure. Nor was any principle of public policy violated, by unduly restricting lawful competition.

On resuming practice the defendant sent out printed circulars to former patients, giving the name of the old firm, with the street and number, and announced, that having opened an office in the city, he solicited their custom. By this scheme of advertising he sought to regain the good will with which he had parted, and his efforts having been successful, the defendant had deliberately broken his implied covenant, by setting up a rival business, and while the plaintiffs should be granted adequate relief for this breach of his contract, the remedy, on the facts found, should not be broader than was reasonably necessary for their protection.

The business of the old firm was conducted in Boston, which was the only locality referred to in the agreement, although the practice was not wholly derived from the place where patients were treated, but had been acquired from other cities and towns throughout the eastern and interior sections of the state. But until it became affirmatively manifest that the plaintiffs were likely to derive some substantial advantage, or protection, the place ought not to be extended by implication to include the entire area within which former patients resided. The preservation of this territorially diversified patronage in the form in which it had been established was the object contemplated by the parties, and with which the defendant agreed not to interfere. By practicing dentistry at his present location in the manner described, he competed with the plaintiffs by obtaining former resident patrons and also those who, when coming to the city for dental treatment, resorted to him, when otherwise they might have employed them. They were, therefore, amply protected by an injunction enjoining the defendant from practicing his profession within the limits of the city.

The decree of the Superior Court in favor of the defendant must be reversed, and a decree awarding an injunction, with costs, should be entered. And it being further shown that the larger part of the defendant's present practice had been derived from these patients, if the plaintiffs requested, such money damages as they had sustained from this breach of the contract, also might be assessed.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

August 31.

1 *Causes and Characteristics of Weak Foot. R. Whitman, New York.
2 *Report of Research Work on the Effects of Tropical Climate on the White Race. E. P. Wolfe, U. S. Army.
3 *Longevity of Idiots. L. P. Clark and C. E. Atwood, New York.
4 Fecal Toxemia. W. F. Waugh, Chicago.
5 Early Recognition of Tabes Dorsalis. C. Rosenheck, New York.

1. **Weak Foot.**—Whitman thinks that notwithstanding the deformity of flatfoot has been analyzed and described by several anatomists, the importance of weak foot, the most common and the most disabling of all the postural deformities, has been unsuspected in the absence of pain. Whitman describes two postures of the foot: that of activity and that of inactivity. In activity the foot is incurved at its inner border and the arch is accentuated, while in inactivity the foot is everted and the body weight is directed toward the inner side of the sole. The deformity of the weak foot is an abnormal persistence or exaggeration of the attitude of abduction or rest. The abduction is primary; the lowering of the arch is a secondary element. The symptoms are not due to the deformity as such and have no proportionate relation to its degree; they are the result of the overstrain and injury to which disordered function has exposed the foot. Predisposing causes are deficient support due to congenital or acquired abnormality, deficient power due to weakness of muscles, overweight or overstrain, and improper attitudes, the most important of which is toeing outward. The wearing of improper shoes is a factor. The symptoms are faulty attitude, impaired function, sensation of weakness, of tire and strain along inner border of foot and beneath the arch; pain in the heels is often prominent; the discomfort may extend to the calves, knees, and, especially in women, to the back. Drooping of the spine may result. Proper shoes and training into proper attitude in the case of children are preventives. The author has invented a brace, molded on an accurate plaster model. Actual deformity may need correction.

2. **Tropical Climate and the White Race.**—Wolfe makes a preliminary report of observations conducted on fresh troops to the extent of 214 examinations. He finds that after arrival in the tropics a state of increased activity of all the bodily functions and a sense of well-being occurs, which lasts from perhaps three to twelve months. This is followed by a state of quiescence or indifference, which gives place insensibly to a state of lassitude, nervous irritability, weakness and neurasthenia. The skin loses its soft ruddy hue and acquires an anemic, muddy, yellowish bronzed appearance, the eyes lose their brightness, the face its animation. Conjunctiva and sclera become muddy yellow, elasticity and uprightness disappear; the shoulders droop, mental activity becomes an effort, then follows mental and physical stagnation and retrogression. The individual's life has much to do with the change; all contrary theories notwithstanding, an active life is as necessary in the tropics as in the temperate climes. The author's attention was called to this in Cuba in 1899, where teamsters and packers, who drank any and all kinds of water, and alcoholic liquors too, were out in the sun nearly all day, and kept all kinds of hours at night, had a very much lower sick rate than the enlisted men, who did nothing outside their guard duty but lie around their tents, and for whom all available precautions were taken. In those accustomed to a cold climate bodily heat production is in excess, to balance radiation and maintain a normal standard. On sudden transportation to a tropical climate the blood is driven to the periphery for the elimination of heat. The chronic peripheral engorgement results in permanent capillary dilatation, with more or less blood stasis, and, as a consequence, the cerebral circulation is diminished and the nourishment of the brain lessened, as was shown by Schüler (*Deutsch. Arch. f. klin. Med.* XIV). Bad functioning of the organs results and a vicious circle is thus established.

3. **Longevity of Idiots.**—Clark and Atwood controvert the common belief that idiotic children rarely grow to adult life, and as a result of the investigation of 785 cases they conclude that idiocy under good care does not seriously curtail life.

Boston Medical and Surgical Journal.

August 29.

6 *The Dignity of Medicine. I. J. Prouty, Keene, N. H.
7 *The Three Long Continued Fevers of New England. R. C. Cabot, Boston.
8 *Organization of Tuberculosis Classes. J. H. Pratt, Boston.
9 *Function of Medical Inspectors. C. Harrington, Boston.
10 Factory Inspection. F. G. Wheatley, North Abington, Mass.

6. **Dignity of Medicine.**—Prouty, in his address to the New Hampshire Medical Society, calls attention to the loss of dignity sustained by the medical profession in recent years, but points out that both the church and the law are suffering to some extent in like manner. This fact suggests a common cause for the decline in the public estimation of all these professions. In his individual capacity the doctor has not been found wanting; it is in the lack of collective force that the explanation is to be found. The tendency of the age is toward collectivism, as is evidenced by commercial bodies. It is medical organization, working, however, along lines that studiously avoid, even in appearance, everything that might savor to the non-professional mind of professional advantage, and judiciously used in establishing and maintaining relations of confidence between the public and the profession, that must be looked to to restore the medical profession to its position of old-time dignity in the public eye. One point especially the author emphasizes: "The dignity of our profession is lowered when a physician's services can be bought at wholesale and peddled out at retail to further commercial ends."

7. **Long-Continued Fevers.**—Cabot, as the result of painstaking analysis of the figures of the Massachusetts General Hospital, arrives at the conclusion that in New England there are but three long, common, continued fevers, and by this term he refers to a fever which lasts two weeks or more, in which the temperature is continuously above 99. These fevers are typhoid, tuberculosis, sepsis. An examination of a much larger number of cases from private practice and from the records of the hospital confirm the impressions made by the earlier set of statistics. Under sepsis, he includes all diseases due to the pus-forming bacteria, which are prone to exert their influence in any part of the body—abscesses, wounds, puerperal fevers, appendicitis, fevers originating in the gall bladder and pelvis, and dubious fevers associated with cardiac valvular vegetations. These, with tuberculosis and typhoid, make up 90 per cent. of all cases. Meningitis, influenza, acute articular rheumatism, leukemia, cirrhosis and gonorrhea represent the remaining 10 per cent. There is no such thing as "simple, continued" fever, "slow fever," or "low fever," "bilious fever," or "gastric fever," neither are there any long-continued fevers due to hysteria, neurasthenia, mental affections, constipation, etc. He refers to the frequency with which tuberculosis of the lungs is mis-diagnosticated. Typhoid fever, gastric fever and malaria are the common errors. It should be recognized that not only may there be chills in tuberculosis of the lung, without cough, but there may be a chill every day at the same hour. No one can have malaria and repeated chills without showing parasites in the peripheral blood. As to typhoid, Cabot insists that typhoid in the majority of cases presents the picture of a patient who has fever and nothing local to show for it. He thinks that people may have typhoid and no symptoms whatsoever. They may carry around bacilli in their gall bladders and shed them through the intestines as a constant menace to the community. As to sepsis, abscess of the liver often gives rise to no local symptoms whatsoever. Some forms of appendicitis, affections of the gall bladder, subphrenic abscess and empyema following pneumonia form foci of sepsis, which may result in fever.

8.—A similar article by Pratt appeared in The Journal, Aug. 31, 1907, page 755.

9. **Medical Inspectors.**—Harrington considers the new "Act to Provide for the Establishment of Health Districts and the Appointment of Inspectors of Health," of Massachusetts, which became a law June 19, and details the duties of a medical inspector under this act. In brief these are: To inform him-

self respecting the sanitary conditions of his district and concerning all influences dangerous to the public health or threatening to affect the same; to extend the same protection to minors employed in factories as has been already provided for school children, and to enforce under the direction of the State Board of Health, and in place of the inspection department of the district police, all the various laws in reference to sanitary matters, such as regulation, etc.

New York Medical Journal.

August 31.

11 *Villous Papillomata of the Rectum. B. M. Ricketts, Cincinnati.
12 Glaucoma. M. Buchanan, Philadelphia.
13 *Bacteriologic Examination of Feces for Early Diagnosis in Tuberculosis. M. Solis Cohen, Philadelphia.
14 *Treatment of Chronic Indigestion. H. Weinstein, New York.
15 Local inflammation and Its Treatment. H. J. M. A. von Tiling, Poughkeepsie, N. Y.
16 *Children's Calculations, E. L. G. Brown, New York.
17 Police Methods for Sanitary Control of Prostitution. F. Bierhoff, New York.

11. **Villous Papillomata of Rectum.**—Ricketts notes the rarity and the disposition of these neoplasms to undergo epitheliomatous degeneration. Their cause is unknown; they may be single, sessile or pedunculated; they occur more frequently between 35 and 60 years of age; the sex incidence is equal. Recurrence usually indicates malignancy; the pedicle when present is usually of mucous membrane, and from one to three inches in length. The size varies from that of a millet seed to more than five inches in diameter. Symptoms: Profuse and frequent discharge of a yellow, turbid, albuminous secretion, constipation, tenesmus and emaciation. These symptoms are almost constant. Hemorrhage is not an early associated symptom; cachexia appears in the later stages; febrile disturbances vary in degree; prolapse and frequent urination are common. The author considers the method of operation and describes thirteen cases, the last of which, in addition to conclusions peculiar to itself, leads Ricketts to the generalization that the relationship of villous papilloma and adenoma of the rectum being so intimate and difficult to determine, is greatly in favor of the two existing at the same time in a given case.

13. **Bacteriologic Examination of Feces in Tuberculosis.**—Solis-Cohen recommends routine examination of feces in pulmonary or general tuberculosis. He reports a series of six cases which led him to the conclusion that an early diagnosis of tuberculosis can often be made by bacteriologic examination of the feces, in the absence of clinical symptoms, and even of physical signs. The feces of tuberculous patients must be regarded as a source of contagion and thoroughly disinfected; and the same precautions that are taken in typhoid fever, with regard to hands, clothing, etc., should be taken in tuberculosis; "closed" tuberculosis may not be really closed, for the tubercle bacilli may escape in the feces. This may be the case also in latent tuberculosis. He further says: "Can tubercle bacilli be eliminated by the bowel without the latter being involved, just as they are believed to be excreted by the kidneys in the absence of tuberculous lesions in the genitourinary tract? Does the presence of tubercle bacilli in the feces indicate the existence of a tuberculous infection in the absence of symptoms or of demonstrable lesion? Some believe that in cases of pulmonary tuberculosis in which the intestines are not involved tubercle bacilli gain access to the bowel by means of swallowed sputum. Interesting in this connection is the absence of expectoration in several of my patients. It is possible that in some cases tubercle bacilli in the feces may point to the bowel as being the portal of entrance rather than of exit. Their presence may have some bearing on the theory as to the intestines being the portal of entry in the majority of tuberculous infections. Normal persons in whose feces tubercle bacilli are found might, therefore, represent individuals who are just being attacked or who are resisting the efforts of the bacteria to gain a foothold. Between these and well-marked cases of tuberculosis all gradations may exist. The frequent occurrence if ischiorectal abscess and fistula in ano in patients suffering from pulmonary tuberculosis may possibly be explained by the presence of tubercle bacilli in the bowel of all such cases. May there not be carrier cases of tuberculosis; persons who harbor tubercle bacilli, without becoming themselves infected thereby, but who nevertheless may infect others with tuberculosis?"

14. **Treatment of Chronic Indigestion.**—Weinstein considers the surgical advice, to resort to operative procedures in all cases that do not show improvement after a few weeks of internal medication, as not only unwarranted but directly dangerous. Absence of a clear diagnosis with consequent improper treatment is at fault in many cases of poor results. He does not dispute the legitimate field of surgery in gastric diseases, but considers it necessarily limited to those cases in which there is mechanical obstruction interfering with the proper evacuation of the stomach contents.

16. **Children's Calculations.**—Now that sanitary requirements have replaced the figured patterns and gay pictures of the wall papers, Brown pleads for decoration of the tiles used in the walls of children's hospitals and wards. He points out the great value mentally to children, especially to sick children, of giving them an opportunity for their childish calculations and a form of diversion such as would be afforded by the decoration of the white tiles used in the walls.

Lancet-Clinic, Cincinnati.

August 31.

18 *Pruritus Ani. L. J. Krouse, Cincinnati.
19 Carbolic Acid and Iodin. W. E. Savage, Cincinnati.

18. **Pruritus Ani.**—Krouse considers in detail the pronouncements of leading proctologists and surgeons as to the pathology of pruritus ani, and concludes that the condition has no recognized pathology definitely established. In his opinion there is a pruritus ani essentialis, due not to a local, but to a constitutional fault, a primary affection, the result of trophic changes in the nerve parts. The condition found on the examination of a long-standing case of this kind is that the skin of the anus, as well as that of the immediate vicinity, is thickened, drier, deficient in pliability and radiates in folds from which the normal coloring matter is absent, so that it presents a grayish parchment-like appearance. The author points out that a similar process of absorption of pigment takes place in leucoderma, a disease generally admitted to have its source in the nervous system. From this he concludes that a similar condition in the anal region should be attributed to a similar cause, and that in such cases as these pruritus ani is not a symptom, but an actual disease.

The Medical Fortnightly, St. Louis.

July 25.

20 Evolution of Infections. A. L. Benedict, Buffalo, N. Y.
21 Physical Stigmata of Degeneration. A. MacDonald, Washington, D. C.
22 *Surgical Reduction of the Excessively Large Ear. C. C. Miller, Chicago.

August 10.

23 Things Medical in Turkey. R. C. Eccles, Brooklyn, N. Y.
24 Evolution of Infections. A. L. Benedict, Buffalo, N. Y.

22. **Reduction of Large Ears.**—Miller points out a field of specialism that is not overcrowded, in the performance of operations to improve the appearance. In regard to operation for large ears, he notices the triangular method and the crescent method, which consist in removing a triangular segment or a crescent, from the ear and suturing. He then describes his own sickle method. The operation is performed under a weak cocain infiltration. The ear is turned forward and the tissue destined to excision marked out with a sharp scalpel. The skin on the posterior surface of the ear is cut down through to the cartilage, and the cartilage cut through with care, so that the anterior skin is not punctured. A sickle-shaped piece of cartilage, the handle pointing to the junction of the helix with the scalp, and the curve following that of the helix is removed. Bleeding should be controlled before the parts are sutured. The ear swells and tingles and burns as though frost-bitten, but these symptoms subside after a few days and need cause no fear.

Detroit Medical Journal.

August.

25 *Mind Cure; Its Service to the Community. R. C. Cabot, Boston.
26 Physical and Mental Effects of Gynecologic Operations. W. P. Manton, Detroit.
27 Appendicostomy—Its Indications. S. Stevens, Kalamazoo, Mich.
28 A Surgeon's Outing. H. C. Wyman, Detroit.
29 Study of the Infant's Stool. (Continued.) P. Selter, Solingen, Germany.

25. **Mind Cure.**—Cabot analyzes, with remarkable clarity, the real in all mind cure systems and draws valuable deductions therefrom. While the limitations of psychic treatment in well-established disease are very great, its preventive power may also well be supposed to be great, for it gets a grip rarely attained by physicians on the actions of the not-yet-ill. "There is no question but that the fear of disease can lead through loss of appetite and sleep to serious disturbance of nutrition, which in turn predisposes to infection." Laying aside all accretions, mind cure doctrine contains three main articles of belief. 1. People are sick because they think so. 2. People are sick because they don't behave themselves properly. 3. The thought of sickness in itself is a pernicious one and should be banished so far as possible from consciousness. With regard to the first point Cabot says that there is no question that the fear of disease can lead, through loss of appetite and sleep, to serious disturbance of nutrition, which, in turn, predisposes to infection. [On the other hand, healthy mental influences can in all probability stimulate protoplasmic activity in the phagocytes.—Ed.] In regard to the second point, apart from ordinary breaches of hygiene, and the harm done by alcohol, venereal disease and reckless living, there are a number of women, who by the inertia of rest are thoughtlessly drifting anywhere, and a number of men, who by the inertia of motion are recklessly driven nowhere. As to the third point, the author strongly endorses the perniciousness to the patient of the idea and atmosphere of disease. It is good for a physician to throw himself into the study of disease, because it makes him forget himself, but we may fail to realize how bad this same consideration of disease is for the patient, because it makes him think of himself. Cabot cites the case of Mrs. Browning, and the cure effected when Browning rescued her from her atmosphere of invalidism and carried her off to Italy. As a causative factor in disease he compares internal concealed sorrow to internal concealed hemorrhage. "Some gnawing jealousy, half concealed for years from the patient herself, some supposed slight, brooded over secretly and poisoning happiness, some half-acknowledged shame for physical defect, or for a supposedly unpardonable error, long before forgiven and forgotten perhaps by every one, but the sufferer herself—some such foreign body in mental life, my friend the mind curist believed might be the source of unhappiness and ill health for many years." It is idle to recommend people to "stop thinking" or "stop worrying." The only way to oust one set of thoughts is to instil another in its place. The author summarizes his article practically as follows: 1. The mind cure movement has rendered notable public service because its main ideas are important and, in spirit if not in their letter, true. 2. The mind cure movement exerts a force of healthy criticism on the physician's tendency (a) to ignore the possible aggravation of disease by the mental effects of the methods of diagnosis and treatment which he uses; (b) to encourage the doctor habit, and (c) to treat neurotic cases either by an attempted and diluted mental régime or by "sitting on the safety valve."

Northwestern Lancet, Minneapolis.

August 15.

30 Importance of Early Recognition and Treatment of Convergent Strabismus in Young Children. W. R. Murray, Minneapolis.
31 *New Theory of Causation of Eclampsia. W. Reid, Deer Wood, Minn.
32 Metastatic Abscess of Liver. W. T. Adams, Elgin, Minn.
33 Lichen Ruber. E. Klaveness, Sioux Falls, S. D.
34 The Doctor's Automobile. A. D. Hard, Marshall, Minn.
35 Sebaceous Cysts of Nose. C. D. Harrington, Minneapolis.

31. **Eclampsia.**—Reid summarizes his conclusions as follows: 1. The immediate cause of eclampsia is high tension in the vessels. 2. The cause of high tension is coagula in the blood. 3. The remote cause is retardation or stagnation of blood in the uterine and the neighboring veins by the predisposition of the anatomy, such as large sinuses and irregular adjustment between maternal and placental circulation. 4. There exists a special ferment or toxin, which, with the preceding causes, determines the coagulability of the blood. This toxin has not been traced to its origin, but is shown to exist in the placenta.

Philippine Journal of Science, Manila.

June.

36 *Studies in Plague Immunity. R. P. Strong, Manila.

36. **Studies in Plague Immunity.**—Strong summarizes in his introduction to this issue the generalization made by him in the statement that it is "demonstrated that a satisfactory immunity can be obtained in the guinea-pig, an animal even more susceptible to plague infection than is man, by the inoculation of living cultures of plague bacilli of such attenuation that they are no longer dangerous when injected into human beings. Therefore, this laboratory believes that by the method of vaccination against plague, with suitable cultures, we have probably an efficient measure for the efficient control of this infectious disease, and we recommend its adoption for this purpose." The term vaccination is used in the sense of Jenner and Pasteur, to signify immunization with the living attenuated organism, not protective inoculation by means of killed organisms or their extracts.

University of Pennsylvania Medical Bulletin, Philadelphia.

July-August.

37 *Value of Chemical and Biologic Methods in Medical Diagnosis. A. Stengel, Philadelphia.
38 *Abdominal Complications and Sequelæ of Typhoid. C. H. Frazier and B. A. Thomas, Philadelphia.
39 Existence of Anti-enzyme in Tapeworm. D. W. Fetterolf, Philadelphia.
40 *Imperforation of Rectum and Anus. A. P. C. Ashhurst, Philadelphia.

37. **Chemical and Biologic Methods in Diagnosis.**—Stengel points out that from time to time iconoclasts appear, who decry either the clinical or the laboratory method of diagnosis. "Knowledge and experience," he says, "with the laboratory methods alone are quite compatible with brilliancy, but not with breadth of view, and familiarity with the clinical methods only does not constitute the equipment of a modern diagnostician." The successive steps in the knowledge of a certain disease have often been made possible largely or wholly by the help furnished in the laboratory, and though the chemical or biologic methods may afterward be unessential in the study of the case, the proper understanding is none the less dependent on the data available through such methods. He considers the contribution of chemistry to diagnosis in regard to disorders of metabolism the chemical diagnosis of kidney disease and hepatic disease, the detoxicating function of the liver, the chemical determination of pancreatic disease, and chemical methods in gastric diagnosis and occult blood; in support of the value of chemical methods; while the value of biologic methods is evidenced in the use in diagnosis of the morphologic characters, the isolation of specific organisms in pure culture and in animal inoculation, as well as inoculation with the products of disease and the serum reactions—agglutination, precipitins, opsonins, bacteriolysis, deviation of the complement, etc., the injection of bacterial products, blood cultures, the examination of serous exudates and cerebrospinal fluids, and the services rendered in particular diseases, typhoid, tuberculosis, rabies.

38. **Abdominal Complications and Sequelæ of Typhoid.**—Frazier and Thomas point out that the term "abdominal complications," as applied to typhoid, at once suggests to the surgical mind intestinal perforation; but other abdominal crises and complications, perhaps less common but equally serious, occur. Among these they consider acute intussusception, of which eight cases are recorded; volvulus, four cases; rupture of inflamed mesenteric glands, two cases; strangulated Meckel's diverticulum; typhoid pancreatitis; fecal impaction, and peritonitis without perforation; appendicitis as a forerunner of typhoid, and also appendicitis in typhoid, which authors divide into the following groups: 1. A group in which, at the onset of the fever, the cases are erroneously regarded as appendicitis. 2. A group in which an undoubted case of appendicitis, either of the initial or recurrent type, occurs during the course of the fever, merely as a coincidence. 3. A group in which appendicitis is the direct result of the specific inflammation involving the lymphoid tissue, with or without ulceration and perforation. 4. Lastly, a group in which appendicitis develops during the convalescence or later, and in which there appears to be some direct or indirect causal relation.

40. **Imperforate Rectum and Anus.**—Ashhurst reports twelve cases, and draws the conclusion that there can be very little room for doubt that a baby with an iliac anus is much less

apt to survive than one whose bowel terminates in the anal region. For this reason, and because the immediate mortality of the perineal operation is so much lower, the paramount importance of finding the rectum from the perineum instead of performing a primary colotomy can not be overestimated.

Journal of the Arkansas Medical Society, Little Rock.

August 15.

41 Plea for the Early Diagnosis and Rational Treatment of Pulmonary Tuberculosis. D. C. Wait and A. E. Sweatland, Little Rock.
42 Plea for More Extensive Use of Modified Cow's Milk in Infant Feeding. C. K. Caruthers, Pine Bluff.
43 *New Treatment for Placenta Prævia Centralis. W. H. Miller, Little Rock.
44 Umbilical Hernia. T. F. Kittrell, Texarkana.
45 Devices of Charlatans, or the Black Art in Medicine. L. H. Morphew, Stuttgart.
46 Surgery of the Rectum. A. E. Cox, Helena.

43. **Placenta Prævia Centralis.**—Miller points out that it is a well-known fact that in cases of central implantation of the placenta, pregnancy is almost invariably terminated before full term, frequently at a sacrifice of both mother and child. The child is so often lost that it hardly enters into the consideration of the treatment. After the death of the fetus, separation of the placenta from its attachment at once begins, with the result that there is less hemorrhage in cases of immature labor or miscarriage in which death has preceded the expulsion of the fetus, than when it is born alive. This led Miller to the view that if the death of the fetus could be secured long enough before attempting its delivery, there would be less bleeding, and consequently, less danger to the mother. He, therefore, devised the following operation, which he has twice practiced successfully: The patient being anesthetized, a pair of sharp-pointed dressing forceps is passed through the placenta and an opening is made large enough to admit the index finger with which the physician feels the cord, brings it through the opening and ligates it. A tampon is inserted in the cervix and vagina and allowed to remain for twelve hours, after which part of the tampon may be removed to see if it is effectively controlling the hemorrhage; if so another tampon is placed in the vagina. Uterine contraction may be stimulated by the large doses of quinin and ergot, and the os will be sufficiently dilated to allow the fetus to pass if contractions are not stimulated after waiting twenty-four or thirty-six hours after ligating the cord. Enough separation of placenta has taken place to allow of its being detached without hemorrhage. The opening in the placenta is enlarged sufficiently to enable the physician to grasp the child. The lower extremity is seized with the fingers, or the head or any part with a pair of large dressing forceps, and the child is pulled through the opening and delivered.

Surgery, Gynecology and Obstetrics, Chicago.

August.

47 *Prophylaxis of Venereal Disease from the Standpoint of the Gynecologist. C. Cleveland, New York.
48 *Scopolamin-Morphin Anesthesia in Obstetrics. F. S. Newell, Boston.
49 *Pubiotomy in America. H. D. Fry, Washington, D. C.
50 *New Methods of Version in Transverse Presentations. A. F. A. King, Washington, D. C.
51 Study of Uterosacral Ligaments. I. S. Stone, Washington, D. C.
52 Prophylactic and Curative Treatment of Ophthalmia Neonatorum. E. B. Cragin, New York.
53 *Use of Laxatives in After-Treatment of Laparotomies. H. T. Byford, Chicago.
54 *Method of Closing Laparotomy Wounds. S. C. Gordon, Portland, Me.
55 After Treatment of Abdominal Section. J. M. Baldy, Philadelphia.
56 *Length of Rest in Bed After Abdominal Operations. H. J. Boldt, New York.
57 *Eserin Salicylate as Prophylactic Against Atony of Bowels. H. N. Vineberg, New York.
58 *After-treatment of Abdominal Sections. A. L. Smith, Montreal.
59 Method of Closing Abdominal Suture by Incison. C. A. Kirkley, Toledo.
60 *Comparative Advantages of Catgut and Silver-wire Sutures for Closing Fascia After Abdominal Incision. H. Robb, Cleveland.
61 *Incision of Anterior Uterine Wall for Chronic Inversion of Uterus. R. Peterson, Ann Arbor, Mich.
62 *Inversion of Vagina. P. A. Harris, Paterson., N. J.
63 *Induced Labor and Delivery by Abdominal Section. E. P. Davis, Philadelphia.
64 *Cystic Lymphangioma of Gastrocolic Omentum. W. F. B. Wakefield, San Francisco.
65 Opening Cranial Cavity for Removal of Tumors. J. Frank, Chicago.

47.—Abstracted in The Journal, June 1, 1907, page 1895.

48. **Scopolamin-Morphin Anesthesia in Obstetrics.**—Newell reports the results of the experience of 123 new cases of scopolamin-morphin anesthesia in labor which strengthen the opinion formed in his previously reported series of 41 cases, that certain definite results can be counted on when the proper preparation and method of administration of the drug are carefully carried out. The unevenness of the results in the previous series is ascribed to a definite change that takes place in scopolamin in solution. In the first series, the stock solution was used as long as it lasted; in the present series, 1/10 grain Merck's scopolamin hydrobromid and 2½ grains morphin sulphate were made into a stock solution every fourth day. The following conclusions seemed to be definitely proved:

> Ninety per cent. of the patients treated have reacted well to the anesthetic, and in no case were bad results noted.
>
> 1. The great majority of the patients reacted markedly to the dose described, practically the only failures being in patients where an old solution, 7 to 8 days old, was used to test its value.
> 2. The pain of labor was markedly reduced, in some cases so much so that the labor was called painless by the patient.
> 3. The recollection of pain endured was almost abolished.
> 4. Labor seems to have been definitely shortened, as well as made easier.
> 5. The necessity for operative interference has been distinctly reduced in this series of cases, as compared with the average number of operative deliveries in a similar number of patients not so treated.
> 6. No tendency to hemorrhage has been noted in any of our cases, and only rarely has undue relaxation of the uterus been observed.
> 7. No bad effects of any sort have been noted whether in the heart, respiration, or pulse.

The author gives reasons for insisting that in effect at any rate scopolamin and hyoscin are not identical, whatever they may be from a chemical standpoint. He refers to the series of 1.000 cases reported by Gauss, and quotes his precautions as follows:

> 1. The drug must not be given until labor pains of a certain frequency and strength are present. (In our series we only employed the drug when pains were occurring at 5 minute intervals or oftener.)
> 2. When the pains are irregular and feeble the drug should be considered as contraindicated.
> 3. The dosage, in his opinion, can be definitely gauged by the patient's powers of perception and memory of what was going on about her, and he tests this from time to time by questioning the patient.

It is admitted that in patients physically weakened and unfit the measure may be of some danger and most untoward results have been in cases of this kind. Newell is convinced that in scopolamin-morphin we have an efficient means of controlling the pain of labor, which is practically safe when ordinary precaution is taken in its use.

49, 50.—Abstracted in The Journal, May 25, 1907, page 1809.

53, 54, 56, 57, 58, 60.—Abstracted in The Journal, June 1, 1907, page 1894.

61, 62, 64.—Abstracted in The Journal, June 1, 1907, page 1895.

63.—Abstracted in The Journal, May 25, 1907, page 1809.

New Orleans Medical and Surgical Journal.

July.

66 Methods of Staining and Cultivating the Gonococcus. H. G. Spooner, Boston.
67 Recognition of Early Primary Cases of Yellow Fever. E. M. Dupaquier, New Orleans.
68 Mosquito Doctrine of the Yellow Fever Etiology. C. J. Finlay, Havana, Cuba.
69 Pruritus. J. F. Buquol, Colomb.
70 Abortion of Pneumonia.. V. Lehmann, Hahnville.
71 How to Meet Tympany and Colitis in Typhoid. E. M. Dupaquier, New Orleans.
72 Anatomy and Physiology of the Adrenals. A. R. Trahan, Lafayette.
73 Case of Post-typhoid Sepsis, with Quick Recovery. E. M. Dupaquier, New Orleans.
74 President's Address of the Medical Society of the State of Louisiana. H. B. Bruns, New Orleans.
75 The Church and Medicine. E. de LaMoriniere, New Orleans.
76 Tic Duoloureux Treated by Osmic Acid Infection. H. Dupuy, New Orleans.

St. Paul Medical Journal.

July.

77 Application of Physical Chemistry to the Doctrine of Immunity. S. Arrhenius.
78 Osmotic Pressure and Electrolytic Dissociation. A. Schwyzer, St. Paul, Minn.
79 Clinical Teaching of Surgery. H. J. O'Brien, Minneapolis.
80 Indicanuria. W. C. Richards, Sanborn, Minn.
81 Diseased Tonsils and Their Removal with Scissors. H. E. Hunt, St. Paul.

82 Case of Broken Neck. A. A. Law, Minneapolis.
83 Physical Chemistry in the Service of Medicine. R. O. Beard, Minneapolis.
84 Use of Lactone in Preparation of Milk for the Feeding of Infants. J. T. Christison, Minneapolis.

American Journal of Urology, New York.

July.

85 Symptomatology of Malignant Disease of the Parenchyma in Adult. E. Garceau, Boston.
86 Case of Acute Metastatic Gonorrheal Myositis. C. G. Cumston, Boston.
87 Occasional Fallaciousness of the Diagnosis of Enlarged Prostate Made from Digital Examination Through the Rectum. G. MacGowan, Los Angeles.
88 Treatment of Infectious Pyelonephritides. (Continued.) H. Juy, Paris, France.

Buffalo Medical Journal.

July.

89 The Need of a Trained Microscopist in Every Community. W. C. Krauss, Buffalo, N. Y.
90 Physician Civilian. C. E. Low, Pulaski, N. Y.

Denver Medical Times, Denver, Colo.

July.

91 The Relation Between the Mouth, the Eyes and Ear. M. Black, Denver.
92 Alarming Hemorrhage in Quinsy. R. Levy, Denver.
93 Improvement of the Voice from Tonsillotomy. D. S. Neuman, Denver.
94 Medical and Surgical Treatment of Traumatic Cataract. G. F. Libby, Denver.
95 Nuclear Ocular Paralysis. E. W. Stevens, Denver.
96 Chancroidal Conjunctivtis. J. D. Crisp, Denver.
97 As Others See Us. J. Burke, Manitowoc, Wis.
98 Laboratory Diagnosis for the Practitioner. (Continued.) J. C. Todd, Denver.

Utah Medical Journal, Denver, Colo.

July.

99 President's Address Before the Utah State Medical Association. F. Clift, Provo, Utah.
100 Toxemia of Pregnancy. E. H. Smith, Ogden, Utah.
101 Asthma. R. J. Smith, Schenectady, N. Y.

Albany Medical Annals.

July.

102 Insanity and Crime. J. B. Chapin, Philadelphia.
103 Résumé of Experience of the Newark City Laboratory. R. N. Connolly, Newark, N. J.
104 Infant Feeding. F. J. Ressegnie, Saratoga Springs, N. Y.
105 Théophraste Renaudot, Physician, Philanthropist and Journalist. C. G. Cumston, Boston.

Mississippi Medical Monthly, Vicksburg.

July.

106 Mental Aberration due to Pressure. B. B. Martin, Vicksburg.
107 Sequelæ and Treatment of Biliousness. F. M. Brougher, Belen.
108 Report of Peculiar Case with Request for Diagnosis. H. L. Walker, Clarksdale.
109 Bronchopneumonia in Children. G. S. Johnston, Dublin.

Journal of Outdoor Life, Trudeau, N. Y.

July.

110 Detection and Treatment of Tuberculosis Among Factory Employés in Providence, R. I. F. T. Fulton, Providence.
111 The Tuberculosis Campaign. L. Farrand, New York.
112 Health Rules for Workers. J. Walsh, Philadelphia.

The Ophthalmic Record, Chicago.

July.

113 Double Perforation of the Eyeball by Iron and Steel. W. M. Sweet, Philadelphia.
114 Inaccuracies of Test Lenses. W. G. M. Byers, Montreal, Canada.
115 Delayed Development of the Lachrymal-Nasal Duct. E. Jackson, Denver.
116 Treatment of Trachoma. J. Bordley, Jr., Baltimore.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

August 17.

1 *Effects of Respiration on the Circulation. P. W. Williams.
2 *Prodromal Period of Some of the Infectious Diseases. E. W. Goodall.
3 *Bottle-Maker's Cataract. W. Robinson.
4 Case of Congenital Obliteration of Bile Ducts in Which There Was Fibrosis of Pancreas and of Spleen. J. G. Emanuel.
5 *The Ringworm Question in Elementary Schools. P. S. Abraham.
6 *Transplantation of the Ureters. T. V. Arumugam.
7 Diuretic Action of Theosine Sodium Acetate. H. Campbell.
8 *Acquired Syphilis in Infant With Transmission to Mother. J. A. Nixon.

1. **Effects of Respiration on Circulation.**—Williams considers the pulsus paradoxus and says that it is a question whether these respiratory undulations are due to respiratory pump action, acting on the heart and intrathoracic vessels, or to nervous impulses influencing the heart and vessels; in other words, are they myogenetic or neurogenetic or both? When he was physician in charge of Clifton College, and had to examine every new boy entering the school, he was astonished to find that respiratory undulations were so obvious as to be readily perceived by the finger on the radial artery in a large proportion of the most healthy specimens of English boys particularly on their taking deep inspirations. He soon learned that so far from indicating an abnormal condition, well-marked respiratory undulations in the pulse implied, if anything, that the boy would make a good sportsman. He cites one observation in particular and states that such observations convinced him that the pulsus paradoxus met with in laryngeal obstruction is merely a physiologic phenomenon, or at any rate a pathologic exaggeration of a physiologic condition. Sir James Barr (*Brit. Med. Jour.*, April 20, 1907, page 913), has adduced experimental and clinical evidence with a view to proving that the pulsus paradoxus is amply accounted for by such respiratory variations in intrathoracic pressure alone. Williams' inquiry is directed toward ascertaining whether there is not another factor in their production. His findings are stated as follows: The effect of respiration on the circulation is exceedingly complex, resulting from mechanical factors introduced by the pump action of inspiration and expiration, and from impulses generated in the bulbar cardioinhibitory and vasomotor centers coincident with the respiration impulses; and the effects vary, according to the quickness or slowness of respiration, whether it be natural and deep, or forced, obstructed or free; while the strength of the heart beat, arterial tension, the activity of the bulbar centers and, we may add, the action of the abdominal muscles, the splanchnic area, and even the degree of oxygenation of the blood—all have varying influences in determining the final results. As the relative dominance of these different factors is so variable, the results as shown in pulse tracings are also inconstant. In children, as compared with adults, the spinal centers are unstable and reflexes overactive. Hence, in young individuals, although their chest walls are more pliable and less fitted to overcome atmospheric pressure, on deep inspirations the bulbar centers are very prone obviously to affect the frequency and force of the pulse; and when the larynx or main bronchi are obstructed the forcible inspiratory impulses often result in the so-called pulsus paradoxus. That these effects on the pulse are wholly due to cardioinhibitory or vasoconstrictor centers is hardly possible, but they are important, and Williams considers them the dominant factors.

2. **Prodromal Period of Acute Infectious Diseases.**—Goodall considers cases of some acute infectious diseases having initial symptoms either unusual or not sufficiently noted in the textbooks. He suggests that occasionally there may be symptoms, even in the incubation period, especially at its commencement, or immediately after the time when the attacking microorganism obtains an effective entrance into the patient's body, and cites in this regard a case of tonsillitis, and another of severe headache and pains, both in nurses, in which these symptoms apparently marked the moment of attack. He points out that initial symptoms are more to be expected in diseases with long than in those with short prodromal periods, and considers in some detail the prodromal symptoms of scarlet fever, diphtheria, German measles, measles, varicella and typhoid.

3. **Bottle Makers' Cataract.**—Robinson refers to the evidence previously adduced by him (*Brit. Med. Jour.*, Jan. 24, 1903), to show that the makers of ordinary heavy metal bottles—for example, wine, whisky and beer bottles, though not flint bottles, such as medicine bottles—are subject to posterior cortical cataract, due to the excessive heat, to which the eyes of a bottle finisher are exposed while at work. Professor Snell having arrived at a conclusion unfavorable to Robinson's theory, Robinson has extended the field of his inquiries, the results of which, he asserts, fully confirm his first statement. He emphasizes the fact, however, that his thesis applies only to ordinary bottles, the mode of working being totally different in flint bottle work. He also explains Professor Snell's failure by the fact that if a man's sight is known to fail so that he

overlooks many defects, he is liable to dismissal; consequently, an inquiry conducted among the men working is misleading, because those who are afflicted are hardly likely to submit to examination. Robinson's inquiries were made among men already disabled by work, with the assistance of the secretaries of various trade societies. Bottle makers' cataract differs from the ordinary posterior cortical cataract in the following points: 1. Bottle finishers' cataract is a primary cataract, there being no posterior mischief, except sometimes disturbance of retinal pigment, and when it is successfully removed the sight is good, though the workman is rarely able to resume work as a finisher owing to the loss of power of accommodation. At its commencement it is like a cobweb in structure (and best seen with a + 10 or a + 12 lens by direct examination) and saucer-shaped, owing to the opacity being immediately within the posterior capsule. The outline is irregular and not radial or rosette shaped. 2. Ordinary posterior cortical cataract is one secondary to disease of the vitreous, chorioid or retina and, consequently, frequently occurs in the young, and after its removal the sight is bad. Moreover, the form of this cataract is at first rosette shaped or stellate, its center corresponding to the posterior pole of the lens, while its rays are directed radially toward the periphery (Fuchs). Williams recommends that the men should wear dark-colored spectacles or goggles while at work, as glass intercepts 30 per cent. of heat waves, and dark glass many light waves also. This measure seems to have had good results where adopted. He also recommends structural alterations of the holes in which the finishers and gatherer work, to avoid the men being exposed to the glowing sea of glass.

5. **Ringworm in Schools.**—Abraham states that since January, 1907, 264 cases of ringworm in school children have come under his care. The prevalence of the disease among metropolitan school children and the large number of elementary schools that are, or recently have been, contaminated with ringworm, lead him to insist on periodical and frequent examinations of the children, by specially trained medical men—not by nurses—and he further submits that the responsibility of the treatment of an unfortunate child who has presumably contracted a contagious skin disease at the government school should also be undertaken by the state.

6. **Transplantation of the Ureters.**—Armugam reports a successful case of extraperitoneal transplantation of the ureters into the rectum, for extroversion of the bladder. The patient was able to retain urine in the rectum from three and one-half to four hours by day, and all night.

8. **Acquired Syphilis in Infants.**—Nixon describes the case of an infant girl who developed at 10 months secondary symptoms clearly luetic. The child infected the mother at the breast. The origin of the probable chancre of which the scar was visible on the child's lower lip, and of which there was a history at 8 months of age, remains unexplained. The mother attributed the disease to vaccination, but vaccination took place at 3 months and no evidence was forthcoming of any accident then.

The Lancet, London.

August 17.

9 *Principles of Vaccine Therapy. A. E. Wright.
10 *Medical Science and School Hygiene. J. W. Byers.
11 *Cleido-cranial Dysostosis. J. H. Abram.
12 Case of Carcinoma of Both Ovaries. M. P. Kerrawalla.
13 *Continuous Administration of Fluids by Rectum in Acute General Peritonitis. B. G. A. Moynihan.
14 *Hypopharyngoscopy. H. S. Barwell.
15 Case of Thyroid Tumor. W. G. Sutcliffe and A. F. M. Powell.
16 Tuberculosis Among School Children. T. N. Kelynack.

9.—This article appeared in The Journal, Aug. 10-17, 1907.

10. **School Hygiene.**—Byers considers the influence of medical science on pupil and teacher, and urges the teaching, both by example and precept, of the ordinary laws of health and temperance; the teaching of girls from 10 to 13 of the elementary truths as to the care of infants, which will assist in checking the terrible waste of infant life; physical exercises and breathing exercises not only in the gymnasium, but in the school; and ample time for games and athletic exercises. He particularly speaks of the necessity of games as tending to inculcate the sinking of personal ends and ambitions for the sake of the team, of which the individual constitutes only a part—"playing the game," as we express it; submission to discipline and even self-sacrifice; the acquisition of command over temper, and when played in the true spirit, the development of many desirable qualities, such as courtesy and generosity toward opponents. He deprecates professionalism, and this, and not the athletics themselves, should be the real object against which the present outcry should be directed.

11. **Cleido-Cranial Dysostosis.**—Abram reports the case of a boy 16 years of age, having retained six temporary teeth and having only fifteen permanent teeth; four feet and half an inch in height and weighing 64 pounds, in whom the clavicles were almost completely absent on both sides, a cartilaginous rudiment only existing on either side. Genital development is puerile; the boy is mentally intelligent, and has chubby, rosy cheeks. His gait is waddling. The absence of the clavicles is not noticeable without examination. There is no hereditary element in this case, but the mother was married at 16, three months after a severe illness, and was only 17 years of age at the boy's birth; Abram thinks, therefore, that some weight may be attributed to the mother's illness as a factor in the cause of the boy's deformity. The father is tall and well formed, while the brothers and a sister all have well-formed clavicles.

13. **Continuous Administration of Fluids in Peritonitis.**—Moynihan confirms the remarkable results, described by Leconte and J. B. Murphy, due to rectal administration of saline solution in acute peritonitis consequent on appendicitis. He has treated 19 consecutive cases of acute general peritonitis due to appendicitis, with only two deaths, and attributes this result to continuous administration by the rectum of saline solution, for from two to four days. In partial and complete gastrectomy he has found it valuable. To avoid kinking of the rubber tube, he uses a pewter rectal tube, one foot in length and half an inch in diameter, with bulbous extremity pierced with several holes. A Sahli's flask is used, holding from three to four pints of saline solution, and closed by a rubber stopper with three openings, respectively for an air pipe, a thermometer and a pipe for connection by the rubber tube with the rectal tube. The solution should be kept at from 100 to 102 F. The flask is placed in a pan of hot water from three to six inches above the patient's rectum, and is kept warm with a spirit lamp. Not more than one pint and a half, or at most two pints, should be introduced during the first hour; subsequently, one pint an hour. The patient's comfort is the guide. Moynihan describes the effects as follows: "If the case is one of acute general peritonitis, the patient, who looks livid, whose eyes are sunken, whose skin is moist and cold, whose mouth is so parched that his tongue can hardly move, begins in a few hours to look ruddy and 'clean,' his mouth is moist, his eyes are bright, and all his aspect is one of comfort and contentment. The pulse gains volume and improves steadily in character; urine is passed in large quantities, and the skin keeps moist. Not a few patients say that they feel very hot, and some of them perspire freely."

14. **Hypopharyngoscopy.**—Barwell reports a case of epithelioma of the arytenoid in which it was necessary to examine the pharynx immediately behind the larynx. He adopted von Eicken's method, passing a stout laryngeal probe, covered with moistened cotton wool, after cocainization, over the epiglottis and below the cords, and making forward traction on the cricoid. Extensive involvement of the pharynx thus discovered contraindicated removal.

Indian Medical Gazette, Calcutta.

July.

17 *Smallpox in Calcutta. J. C. Vaughan.
18 *A Plea for Scraps. J. R. Adie.
19 Flea-Killing Power of Various Chemicals. R. D. Saigol.

17. **Convection of Smallpox.**—Vaughan, as the result of an elaborate examination of the incidence of smallpox in Calcutta, comes to the conclusion that the very remarkable freedom from attack of the population of patients, students, staff and servants, and the latter's children, in the smallpox wards of the Campbell Hospital affords a strong argument against aerial convection as one of the principal influences to be dreaded as emanating from smallpox hospitals.

18. **Plea for Scraps.**—Adie puts in a plea to practitioners to collect culicidæ, biting and sucking flies, fleas, bugs, lice, ticks; to hunt in their stomachs for parasitic forms, e. g., flagellates, etc., and to work out the life cycle and infection cycle of various organisms, as a hobby and pastime that may be not only interesting, but productive of unexpected scientific results.

Clinical Journal, London.

August 7.

20 Intrathoracic Aneurisms and Tumors. F. Taylor.
21 Acute Appendicitis. L. A. Bidwell.
22 Heart Affections Without Murmurs. W. Broadbent.

Medical Press and Circular, London.

August 7.

23 *Treatment of Suppurative Otitis. R. H. Woods.
24 *Plea for Accuracy of Thought in Medicine. W. H. White.
25 Care of Tuberculous Children. T. N. Kelynack.
26 Determining Cause of Formation of Nasal Polypi. E. S. Yonge.
27 *Co-ordination of Public Medical Services. A. Newsholme.
28 Milk in Relation to Human Tuberculosis. H. E. Armstrong.

23. **Suppurative Otitis.**—Woods notes that otitis media adopts one of two courses. 1, The discharge diminishes, ceases in a week or two, and the perforated drum heals; 2, the discharge becomes fetid and continues indefinitely. An investigation during an epidemic of measles and scarlet fever led to the observation that all acute cases had only one kind of organism, while the pus from chronic cases invariably contained a great variety. He was led to conclude, therefore, that all cases of ear suppuration are acute at first, becoming chronic only by reinfection, and that a chronic otitis is rarely established when proper treatment is carried out from the onset. The inoculation of the pus through the use of the finger to allay irritation in the acute stage is the commonest source of origin. To prevent the transition from acute to chronic suppuration he recommends the frequent removal of the discharge by syringing with sodium bicarbonate solution, 2 drams to a pint, thorough drying, and the filling of the ear with a saturated solution of boric acid in equal parts of alcohol and water (the patient being in the recumbent position on the opposite side) and allowing a quarter of an hour to elapse before allowing the drops to run out.

24. **Accuracy of Thought in Medicine.**—Discussed editorially in The Journal, Aug. 10, 1907, page 498.

27. **Co-ordination of Public Medical Services.**—Newsholme contends that the scope of preventive medicine has passed beyond germ-borne diseases, and now extends to such early treatment as will obviate severe or protracted results in any disease, and that the community as well as the individual is interested, inasmuch as poverty and disease act in a vicious circle. The conditions of private medical practice among the poor are harassing, and unsatisfactory to both patient and physician, for: 1, diagnosis is belated; 2, treatment is curtailed by expense; 3, there is waste of time in dispensaries, etc.; 4, there are no co-ordinated arrangements for medical consultations; 5, there is waste of information as to disease incidence, and 6, as to conditions conducing to disease. The co-ordinated arrangements that follow when notification of consumption is successfully at work show that the defects can be overcome, but they are not overcome when the organization for medical supervision is separate from the general public health administration of the district, as in the case of scholars. The home is the point at which evils discovered by school inspection must be attacked and controlled. Parents will not tolerate dual medical examinations for school purposes, while neither school physician nor medical officer of health fulfills the complete needs. Newsholme urges the appointment of district physicians by each municipality and their co-ordination with the mechanism of preventive medicine. "The present state of medical service is evidently transitional; neither provident dispensaries nor cries against hospital abuses and 'undercutting' practice, have been able to hinder the steady progress toward the treatment of disease at the expense of the community, nor is it possible to arrest this trend."

Dublin Journal of Medical Science.

August.

29 Report of Rotunda Hospital. E. H. Tweedy, R. Holmes and R. J. Rowlette.
30 Case of Acute Metastatic Gonorrheal Myositis. C. G. Cumston, Boston.
31 Blackwater Fever. C. T. Costello.

Glasgow Medical Journal.

August.

32 *Electrotherapeutics. H. L. Jones.
33 Tumors of the Cecal Region. J. H. Pringle.
34 Sarcoma of the Nose. W. Downie.

32. **Electrotherapeutics.**—Jones considers that results of a first-class kind may be expected to be gained from ionic medication for the introduction of drugs by means of the continuous current. After a summary of the theory Jones points out that the treatment of local conditions is the best field for the use of this method. It is superior to the hypodermic method, for the ions introduced electrolytically penetrate to every connecting element of the tissues, that is to say, to the actual protoplasm of the cells of the part traversed by the current. He describes its application in lupus, with zinc, copper, fuchsin and anilin hydrochlorid; in rodent ulcer, with zinc sulphid or chlorid; in diphtheritic foci, with copper ammonio-sulphate; in various septic conditions with copper and zinc, and in intrigeminal neuralgia with salicylic acid.

Presse Médicale, Paris.

35 (XV, Nos. 56-61, pp. 441-488.) *Rapid Form of Epileptic Dementia in Adolescence. (Démence épilep. de l'adoles.) J. and R. Voisin.
36 *Oriental Boil and Its Parasite. Wright's Piroplasma. (Bouton d'Orient.) L. Nattan-Larrier.
37 *Pathogenesis of Puerperal Phlegmasia Alba Dolens. G. Keim.
38 Early Diagnosis in Cancer of the Cervix. (Cancer du col utérin.) R. de Langenhagen.
39 *Clinical Examination of the Lumbar Region. P. Desfosses.
40 *Liver in Heart Disease. (Foie cardiaque.) A. Bauer.
41 *Form of Labia Minora. (Forme des petites lévres. Le pli paranymphéal. Les plis paracommisuraux.) F. Jayle.
42 *New Conception of Hysteria. (Hystérie). Paul Hartenberg.
43 *Sclerotic Conditions of the Ear in Relation to Arteriosclerosis. (Etats scléreux otiques.) Souleyre.
44 *Anesthesia in Surgery of the Face. Barthélemy and Dufour.
45 Sporotrichosis. De Beurmann and Gougerot.

35. **Dementia in Epilepsy.**—The authors distinguish two forms of dementia occurring in epilepsy. One form is chronic in its course, appearing at an advanced stage of the disease and the result of the enfeebling effect of the repeated convulsive paroxysms on the mind. The other form appears about puberty and runs a rapid course with many of the features of dementia præcox. It may occur in three forms, hebephrenic, paranoiac and catatonic. The close relation of this form to dementia præcox is evident when it is remembered that both occur in subjects of hereditary degeneracy. A distinction in the symptoms occurring in epileptic patients is to be drawn between those which are immediately due to the convulsive attacks and those which occur as the consequence of the degenerate constitution of the individual and for which the epileptic seizure furnishes merely the occasion under which they manifest themselves. The authors regard the rapid form of dementia occurring in epileptics as due to the degenerative tendencies of the patient and as only provoked or accelerated in its manifestation by the convulsive seizures to which the individual is subject.

36. **Oriental Boil.**—Nattan-Larrier has had occasion to observe for some months an example of oriental boil, in the juice of which he was able to discover the piroplasma described by J. H. Wright, and to trace its relation to the different phases of the disease. Attempts to cultivate the organism and to inoculate animals were unsuccessful. The constant presence of this parasite in the lesions of oriental boil facilitates the diagnosis of this disease and serves to establish its identity with affections called by different names, such as Delhi boil and Gafsa boil, and to distinguish it from similar affections like ulcerating craw-craw which do not contain this organism. Nattan-Larrier observed that in the active stage of the boil the parasites were numerous and enclosed in phagocytes and were in the stage of proliferation; in a later stage, when the disease was receding, the macrophages disappeared and lymphocytes took their place, while the parasites became fewer. At the stage of cicatrization the piroplasmata were still fewer and showed signs of degeneration. They could be found, however, in apparently healed patches. They could also be discovered in the blood in the neighborhood of the lesion, but not in the general circulation. It is probable that the disease is conveyed from man to man by some blood-sucking insect.

37. **Phlegmasia Alba Dolens.**—Keim notes that although most of the complications of the puerperium have greatly diminished with the introduction of aseptic methods, thrombosis of the veins of the leg still occurs in its former ratio or has even increased in frequency. Doubt, therefore, arises as to the agency of infection in producing this lesion, and the author reviews the theory of coagulation of the blood and shows that there are conditions in the puerperal uterus which furnish chemical stimulants to the coagulation of the blood in the absence of any infection. This tendency to coagulation is increased by the inactivity of the liver, whose normal office is to oppose undue coagulability of the blood. Keim believes that injections into the uterus, especially of solution of mercuric chlorid, increase the tendency to coagulation. According to him phlegmasia alba dolens may occur after delivery in consequence of the insufficient action of the liver, or from the presence of débris in the uterus or in consequence of injections. Precautions to avoid these conditions are, therefore, indicated. He has also noted that this condition is frequently associated with membranous enteritis and believes that an aseptic phlebitis of the uterine veins may begin before labor from the autointoxication due to intestinal disease. He thinks this condition is indicated by a pain in the side of the abdomen. This aseptic phlebitis may, he thinks, lead to embolism or may extend to the veins of the leg, producing milk leg. The obvious inference is that the practitioner should give special attention to the condition of the intestines during the latter months of pregnancy.

39. **Examination of the Lumbar Region.**—Desfosses describes the anatomic peculiarities of the lumbar region and lays stress on the importance of a careful examination in case of disease, especially when the spinal column or the hip joint is affected. The deviation from the straight line may be the sign of scoliosis, or when lordosis is present it may be the result of weakness or paralysis of the thoracic or abdominal muscles. The degree of curvature which is pathologic is difficult to determine. The curve of the lumbar spine appears to have been less in ancient peoples than in the moderns, and it is less pronounced in the primitive races of the present time and in the blond types of northern Europe than in France and the more southern countries. The women and girls of large cities, he states, show a pronounced curve that is attributable to weakness of the spinal and abdominal muscles. Lordosis occurs both from atrophy of the abdominal muscles and from that of those of the spine. The two types differ in appearance. When the abdominal muscles are at fault the buttocks become prominent and the chest is thrown forward; when the spinal muscles are affected the shoulders are thrown backward and the buttocks are flattened so that a line drawn through the most prominent vertebral spine falls far behind the sacrum. The lordosis of the lumbar region is not merely a matter of esthetics, but according to the observations of Duchenne, those women who presented this deformity are subject to greater distension of the abdomen during pregnancy and suffer more from flaccidity of the abdominal muscles after delivery. To prevent it care should be taken to secure a good muscular development for the young girl.

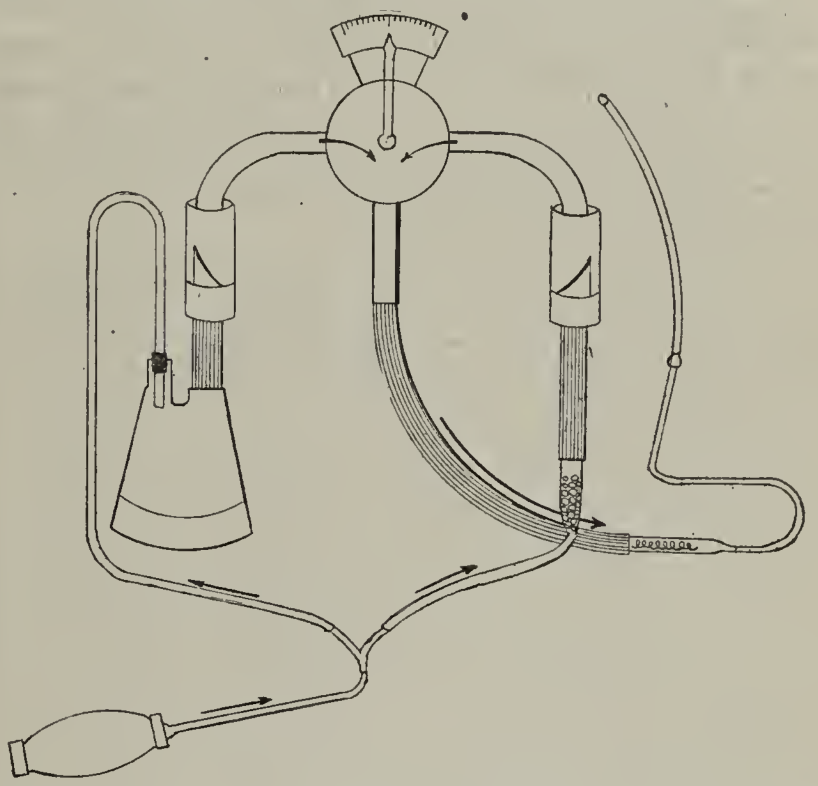
40. **The Liver in Heart Disease.**—Bauer continues his account of the pathogenesis of the changes of the liver in heart disease and concludes that there is no valid reason for assuming a difference between the cells surrounding the radicles of the hepatic vein and those surrounding the portal vein. The radicles of the portal vein resist the expansive influence of the reflux of blood for a longer time than those of the hepatic vein because they are supported by the capsule of Glisson, but they yield gradually to the dilating force.

41. **Form of the Labia Minora.**—Jayle finds frequently a paranymphal fold between the labia majora and the labia minora which may take on the form of a lateral accessory labium minus. Similar folds exist about the commissure which may develop into posterior labia majora. The fourchette corresponds to the commissure of the labia minora or to the prolongation of a paranymphal fold, or to the commissural folds.

42. **Hysteria.**—Hartenberg reviews the symptomatology of hysteria established by Charcot with the stigmata of anesthesia, restricted visual field and peculiar mental features, and concludes that the great clinician built his theory on a mistaken basis of fact. He notes that Bernheim of the Nancy school and Babinski of the Salpêtrière both conclude that many of the classic stigmata are the result of suggestion, either unconscious on the part of the physician or in the form of autosuggestion by the patient. Thus the anesthesia and restriction of the field of vision are not primary symptoms; they are the result of suggestion. Other symptoms present nothing characteristic. There is no state of mind peculiar to hysteria unless it be an unusual susceptibility to suggestion. Since these two authors agree in their rejection of the principal stigmata of hysteria it seems that a new series of observations must furnish the basis for a new conception of this remarkable condition.

43. **Sclerosis of the Ear and Arteriosclerosis.**—Souleyre calls attention to the reasons for believing that the otosclerosis of the labyrinth is of arteriosclerotic origin. The tension of the fluids of the labyrinth is found to correspond with that of the cerebrospinal fluids and of the blood, and it is probably the increased tension of this fluid which gives rise to the symptoms in otosclerosis. Such conditions should be treated locally by means which will cause an escape of the labyrinthine fluid into the blood or into the arachnoid spaces, and generally by remedies to reduce the general hypertension of the arteries. For the local measures he recommends vibratory massage.

44. **Anesthesia in Operations on the Face.**—In order to obviate the difficulties attending the administration of an anesthetic during an operation on the face Barthélemy and Dufour have constructed an apparatus, based on that of Harcourt, which is described as follows: A hand bulb is attached to a tube passing into the chloroform bottle, from which another tube issues, which is in relation with one of the valves of the respiratory tube. The same hand bulb is connected directly with the other inspiratory valve; this one, therefore, allows only the passage of pure air. The proportion of pure air and of air charged with the vapor of chloroform is regulated by the index of the central disk on which the two currents play. These currents unite in a median tube which terminates in an ureteral sound of the Gelly pattern with caliber 18. This sound is introduced through the glottis into the larynx and does not hinder the free respiration of the patient around it. Complete control of the anesthetic mixture, which is absorbed *in toto* by the patient, is thus assured. When the bulb is in operation the mixture enters the trachea, and when the compression of the bulb ceases the patient breathes pure air. The air and the mixture are sterilized and dried by passing through absorbent cotton interposed in the respiratory tube. To spare the patient the disagreeable sensation of introducing the cat-



eter into the larynx and to obviate the occurrence of reflexes which might be dangerous, this apparatus should be used only to continue an anesthesia which has been established by ordinary methods. It permits the injection of pure air in case of need for artificial respiration; it is only necessary to set the index at 0. The apparatus has been used on the dog with entire success, and has been tried successfully in two cases in man. The attempt to induce anesthesia in man by passing the catheter merely into the pharynx was unsuccessful, as it is impossible with this apparatus to obtain a mixture of more than 2 per cent. of chloroform.

Wiener klinische Wochenschrift.

46 (XX, Nos. 25-33, pp. 753-1010.) Toxins of Paratyphoid and Their Neutralization with Typhoid Antitoxin (Paratyphusgifte.) R. Kraus and R. v. Stenitzer.
47 *Significance of Reduced Hydrochloric Acid Production in Diagnosis of Gastric Affections. (Bedeutung d. herabgesetzten Salzsäureproduktionsfähigkeit.). A. v. Torday.
48 Bronchoscopy for Foreign Bodies. (Fremdkörpern.) H. v. Schrötter.
49 Rudimentary Clavicles and Anomalies of Cranium. (Dysostose cleido-cranienne.) A. Fuchs.
50 Determination of Anthrax Bacilli on Horse Hairs. (Milzbrandbacillen a. Pferdehaaren.) A. Theodorov.
51 Specificity of Bacterial Precipitins. (Bakterienpräzipitine.) M. v. Eisler.
52 Paracelsus in Austria. F. Strunz.
53 Electrical Irritability of Motor Nerves in Tetanus. (Uebererregfarkeit d. motor. Nerven i. d. Tetanie.) F. Chvostek.
54 *Operations on the Pituitary Body. (Operationen a. d. Hypophyse.) L. Moszkowicz.
55 *Experimental Tuberculosis of Skin in Monkeys. (Exp. Hauttuberkulose bei Affen.) R. Kraus and S. Grosz.
56 Subcutaneous Squamous-celled Carcinoma of Gluteal Region (Plattenepithelkarzinom.) J. Richter.
57 *Disposition of Heterologous Antitoxins in Human Organism (Verhalten artfremden Antitoxins i. menschlichen Organismus). R. Dehne and F. Hamburger.
58 Study of the Blood in a Case of Croupous Pneumonia with Polycythemia Myelopathica, the Patient Having Been Splenectomized Previously. N. Schneider.
59 *New Operative Procedure for Anus Vulvo-vestibularis. (Neues Operationsverfahren.) E. Niessner.
60 Circumscribed Hypertrichosis of Back. W. Landau.
61 Experimental Cirrhosis of Liver on a Tuberculous Basis. (Exper. Leberzirrhose.) O. Stoerk.
62 Tuberculous Cirrhosis of Liver. (Tuberkulöse Leberzirrhose.) N. Jagic.
63 Chronic Inflammatory Tissue Changes in Experimental Tuberculosis. (Veränderungen i. Organgeweben bei Experimentaltuberkulose.) J. Bartel.
64 *Ultramicroscopic Blood Examinations During Fat Resorption (Fettresorption.) A. Neumann.
65 *Hebotomy. T. H. van de Velde.
66 Diagnosis of Rabies. (Lyssa.) E. Friedberger.
67 *Inflammatory Growth Caused by Foreign Body Diagnosed as Tumor. (Entzündung um Fremdkörper als Tumor Operirt.) J. Richter.
68 Case of Tenia Nana. E. Stoerk and O. Hahndel.
69 Estimation of Heart Energy. (Herzarbeit.) A. Strubell.
70 *Adduction-contraction in Coxitis. Adduktionskontraktur.) A. Saxl.
71 Occurrence of Trichonodosis. O. Kren.
72 *Snake-bite Poisoning. (Schlangenbiss Vergiftung.) Riehl.
73 Pathogenesis of Skin Changes in Scrofula. (Integumentveränderungen bei Skrofulose.) E. Moro.
74 *Resistance of Man to Anthrax. (Resistenz d. Menschen geg. Milzbrand.) K. Kreibich.
75 *Visual Disturbances and Blindness of Nasal Origin. (Sehstörung u. Erblindung nasalen Ursprungs.) O. Mayer.
76 Study of Circulation in Laboratory and Its Relation to Pathology and Therapeusis. (Kreislaufforschung u. Uebertragung auf d. Menschen i. d. Klinik.) Strubell.
77 *Bacteriologic Report on Three Cases of Cerebrospinal Meningitis. E. v. Hibler.
78 *Skin Symptoms of Pellagra. (Pellagrösen Hautsymptome.) P. Deiaco.
79 Skin Eruptions Following Vaccination with Tuberculin According to Pirquet's Method. (Hautveränderungen nach Pirquetsche Reaktion.) M. Oppenheim.
80 Ehrlich's Diazo Reaction. M. Weiss.
81 *Hypertrophy of Right Ventricle. (H. d. rechten Ventrikels.) L. Kührt.
82 Value of Auscultatory Methods for Determining Blood Pressure. (Auskultatorische Methode d. Blutdruckbestimmung.) W. Ettinger.
83 *Spontaneous Gastric Fistula Caused by Gastric Ulcer. (Spontaner Magenfistel nach Ulcus Ventriculi.) G. Mann.

47. **Reduced Hydrochloric Acid.**—Torday emphasizes the fact that in order to make a diagnosis of gastric affections, it is absolutely essential to make a thorough chemical and microscopic examination of the gastric secretion and functions, because subjective symptoms, no matter how characteristic they may seem, are not to be depended on in any case of disease of the stomach. Gastric ulcer, gastritis, gastric neuroses and gastric cancer may each have identical clinical histories, but the laboratory findings are not the same. Hence the necessity of a laboratory examination. This is particularly true in gastric cancer, where so much depends on an early diagnosis. Finally, too much reliance should not be placed on the presence or absence of hydrochloric acid, because in many other affections of the stomach achylia gastrica is by no means an uncommon symptom, and gastric cancer does not always cause cessation of the secretion of the acid; and again, regurgitation of the intestinal contents into the stomach will neutralize the gastric juice and simulate achylia gastrica.

54. **Operation on Pituitary Body.**—Moszkowicz removes the hypophysis (the pituitary body) through the nasal route in a manner somewhat similar to Schlosser's method, but he performs the operation in two sittings and closes the bone defect at the base of the skull by means of a skin flap taken from the forehead. This flap of skin contains the angular artery and occipitofrontalis muscle of the left side. He has demonstrated experimentally the feasibility of the operation, but urges that cases for operation must be selected with great care and that no patient should be operated on after his subjective symptoms become severe. Naturally, he says, this will limit the number of operations, because few patients are willing to submit to an operation so long as the disturbance is not severe enough to cause much inconvenience or suffering.

55. **Experimental Tuberculosis of Skin in Monkeys.**—Kraus and Grosz were able to produce skin tuberculosis in monkeys with various strains of tubercle bacilli. Inoculation with bird and frog tuberculosis produced only slight changes. Typical tubercles were produced in each instance, but in the case of those tubercles following inoculation with the human tubercle bacillus there appeared to be but little tendency to breaking down of the tissue, and the pathologic changes were limited in great part to the site of inoculation.

57. **Disposition of Heterologous Antitoxins.**—Dehne and Hamburger found that for several days the antitoxin remains in the blood in an unchanged state, and that then the amount of antitoxin decreases very decidedly, usually more than one-half of the original amount. After this initial diminution the antitoxin disappears slowly, until after about three weeks it has disappeared from the blood entirely. The appearance of the serum disease is an indication of a decided diminution in the quantity of antitoxin and of passive immunity.

59. **Anus Vulvovestibularis.**—Niessner practically transplants the rectum and anus from their unnatural to their natural position, without injuring the vagina and without causing incontinence. The operation was done on a six-months-old girl with excellent results, so far as the operation was concerned. It is yet too soon to report final results, especially with reference to constriction or stricture of the rectum.

64. **Ultramicroscopic Blood Examinations.**—Neumann found that an examination of the number of Mueller's bodies or hemokonia after the ingestion of fat—butter—was of some value clinically to show the status of fat resorption. The number of these bodies was diminished in three cases of gastrointestinal disease, four cases of fever, and in four convalescents. Thus the state of the digestive apparatus can be determined in some measure by this means. Further studies are now being made by the author and a later report is promised.

65. **Hebotomy.**—Van de Velde considers hebotomy a valuable procedure not only in cases of narrowing of the pelvic outlet, but also in narrowing of the pelvic inlet. Furthermore, the pelvis is left in a condition that obviates the necessity of further operative procedures at subsequent pregnancies because the original indication for the operation is permanently removed. He has been able to demonstrate that the deficiency in the bone caused by the operation is filled in with a blood clot, a callus, and finally new bone in from six to eight months, thus restoring the original strength and stability of the bone.

67. **Inflammatory Growth Diagnosed as Tumor.**—Richter relates the case of a man who had suffered for a number of years with osteomyelitis. The man then acquired a left inguinal hernia, for which he was advised to wear a truss. Soon afterward he noticed a particularly painful spot just above the pad of the truss, for which, in time, an operation was advised on the supposition that the enlargement, which was palpable, was a tumor. The clinical diagnosis was Nelaton's

tumor. The tumor was of about the size of a fist. A radical operation was performed, the tissue removed, including the tumor, a portion of Poupart's ligament and a portion of the peritoneum. The sac of the hernia was used, in part, to close the defect in the abdominal wall, and with success. The sartorius muscle was also utilized in the usual manner as employed in femoral hernias. On incising the tumor it was found to contain three pieces of iron wire. These had caused an inflammatory growth which resembled a malignant growth so closely as to deceive the observer until the tumor was bisected. In a second case a splinter of wood caused a tumor in the bladder wall. The patient was a woman, but the splinter was assumed to have entered the bladder wall from the intestine, the latter being adherent to the bladder, and the omentum adherent to both the bladder and intestine.

70. **Adduction Contraction in Coxitis.**—Saxl is of the opinion that the adduction-flexion-contracture in coxitis is due, in the main, to an insufficiency of the gluteal muscles, this insufficiency being both relative and absolute; there is atrophy of the muscles and physiologic insufficiency. This condition, too, the author says, is responsible for the very frequent recurrences after redressment, even in cases where the after-treatment is carefully looked after. Saxl corrects the malposition outside of the joint by doing a subcutaneous, subtrochanteric osteotomy at the Roser-Nelaton line. The adductors and subspinal soft parts are tenotomized and the leg is placed in its correct position, slightly abducted. A plaster cast is then applied and the patient is placed in the Lorenz position. The foot is not included in the cast. After a few days the patient is allowed to walk about. The cast is removed in from eight to ten weeks, the leg portion after six weeks. After the entire cast has been removed a bandage is applied, embracing the pelvis and thigh, or a contra-lateral pelvic brace is used. The results from this method have been excellent during the three years during which it has been employed by the author.

72. **Treatment of Snake Bite.**—Riehl endorses the so-called Calmette treatment for snake bite, and describes a small pocket case with which woodsmen and foresters are provided so as to be in a position to render immediate service in such cases and not lose valuable time by traveling great distances seeking medical aid.

74. **Resistance Against Anthrax.**—Kreibich claims that resistance against infection with the anthrax bacillus is dependent entirely on the leucocytes.

75. **Blindness of Nasal Origin.**—Mayer reports the case of a woman aged 76, who for a number of years had suffered from empyema of the accessory sinuses, although the symptoms were not of such severity as to cause her to seek medical advice. Following an attack of coryza, she suddenly became blind in one eye, and vision in the other eye was reduced considerably. The maxillary, sphenoid and ethmoid sinuses were opened freely and irrigated, with the result that vision in the partially affected eye returned almost to normal, although no change was noted in the blind eye. Except for this blindness the patient felt well and was entirely comfortable. Mayer urges that the accessory sinuses be examined carefully in all cases of retrobulbar neuritis.

77. **Bacteriology of Cerebrospinal Meningitis.**—Hibler examined three cases. In one of these he found the *Micrococcus meningitidis* of Weichselbaum, but in the remaining two cases he found a coccus which resembled the *Micrococcus meningitidis* morphologically, but otherwise differed considerably. It resembled the gonococcus in its behavior in cultures, but the resemblance was not sufficient to warrant the positive statement that it was the gonococcus. The organism is described fully.

78. **Skin Lesions of Pellagra.**—Deiaco reports a number of cases of pellagra to substantiate the statement that the skin lesions are by no means limited to the exposed parts of the body, but that they may also occur in parts not exposed to sunlight and atmosphere.

81. **Hypertrophy of Right Ventricle.**—Kührt places reliance in the diagnosis of this affection mainly on palpation. Indirect palpation, he says, will often disclose the peculiar nature of the systole when direct palpation fails to do so. A symptom of considerable diagnostic value is considered to be an accentuation of the first sound, palpable over the lower portion of the right heart.

83. **Spontaneous Gastric Fistula.**—Mann reports the case of a woman who had suffered from gastric ulcer for about fourteen years, without having had the condition diagnosticated. About a year ago she noticed a swelling in the left hypochondrium, and shortly afterward a few drops of a clear fluid were discharged from this swelling. A diagnosis of osteoperiostitis costalis was made and an operation was advised. As soon as the skin incision had been made it was found that the fistula was not connected with the ribs, and that remnants of food were mixed with the now mucoid fluid discharging from the fistula. The patient was treated expectantly, further operative intervention being contraindicated. She gradually regained good health, although the fistula did not close until Mann resorted to the use of large quantities of an alkaline powder (name not given) with which he dusted the edges of the fistula and neutralized the acid discharges. Under this application the fistula gradually closed until fluid was discharged only at rare intervals and then only a few drops at a time. Further treatment has not been decided on as yet. The patient is well, eats well and is engaged in her usual vocation. After the operation she was fed by rectum for several weeks, then through the gastric fistula, and finally by mouth, the consistency and variety of the food being increased gradually as it could be borne. Contrary to the usual rule, the fistula in this case was situated almost in the middle of the stomach rather than toward either end.

Deutsche medizinische Wochenschrift, Berlin.

84 (XXXIII, Nos. 25-26, pp. 993-1072.) Treatment of Venereal Diseases. (Geschlechtskrankheiten.) (To be concluded.) M. Joseph.
85 Pharmacology of Atoxyl. F. Croner and E. Seligmann.
86 Bier's Hyperemia. P. Sick.
87 *Pathologic Anatomy of Stomach and Duodenum in Typhoid. (Typhus abdominalis.) A. Proskauer.
88 *Simple Method for Obtaining Agglutination Reaction by Means of Stained Preparations. (Agglutinationsprüfung.) Gossner.
89 *Congenital Myotonia; Thomsen's Disease. te Kamp.
90 Simplified Trituration Apparatus. (Titrierapparat.) R. Goldschmidt.
91 New Aural Suction Apparatus. (Ohrsauger.) C. Leuwer.
92 Atropin-Quinin Injections in Hay Fever. Boesser.
93 New Principles in Construction of Roentgen-Ray Tubes. (Roentgenröhren.) Schaeffer.
94 Heating and Ventilation in Hospitals. Rietschel.
95 Testing Vision of Chauffeurs. (Sehprüfung.) W. Feilchenfeld.
96 Influence of Elasticity of Aorta on Pulse Pressure and Heart Action. (Aortenelastizität; Pulzdruck u. Schlagvolumen d. Herzens.) J. Strasburger.
97 *Idiopathic Cylindrical Dilatation of Esophagus. (Speiseröhre.) C. A. Ewald.
98 *Lactation Following Ovariotomy. (Milchsekretion nach Kastration.) D. Grünbaum.
100 *Discharge of Appendix by Rectum in Suppurative Peritonitis. (Abgang d. Wurmfortsatzes.) F. Groedel, Jr.
101 *Chair Shoulder Brace for School Children. (Orthopädisches Stuhlband.) R. Zuelzer.
102 New Remedies, Specialties and "Patent Medicines." (Geheimmittel.) F. Zernik.

87. **Typhoid Ulcerations in Stomach and Duodenum.**—In the case of typhoid reported by Proskauer, death was caused by a purulent peritonitis, which bacteriologically showed streptococci. No perforation of an ulcer or mesenteric gland could be found. Many typical ulcers were found in the stomach, duodenum and jejunum, but they appeared to be of more recent formation than those found in the cecum. The paratyphoid bacillus B was obtained in culture from these ulcers. The serum reaction was positive to this organism, but negative to the typhoid bacillus.

88. **Agglutination Reaction.**—Although the method described by Gossner is said to be intended for the use of the general practitioner, it is impossible to give a description of it within the usual limits of an abstract. Not much apparatus is required, but the technic is rather an extended one and apparently of such a character as to involve the expenditure of considerable time and require some skill on the part of the worker.

89. **Congenital Myotonia.**—te Kamp says that this disease is transmitted to males as well as to females, but in the former instances the incidence of the disease soon disappears; that is, transmission occurs for a longer time when females are affected than when the males of a family are affected.

97. **Idiopathic Dilatation of Esophagus.**—In Ewald's case the diagnosis was made *intra vitam* and was confirmed at the necropsy. The patient, a man, complained most of inability to retain food, which condition alternated with the ability to retain everything. A peculiar feature in the case was that often when the man vomited, he would emit food that had been ingested some days previously, the food taken more recently being retained. There was much belching and vomiting of blood at times. The cause of the dilatation was assumed to be a spasm of the cardia.

98. **Secretion of Milk After Ovariotomy.**—Grünbaum reports the case of a woman, 23 years of age, on whom he performed a hysterectomy, with complete removal of the adnexa, and an appendectomy. Nearly five years previously the patient had been delivered; the labor was normal; the patient nourished her baby, and no pathologic conditions occurred during the puerperium or during lactation. Later symptoms manifested themselves necessitating the performance of the operations mentioned. On the eleventh day after the delivery the breasts began to secrete milk, and this continued for some time. The breasts were considerably enlarged and on compression yielded large quantities of a fluid which on chemical examination was found to correspond with milk. A second patient was operated on for fibromyoma of the uterus; the adnexa were removed with the uterus. On the sixteenth day after the operation the breasts began to secrete milk, and this continued for four months. This patient was a nullipara. The author concludes that in most cases following the removal of the ovaries the breasts secrete a colostrum-like fluid or milk, independently of the histologic condition of the ovaries or whether the woman is or is not parous, but provided, always, that she is of child-bearing age. A review of twenty-one cases recorded in the literature convinces Grünbaum that this secretion occurs only when the ovaries are removed. These cases are reported in brief.

100. **Passage of Appendix by Rectum.**—Groedel records a case of this kind occurring in a man 62 years of age. The patient suffered for a number of years from the effects of heavy drinking, notably from symptoms of arteriosclerosis and angina pectoris. A suppurative peritonitis set in, presumably the result of the rupture of a previously walled off perityphlitis, and although operation was indicated, the age of the patient and his poor condition were deemed contraindications to surgical intervention. Symptomatic treatment was resorted to with a view to making the patient as comfortable as possible. Beginning on the tenth day, the patient passed a number of enteroliths, and on the sixteenth day he passed the appendix vermiformis, which measured 8 cm. in length. Thereafter the feces contained much pus, of a light green color. The patient died on the twenty-fourth day of his illness.

101. **Chair Shoulder Brace.**—Zuelzer describes a shoulder brace which is attached to the back of a chair and is intended to force children to sit up straight.

Berliner klinische Wochenschrift.

103 (XLIV, Nos. 20-25, pp. 621-792.) Tubercle Bacillus and Antituberculous Serum. A. Marmorek.
104 *Physical Therapy of Headache. (Physikalische Beh. d. Kopfschmerzes.) Riedel.
105 Unilateral, Congenital Blepharoschisis. (Spaltbildung i. oberen Augenlid.) L. Meyer.
106 *Sarason's Ozet Baths. (Ozet-Bäder.) P. C. Franze and L. Pöhlmann.
107 The Retention Catheter. (Verweilkatheter.) J. Vogel.
108 *Refraction Coefficient of Blood Serum. (Refraktionskoeffizienten d. Blutserums.) K. Engel.
109 Pulsation of Left Auricle and Its Significance. (Pulsation d. linken Vorhofes.) E. Rautenberg.
110 Development of Basal-Celled Cancer of Skin. (Basalzellenkrebs.) H. Coenen.
111 *Quinquaud's Sign in Abstainers, Alcoholism, Hysteria, Tabes and Other Nervous Diseases. (Quinquaud's Phänomen.) L. Minor.
112 Practical Criminal Psychology. (Kriminalpsychologie.) H. Marx.
113 Spirilla in Recurrent Fever of Europe. (Spirillen d. europäischen Recurrensfiebers.) C. Fraenkel.
114 Atoxyl in Syphilis. O. Lassar.
115 *Effects of Heat and Cold on Viscosity of Blood. (Beeinflussung d. Viskosität d. Blutes.) Determann.
116 Apparatus for Measuring Blood Pressure. (Messung d. Blutdruckes.) H. J. Bing.
117 Id. H. Stillmark.
118 Disinfection with Gaseous and Steam-forming Substances. (Gas. u. Dampfförmigen Substanzen.) U. Friedemann.
119 *Treatment of Scarlet Fever. (Therapie d. Scharlach.) B. Schick.
120 Resistance of Mice to Tumors. (Geschwulstresistenz bei Mäusen.) M. Haaland.
121 *Artificial Radium Baths. (Radiumemanationshaltige Bäder.) A. Laqueur.
122 *Removal of Wax from Bladder. (Wachsklumpen i. d. Blase.) H. Lohnstein.
123 *Suprapubic Prostatectomy. C. Posner.
124 Carcinoma of Epidermis. (Epidermiscarcinom.) D. v. Hansemann.
125 Ernst von Bergmann. M. Borchardt.
126 Pernicious Anemia. (Perniciöse Anämie.) A. Plehn.
127 *Aggressiveness of Bacteria. (Bakterienagressivität). O. Ball.
128 Constitutional Lipomatosis. (Konstitutionellen Formen d. Lipomatosis.) H. Kisch.
129 *Cause of Fever. (Wärmebildung im Fieber.) E. Aronsohn.
131 *Abdominal Route in Hysterectomy for Carcinoma of Uterus. (Abd. Exstirpation d. carcinomatösen Uterus.) J. Veit.
132 *Diagnosis of Diseases of Pancreas. (Pankreaserkrankungen.) F. Eichler.
133 Acute Myeloid Leukemia. H. Hirschfeld.
135 Surgical Treatment of Ulcer of Stomach. (Mageneschwür). Hildebrandt.

104. **Physical Therapy of Headache.**—Riedel discusses the treatment of headache from the standpoint of physical therapy. In cases of hyperemic headache he advises absolute rest, with cold applications to the head and hot applications, or friction, to the lower extremities. Colonic flushings are also said to be of value, as well as active purgation. If the headache is of the paroxysmal variety, cold applications to the head, for a minute at a time, and walking in water at a temperature of from 8 to 10 C., for ten minutes at a time, act almost specifically. Naegele's manual head stretching is also warmly recommended. For headaches of anemic origin, the head is placed low and the scalp is massaged. Hot compresses applied to the forehead or the nape of the neck, and application of warmed cloths around the neck are also valuable. Massage is the most efficient treatment in cases of rheumatic headache. The hot-air douche and warm applications of various kinds may also be used. The same treatment is indicated in cases of neuralgic headache. The author places much reliance on the intelligent use of massage as a means of relieving such headaches, but emphasizes the fact that the physician himself must carry out the treatment, and that it can not be applied by rule of thumb, as it were.

106. **Sarason's Ozet Baths.**—These baths consist of the addition to the water of sodium hyperborate and manganese borate, the latter being spread in powder form over the surface of the water. In a few minutes oxygen begins to be liberated, and this continues for about fifteen minutes. The authors found that these baths diminish the blood pressure and lessen the frequency of the pulse in the majority of instances. In two cases of arteriosclerosis the blood pressure and pulse rate were increased materially and the patients suffered considerably from dyspnea and increased heart action. The cases in which the action was a favorable one included cases of cardialgia, tachycardia, neurasthenia, mitral insufficiency; two subjects were entirely normal.

108. **Refraction Coefficient of Blood Serum.**—Engel found a high refraction index in cases of diabetes mellitus and insipidus, pulmonary tuberculosis, chronic hypertrophic hepatitis, obstruction of the bile ducts and stricture of the esophagus. He concludes that this procedure is a most valuable one for the determination of hydremia and of the albumin content of the blood.

111. **Quinquaud's Sign.**—Minor holds that this phenomenon is probably a sign of muscle tire. It is not pathognomonic of alcoholism, and appears only rarely in exophthalmic goiter, paralysis agitans, arthritis deformans, and in hemiplegia, except in the late stages of the last named, when the sign is entirely absent, especially when contractures exist. The author found the sign to occur very frequently in tabes. It is regarded as being distinctly a pathologic phenomenon and is of neuromuscular origin.

115. **Effect of Heat and Cold on Blood Viscosity.**—Determann found that there is usually an increase in the viscosity of the blood after cold plunges and cold hand baths. Hot baths have the same effect, while warm baths decrease the viscosity.

119. **Treatment of Scarlet Fever.**—Schick consigns every patient with scarlet fever, no matter how slight in severity, to bed for four weeks, and during this time he is not given any meat. The diet consists of milk, milk foods, light farinaceous foods, bread, butter, soups not made of meat stock, honey and preserves. Cold packs control the fever. Antipyretics are condemned. Warm baths are not permitted until the fifth week. The body is anointed with vaselin or vaselin-lanolin during the stage of desquamation. If angina is severe, cold applications are made to the neck, and older patients are advised to gargle with a solution of from 1 to 2 per cent. hydrogen peroxid. Cold drinks are given when the angina is severe. In fact, the author's treatment consists, in the main, of non-medicinal therapy, except the use of peroxid. He says that complications and sequels are best avoided by such treatment. Under no circumstances is the patient permitted to leave the bed until one week after albumin has disappeared from the urine, and the author insists on making a daily temperature record until the sixth week of the disease.

121. **Artificial Radium Baths.**—Laqueur is of the opinion that much of the vaunted therapeutic value of mineral waters and earths used for therapeutic purposes is due to the emanations from or the radioactivity of such waters and earths. He believes that they should be given a trial in cases of chronic articular rheumatism and gout.

122. **Removal of Wax from Bladder.**—Lohnstein records the case of a man who attempted to secure relief from an intractable itching of the urethra by forcing into it some stearin taken from a candle. Some of this substance forced itself into the bladder and eventually caused a severe cystitis with hematuria. It was to secure relief from the cystitis that the patient presented himself for treatment. Cystoscopy disclosed the foreign material firmly attached to the bladder wall, and although it had been there for nearly six months, its surface was free from any incrustations. The lump of wax was of about the size of a walnut. Benzin was injected into the bladder, 40 c.c., in two injections, and this dissolved the wax, which was found to weigh almost 5 grams. The patient was at once relieved of all his symptoms. The procedure was repeated on the following day, but wax was passed only after the first injection. Cystoscopy revealed a normal bladder wall, and no subjective symptoms were present. The patient left the hospital on the second day.

123. **Suprapubic Prostatectomy.**—Posner operated successfully on a man who had been using a catheter for eighteen years. The prostate, which contained a calculus, was enucleated, and the patient, aged 76, made a complete recovery, regaining full control of his bladder.

127. **Aggressiveness of Bacteria.**—Bail says that any organism which multiplies in the animal body and thus infects it, must have the ability to paralyze the protective forces and to hold them at a distance. This power is termed bacterial aggressivity.

129. **Cause of Fever.**—Aronsohn says that the heat or "fire" of fever is generated in the muscles by the caloric or trophic nerves which take their origin in the heat center in the brain. The proteolytic ferments pour forth from the muscle plasma, and "the living strength of the biogen is transformed into heat."

131. **Abdominal Hysterectomy.**—Veit favors the abdominal route for extirpation of a carcinomatous uterus because it is not only safer primarily but secondarily; that is, the end results are better than those of vaginal extirpation. The primary mortality is now under perfect control because of perfected technic. He has operated on twenty patients without a death.

132. **Diagnosis of Diseases of Pancreas.**—Eichler urges that more frequent use be made of the so-called Cammidge reaction or test to determine the presence or absence of pancreatic disease. He produced pancreatic disease experimentally in three dogs, and the test was always positive in these three cases, while the reaction was never present in the urine of healthy animals.

Centralblatt f. Chirurgie, Leipsic.

136 (XXXIV, Nos. 15-26, pp. 417-776.) *Transplantation of Sartorius Muscle in Resection of Knee-joint. (Fixationsmittel bei Kniegelenksresektion.) S. Kofmann.
137 *Surgical Treatment of Torticollis. (Muskulären Schiefhalses.) W. Böcker.
138 *Id. Gerdes.
139 *Transplantation of Cartilage Plates in Joint Ankyloses. (Ueberpflanzung v. Knorpelplatten in Gelenkankylosen.) R. J. Weglowski.
140 Veronal-Chloroform Anesthesia. W. Pokotilo.
141 *Suture of Intestine. (Darmnaht.) J. Shoemaker.
142 *Suture of Patella. (Patellarnaht.) W. Kausch.
143 *Incision for Appendectomy. (Schnittführung.) A. Wertheim.
144 *Incision in Laparotomy. (Eroffnung d. Bauchhöhle.) P. J. Diakonow.
145 *Incision in Appendectomy. G. Schwalbach.
146 Thiersch Transplantation Method. K. Försterling.
147 *Substitute for Mesentery. (Ersatz d. Mesenteriums.) Lanz.
148 Operation for Ureteral Calculus. (Operationsmethode f. Steine im Ureter.) W. Bartlett.
149 Simple, Dry Disinfection of Skin. (Entkeimungsmethode d. Haut.) Wederhake.
150 Urinary Findings After Spinal Anesthesia with Stovain. (Urinbefunde n. Lumbalanästhesie mit Stovain.) A. Schwarz.
151 Retrocolic Cholecystenteroanastomosis. Brentano.
152 Etiology of Gangrene in Incarcerated Hernia. (Gangrän im eingeklemmten Bruch.) C. Lauenstein.
153 *Late Recurrence of Cancer of the Breast. (Spätrecidiv eines Mammakarzinoms.) E. Bircher.
154 Improved Ether Mask. (Verbesserte Aethermaske.) Longard.

136. **Transplantation of Sartorius Muscle.**—The method employed by Kofmann is really a modification of Heusner's method and that employed by Schanz in the treatment of fracture of the patella. The sartorius is implanted in the rectus femoris. In the case reported by the author the joint was resected, and owing to the looseness of the sartorius, this muscle was pulled outward over the rectus femoris and sutured in that position, without loosening its attachment to the tibia. The result was an excellent one. Kofmann also recommends this method in cases of paralysis of the rectus femoris.

137. **Surgical Treatment of Torticollis.**—Boecker has operated on 120 patients with torticollis, 90 times according to Mikulicz' method and 30 times according to Volkmann's method. The former method is preferred because of the uniformity of the results obtained finally in all cases operated on by this method.

138. **Id.**—Gerdes directs attention to the fact that the method of operation proposed by him absolutely prevents a recurrence of the torticollis, gives good cosmetic results, simplifies the after-treatment, and is easy of performance. It consists in severing the anterior scalenus muscle after the sternocleidomastoid has been cut. He claims that this method is superior to that of Mikulicz.

139. **Transplantation of Cartilage Plates.**—In a case of ankylosis of the elbow joint in which operation proved futile, Weglowski transplanted strips of cartilage, with the perichondrium intact, taken from the sixth and seventh ribs. The joint was resected, that is, the lower end of the humerus was removed, and the upper ends of the ulna and radius were properly prepared. The two pieces of cartilage were laid on the ends of the lower arm bones, with the perichondrium toward the humerus. They were retained in position by the ends of all the bones coming in contact. The wound was closed throughout and the arm placed in a plaster cast. The cast was removed on the tenth day, and active and passive movements were begun. After one month the arm could be bent to an angle of from 60 to 70 degrees and supination and pronation were normal. Unfortunately, the patient died in the fifth week from pleuropneumonia. At the necropsy the pieces of cartilage were found to be not only intact, but the plates had become firmly adherent to the lower end of the humerus, and there was an intimate connection between the bone and the cartilage by means of new-formed blood vessels. The ends of the radius and ulna were smooth and shining.

141. **Suture of Intestine.**—Schoemaker prefers the end-to-end anastomosis and overcomes the objections raised to the method by first covering the portion of intestine denuded of serosa with serosa by means of two buttonhole sutures, and then uniting the ends of the intestine with a continuous suture. These two sutures are placed as though it was intended

to close the lumen of the bowel. On one side the sutures are cut off short; on the opposite side they are left long to serve as a running stitch. In 10 cases the method proved itself superior to other methods.

142. **Suture of Patella.**—Kausch makes a curved incision with the convexity upward because in case of stitch-hole abscess, it does not then lie directly over the sutured patella, and the scar, likewise, is sufficiently removed from that in the patella to obviate any untoward bad after effects. Three or four wire sutures, either aluminum bronze or silver wire, are employed, one of these sutures passing through the entire thickness of the patella. For the remaining sutures the holes are bored on a slant so as not to have the suture pass beyond the inner wall of the bone. If the lower segment is very small, the wire is passed around the bone, encircling the lower edge of the fragment. The periosteum and fascia are sutured over the bone, and finally the soft parts are sutured with silkworm gut. Before the skin wound is closed the author flexes the knee in order to test the wire sutures. Massage is begun the day following the operation, and passive movements on the third day. On the tenth day the skin sutures are removed and on the fourteenth day the patient is allowed to stand. His results have always been excellent.

143. **Incision for Appendectomy.**—Wertheim describes the modification of Wier's incision devised by his late chief, Krajewski, and employed by him for eight years.

144. **Id.**—Diakonow recommends Bogojawlenski's incision for appendectomy. It is very similar to that employed by Wier.

145. **Id.**—Schwalbach claims to have practiced the McBurney incision since 1903 without having had any knowledge of McBurney's priority.

147. **Substitute for Mesentery.**—In a number of instances in which the intestine was denuded of its mesentery, Lanz has made use of the omentum with good results. The omentum is sutured over the intestine and thus provides the latter with a covering that fully replaces its natural one.

153. **Recurrence of Cancer of Breast.**—Bircher reports the case of a man who was operated on for carcinoma of the breast in 1890. The diagnosis was confirmed microscopically. The breast was removed, and with it the underlying pectoralis major muscle. The ribs were found to be not involved. The axilla was cleaned out completely. Fourteen years after the operation the patient complained of pain in the side operated on. Within three weeks he sought medical advice, and it was then determined that there was a recurrence of the original tumor in the scar. Later symptoms manifested themselves that indicated metastasis in the liver. Operation was refused. The microscopic examination at both times showed a carcinoma simplex. On this finding is based the author's assumption of a recurrence and metastasis.

Monatshefte f. Praktische Dermatologie, Hamburg.

155 (XLV, Nos. 1-3, pp. 1-176.) Case of Adenoma Sebaceum. F. Krzysztalowicz.
156 Technic of Intramuscular Injections of Mercury. (Intramuskulären Hg-Einspritzung.) A. v. Karkowski.
157 Case of Xeroderma Pigmentosum. K. Vignolo-Lutati.
158 Effect of Electrostatic Treatment on the Vasomotors of the Skin. (Effect elektrostatischen Beh. a. d. Haut-Vasomotoren.) F. Winkler.
159 Pulmonary Tuberculosis and Diseases of the Skin. (Lungenschwindsucht u. Hautkrankheiten.) S. Beck.
160 Genesis of Epidermal Pigment. (Genesė d. Epidermispigmentes.) W. Hellmich.

Archiv f. Verdauungs-Krankheiten, Boas', Berlin.

161 (XIII, No. 3, pp. 223-328.) Phosphorus Metabolism in Intestinal Mucous Membrane during Fasting and after Feeding. (Phosphorverbindung i. d. Darmschleimhaut.) A. Ferrata and G. Moruzzi.
162 Vegetable or Meat Diet in Hyperacidity. (Hyperacidität.) O. Schloss.
163 Advantages and Disadvantages of Currant Test. (Korinthenprobe.) H. Schmilinsky.
164 Diagnosis and Surgical Treatment of Hour-Glass Stomach. (Sanduhrmagen.) H. Schmilinsky.
165 Significance of Flagellates in Feces in Achylia Gastrica. (Flagellaten i. Stuhl.) J. Wasserthal.
166 The Abdominal Muscles in Diagnosis. (Welchen u. steifen Leib.) Benderski.
167 Relation of Ulcers and Erosions of Stomach to Functional Disturbances of Intestine. (Functionellen Störungen d. Darmes.) W. Plönies.
168 New Instrument for Gastroscopy. (Gastroskopie.) F. Ehrlich.

Gazzetta degli Ospedali, Milan.

169 (XXVIII, Nos. 85-89, pp. 882-928.) *The Salts of Magnesia in Epilepsy. (Sali di Magnesia nell' Epilessia.) E. Calcaterra.
170 Experimental Observations on Diplococcus Aggressin. (Aggressine diplococcica). A. Barlocca.
171 *Albumosuria in Infectious Diseases. (Albumosuria.) A. Giovine.
172 Sphygmomanometric Technic. (Tecnica sphigmomanometrica.) C. Rubino.
173 Some Infections Resembling Typhoid. (Su alcune infezioni tifosimili.) G. Rocchi.
174 *Dercum's Disease. (Sul morbo di Dercum.) G. Fratti.
175 Tobacco and the Genital Functions in Man. (Tabagismo e funzioni genitali nell' uomo.) S. Cannata.
176 Importance of Certain New Methods of Investigation in Surgical Diseases of the Kidney. (Studio delle malattie chirurgiche del rene). G. Gualdrini.

169. **Magnesium Salts in Epilepsy.**—Calcaterra experimented on a number of epileptics with the hypodermic administration of magnesium sulphate, also using $MgCl_2$ with good results in checking the attacks. These salts, he thinks, have a double action as inhibiters of epileptic manifestations: 1. There is a direct action of the ions on the abnormally functioning nervous elements. 2. They tend to disintoxicate and to render the serum normal and perhaps also the organic fluids generally. He is carrying on studies to elucidate further the mode of action of these salts.

171. **Albumosuria in Infectious Diseases.**—Using Fittipaldi's method, which avoids any confusion with albumin, Giovine has tested the urine for albumosuria in a number of infectious diseases (measles, diphtheria, typhoid, pneumonia, tuberculosis, meningitis, etc.) and finds it a rather frequent symptom, thus agreeing with the results of other investigators using other tests. He found it present in 68 per cent. of the cases examined, and it was marked in 23 per cent. Its constancy in diphtheria and its presence in typhoid and fevers of intestinal intoxication were notable, while its absence in pulmonary tuberculosis, even with large cavities, was also noteworthy. It was also lacking or doubtful in a case of cerebrospinal meningitis, and this may have some diagnostic importance.

174. **Dercum's Disease.**—Fratti reports a case of Dercum's disease (adiposis dolorosa) presenting some noteworthy features. The patient was a young woman, aged 28, without inherited taint, and the disorder began with articular pains which led to a diagnosis of rheumatism. While the thyroid was apparently normal, there were symptoms suggesting exophthalmic goiter—slight exophthalmos, tachycardia to a slight extent, vasomotor disturbances, flushes of heat in the face and perspirations. Fratti rather inclined to exclude alcoholism as a causative factor in this case; the patient took habitually a liter of wine and sometimes a liter and a half, but no strong liquors. Other symptoms noted were the asthenia, psychic disturbances, melancholia, etc., insomnia, nervous irritability, and a hypertrichosis appearing with the disease on the chin and upper lip, the face not being involved in the adiposis. The patient succumbed to an afebrile bronchial catarrh after leaving the hospital; no autopsy was made.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

Text-Book of Physiology for Medical Students and Physicians by William H. Howell, Ph.D., M.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition. Thoroughly Revised. Cloth. Pp. 939. Price, $4.00 net. Philadelphia and London: W. B. Saunders Co., 1907.

Index-Catalogue of Medical and Veterinary Zoology, Parts 17, 18 and 19. Ch. W. Stiles, Ph.D., Consulting Zoologist of Bureau of Animal Industry and A. Hassall, M.R.C.V.S., Assistant in Zoology, Bureau of Animal Industry. Paper. Washington: Government Printing Office, 1907.

Index-Catalogue of the Library of the Surgeon-General's Office. United States Army. Authors and Subjects. Second Series. Vol XII. Cloth. Pp. 978. Washington: Government Printing Office. 1907.

Transactions of the New Hampshire Medical Society at the One Hundred and Sixteenth Anniversary, held at Concord, May 16 and 17, 1907. Cloth. Pp. 293. Concord: Rumford Printing Co., 1907.

Eleventh Annual Report of the Macon Hospital, Macon, Georgia, to the Board of Directors at the Annual Meeting, held Jan. 20, 1907. Paper. Pp. 16.

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Address

THE STATUS OF THE FIGHT AGAINST CANCER OF THE UTERUS.

ADDRESS OF CHAIRMAN OF THE SECTION ON OBSTETRICS AND DISEASES OF WOMEN AT THE FIFTY-EIGHTH ANNUAL SESSION, ATLANTIC CITY, JUNE, 1907.

J. WESLEY BOVÉE, M.D.
WASHINGTON, D. C.

To those that are essentially observers this would seem to be a hackneyed subject. To read the titles of monographs and papers as they appear in library catalogues and in the *Index Medicus* they could infer that great enthusiasm exists in our professional ranks in the treatment of cancer; that it is curable by several modes of treatment and that any investigation into the etiology of it is analogous to that of malaria—to prevent the morbidity rather than the mortality of a curable disease. They would find surgical treatment brilliant in its success, and that the success thus secured is far excelled by Roentgenization and by the employment of that newer and therefore much more up-to-date remedy, radium. W. Deane Butcher is really comparatively modest in his claims for the curative effect of radium on cancer, for he does not claim much for it in the uterine cancer. He opens his paper,[1] however, on "The Action of Radium on Malignant Neoplasms," by saying:

> In the whole range of experimental medicine there is nothing better authenticated than the fact that a small superficial neoplasm—be it lupus, rodent ulcer or epithelioma—may be destroyed by the radiations of radium. They simply wilt and wither away under the influence of the Becquerel rays like an uprooted weed under the action of sunlight.

Many are the reported cures by these two agents in conditions in which surgical procedures have either been denied or have failed. These failures constitute the small shortcoming of surgery. In a few failures of this kind even these two powerful and mysterious agents have been treated unfairly, it would appear, by the impatient but industrious workers, as some cases have been reported during the progress of the successful treatment. Ample compensation for the small point of too early report is found in the rapid progress toward recovery noted or the expressed hope for such result. How different this is from the actual facts and conditions as known by those brought into direct contact with this terrific disease. By them it is known that cancer of the uterus is one of the worst scourges that flesh is heir to and that we feel almost powerless to lessen its practically fatal termination.

NATURE OF CANCER OF THE UTERUS.

It appears that in no walk of life, in no class of society, in no race of people carefully studied, and in no country, are the women free from this disease. In the unexplored regions of Africa and in the North American Indian absence of this disease has by some writers been asserted. Probably further investigation will prove the fallacy of such statements. If not, then civilization will no doubt carry this curse to those people. And, too, reversion to a primitive type may be the solution of the most vexing question of how to rid the human family of cancer. For the Hebrew race less frequency of it has been claimed by Vineberg and others. Some have likewise recorded opinions that the negro in this country enjoys partial immunity. My own experience is that this race has no great advantage, if indeed any at all over the whites. I nearly always have in my wards some cases of cancer of the uterus or of the breast in negro women. This disease seems to behave much like several diseases that depend for their existence on certain pathogenic organisms. Its existence in early functional life of the uterus is a great rarity, while in the last few years preceding the menopause when its functional life is fading, it is very common, and for the first ten years after the menopause has marked the end of procreative life, and consequently decadence of the uterine mucosa, its occurrence is very common. Cancer of the uterus, whether of the body or of the cervix, is essentially a local disease at the beginning. That fully 80 per cent. of the cases seen by the gynecologist exhibit a condition no longer that of a new growth limited to the organ is indeed lamentable. Like the history of cancer in other structures, the disease soon loses its local character. It passes to surrounding and remote structures through the lymph and blood channels. This process is most rapid in the varieties that begin in the cervix and in the youngest subjects. Usually the microscope can easily trace a continuous extension of the disease to the ligaments and to certain chains of lymphatic glands. In such the extension is found to be by the lymphatic system. But this is not true in all instances. Various gynecologic surgeons accustomed to having carcinomatous uteri and all tissues removed therewith carefully examined by serial sections tell us of some surprising phenomena thus discovered. They have found nests of cancer isolated and at some distance from the uterus. The lymphatic glands involved by the neoplasm are not always enlarged sufficiently to be macroscopically discovered, nor are all the enlarged lymphatic glands found in the broad ligaments and along the iliac vessels infiltrated by cancer. A curious phenomenon that was emphasized and illustrated by Prof. von Rosthorn, in his able address before this Section last year, was that in apparently early cases in which but one side of the cervix seemed to be involved, isolated areas of cancer were found in surrounding tissues of the opposite side. These facts are disturbing elements in the prognosis of any given early case. Another interesting feature is that entirely independent foci of cancer have been found in the same cervix, while cancer foci in the uterus and in the breast I have in a few instances noted. Cancer of the breast and sarcoma of the uterus I have also noted as existing at the same time. When metastases in the liver or kidney occur the venous system has probably been the means of transmission. Taussig reported to the American Gynecological Society last month an interesting case of metastases to the ovaries in cancer of the cervix. These organs were adherent to the bottom of Douglas' pouch each by a long band of adhesion, probably of omental origin. The cervical cancer was of the squamous celled variety, as was the small metastatic growth on each ovary just at the margin of the attachment of the band to that organ. No evidence of the neoplasm could be found in the adhesion bands.

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[1] Arch. of Roentgen Rays, 1906, xii, 156.

It would seem of the greatest importance that some agreement in classification be reached. Such classification in the study and report of cases would furnish much more reliable data and bring order out of the present jumbled condition of our knowledge of cancer of the uterus. Sampson of Albany has recently suggested a splendid working classification that if universally adopted would materially assist in the study of this disease.

CAUSES.

The great interest in cancer is to-day centered in a search for its cause. This is the more strenuous and general because of failure in its treatment. Bacteriology has done so much to combat other diseases and discover the essential micro-organism to particular ones that its efforts in the study of cancer are highly welcome to the clinicians dealing with this disease. The possibility of its existence being due to a specific parasite is supported by the published reports of many instances in which dwellings or rooms seem to have had the unfortunate property of imparting the disease to its occupants very similarly to scarlatina and tuberculosis. Besides, in no other line of study has so much valuable data been procured bearing on the cause of cancer. Well equipped and well endowed laboratories have been established for the purpose of studying cancer and the determination of investigators in the search is worthy of our fullest praise and encouragement. Thus far their labors have gone practically unrewarded, though Gaylord and Clowes and others have found that tumors may be transferred from one mouse to another and its growth continued, and, further, that the tumor can be propagated through several animals in this manner.

Vulnerability of tissue seems to act as a strong causative factor. This feature is demonstrated in the almost constant invariability of its occurring in the uterus that has been rendered vulnerable by traumatism, by inflammation, by decadence of functional activity and other states not necessary to mention. Age has unquestioned influence on the occurrence of cancer of the uterus. This is probably much greater in the varieties that begin in the body of the organ. We find cancer of the uterus during the first half of the functional activity of the organ so rarely that we are apt to remember the instances individually. Between the ages of 30 and 60 years may be termed the cancer age, though the end of that period does not absolutely limit the development of the disease. According to Edmund Owen the directors of the Research Laboratory of London found this same incidence in the lower vertebrates as well as in the human subject. That is, a close association between the incidence of cancer and advancing years. In 63,000 head of cattle slaughtered in Glasgow, in 1902, cancer was found in 27—all old cows sent from Ireland. The same incidence was noted in mice, horses, dogs, cats and fish.

That heredity is an influential cause is an unsettled question. In my judgment it enters largely. I have known three successive generations inflicted by it. At present in my service at Providence Hospital there is a white woman, 46 years of age, whose mother died of cancer of the uterus. On my first examination of this patient I found cancer of the uterus had spread into the broad ligaments and vaginal walls. My diagnosis was made and the examination merely confirmed it and furnished data for the prognosis. When considering the subject of treatment I shall have occasion to again refer to this case, as I believe it one typical of professional neglect. I recall another family of four sisters, all of whom had cancer. In my experience nearly all of my patients have had hereditary histories. In this connection one must give some attention to the question of contagion of cancer. In latter January of this year a lady died of cancer of the uterus that had advanced remarkably in various directions. The inguinal lymphatic glands were prodigious, some being more than an inch in diameter, and the growth had so involved the vaginal wall as to protrude from the vulva. The rectum and bladder did not escape involvement. Her constant attendant and nurse until a few weeks before her death was her daughter, a very spare maiden lady of 50 years. One night about a month after the mother's death the daughter experienced a sharp pain in the upper margin of the right breast and feeling it with her fingers thought she discovered a hard mass about one-half inch in diameter. She was much alarmed and sent for me the following morning. My examination was confirmatory, though no enlarged axillary glands were felt. The following morning a very radical operation, including removal of both pectoral muscles was done. Between these a large gland was found that the pathologist pronounced the same as the small tumor in the breast—carcinoma.

A. Lapthorn Smith[2] has published a very interesting paper entitled "Is Cancer Contagious?" After presenting statistics to show a wonderful increase in the frequency of cancer he offers many instances to show cancer is conveyed from one person to another by means of a parasite called *Cancriamœba macroglossa.* He claims cancer has increased all over the world 30 per cent. in one decade. He cites 3 instances of the disease conveyed from the genital organs of women to those of men. Sherrill[3] reports a collection of 43 cases of this kind. Many are the reported cases of direct transference of cancer in an individual from lip to lip, tongue to gums, cervix to the lower end of the vagina. Behla cites many instances of surgeons becoming infected by cancer in operation. Doyen claimed the *Micrococcus neoformans* was the agent essential in the production of cancer. The special commission sent from London to Paris failed to confirm bacteriologically or therapeutically Doyen's claims for his discovery of the cause or his results in serum treatment of cancer.

Beard, university lecturer in comparative embryology of the University of Edinburgh, extends Cohnheim's theory of neoplasms. He says the cancer cell differs from other cells solely in the characteristic that it is a latent and aberrant germ cell unmodified as it should have been in the ordinary course of the development of the embryo—that it is not a somatic cell, but one that should have disappeared. In extension he says the substance that should have destroyed it at about the sixth week of embryonal life is the pancreatic juice from which trypsin and the diastase, amylopsin, are extracted. On this theory he built his plan of the treatment of cancer by these remedies. I shall discuss these remedies in speaking of the treatment of cancer. Gaylord, four years ago, discovered the *Coccidium sarcolatum,* from which much was expected. Since that time its intimate relation with cancer has been confirmed and denied by various biologists. Some have suggested it is due to contamination incidentally in laboratory work. Others have suggested that it is a by-product of degenerative tissue change. No etiologic relation between it and cancer has been established.

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[2] Internat. Jour. of Surg., 1906, xix, 397.

[3] Am. Gynec. and Obstet. Jour., November, 1901.

TREATMENT.

We may now discuss the efforts being made in the direction of eradication of cancer of the uterus. All are agreed that, since it is at first essentially a local disease and therefore eradicable and subsequently involves structures that can not be removed, becoming, *pari passu,* ineradicable attempts at eradication must be made early. It must be attacked while it is still limited to the uterus if eradication would be reasonably expected. Such being the case, early diagnosis is of necessity an essential to early attempt at removal by whatever means adopted. This essential is the paramount obstacle to early treatment. Unfortunately in this relation the uterus is an organ concealed from view. In addition many women, from a sense of modesty or from a belief that women customarily have some uterine affection, neglect themselves and fail to seek relief.

Another obstacle is the deep-rooted misconception that is held by the laity, and, I state with great regret, by the careless general practitioner of medicine, namely, that the menopause is characterized by irregular uterine hemorrhages or menorrhagia and leucorrhea. In the case to which I referred early in my paper in connection with professional neglect, I learned from the patient, whose mother died of cancer of the uterus, that two years ago, at the age of 44 years, her menstrual flow began to be prolonged and the quantity to be increased. One year ago she placed herself in the care of a physician who explained to her that the change of life was usually characterized by such phenomena as she exhibited and without examination he prescribed for her during a period of six months, always assuring her that in due time the flow would cease and she would be well. During the last six months pain was added to her symptoms, but believing she would soon be well she was not in the care of a physician. The cancer has nearly destroyed the uterus, has spread into the surrounding tissues, including the vaginal walls, and her condition is one of pitiable hopelessness. With such handicaps, the gynecologist has not been able to demonstrate the curability of cancer of the uterus and the general practitioner, to an alarming degree, believes attempts to eradicate it are worse than useless.

Constant and industrious effort will be necessary for many years to remove these barriers to early diagnosis and early treatment of uterine cancer. Before early diagnosis will be feasible, women and physicians must be educated to the plan of women being frequently examined during the cancer period of life by those competent to recognize this disease in its incipiency. They should submit regularly to such examinations, as they do to having the dentist examine their teeth. It would seem desirable to tell women such examinations are desirable, as dire results frequently result from neglect of such practice. We have no difficulty in allaying fears of pregnant women when we insist on their furnishing specimens of urine as often as desired for examination. We tell them it is a precautionary measure and the same reason would be sufficient for this precaution against cancer. If a laceration of the cervix or other abnormal condition be present it may be assigned as the reason for examination regularly at short intervals. Certainly this plan thoroughly executed would enable early diagnosis.

In my judgment such early diagnosis could be followed by radical surgery with a very high percentage of cures. In an early stage of cancer of the uterus radical surgery has proved very satisfactory. Splendid work has been done in later stages of the disease by Byrnes' method of applying the galvanocautery. As has been mentioned, the employment of *x*-rays and of radium has been afforded a large field. Trypsin and acetone are now in vogue, though I believe only in cases not amenable to radical surgical operations. Opsonic treatment is in but its earliest infancy as applied to uterine cancer. Radical surgery has continued since the year 1600 to be the remedy most commonly employed for early uterine cancer. The electrothermic angiotribe of Downes is found to be a very useful adjunct to radical surgery in the early stages.

The *x*-rays have not proved of value in cancer of the uterus. Only the later stages of the disease have been subjected to this plan of treatment. Under such treatment the disease has progressed to a fatal termination. The uterus appears to be too deeply situated in the body to be materially affected by the *x*-rays. As to radium, I have already quoted from Butcher that while he is enthusiastic in advocacy of it for superficial growths, for uterine cancer he considers it inert. Gellhorn's recent report on the beneficial effect of acetone in advanced uterine cancer is very modest regarding its curative effects. He asks for its trial, which I am sure the profession should accord it. Trypsin is furnishing a means to no small amount of enthusiasm on the part of those employing it. No one reading Morton's report[4] can avoid the conclusion that it is of great service in some cases, though no special mention is made of uterine cancer. Beard believes that after the cancer cells are destroyed by trypsin, amylopsin, the pancreatic diastase, should be administered for purposes of elimination. The remedy has been in use for a period of time entirely too short to give it any credence, whatever, as an agent. The surgeon has from clinical experience learned he can not consider the probability of cure until fully three years have elapsed after operation. Even years after the three years limit has transpired return of the disease occurs. A significant fact is that in England this remedy for some reason has been very disappointing. We should encourage its further use if apparent cures are secured by its agency and await patiently end results which should be interpreted without bias.

Immunity against cancer growth in mice has been produced by grafts repeated. The reports of Gaylord, Bashford and others have given us hope that something in the nature of inoculation may be worked out. Bashford and Murray have found that a few drops of blood from a normal mouse injected into the circulation of a mouse to be subjected to cancer grafting prevents the graft from being successful, though blood from another species of animal has no effect on it. To me this seems close to a successful opsonic treatment.

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[4] Medical Record, 1906, lxx, 893.

Adamkiewicz[5] claims to cure cancer by administration of trimethylvinyl ammonium. He claims that it has a physiologic effect similar to that of the toxin of cancer parasites. He claims that by autopsies made on persons dying from intercurrent diseases years after the employment of this drug have demonstrated the absence of cancer. His theory is that cancer may be killed by its own poison, like a person by his own carbonic acid.

CONCLUSIONS.

From a critical survey of the subject of the treatment of cancer of the uterus at the present day the following may be said: 1, we are rightly ignoring the aphorism of Hippocrates to the effect that "it is better not to apply any treatment to deep-seated cancer, for, if treated, the patients die quickly; but if not treated they hold out for a long time." We are striving to educate women and the general physician to the necessity of adopting means to arriving at the earliest diagnosis possible and that followed by prompt operation of a very radical kind; 2, special care in classification of the varieties of uterine cancer is essential to greater enlightenment concerning the history of that disease; 3, the employment of *x*-rays and radium are of little use and should not be employed in cases that are diagnosed sufficiently early to offer hope of eradication by surgical means; 4, the cautery in any form should not be employed as an alternative for radical surgery, but be limited to those cases that have passed the stage in which eradication by operation seems probable; 5, trypsin has not been tried sufficiently to establish its proper position and as it has not been proved to be superior to radical operation valuable time should not be employed in using this remedy in cases curable by surgery; 6, much is being done to alleviate the suffering and to postpone the fatal termination of those cases no longer amenable to radical surgical operation; 7, the experimental work on animals thus far done offers hope of some means, opsonic or otherwise, for a more successful and less dangerous and less difficult plan of treatment for this disease than radical surgery; 8, radical surgery affords the best results at present; 9, the vaginal route does not afford the greatest possibility for eradication; 10, we have reason to believe with Childe ("The Control of a Scourge") that this disease can be controlled; 11, rooms which individuals suffering from cancer have occupied should be fumigated before non-cancerous occupy the same and in the light of the authentic reported cases of immediate and mediate inoculation those caring for such patients should regard it as a contagious disease.

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[5] Bull. de l'Acad. de Méd. de Paris, 1906, 3 s., lvi, 290.

Liquor Cresolis Compositus as a Disinfectant.—The superior germicidal value of this official disinfectant is strikingly shown by some recent investigations. The United States Department of Agriculture formerly recommended a mixture of phenol (carbolic acid) and lime for the disinfection of cattle cars, but as it met with some objections it was determined to try liquor cresolis compositus of the U. S. Pharmacopeia as a cheaper preparation. Comparative experiments (Bulletin 100) showed that the mixture of phenol and lime was less efficient than phenol alone, but that the germicidal power of liquor cresolis compositus, even when made from the least active cresol, is nearly one and a half times greater than that of the same amount of carbolic acid. The germicidal efficiency increases with the boiling point of the cresol, orthocresol with the lowest boiling point being least efficient. Liquor cresolis compositus made from commercial cresols may exhibit unimportant variations in germicidal power owing to variations in the cresols.

Original Articles

HOW CAN WE LESSEN THE MORTALITY OF UTERINE CANCER?*

E. E. MONTGOMERY, M.D.
Professor of Gynecology in Jefferson Medical College; Gynecologist to Jefferson and St. Joseph's Hospitals.
PHILADELPHIA.

The discussion of this subject becomes difficult at its onset because we do not know its cause. The ablest investigators have diligently sought to determine its origin and to lay bare the mystery of its development, but thus far in vain. The inclination of some of the best scientific minds has been to assign a bacteriologic cause, and numerous parasites have been accused of being responsible for its production, but later investigations have not demonstrated their presence as constant.

Efforts have been made to associate the various manifestations artefact cell inclusion and cell degeneration with some specific germ, but the apparent discoveries of one have not been substantiated by other observers.

The researches of Farmer relating to the existence and separation of the chromatic elements seems to afford an explanation for the origin of the disease in chemical reaction, but whether the impetus be imparted to congenital embryonal cells or be the result of parthenogenesis remains for future determination.

Clinical observations have made it evident, however, that the predisposition to the occurrence of malignant disease can be both congenital and acquired. Congenital predisposition or heredity may be considered the inheritance of increased vulnerability or decreased resistance and may occur independent of any family history of cancer. The lowered resistance which favors the onset of tuberculosis likewise makes the occurrence of cancer possible. In the great majority of cases, however, the predisposition is acquired through changes in cell structure as the result of prolonged or continual irritation. The history of the occurrence of cancer in the uterus seems to make this statement justifiable, as this disease occurs with the greatest frequency in that portion of the uterus, the cervix, which is most exposed to injury and irritation. Not only is this true, but it occurs in greater frequency in women who have given birth to children, or cases in which it is evident the cervix has had the greater opportunity to have been the seat of injury and futile efforts at repair. There are exceptions, it is true, in which cancer occurs in the cervix in women undoubtedly chaste, but these instances are so exceptional as to emphasize the rule. These statements accepted, it becomes evident that the treatment may be divided into preventive, curative and palliative, the first two of which only concern us in the discussion of the subject chosen for the title of this paper.

The value of the prevention of cancer can not be overestimated when we consider the insidious onset of the disease, its early invasion of the adjacent and even remote structures, and the grave prognosis in all cases in which it is recognized; it must be apparent that preventive measures are of the greatest importance.

Prevention comprises, first, the correction of all local conditions which promote irritation and result in the formation of new tissue. Every gynecologist, every physician in general practice, is familiar with the influence produced on the uterus by a more or less extensive laceration of the cervix, especially if a careful aseptic management of the puerperium has been neglected.

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

The uterus remains large and heavy from ineffective involution, hemorrhage and leucorrhea are symptoms of the resulting endometritis, the woman complains of sensation of weight and dragging from the heavy organ, from hemorrhage after coition or exercise from the injured cervix. The longer the condition is permitted to continue without proper treatment the worse the complications become. The lips of the cervix are separated, and the endometrium thickened, filled with distended Nabothian glands, which, from obstruction of their ducts, become extensively everted. The torn surfaces are covered with granulations or cicatricial tissue, and in the angles this frequently presents a gristly hardness, pressing on the terminal nerves. The uncleanly, neglected patient, suffering from such a group of symptoms and physical signs, presents a condition which greatly simulates incipient carcinomatous degeneration. Inflammation of the cervix, even when not lacerated, leads to increase of connective tissues, proliferation of epithelium, obstruction and occlusion of the ducts of Nabothian glands, to their enlargement, to narrowing of the cervical canal, or the projection of the enlarged gland into the tissues of the cervix until its wall is penetrated, the glands show on the vaginal portion, and when extensive glandular involvement exists the entire cervix may have undergone this cystic degeneration. Is it surprising that malignant disease rapidly transcends its original source if it should become engrafted on a condition such as this?

Prolonged irritation may lead to alterations just as grave within the uterine cavity. Increase of connective tissue, obstruction of gland ducts, compression and atrophy of glands or their development into retention cysts which may be the origin of uterine polypi, increasing the tendency to hemorrhage and discharge. Similar conditions are produced by the retention of embryonal products as portions of placenta, membrane and blood clot after abortion, premature labor or delivery at full term, when infected, inflammation, slight or severe, results, dependent on the virulence of the infection, or the powers of resistance of the patient.

When non-infected such products may become partially organized and be retained for a length of time, producing the continual irritation of a foreign body. If we accept the theory which experience seems to establish, that continued irritation favors the development of malignant disease, then it becomes self-evident, in order to prevent its occurrence or limit its frequency, the physician must institute measures to avoid irritation and chronic inflammation of the pelvic organs. The evacuation of the uterus, whether during gestation or at its completion, must be effective and proper contraction of the organ secured. Injuries of the cervix and pelvic floor which are likely to produce subinvolution must be repaired and thorough asepsis practiced in the after-treatment. Where the patient comes under observation months subsequent to the injury and secondary conditions have developed, treatment must be adapted to the peculiar condition. In all such cases the uterus should be dilated and curetted and the cervix repaired by trachelorrhaphy when the mucosa is free from eversion and marked glandular disease.

It is folly to consider trachelorrhaphy when the mucosa is thickened, extensively everted and presents glandular degeneration, for the operation in such cases but serves to obstruct uterine drainage and aggravate the subsequent condition. In such cases amputation of the cervix at the expense of its inner surface is the proper procedure.

The removal of all sources of irritation necessitates attention to displacements, to periuterine inflammation and to uterine myomata, particularly of the submucous and interstitial varieties.

Prevention of cancer requires, second, an investigation of the manner in which the various functions of the body are performed and the correction of disordered conditions of the gastrointestinal tract.

The ingestion of inordinate quantities of food, of food illy prepared, of unsuitable character and improperly masticated, necessarily results in decomposition within the gastrointestinal tract and the formation of toxins which produce a deleterious effect on various parts of the body. As a semi-excretory organ, the uterus is one which is likely to feel the effects of such chemical irritants. The diet should be carefully regulated, the inhibition of water encouraged, and constipation avoided. Lowered vitality should be combated by the ingestion of eggs and milk in large quantity, by outdoor exercise and in extreme cases by sleeping in the open.

The careful oversight of the patient as above cited affords the greatest probability for the early recognition of the development of malignant processes. The successful treatment depends to an extreme degree on an early diagnosis. The surgeon is accustomed to consider hemorrhage, pain and foul discharge as pathognomonic symptoms of carcinoma, and, fortunately, the profession is now so educated that it does not ignore the possibility of these symptoms. Much more rarely than formerly is it found that women are comforted for the presence of profuse menorrhagia or metrorrhagia by the assurance that they are undergoing the "change of life." It must not be forgotten, however, that there is no pathognomonic symptom of cancer. Hemorrhage just as or even more profuse may be associated with a number of benign conditions. Pain is a frequent symptom of every acute or subacute and of many chronic inflammations of the pelvic structures. Foul discharge may be associated with retained fetal products, retained inflammatory collections within the tubes, the uterus or the pelvis, and from carious and sloughing submucous fibroids. It is evident, then, that neither one nor all these symptoms can be accepted as positive assurance of the existence of carcinoma, but rather as a danger signal indicating the importance of prompt and thorough investigation to determine what is the threatened disaster. When the vaginal portion of the cervix is the seat of disease it is generally easily recognized even at an early stage. Involvement of the cervical canal is usually readily determined by the irregularly increased size of the cervix, a sensation of increased resistance affecting a part rather than the whole of this portion of the uterus. In early stages it may be necessary to dilate the uterus with tents, and even then to excise a portion for microscopic examination. Cancer affecting the body does not always increase the resistance of the organ, though in the majority of instances there is an infiltrated area which gives a sensation of rigidity and resistance. Occasionally I have seen cancer of the body develop in a polypoid gland and the proliferated tissue would fill the uterine cavity with a large cauliflower mass which stood in intimate relation with the uterine surface at only one point. We can only hope to lessen the mortality of the disease by the thorough eradication of the organ and tissues involved.

What hope can be extended that even radical measures will afford escape from this dread disease? Unfortunately, no positive assurance can be given in any individual case that even the most radical procedure will be followed by cure. In one patient a vaginal hysterectomy for extensive destruction of the cervix in which but little benefit had been expected will be followed by years of freedom from recurrence. This has been my experience in a number of instances. A patient now comes to mind in whom the cervix was completely destroyed. A vaginal hysterectomy was done merely because I could not turn her away without an effort for her relief, yet more than ten years have followed free from recurrence. In other cases a slight involvement of the cervical canal or even of the body of the uterus for which an extensive abdominal hysterectomy has been done have been quickly followed by a recurrence, which has rapidly progressed to a fatal termination. Our acquaintance with the tendencies of the disease are not sufficient to enable us to determine what course it will pursue in any individual case. It is possible that the course is not so much dependent on the disease processses as on the characteristics of the individual affected. If due to a chemical reaction, then the continual presence of a large quantity of the reagent in contact with cells prepared to develop under its stimulation tends to promote the rapid progress or extension of the disease. Experience has demonstrated that the earlier in the life of the individual the disease occurs, the more rapid its progress.

Experience has taught me to give a very unfavorable prognosis when cancer of the uterus appears prior to the age of 40 years. Possibly the hopeless outlook is, in part, due to the greater activity of the lymphatic system, the vessels of which decrease in size and number with the advent of the climacteric.

The route by which the disease shall be attacked is still the subject of controversy; the majority concur that the entire uterus should be extirpated when any portion of it is the seat of cancer. Not only should the entire organ be removed, but the excision should be, if possible, beyond the limits of the extension of the disease. As it is possible only to determine minute nests by the microscope, as much parametrial tissue should be removed as safety of the important structures of the pelvis will permit. In recent years many surgeons have advocated the thorough removal of the nearest lymphatic glands. As it is impossible to be certain that all noninfected glands are removed, it is wiser to follow the procedure of Wertheim and attempt only those which are infected as shown by enlargement. Schauta has disclosed that the enlargement of glands is frequently extended to the lumbar glands alongside of the abdominal aorta and, consequently, beyond the reach of the surgeon's knife. In order to insure the most effective removal of the disease the abdominal route should be the one of selection, inasmuch as it affords an opportunity to inspect the entire field, determine to some degree the extent of involvement and keep under observation important structures. It permits of the ligation of the uterine arteries external to the line of the ureter and in extreme cases the ligation of one or both internal iliacs. In extensive involvement it is important to extend the operation to the removal of a considerable portion of the vagina.

There is, however, a class of cases in which the vagina presents a route attended with less danger and with almost equally favorable results. It should be selected when the abdomen contains a large quantity of fat or where the condition of the patient is such that she gives but little promise of enduring a more protracted operation.

In conclusion, I would summarize my answer to the question asked as the title of this paper as follows:

1. The employment of measures at confinement and subsequently to secure a healthy condition of the pelvic organs.

2. The employment of constitutional measures to prevent the formation of gastrointestinal toxins and to obviate their baneful influence on the tissues of the body.

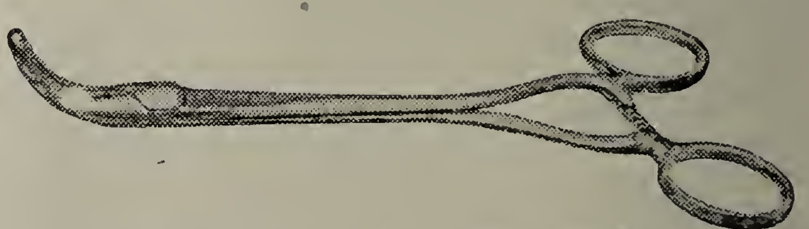
3. The careful study of pelvic symptoms in order to insure the early recognition of malignant disease.

4. The resort to early operation for the removal of the organ involved and all the circumjacent tissues that regard for the safety of important structures, such as the ureters, bladder and large pelvic vessels, will permit.

1703 Walnut Street.

DISCUSSION.

DR. THOMAS S. CULLEN, Baltimore, agreed with Dr. Bovée in that reliance must be placed on early diagnosis, and that in the late stages of carcinoma an operation is of no value. The instruction of the laity as to the early signs of carcinoma he considers a subject of the greatest importance. The committee of which Dr. John G. Clark is chairman, is carefully surveying the best means of instructing the public. The results of their labors will undoubtedly be of the greatest benefit. Dr. Cullen did not concur in the statement that the classification of cancer of the uterus is in a jumbled condition. It is true, he said, that no two cases of cancer of the uterus are exactly alike. There are three different varieties of epithelium of the uterus: (1). Squamous epithelium from the vaginal portion of the cervix, (2) the high cylindrical epithelium lining the cervical canal and the cervical glands, and (3) the low cylindrical epithelium lining the uterine cavity and the glands of the body. From each of these epithelia there springs a definite variety of carcinoma. Dr. Cullen has found it interesting to note the multiplicity of pathologic processes that may be present in the organs removed from one pelvis. In one instance he found (1) a subperitoneal adenomyoma; (2) multiple interstitial uterine myomata, (3) primary adenocarcinoma of the body of the uterus, (4) left pyosalpinx, and (5) a primary adenocarcinoma of the left ovary. The malignant growths in the uterus and ovary were entirely independent of one another, being of totally different types. Dr. Cullen emphasized that time is a very important factor in abdominal myomectomy for carcinoma. In doing the Wertheim operation the rapid removal of the parametrial fat is greatly facilitated by the employment of eight or ten Wertheim parametrial forceps. These are very long, exceedingly strong, and have a slightly curved beak, as shown in the illustration. By their use the operator is able to save at least half an hour. Dr. Cullen again emphasized that too much emphasis can not be placed on the necessity for using the utmost celerity, consistent with careful work, in abdominal hysterectomy for carcinoma. Dr. Cullen's experience coincides



Wertheim's parametrial forceps.—These forceps are ten inches long, are very stout and have a short curved crushing surface. They control the parametrial tissue and vaginal veins very thoroughly,and on acount of their shape the ligature, when drawn tight, tends to slip under a forceps much more readily than when the ordinary forceps are employed.

with Dr. Montgomery's in that cervical lesions are responsible for carcinoma of the cervix. In nearly every instance where a malignant cervical growth developed the patient had one or more children. In cancer of the body of the uterus, he stated that a different etiologic factor seems to be operative. Many of these patients have never been pregnant. Endometritis seems in some way to favor the development of carcinoma of the uterine body. In the examination of about 1,350 cases of myoma he found carcinoma of the body 27 times. This fact, he thought, suggests that there may be a definite relation between myoma and the carcinomatous development.

Dr. G. Betton Massey, Philadelphia, has had good success in two cases of very early carcinoma of the cervix from the use of a modification of the zinc-mercury cataphoretic method described by him at the New Orleans meeting of the Association. The method embraces the use of zinc points, amalgamated with mercury, long enough to reach the cervix, the points being dissolved by the electric current and the nascent chemicals driven into the diseased tissue. The modification of the method has been to repair from using ether, but to push the treatment up to the limit of endurance of the patient. The treatment is repeated daily. At the end of ten days the slough is allowed to come away. Dr. Massey finds that he can use as much as 200 mp. for half an hour without real discomfort to the patient. A calculation will show that 200 mp. for ten half-hours equals 1,000 mp. for one hour, which is capable of killing a mass nearly as big as the first, if it is done at once. By this gradual method all risk of penetrating the peritoneal cavity is avoided. This method has the added advantage of freedom from infection of the healthy tissues, which is probably at times caused in cutting operations for cancer of the cervix by the vaginal route.

Dr. Margaret Cleaves, New York City, has had a somewhat extended experience with trypsin in the treatment of malignant conditions during the past year, and in every case there was relief from pain, improved appetite, digestion and metabolism, modification to control of discharge and odor, with tumefaction, softening, even to breaking down and in some instances a degree of absorption of tumor masses. This experience has been without exception in postoperative and inoperable cases the following classification: (1) Intestinal surgical interference, (2) postoperative, (3) inoperable, (4) metastases, (5) non-malignant. Dr. Cleaves has found encouragement, aside from the clinical condition alluded to, in the physiologic action of the pancreatic enzymes, establishing as they do, when superposed on malignant tissue, tissues rich in glycogen—an eosinophilia. This is established in the second to the third week of treatment, steadily increasing to a maximum at which it is apparently held when the patient progresses favorably. In fatal cases it drops to a minimum before death. Trypsin seems to show a selective action for malignant tissue and in every case treated by Dr. Cleaves the trypto-glycogenic reaction was present in greater or less severity, varying with the degree of malignancy, characterized by chilly sensations, to severe chill, rise in temperature, nausea, malaise and headache, save in the single case of Class 5. This case followed an absolutely uneventful course. So different was this from all other cases, postoperative or not, that Dr. Cleaves requested the surgeon referring the case, who stated that the pathologist's examination showed carcinoma, to give her the pathologic findings and a slide. This was done and the latter was pronounced benign by her own pathologist, an opinion that was confirmed by eminent pathologists in New York City, by the State Cancer Laboratory at Buffalo and by Dr. John Beard of Edinburgh. There was no trypto-glycogenic reaction, but greatly improved metabolism and a gain of twenty pounds in two months. Dr. Cleaves was of the opinion that trypsin should, in the present state of our knowledge, be used universally in connection with surgery.

Dr. H. J. Boldt, New York City, stated that the employment of preventive measures in uterine cancer is one of the important factors and by many not sufficiently considered. Another feature is that of age. He believes that in the majority of instances when malignant disease occurs prior to the age of 30 years, the persons affected are doomed. He recalled only one such young person, who did not have an early recurrence following radical operation. In a person well advanced in age, beyond 50, where one can recognize the existence of malignant disease at an early date, and where it has not invaded the structures beyond the uterine tissues, the vaginal route, in some cases with the addition of the paravaginal incision, is, in Dr. Boldt's opinion, the preferable procedure. The operation can be done more quickly and with less shock than by the abdominal route. His personal experience is that with the performance of the abdominal operation, with the disease well advanced, the ultimate result is not good either. In regard to the point raised by Dr. Cleaves and Dr. Massey, he said that he has yet to see the first case of cure by any other than surgical means when cancer has been positively diagnosed.

Dr. S. Strauss, New York City, used trypsin in three cases, but with no permanent favorable results. He got the reaction mentioned by Dr. Cleaves in one case, but in the other two got no reaction at all. He thought that it would be unwise to accept the trypsin treatment as justifiable. He has experimented with the trypsin method and has one apparently cured case in which he gave injections of serum taken from a mare suffering from carcinoma. The case was one of cancer of the pylorus, operated on by Dr. R. Abbe. There was an extensive recurrence. The patient was emaciated, weighing only ninety pounds, and suffering intense pain, which necessitated the use of 10 grains of morphia daily. The serum was injected on alternate days, the patient improving constantly until no more morphin was necessary. After one and a half years he weighs 200 pounds and apparently is in the best of health. Dr. Strauss has other cases that are doing as well with the serum as with the trypsin treatment. The serum enables him to discontinue the use of morphin. The action of the serum is the same as that obtained in the opsonic treatment described for other diseases. It raises the toxin destroying powers of the leucocytes. As carcinoma is extremely rare in the lower animals, it has been impossible to obtain a sufficient amount of serum to enable him to use it in every case that has come under his observation. In regard to the treatment of cancer of the uterus, one ought to remember that carcinoma propagates itself through the lymphatics and that when operating we should handle the tissues gently. If one could seal up the lymph vessels with the actual cautery at the time of operation much would be done toward limiting the spread of the disease and preventing recurrences.

Dr. Daniel H. Craig, Boston, referred to a report he made four years ago in which he detailed the results of an investigation of the cases of carcinoma treated at the Free Hospital for Women in Boston. His paper dealt with the question of repairing cervical lacerations. Incident to that came up the question of the influence of this condition on the production of cancer. In tracing all the cases on record, which could be traced, no case was found in which the cervix having been properly repaired and not being subsequently reinjured had developed carcinoma. In many of the cases twenty years have elapsed since the operation. Dr. Craig thinks that practically all forms of uterine cancer are the result of some form of cellular irritation. Therefore, a great deal can be done in the avoidance of future carcinomatous conditions if the medical profession can be made to realize that any form of cellular irritation about the uterus should be removed.

Dr. J. H. Carstens, Detroit, said that as long as the cause of cancer is unknown, it is difficult to prevent and lessen the mortality of cancer. It is known that cases with irritation have a tendency to develop into cancer; but, if physicians will bear in mind that cancer always, at some time, is a local disease; that at some time in its course the tumor is as big as a pin head; that at some time it is as big as a pea, and that it will become as big as a walnut or an orange, and if on discovering this local disease, do the radical operation, much will be done to lessen the mortality. In curetting, or in operating for lacerated cervix, the tissues removed should be examined carefully and many times the cancer will be found to be in the very early stage.

Dr. E. E. Montgomery, Philadelphia, was in accord with the majority of the speakers. He said that it is possible that some of the methods of proceedure that are being advocated may afford the clue or open the avenue through which this disease may be combated; but, until that time comes, he urged that in every case in which the physical examination engenders the hope that the disease is still local, a radical operation should be done, and that the knife should be the means by which the disease should be combated. Other methods of procedure may be employed in those cases in which it is evident that the knife can not be used. They are in accord with a legitimate line of investigation, and may afford the means with which to combat the disease successfully, but until that is demonstrated the means shown to be most effective should be used.

PREVENTION OF PERITONEAL ADHESIONS BY ADRENAL SALT SOLUTION,

WITH ESPECIAL REFERENCE TO THE PELVIS.*

EMERY MARVEL, M.D.
ATLANTIC CITY, N. J.

Peritoneal adhesions result from a pathologic process active within or adjacent to the peritoneum. Their formation is Nature's effort to combat an injurious process, and is effectual in establishing a limiting wall and often in making inactive the irritating agent. In fulfilling these purposes, peritoneal adhesions are agents for good and a protection to the organism. If these adhesions encroach on, constrict or in various other ways impair the function of the adjacent organs, however, as most frequently they do, they then become a menace to the parts and jeopardize the comfort and vitality of the individual in whom they may occur. When such condition exists it commands the effort of the surgeon to give relief. The prophylactic remedy lies in preventing their formation, and this is perhaps best accomplished by removing the irritant before such mischief can be done. This may be illustrated by the removal of the appendix previous to extensive pus formation, or in gall-bladder drainage for cholecystitis before its rupture or extension of the septic material has taken place. The remedy, when adhesions are already formed, is to separate the adherent parts and prevent their subsequent reuniting.

The peritoneum is a serous membrane. Its surface is covered with a very thin layer of endothelial cells that are loosely approximated. Just beneath the surface of these delicate cells lie the blood and lymph channels. Osmosis of serum and lymph is active between these channels and the peritoneal cavity. This takes place through the interstices that interpose the endothelial cells. Exosmosis is increased by any condition which increases the blood supply to the parts, thereby distending the walls and increasing the caliber of the interstices.

By these structural provisions the peritoneum is highly exudative and absorptive.

When an irritant is active at the peritoneal surface there is an overfilling of the blood vessels, with subsequent exudation of serum and transmigration of leucocytes. This exudative product is cohesive and by its nature fastens together any and all adjacent surfaces. If the irritant becomes inactive, by limitation or otherwise, the exuded material organizes and forms fibrous tissue. This tissue has a tendency to further contract, thereby limiting motion and constricting the size of the attached organ. The evils therefrom are many and evident. In order to correct this condition it becomes necessary to get rid of the irritant, release the parts, remove the fresh exudate, prevent further exudation and to keep the approximal surfaces apart until at least partial repair has taken place.

REMOVE THE IRRITANT. RELEASE THE PARTS.

The conditions within the pelvis which command action for the relief and prevention of peritoneal adhesions are those resulting usually from inflammation of the tubes, ovaries and the appendix. Tubal and ovarian diseases usually have brought about extensive adhesions before their removal takes place. These adhesions are extended to the sigmoid, uterus, small intestines, omentum and parietal peritoneum. These inflammatory conditions are mostly pyogenic in origin, induced primarily by the invasion of one or more kinds of infective micro-organisms and the pus and the bacteria are usually pent up in a circumscribed mass. When the pus has been imprisoned for some time, the bacteria lose their virulence in the majority of cases, and often become inert. It is to collections of pus of this kind that the term "sterile pus" has been given. Whatever may be the condition, it is the duty of the surgeon to eliminate it, to get rid of the irritant. This is accomplished by enucleation and removal of the mass. There is another condition of local or general adhesions in which the irritant has been previously removed. When adhesions are the only evidence left of previous inflammation, these hold fast, incapacitating the adherent organs and causing distressing pain and other discomforts that invite correction. It becomes necessary to release the constricting adhesions: to separate the adherent surfaces. Too well does the surgeon know how strongly inclined these surfaces, oozing and bleeding after being torn apart, tend to immediately reunite when permitted to fall together. It is this class of adhesions which has exhausted the patience of the surgeon—and of some patients also—in repeated attempts to relieve by separation and replacing the viscera which reform, producing the same trouble again and again. Solution and removal of the exudate, prevention of further exudation, and keeping apart the surfaces should be the effort.

DISSOLVE THE EXUDATE.

The exudate consists of blood and lymph elements: blood serum leucocytes, and lymph when the exudate reaches the surface without a separation of the continuity of the structure; free blood with its coagulating ferments when there is a laceration of the parts and open vessels are leaking. When the exudate consists of serum, lymph and leucocytes alone, it is liquid of greater or less density. If it be free blood, coagulation takes place early and clotting is consequent. Fluids are absorbed with ease; solids of large masses with difficulty. Fluids of low density are taken up more readily than fluids of high density. The factors which prevent coagulation or destroy coagulating ferments prevent peritoneal adhesions. In order better to facilitate the resorption of the peritoneal exudate, it is desirable to dissolve the mass into a fluid of low density. Saline solution is a most excellent agent for this purpose. It aids in the dissolution of the coagulum and dilutes the serum as well as maintains the solution and dilution during the time of absorption. The efficiency of saline solution in performing the function of dissolving, diluting and maintaining the blood elements in solution is demonstrated constantly by the method in practice for the examination of blood where blood counts are made.

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

REMOVE THE EXUDATE.

Absorption of fluids from the peritoneal cavity is prompt, and, until the volume of the vascular system is taxed, is astonishingly rapid. Weger (1876) found that the peritoneum of a dog absorbed from 3 to 8 per cent. of the body weight of fluid in an hour. This rapid absorbing function of the peritoneum has been confirmed by subsequent investigations. While this is true of the first hour during which fluid is taken up, or until the vessels are surcharged, it is evident that the rate of absorption diminished progressively during the subsequent time in which continuous absorption takes place. The probable explanation of this is that the vessels and tissues have a reserve capacity for fluids, over and above their normal contents, and that until this extra capacity is filled, absorption takes place very rapidly, but thereafter takes up only so much fluid as the system is relieved of by excretion. It is known to be a fact that excretion is increased when fluid is taken into the circulation. This is well shown by the greater quantity of urine voided after injection of much fluid or after saline infusion. The amount of excretion for a given time is not equivalent to the bulk of fluid which is taken up during an equal period when absorption first begins, consequently the amount absorbed after the vessels are filled is less than it was before their capacity had been reached, much in the same manner as is the conduct of a sponge which fills very rapidly until saturated and thereafter absorbs only so much as is the amount lost from the suspended quantity.

PROHIBIT FURTHER EXUDATION.

So long as there is exudation on the surface, just so long there will be present the elements qualified to form adhesions. Not only is it necessary, then, to dissolve the exudate, but it is also essential to prohibit further leakage of these elements. As the leakage comes from relaxed and open vessels, that agent which constricts the lumen and closes the mouths of the vessels is most nearly certain in stopping it. The most potent vasomotor constrictor known is the active principle of the adrenal gland. Various names have been given to this substance by different chemists, but the action on the blood vessels is common to all.

Adrenalin chlorid has been the preparation of choice for our practice. When this agent comes in contact with a serous surface, though of very delicate dilution, it at once bleaches the part by constricting the blood vessels and squeezing the blood from the lumen. It acts most promptly and efficiently when in contact with the vascular walls. Though prompt in its action, its influence is of short duration. If, however, it be repeatedly applied it will maintain the contraction for a more prolonged period after each application until a persistent contraction is secured which yields very slowly. Again, if kept in constant contact, it does not yield its influence until removed and then sustains it for a prolonged period thereafter. In this action adrenalin is an efficient agent in prohibiting a further exudation after the salt solution has dissolved that which had found its way to the surface.

KEEPING APART THE ADJACENT SURFACES.

The fluid serves, too, to keep apart the separated surfaces. Its bulk and specific gravity are the contributing elements for this function. Its bulk displaces free viscera and its specific gravity aids the selection of the desired location for its action. The fluid finds its way to the most depending confines. When in the recumbent, erect, or a compromise of the two positions, Fowler's position, the site of the selection for the fluid is the pelvic cavity. The movable small intestines are displaced to the front and upward, depending in extent of their displacement on the amount of fluid used and the capacity of the pelvis. The fixed organs are but little moved. The uterus, as proved by experiments on the cadaver and observed in the living subject, is suspended in the fluid, providing there is sufficient bulk to cover its fundus. The time required for absorption depends on the bulk left within the abdomen and the posture. There is a normal force in the peritoneal cavity which carries fluids and particles toward the diaphragm. This current, however, can be favored or retarded by position. Since the ratio of absorption between the diaphragm and the pelvis is largely in favor of the diaphragm, it leads us to favor gravity to the pelvis when delayed absorption is desired. The keeping apart of the surfaces inclined to appose should be sufficiently long to permit the thorough cleansing of the surfaces of the exudate, the controlling of the leaking vessels and a probable partial repair of the endothelial covering. Just how much time is required for the repair of the endothelial covering is not definitely known. No doubt it depends much on the area of the surface denuded and the extent of the destruction. It is reasonable to assume that this repair is rapid when we realize that peritoneal approximation requires but a few hours. It is most likely that repair takes place without cohesion of apposed surfaces providing serum exudation is not present. It is likely that the amount of solution used is taken up in from twelve to eighteen hours. The observation on the absorption of the rabbit's peritoneum leads me to this opinion. Contrary to Klapp's conclusion that adrenalin delays the absorption of particles by the peritoneum, my observation on the rabbits proved that salt solution with adrenalin was more rapidly taken up than was the plain salt solution.

METHOD OF APPLICATION.

When adherent surfaces have been separated, as in the removal of pus tubes and the like, or when a plastic peritonitis has been active, the surfaces are cleansed and dried as much as can be consistently done in conserving time and the minimum traumatism. The adrenalin salt solution is placed in contact with the oozing surface.

A glass irrigating nozzle attached to a rubber tube leading from an elevated reservoir is placed at the bottom of the surface requiring attention. While the solution is slowly flowing, the peritoneal incision is closed, leaving open only the space occupied by the tube which is removed when the desired quantity of the solution has entered the abdomen and pelvis, then closure of the peritoneum is completed. The remainder of the toilet of the operation is as usual in abdominal section. The strength of the solution is: adrenalin chlorid solution one dram, normal salt solution one quart. This makes approximately adrenalin chlorid in salt solution 1 to 50,000. The temperature used ranges from 100 to 110 F. The quantity employed is dependent on the size of the cavity and extent of adhesions; from 500 c.c. to 1,500 c.c. is usual.

This technic is followed without perceptibly increasing the length of the operation. Barring those cases of hard arteries or cardiac diseases with loss of compensation, the fluid enters the circulation, a factor of great aid in supporting the heart, warding off shock, stimulating the kidneys and reducing thirst.

CONCLUSIONS.

To prevent peritoneal adhesions the exudate should be removed. The exudate necessarily left on the surface of the peritoneum is best cared for by absorption. Because of its active absorbing nature, the peritoneum can take care of it. It is more easily absorbed when in solution, and normal salt solution is most efficient for this purpose. Subsequent exudation should be prevented. By its action on the vasoconstrictors, adrenalin chlorid shuts off leakage. Surfaces deprived of the endothelial covering should be kept separate. By its bulk and gravity the solution is utilized for this result.

DISCUSSION.

Dr. F. F. Simpson, Pittsburg, Pa., thought that the most important factor in the prevention of adhesions, especially in inflammatory conditions, is to delay the operation until the pus within the abdominal cavity has become sterile. Primarily, a small number of bacteria caused considerable inflammatory reaction. They produce symptoms during the acute attack, which clearly indicate their virulency. Therefore, Dr. Simpson said, one can expect a very considerable peritonitis to follow operation. If operation is deferred until the pus is sterile, inflammatory reaction is not nearly so likely to occur. That, in his judgment, is the most important prophylactic measure in the treatment of adhesions. Next to a wise choice of time for operation, the complete covering of all raw surfaces by perfectly healthy peritoneum will prove of most value.

Dr. J. L. Rothrock, St. Paul, Minn., was much interested in the paper, because it deals with a condition which every operator has been endeavoring to avoid—the formation of adhesions. He said that many theories have been advanced in explanation of the cause of adhesions, and great stress laid on the presence of foreign bodies within the peritoneal cavity, such as sutures and raw surfaces, as factors in their production. There is no doubt, he continued, that as surgical technic has been perfected these adhesions occur less frequently than formerly. German observers have recently taken up this subject with renewed interest, and have endeavored to demonstrate by experimental pathology the real etiologic factors. There is no question of doubt that where raw surfaces are left behind, adhesions are more likely to occur. Panchow lays great stress on the presence of blood in the peritoneal cavity as a factor in the formation of adhesions. Recently Fromme, from a large series of experiments on lower animals, concludes that infection is the most important factor. First of all, he found that if he produced raw surfaces by denuding the viscera of their peritoneum, if done under strict aseptic precautions, no adhesions formed. Likewise, in the absence of infection, any blood contained in the peritoneal cavity was quickly absorbed, if not present in too large quantities. He found, further, that the introduction of pathogenic bacteria not sufficient to kill the animal, was in many instances attended by the formation of adhesions. If, on the other hand, he introduced pathogenic bacteria into a peritoneal cavity in which there were raw oozing surfaces, adhesions almost invariably resulted. Dr. Rothrock thought that while Dr. Marvel's theory was an ingenious and attractive one, it would be necessary to make a large number of practical experiments on lower animals to demonstrate that the presence of adrenal salt solution will prevent the formation of adhesions. In regard to the difference in results from the employment of moist or dry asepsis, he stated that the observations of Walthard and Uhlman show that neither method possess a marked influence in preventing the formation of adhesions.

Dr. F. F. Lawrence, Columbus, Ohio, was of the opinion that postoperative adhesions occur less often than one is led to think from the average discussion of the subject. Again, if the causes of postoperative adhesions are studied carefully, these adhesions will occur but rarely. Dr. Lawrence said that if it is thought necessary to make an incision as long as the moral law, insert metal retractors and pull and push, batter and bruise the tissues, turn the patient upside down, in the so-called Trendelenburg position, thus interfering with the action of the diaphragm, turn the patient so that every person present may see what is being done, and then pack into the abdomen four or five yards of gauze to traumatize the peritoneum, no surprise need to be expressed at the occurrence of adhesions. If, he continued, the surgeon will practice careful, clean surgery, avoiding traumatism, leaving no raw or denuded surfaces, avoiding washing out the abdominal cavity, when possible, and when he does wash out, not try to scrub with everything in the chemical catalogue, but use clean water, there will be fewer adhesions. To establish drainage, he advised the use of glass, rubber or aluminum tubes, and condemned packing in a lot of gauze and calling it drainage. When surgeons cease unnecessary flushing and mopping, when they stop the need of these by minimizing traumatism, when they make the smallest incision, one which will not permit the extrusion of the viscera around the field of operation, and when they cover raw surfaces, comparatively few postoperative adhesions will occur. Dr. Lawrence considered the author's theory an ingenious one, but thought that not enough is known about the action of such a drug as adrenalin to justify placing it within the abdominal cavity. He would prefer to take the chances of having postoperative adhesions occur rather than to have adrenalin placed in his abdomen. Finally, he does not believe that the organization of serum into adhesions is very apt to occur. On the contrary, he thinks that the serum has a prophylactic action, and that the normal salt solution is simply an artificial serum. The adrenalin added may, he thought, make some difference.

Dr. H. G. Wetherill, Denver, Colo., has long believed that in arguments such as these the profession has proceeded from a wrong premise. He maintains that within certain limitations adhesions are conservative, and that no abdominal operation which may be done, certainly none for pathologic conditions such as may arise from an infected appendix or infected tubes, can be done without a residium of infection. The result in that case depends on the relative amount of resistance of the patient, on the one hand, and on the degree of infection on the other. If that is true, he said, the success of the operation depends on the localization of the infection. If the infection is to be localized it must be localized by exudates or adhesions. Furthermore, he continued, no adhesions in the peritoneal cavity would be likely to be lasting or to produce obstruction, unless the endothelium were destroyed. If the endothelium is destroyed and any of the hollow viscera are injured, then there arises the danger of a perforation occurring, against which the adhesion is prophylactic and protective, and surgeons are proceeding in the wrong direction if they undertake to prevent that. Dr. Wetherill deemed it advisable to take every possible pains to prevent abrasions of the endothelium and to cover raw surfaces (particularly to cover the under side of the scar), leaving a smooth peritoneal surface without abrasions, and to do as little within the peritoneal cavity as is consistent with complete work. The patient's chances of recovery would be improved by such a method of procedure. That is the course he has followed for five years and he has been satisfied with it. Dr. Wetherill was convinced that the very free use of salt solution in the peritoneal cavity has its dangers. He was also in doubt whether he would want adrenalin extract used in his peritoneal cavity or that of any of his patients under these conditions, because we are not at all sure we are doing harm in this way. Dr. Crile, he said, has shown that a patient may be actually drowned by the too free use of salt solution, that pulmonary edema may be produced and very great harm done. Considering all things, Dr. Wetherill was convinced that Dr. Marvel in making the suggestions he did, proceeded from a wrong basis.

Dr. Daniel H. Craig, Boston, said that no one who has undertaken an operation for the relief of symptoms due to well-organized adhesions will doubt that it is, perhaps, as disagreeable and tedious an operation as the surgeon is called on to do. Therefore, the importance of preventing unnecessary adhesions is paramount. Regarding conservative adhesions, he stated that there is no question whatever that absolute asepsis in surgery is never obtained. It is also undoubted that surgeons are always to use the utmost precaution to keep that dose of septic material at the minimum. The only point is keep that dose so low that it will not seriously affect the patient. That this dose is kept so low that conservative adhesions to wall it off are not necessary, he thought is demonstrated in those cases in which, for one reason or another, the abdominal cavity has been opened subsequently and no such walling off by adhesions was found. Dr. Craig believes that in the great majority of cases of so-called clean surgery, where one feels that he has completely controlled the original focus of inflammation, we are better off without adhesions, and that we are not doing full justice unless we do all we can to prevent the occurrence of such adhesions. For a number of years he has been eliminating, absolutely, from the operating room all sorts of chemical disinfectants, with the exception of 60 per cent. alcohol, for the use of his hands. Unless there is a very good reason for doing so, he deems it a mistake to resort to the use of chemicals within the abdominal cavity. It is known, he said, that the use of adrenalin to control hemorrhage in various other parts of the body or to contract vessels is followed by a reaction. As the action of the adrenalin wears off, the blood vessels which have become constricted become dilated beyond their normal size, and a hemorrhage is likely to occur where it was suppressed by the use of adrenalin. Dr. Craig thought that in using a substance like adrenalin in the peritoneum, the occurrence of the exudate is postponed, and that, therefore, the adrenalin might achieve postponement rather than prevention.

Dr. C. C. Frederick, Buffalo, has used normal salt solution in hundreds of cases for flushing the abdominal cavity after abdominal section, but not for some years past. Prior to that time, for a number of years, he used it in every case of abdominal section with the idea of preventing adhesions, using plain normal salt solution. He now considers its use wrong in principle and wrong in practice. He does not believe that it prevents adhesions in any degree whatsoever. He has had occasion to reopen the abdomen of patients, and he does not believe that he has seen any fewer adhesions in those cases in which he used normal salt solution freely than in those in which he used the entirely dry method. He believes, further, that infection and trauma, and the leaving of blood in the peritoneal cavity, etc., are the predisposing causes. As to the use of adrenalin, some few years ago when adrenalin first came out, Dr. Frederick saw Dr. Roswell Parke of Buffalo using it on the stump of an amputated limb while there was free oozing from the capillaries. Sometimes deep down in the pelvis there are inflammatory adhesions, especially where there is a low grade of infection and much free, persistent capillary oozing after separating adhesions. It is most difficult to control this oozing. There are no perceptible vessels to tie or stitch, but a general capillary oozing. In that class of cases Dr. Frederick uses adrenalin and he has used it, probably, in 50, 75 or 100 instances. It controls the bleeding promptly. The adrenalin is used in the strength of 1-1,000. He has seen no untoward after effects and has no hesitancy in using it or recommending its use for such a purpose.

Dr. D. Tod Gilliam, Columbus, Ohio, considered Dr. Marvel's method a very ingenious one to prevent adhesions by keeping the parts separate from each other. Such an arrangement will absolutely prevent adhesions, he said, if one can keep the parts separated, but he feared that in practical use it will not be as satisfactory as hoped for. Quite recently he saw a patient who had been struck in the abdomen. There was rupture of the bowel and the abdominal cavity contained fluid. All through the abdomen and over the intestines there was a large quantity of lymph. Dr. Gilliam has a number of times had occasion to open the abdomen subsequent to operation, where we had left the normal salt solution, and found the peritoneal surfaces, here and there, covered with lymph, showing that it was ready for work wherever the parts were brought together. For that reason he is skeptical as to the value of the salt solution to prevent adhesions.

As to the prevention of the osmotic action of the intestines and peritoneum by the use of adrenalin, Dr. Gilliam recalled that only recently some very exhaustive observations and experiments were made on the absorptive power of the peritoneum that revealed the fact that there was very little absorption on the part of the peripheral or visceral peritoneum this side of the diaphragm. These experiments were made with bacteria and with other substances, and it seemed to be demonstrated beyond cavil that absorption of the peritoneum below the diaphragm was very small. Any trouble confined to the pelvis is not so dangerous because of the absence of this absorption. Dr. Gilliam is a believer in the idea that the important cause of adhesions is sepsis; that there is septic material there; that there are germs that produce this, and that the adhesions exert a conservative influence by walling off this septic matter and these germs from the general peritoneal cavity. He would fear to prevent these adhesions, even if it were possible to do so, by putting fluids into the abdominal cavity when he knew that sepsis was present. Of course, he said, in the case of pathologic conditions, which persist long after the operation has been done and which are producing mischief, that is a different thing. But to make a routine practice of putting fluids into the abdominal cavity for the purpose of preventing these adhesions, he thought would make the loss greater than the gain. Dr. Gilliam does not use adrenalin so much as he did, because it is almost useless in active hemorrhage, even of the smaller vessels. He has found it effective to check capillary oozing.

Dr. D. F. Monash, Chicago, stated that if the technic is simple, and if the surgeon gets in and out of the peritoneal cavity as quickly as possible, not using a drainage tube per abdominal wound, nor gauze, nor fluids to become absorbed, the minimum amount of trauma is produced. If pus is present, either drain per vaginam or wait until the peritoneum becomes more or less sterile, doing the operative work from above or delaying the operation until the pus is sterile. The surgeon's best friend, he said, is the sigmoid flexure. If the sigmoid flexure is brought over in contact with the cul-de-sac or the peritoneum of the pelvis, it will tend to a slow absorption. It will keep the intestines out of the pelvis and will obviate the necessity of using a solution to fill the peritoneal cavity. Dr. Monash thought the use of any fluid in the peritoneal cavity was a thing of the past. The adrenalin, said, counteracts shock by being an artificial contractor. The shock is overcome relatively, if not absolutely, in operative work by the use of normal salt solution in the bowel. The continuous use of normal salt solution per rectum, with moderate stimulation, is so useful to overcome shock, that now, in hospital work, comparatively few cases of severe shock occur. It is said that if the normal salt solution is used continuously, with the can a foot above the bed, and the solution running constantly toward the patient, day and night for twelve or twenty-four hours, shock is absolutely overcome. To the first few pints run toward the patient—one pint running every two hours—30 to 40 drops of adrenalin are added. By introducing adrenalin solution with normal salt solution, the zone of infection is spread, and if the pelvis is allowed to control the infective product, the absorption being slow, more is gained by keeping the zone contracted than to increase it.

Dr. S. Strauss, New York City, referred to a case of intestinal obstruction in which the gut was so matted together that each loop had to be cut away with scissors. The patient was operated on in a private house. Fearing that the intestines would become glued together again, he filled the abdominal cavity with salt solution, and, much to his surprise, the patient made a complete recovery without any adhesions forming. The case was especially interesting, as the etiologic factor was never discovered though thought to have been a typhoid perforation and ulceration of the intestines occurring some time previously. On account of the density of the adhesions, the condition was not accompanied by any tympanites. The abdomen was entirely flat, as everything was glued together tightly. In such a case Dr. Strauss considered the use of salt solution justifiable. In former years he tried sterile olive oil to prevent adhesions, but now that he covers in all raw surfaces he finds it unnecessary. In regard to leaving one dram of adrenalin solution in the abdominal cavity, he said that he has used as much as 30 minims intravenously in a case of shock.

Dr. Emory Marvel, Atlantic City, N. J., said that the covering of the normal peritoneum is most desirable, provided it is normal. In other organs, such as the sigmoid, he doubts its efficacy because it is disturbing an organ which is transplanted. The delayed operation spoken of by Drs. Wetherill and Simpson he thought is not so pertinent as in those cases in which peritonitis takes place; for instance, in a case of acute suppurating appendicitis, in which there exists an exudate and plastic condition around the appendix and adjacent viscera. It is in such cases that he would apply the term peritonitis. In cases in which there has been a local change and that change must be removed, as in pus tubes and the like, where one can not secure sufficient normal peritoneum to cover the surface, there is no alternative but to transplant some organ or curette the condition where the oozing surfaces exist. As to the use of adrenalin, he said, when one application of adrenalin is made, it is efficient and quick to yield, but if a second application is made, the action becomes more prolonged and the same is true after each successive application. With the continuous application of salt solution, plus adrenalin, there will be a tonic control of the vessels which will be very slow in yielding. One thing he thought is an error regarding the physiologic action of adrenalin which has been eliminated in recent investigations. Where there is this delayed action in the control of blood vessels, there is a more relaxed condition than existed before its application. The hemorrhage comes back, not because there is more relaxation, but because the action of the adrenalin has passed. Consequently, if the blood vessels are kept under its control for a sufficient length of time there will not be any return of hemorrhage. In one of his cases from which the appendix had been removed, and there were general adhesions, which made it seem almost certain that adhesions would recur, adrenalin was used. Subsequently there was ventral hernia, to correct which gave an opportunity to investigate the condition, and there were only two points at which adhesions had recurred.

PRACTICAL POINTS OF ECONOMY IN HOSPITAL CONSTRUCTION.*

A. J. OCHSNER, B.S., F.R.M.S., M.D.
Surgeon-in-chief of Augustana Hospital and St. Mary's Hospital; Professor of Clinical Surgery in the Medical Department of the University of Illinois.
CHICAGO.

The matter of economy in the construction of hospitals has come to be of the greatest importance in every part of this country, because these institutions are now an absolute necessity, not only in the great cities, but in every community.

No town of more than one thousand inhabitants should be without its hospital, because these smaller towns contain all other necessities desired by intelligent, educated people. They usually have excellent schools and churches. The water supply is good and there is ample fire protection. The inhabitants of these towns are people of refinement and education, who, together with the population of the surrounding farming communities, make up the most valuable portion of the population of this country. These people must, for many generations to come, supply the physical, mental and moral stamina of this nation and are entitled to all the modern facilities.

It seems that in civilized communities, approximately one hospital bed is required for every one hundred inhabitants, which would result in nearly one million of hospital beds in this country.

In order to justify further the choice of my subject it may be well to refer to two hospitals that were built during the past year, each one being fireproof in construction and admirably arranged for the care of sixty patients, the one costing $1,000,000 and the other only $60,000.

The chief difference in the working capacity of the two institutions consists in the fact that, as a result of the complicated arrangement of the former and the correspondingly simple arrangement of the latter, it will cost approximately twice as much to give equally efficient care to an equal number of patients in the former institution.

It is to be borne in mind that this does not in any way result in greater benefit to the patient cared for in the former institution. In fact, there are several points in which the patients of the latter institution have a distinct advantage. In the matter of being served with food that is hot and palatable, for instance, the patients in the second institution are better provided.

It will be seen at once that many communities must go without hospital facilities altogether unless these can be secured at a reasonable cost. This applies as well to the cost of maintenance as to the cost of construction. Indeed, it has occurred only too often that all the available money has been expended in the construction of an unnecessarily expensive building, leaving nothing for the maintenance of the institution when completed.

In the instance just mentioned, had a building been erected at the cost of $100,000 instead of $1,000,000, there would have been left $900,000 for a maintenance fund, the interest of which would amount to about $100 per day, an amount quite sufficient to defray all necessary running expenses.

With an expenditure of $100,000 according to the general plans employed in the construction of the $60,000 hospital, it would have been possible to supply an abundance of ornamentation and mural decorations as well as tile and marble work wherever indicated to supply all esthetic demands which might be considered reasonable. I wish to state at this point that the $60,000 hospital is really very beautiful.

It is plain, from a glance at these facts, that it is well worth while for the physician and surgeon to give this portion of the subject his careful attention. This applies more especially to the smaller communities, because these will be unable to secure the large sums required for the more expensive plans which are usually provided for the large cities by some very wealthy philanthropic individuals. These philanthropists can but rarely be found in the smaller communities.

In order to illustrate these points of economy in hospital construction, Mr. M. J. Sturm, of Chicago, hospital architect, has prepared the drawings of hospital plans for me which are here illustrated.

The first element in economy can be obtained by the construction of a compact building, as shown in Figures 1, 2 and 3. The second element lies in the central location of utilities, because of the reduction in labor required in conducting the institution. The third element of economy can be secured by building many-storied hospitals.

This feature should be discussed, first because it provides excellent facilities for developing the other two elements. In constructing any building one must look on the following parts as units of cost of construction:

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

The foundation and the basement represent one unit of cost; each story represents an additional unit, and the roof and garden represent one unit. This can readily be illustrated in the following manner: In constructing a six-story hospital the cost of construction represents one unit for the foundation, one for the roof and garret, and one unit for each story, making eight units in all.

In constructing six one-storied pavilions, on the other hand, each pavilion would represent one unit of cost for the basement, one unit for the first story and one for the roof and garret, making eighteen units of cost in all. In other words, the same facilities could be secured in the six-storied building at eight units of cost that would require eighteen units of cost were six one-storied pavilions constructed. This, however, is true only of hospitals in which each pavilion contains at least twenty beds.

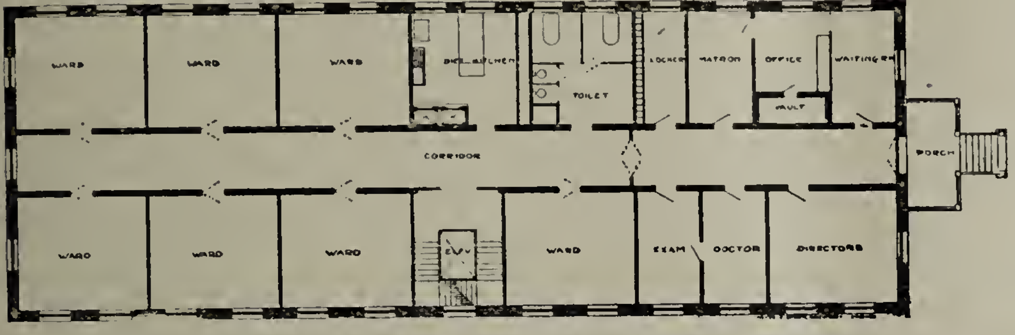

Fig 1.—Ground floor plan of a compact hospital building.

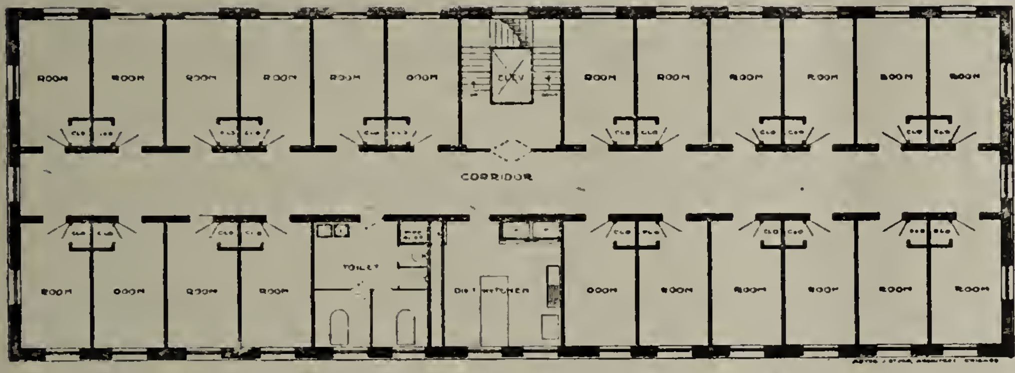

Fig. 2.—Second floor plan of building shown in Figure 1.

Figures 1, 2 and 3 represent plans of the various floors of a hospital suitable for smaller cities of this country or for comparatively small church or society hospitals in large cities. Each floor will house twenty-two patients in private rooms (Fig. 1) or forty patients in wards (Fig. 2). By lengthening the building at either end its capacity can, of course, be increased to suit requirements. The same increase in capacity can be obtained by increasing the number of stories.

The principal features which tend toward economy in this instance are the concentration of the conveniences in the middle portion of the building. The elevator, the nurses' service room and diet kitchen, the bath and toilet rooms are all located in the center of the building where they are convenient so that the distance the nurse must travel in going to and from each patient is reduced to a minimum, and, although these conveniences provide every facility, they occupy only a comparatively small portion of the building, leaving a very large percentage of space for the housing of patients, which, of course, serves as a great economy.

By superimposing these bath and service rooms the expense of installing the plumbing will be reduced to a minimum. It will be seen that the diet kitchen on each floor is directly underneath the general kitchen and special diet kitchen for the entire hospital. This makes it possible to serve all food, hot and palatable, at a very small expense of labor. The distance which the food must be carried from the general kitchen to the most distant floor does not exceed sixty feet.

By placing the elevator as indicated in these drawings all the noise from this source will be eliminated and each floor will be an absolutely independent unit in no way disturbed by the patients on the other floors. The hall in this building must, of course, extend from north to south in order to be exposed to the noonday sun, while every room and ward is exposed to the sun during one-half of the day. A slight deviation to the northeast or northwest is perfectly satisfactory with this form of construction.

For a moment it may be well to compare these plans with another plan (Fig. 4) in which the hall extends from east to west and is placed along the north wall. This form of a pavilion has been frequently chosen because it gives every room a south exposure for sunlight. When one bears in mind the elevation of the sun during the forenoon and afternoon hours as compared to the noon hours it becomes plain at once that the total amount of sunning is far greater for all parts of a room facing either east or west than in a room in which the windows face south. I would refer those interested in this part of the subject to the exhaustive studies of Mr. William Atkinson.[1]

A comparison of these two types will show that in Figures 1, 2 and 3 the amount of utility is nearly double that shown in Figure 4 when measured by the cost of construction. Moreover, the distance it is necessary for the nurses to travel, the amount of hall space to be kept clean, the number of windows to wash, the amount of outer wall area and roof to be kept in repair are all increased greatly in a building constructed on the gen-

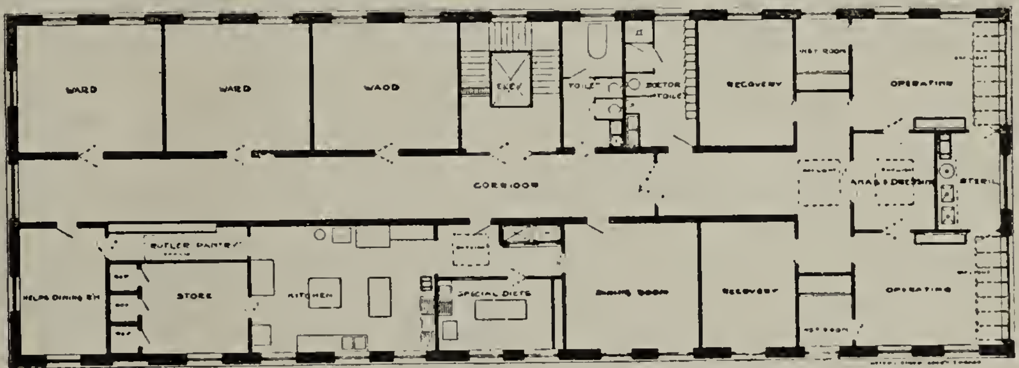

Fig. 3.—Top floor plan of building shown in Figures 1 and 3.

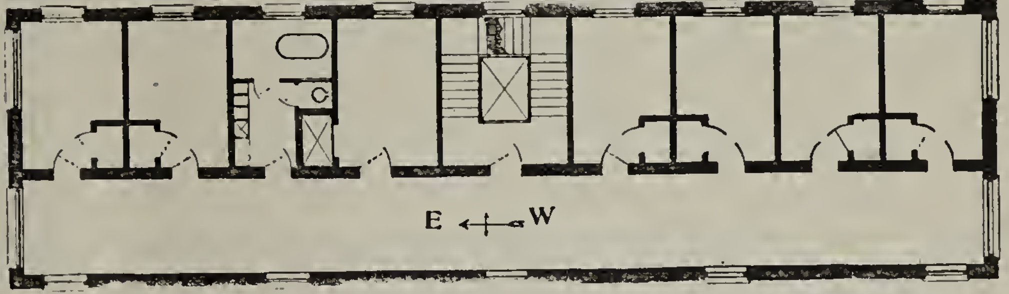

Fig. 4.—Plan of a hospital pavilion so arranged as to give every room a south exposure.

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[1] Organization, Construction and Management of Hospitals, The Cleveland Press, Chicago, 1907.

eral plan shown in Figure 4 when measured by the amount of utility obtained.

The type of building exhibited in Figure 5 contains a great amount of utility for the cost of construction and its concentrated form insures great convenience and at the same time conditions which will make its conduct most economical. Here, again, food can easily be delivered to the patients in all the wards and rooms of the building, hot, palatable and wholesome, because the distance from the kitchen in the top story to the portion of the building farthest removed is relatively very slight.

All provisions for carrying food a great distance after it leaves the kitchen are bad, whether this be done in heated carts or in any other way. The result is similar to a dinner which has been kept hot in the kitchen for some time after it is ready to serve.

It is best to place this building so that the parallel wings extend from northwest to southeast because this insures sunlight for every window in the building during the entire year at the same time each day. It is proper, however, in case the location demands this, to have these wings extend from north to south because the end rooms along the north wall will receive sunlight from the east or west and the remaining portion of the space along the north wall may be used largely for utility rooms, such as kitchens, nurses' service rooms, dressing rooms, operating rooms, supply rooms and rooms with dark curtains for eye patients, and the elevators must be placed on this side. Moreover, from March 21 to September 21 even this wall is exposed to sunlight early in the morning and late in the afternoon.

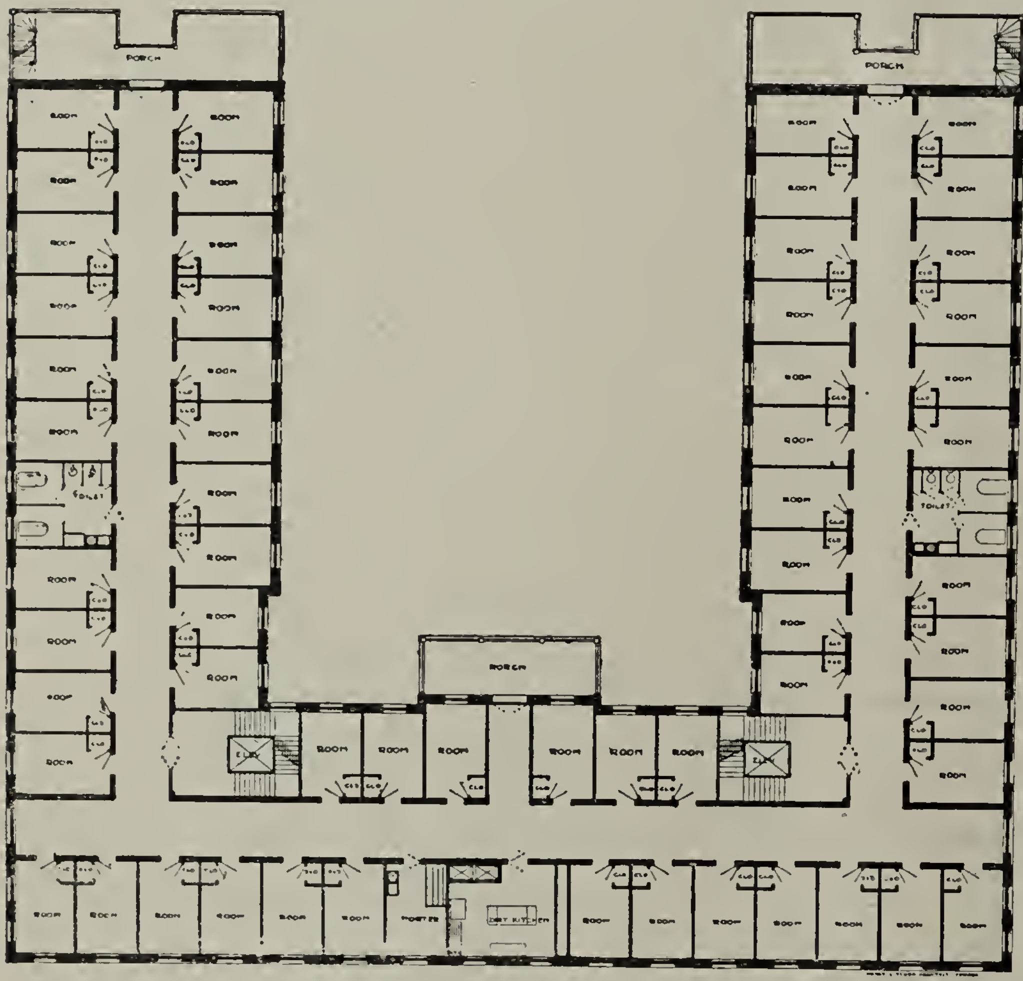

Fig. 5.—Plan of hospital of the U-shaped type, showing arrangement of rooms. On other floors wards are arranged in a similar manner except that a ward occupies just twice the space allotted to each room, thus giving each ward two windows.

In order to make this illustration more clear I will compare it with the best known hospital of the one- and two-story pavilion plan in this country, the Johns Hopkins Hospital. A comparison of the amount of wall, roof and hall space in these two institutions is most interesting because it will give a fair idea of the relative expense of keeping these various parts in order. This is especially true of hospitals built in the northern portion of this country where the heating of long corridors and other unused portions of the buildings amounts to a great sum during the year.

These measurements were taken from the published plans of the Johns Hopkins Hospital, the administration building, the pavilions containing patients, and the operating pavilions being included in these measurements because these are the departments contained in the U-shaped hospitals shown in Figure 5. The height of the ceiling was placed at twelve feet in both instances because this will insure approximately the same air space for each patient. Johns Hopkins Hospital was chosen because it is the first and best known of all the typical low pavilion plan hospitals in this country, and all other hospitals constructed on this plan are modeled to a greater or less extent after this one.

In both instances the roof area was calculated for flat roofs, because these are applicable to both forms of construction and they are the most economical form available. The area of the outer wall in the Johns Hopkins Hospital is approximately 312,569 square feet. That of the U-shaped hospital shown in Figure 5 is 69,680 square feet. The capacity of these two institutions is almost identical, the former having 378, the latter 384 beds. The amount of wall space is more than four times greater in the former than in the latter.

A similar comparison applied to the corridors in the two institutions brings a similar result. The former institution having approximately 105,000 square feet of corridor, the latter having in six stories a total of 22,600 square feet.

In comparing the roof area the proportions are still less favorable to the former as regards economy of construction, the former institution having a roof area of 148,000 square feet, while the latter has only 17,250 square feet of roof area or less than one-eighth of the area of the former.

If one considers only the three items of increase in expense of heating, cleaning and repairing, one must conclude that from the standpoint of economy in running expenses the second system is greatly to be preferred. This would, of course, not apply to hospitals in the tropics, but it would apply to those constructed in almost all parts of the United States and Canada.

Economy of construction would, of course, not be permissible were the resulting structure inferior in its quality of care to the patients. As a matter of fact quite the opposite is the case. The patients can be perfectly free from danger from fire. They can be readily isolated from noises. They are near the head nurse and the floor nurses. They are near the service and bath rooms. They are near the kitchen and still entirely away from the odors of cooking. Heating, lighting and ventilation can be arranged in an ideal manner.

It is possible to place such a building at a considerable distance back from the street and to screen it from the latter by planting shrubbery along the edges of the grounds.

It has been repeatedly demonstrated that the higher floors of any building contain less street dust and consequently a relatively smaller number of micro-organisms in the air than the lower floors. The same is true of flies; only rarely are these found in the higher stories of a building.

If forced ventilation is employed it is possible to extend the air shaft intake above the roof of a many-storied building at a slight expense; hence all of the air supply from this source can be obtained from an elevation which will insure relatively pure air.

Moreover, natural ventilation which must be generally employed in the summer months in every part of the United States is always better higher up, because there is less obstruction from the surrounding buildings. Another element of economy depends on the possibility to deliver heat in all parts of the building with very little loss on the way.

No doubt these principles of economy will all be developed with the advent of more strenuous competition in hospital management, but it is well for those who build now to incorporate these features in their plans in order to be prepared for the competition which is as certain to come in this field as in every other field of human activity.

710 Sedgwick Street.

MODERN HOSPITAL CONSTRUCTION.*

W. GILMAN THOMPSON, M.D.
Professor of Medicine in Cornell University Medical College.
NEW YORK CITY.

The modern idea of the construction of the general hospital building is that the building itself should bear a definite relationship to treatment, that it is more than a mere convenient form of lodging house for the sick, and that environment is a potent factor in the control of disease, often more powerful than the giving of pills and potions. One reason among many for this position is the lesson taught by tuberculosis, namely, that fresh air is not a specific for that disease alone, but acts through increasing the resisting power of the organism. If this be true of tuberculosis, why is it not also true of many other diseases? Hence hospitals are built with almost as much ward space outside as inside the retaining walls, with wide verandas opening off every ward, and broad flat roofs for exercise, fresh air and sunlight.

Another reason is a demand for the intelligent classification of cases according to their special hygienic instead of mere medicinal requirements. Yet another reason is the widespread tendency to give fewer drugs and to employ more extensively the general non-medicinal aids to treatment, such as hydrotherapy, thermotherapy, etc.

The earlier view of hospital construction, which dominates most of the existing hospitals of this country, was that the hospital building is little more than a dormitory where a number of sick persons, having every conceivable malady, are placed in a series of long large wards, like a lot of sheep corrals, all of similar size and shape, and where they are gathered without the slightest regard to their individual peculiarities or different requirements of treatment, varied needs as to air, temperature, sunlight, quiet, etc. Could any arrangement be more irrational or, in fact, more uncomfortable than this?

Let me picture briefly from experience the inmates of such a ward: The pneumonia patient, with a temperature of 105 F., sorely in need of fresh, cool air, lies in the next bed to the uremic patient with a subnormal temperature and high tension pulse, who needs warm air and a hot pack! The typhoid fever patient, with a racking headache and photophobia, lies facing a glare of sunlight, which is doubtless beneficial to the man with pernicious anemia in the next bed, because the trained nurses think the ward looks better with the shades all at the same height. The neurasthenic with insomnia lies next to the patient with alcoholic cirrhosis and delirium tremens, who keeps the entire ward awake most of the night. The convalescent patient has nowhere to go during the day for a change of air and scene, and the poor old woman with a little chronic cough, who needs to rest in an easy chair toasting her feet at a heater, sits gazing wistfully and pathetically at a hole in the wall near the ceiling, where some architect (who never built a hospital before) has seen fit to place a hot-air register. The patient with fetid diarrhea and sixteen stools a day destroys the appetite of the patient with chlorosis in the next bed, and the patient with a neurotic tachycardia is cheered by the stertorous groaning of the moribund hemiplegic.

This sort of thing may be housing the sick, or boarding them, but it certainly is not treating them. I am not even certain that in the long run it is economical. It may appear so, to place as many patients as possible in a long large ward, because fewer nurses are required to watch them, and certain routine things like handing out wash-hand basins in the morning can be done more quickly than in smaller classified wards, but suppose it to be proved, as it often has been proved, that patients do not recover so promptly under such conditions as they do where they can have change of air and scene on roof-gardens, balconies, or in day rooms, sun-parlors, etc., or where they can sleep better and eat better if segregated from the depressing influences of the ward? Protracted convalescence of any patient is a serious economic disadvantage. Convalescents have no business in a mixed general hospital ward at any time, but when they are kept there, as they are in most of our hospitals, it costs as much per capita per diem to maintain them as when they are seriously ill, for the fact that they require less service is offset by the fact that their board is more expensive.

That these suggestions are not visionary but eminently practical is proved by what has been already accomplished in this country, and much may be done by the readjustment of old buildings. At the Presbyterian Hospital in New York City, for example, a model open-roof ward has been constructed on the flat roof by Dr. W. P. Northrup. It is capable of accommodating at least fifty patients, many of whom are kept there in the open air all night. A kitchen and lavatories on the roof make this practicable. A similar alteration is planned for St. Luke's Hospital in New York City, although the building was only completed a few years ago. In an admirable article on "Environment in Therapeutics" by Walter James,[1] which everyone interested in this topic should read, he explains what he has accomplished in two hospitals, the Roosevelt and Presbyterian, in New York City (both built many years ago) by such means as a liberal use of ward screens, tinting the walls and adapting shutters to make certain wards more reposeful for the very ill, securing different temperatures at opposite ends of a ward, etc. He says: "Thus, without the expenditure of any money and with no structural changes whatever, I was able to secure in one ward three different kinds of environment and kept the patients distributed in accordance with the nature and progress of their complaints."

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Amer. Jour. Med. Sci., November, 1906.

The new Bellevue Hospital is being constructed with large verandas opening off of each ward, designed for the continuous treatment of certain classes of patients in their beds in the open air.

I spent last summer in Continental Europe studying hospital construction and found that a veritable hospital renaissance is everywhere in progress, especially in Germany, but also in Italy and France, where it has developed during the past decade. It is no exaggeration to state that many of these modern hospitals are structurally a generation ahead of any at present existing in this country.

THE POLICLINICO OF ROME.

For example, the Policlinico Umberto Primo in Rome (Figs. 1 and 2), which is one of the finest hospitals in the world, possesses forty-four separate pavilions, covering forty-five acres of ground within a short drive of the Colosseum (Fig. 1). The capacity is 1,000 beds and the buildings, which are of a light stucco, and are connected by open corridors, are most attractive in design (Fig. 2). The two-story ward pavilions open on to the extensive grounds, which are planted with pines, oleanders and palms. There is a large separate building for hydrotherapy, and another for the pathologic department, fitted up with laboratories, animal rooms, etc. There is a separate building for each of the important special services, such as gynecology, diseases of the eye, etc. A well-lighted subway conveys the water and heating pipes and a track on which delivery cars carry the food from the central kitchen to the wards.

VIRCHOW HOSPITAL.

In Berlin three of the finest hospitals, all within the city limits, cover collectively 124 acres of ground. The largest of these, the Virchow Hospital (Figs. 3, 4 and 5), which was opened last year, was ten years in building, and so much forethought was exercised that rows of trees were first planted to form avenues between the ward pavilions (Fig. 4), which now, by the time the buildings are opened, afford massive shade. The hospital comprises fifty-three separate buildings, laid out on broad avenues which are further adorned with shrubbery, flowers and fountains, and supplied with benches, arbors and shelters for the patients. The total capacity of the hospital is 1,650 beds for patients and 550 more for the staff, nurses and attendants, 2,200 beds in all.

In addition to the one and two-story pavilions for the sick there is a separate building for each of the following purposes: A lay-director's house, two medical directors' houses, administration building, nurses' home, kitchen, laundry, workshop, pathologic department, animal experiment house, wagon house, disinfection building, gymnasium, chapel, icehouse, water tower, filtration plant, crematory, bathhouse and power-house. All these buildings constitute practically a small village, and the instructions given regarding them to the architect by the trustees state that "The buildings should be of simple rather than ornate construction, but should be designed to make a pleasing impression in form and color on the inmates for whom a cheerful environment is an important consideration." The motto suggested for the entrance archway might well be placed over many another hospital: "While treating the disease do not omit to treat the man."

The cost of this most complete institution was only $2,250 per bed, which, with due allowance for cheaper building in Germany, compares favorably with the $2,500 or $3,000 rate which is common in this country. The wards have arched ceilings, a favorite modern type for the one-story pavilion, which is not only attractive, but favors ventilation by giving varied direction to air currents. The windows are of casement type, with transoms at the top, an arrangement which admits of directing the air currents at will, and has other advantages over the cumbersome heavy sash type of window which prevails in this country, and which latter is often too heavy for the nurses to lift unaided. The ward floors are of terrazo. The heating pipes are placed in front of certain of the windows, and each ward has its independent steam disinfection apparatus for clothing and excreta. There are many small rooms for delirious or other patients who need isolation, either for their own good or that of the other patients. Attractive day rooms are used during inclement weather by such patients as are able to be out of bed, while in fair weather they have easy access at all times to the pleasant grounds.

The wards are built on the desirable "unit" plan which permits indefinite extension (Fig. 5), i. e., each pavilion consists of two one-story wards, joined by a two-story service group of rooms, containing the ward lavatories, diet kitchen, linen closets, disinfection apparatus, bathrooms, and rooms for a member of the house staff, and also for several nurses. In the four largest pavilions are separate clinical laboratories. Each ward unit, moreover, has a room for storage of such appliances as water beds, portable bathtubs, splints, etc., as well as ward-cleaning utensils (which in this country is apt to be remembered after the hospital is built).

The bathhouse in this, as in other foreign hospitals, is a model of completeness, and forms a striking contrast to the arrangement in our own hospitals, which is likely to consist of a single tub for a ward, usually placed in a water-closet (!) and constituting a feature as unhygienic as it is unesthetic. The Virchow Hospital bathhouse is completely fitted not only for purposes of cleanliness but for scientific treatment. It contains Roman, Turkish, hot-air and electric light baths, sand baths, baking appliances, carbonic acid baths, showers and douches of all kinds, with proper adjustments for regulating water pressure and temperature, besides a large plunge bath and massage rooms. There are also inhalation rooms for treatment of respiratory diseases, and an extensive electric department for the Roentgen-ray, Finsen light, etc. In many American hospitals the patient with chronic rheumatism, who is so unfortunate as to be in a hospital, is put to bed and given potassium iodid, perhaps, whereas what he really needs is a proper system of douches, sweatings or "baking," combined with skilful massage, and regulated exercises.

This applies to a very large number of ordinary ward cases of varied type, such as chronic rheumatism and gout, arthritis deformans, neurasthenia, anemias, chlorosis, tuberculous joint cases, gonorrheal and other forms of chronic sepsis, many forms of digestive disorders, many diseases of the nerves and muscles, such as ataxia, myasthenia, etc., and many varieties of chronic surgical conditions. To keep such patients in bed or confined to the depressing influences of a large general ward, without change of air temperature day and night, without change of scene, without access to a heater if they need it, or to an open window if they need that, without any opportunity for exercise, either active or passive, in fact without any treatment other than the necessary food and lodging and medicine (which latter they often do not need), to keep them thus is the common practice in many of our hospitals, but it is a long way removed from accomplishing scientific treatment through a maximum use of intelligently adapted hygiene and environment.

THE MOABIT HOSPITAL.

In the Moabit Hospital in Berlin are many illustrations of the extreme thoroughness with which structural details are carried out in Germany. Perhaps, it may be said, such details are unnecessary, and in some instances they seem to us almost absurd, but they do no harm and are at least preferable to the careless and even ignorant way in which hospitals are still sometimes being built in this country, with impossible Mansard roofs, entire lack of balconies or any place where patients can obtain fresh air or exercise, and with that most pernicious of so-called "closed ventilation" systems, whereby air, cooked or roasted to 400 degrees Fahrenheit over superheated steam coils in the basement is supplied day and night at the uniform temperature of 70 degrees to the languishing patients in the wards above, where the windows are kept tightly closed from October to May, while the trained nurses are given theoretical lectures on "how to ventilate the sickroom!"

Fig. 1.—General view of the Policlinico, Rome; contains 1,000 beds, consists of 44 separate buildings and covers 45 acres.

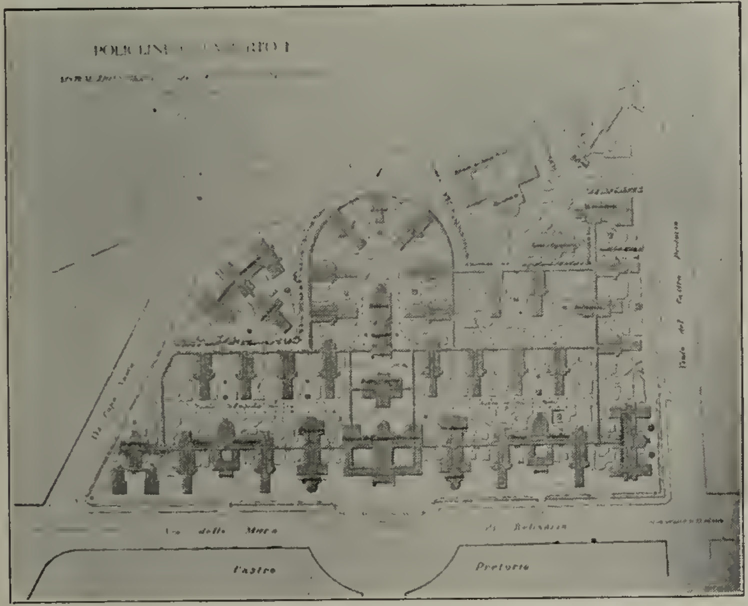

Fig. 2.—Ground plan of the Policlinico, Rome, showing pavilions, subways and connecting corridors, Front, center, administration. Front, right and left; medical, surgical and specialist services. Rear, left; gynecology and obstetrics. Rear, extreme right; isolation wards and, left of them, pathology. Center; power house, kitchen and bath house.

I have instanced the Moabit Hospital as illustrating amusing details. I saw there, for example, a large tank in the kitchen, where fish were kept alive to have them fresh for the patients; in the laundry was a separate rotary washing drum for almost every kind of article, the towels being washed together in one, the nightgowns in another, etc., and to each was attached a clock and automatic bell which rang to call attention when the clothing had been washed long enough. Adjoining the kitchen-maids' dormitory was a peculiar arrangement of plumbing in their lavatory, consisting of special traps to catch the loose hair when they washed their heads and prevent it from clogging the pipes, which was surely better than having it fall into the soup! There were also electric heaters for their curling irons. This hospital cures its own hams, and there were more than a ton on hand in cold storage. The hospital has a large therapeutic gymnasium, and in a schoolroom off the childrens' wards classes are held three times a week. The Moabit, which comprises forty-five separate buildings for all purposes, covers twenty-three acres, and was built for about $2,500 per bed. The maintenance cost is only 80 cents per capita per diem.

PARIS HOSPITALS.

In Paris similar progress is being made in hospital construction, and hospital buildings are being erected from the standpoint of treatment. It is true that many of the older hospitals in Paris are both shabby and dirty, but the Assistance Publique has voted, within the past two years, $9,000,000 for reconstruction, and many new pavilions of admirable design are in process of erection. The Boucicaut (Figs. 6 and 7), a modern hospital of 250 beds, is built with one-story pavilions with arched ceilings and a solarium at the end of each ward. An underground passage is used for the service of all food and ward supplies from the central kitchen and storerooms. The grounds are attractively laid out with inner courts adorned with trees and shrubs, and arbors with lounges and easy chairs accommodate many patients. This is one of the best types of modern hospital structure on the continent, and the administration cost is $1.00 per capita per diem. Another example of advanced hospital construction in Paris is the Hôpital d'Enfants Trousseau with a bed capacity of 234 and covering nearly five acres.

Fig. 3.—General view of the Virchow Hospital, Berlin, which was opened in 1906. Consists of 53 separate buildings, contains 1,650 beds and covers 68 acres. Showing the one-story pavilion connected by two-story service buildings. Large building in background with cupola, administration building.

Throughout this country there is at the present time extraordinary activity in hospital construction. A glance at the *National Hospital Record* for two consecutive months of the present year showed references to the projected erection of fifty-five hospitals, or large additions to existing hospitals, in all parts of the country. How important it is that these buildings should conform to the advanced practice of therapeutics and applied hygiene, which is the dominating idea in modern medicine, and yet how few of them do. There are notable exceptions, instance the new municipal hospital in Cincinnati, but in New York a large hospital was opened within a year which, from the point of view under discussion, was fully thirty years old the day it was born.

I can not here enter into a full discussion of the relative merits of the many-storied single building, versus the low pavilion multiple unit type, which was the type of our cheap barrack hospitals in the war of the Secession and in the Cuban war, and which, curiously enough, gives rise to-day in Europe to the description of the prevailing type of pavilion structure as "the American type." The only valid arguments for the many-storied building or "sky-scraper" hospital are in the cheapness of ground cost and alleged facility of administration. A few such hospitals of moderate size, say 200 beds, may be required in the heart of a densely populated city for the reception of emergency accident cases and such very acute diseases as pneumonia or cases of medical hemorrhage which do not bear transportation well. It is no doubt easier for the superintendent to step on an elevator and inspect a ward on the seventh floor than to walk to a distant pavilion and it will take him less time, but with a properly arranged unit system each one- or two-story pavilion is made so far independent that only a few of the higher hospital officials who are not duplicated in a hospital are inconvenienced.

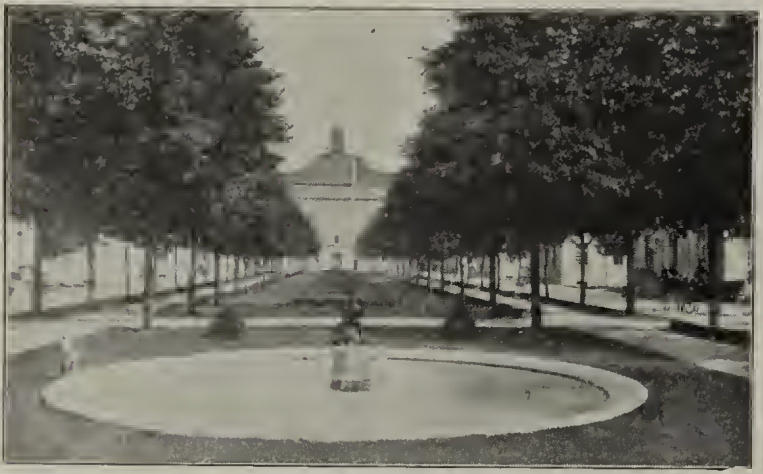

Fig. 4.—Central avenue of the Virchow Hospital, Berlin, showing trees planted before buildings were begun. Administration building in center.

The cheaper ground cost of the "sky-scraper" is offset by the much cheaper construction of the low pavilion, which needs no heavy foundations, fewer iron girders and elevators, and much less complicated machinery to run it. The superiority of the multiple pavilion plan is the very great advantage that the units need not be all constructed at once, and that they can be changed in form to meet advances in medical treatment. New units may be added whenever the population increase demands them: they have only to be connected to the central power house by a subway and with the administration building by a corridor. Pavilions temporarily not needed may be closed or placed out of circuit. Hence the initial cheaper building cost of the pavilion may be made to offset their greater ground cost, and if the pavilions be placed where they should be—near the outskirts of a city, where good air and light and quiet are obtainable—the land need not be too costly.

It is most unscientific to plan the location of modern hospitals in large cities on the basis of population density solely, i. e., to place large hospitals where the crowding is greatest. A few ambulance emergency stations of a half dozen beds, a few moderate sized hospitals (not above 200 beds) to receive emergency cases in the center of the city, and then a large pavilion hospital for treatment in the suburbs, with perhaps a convalescent home hard by—this should be the broad scheme for hospital development in large cities. The unique advantages which the pavilion unit type of buildings offers are difficult if not impossible to secure in the multistory type, where ground area must be greatly restricted. Such are: The numerous small wards, day rooms, ease of access to the hospital grounds, and unrestricted space for the various hygienic accessories described above.

Following are the conclusions formulated to emphasize the dictum that the modern hospital should be adapted in structure throughout as an all-important factor in the *treatment* of the patients.

1. *Small Wards.*—In addition to the ordinary wards of medium size there should be numerous rooms to hold from one to four patients, to admit classification, according to their special needs as to air, light, temperature, quiet, etc.

2. *Day Rooms.*—These should be furnished for all such patients as are able to be out of bed, where they may obtain change, diversion, receive their visitors, and while themselves removed from the depressing influences of constant association with the very ill or dying, leave the latter in greater quiet and with better air to breathe. The three important therapeutic influences of repose or quiet, regulated exercise, and change of scene and air, are usually ignored in our general hospitals and regarded as luxuries of the rich to whom they are constantly recommended. It is taught that typhoid fever and pneumonia patients should be left in absolute quiet, but the common practice is to place them in a ward with twenty-four other patients facing a glare of white light, with nurses constantly passing to and fro, and then during visiting hours to admit an average of two visitors to each patient, or fifty outsiders in all, who talk and move about and pollute the air. In a ward with twenty visitors sitting for an hour, with four nurses and two doctors in addition, I found through analyses made for me by Dr. C. G. L. Wolf that the carbon dioxid contents of the air rose to 5.13 parts per 10,000 as against a normal of 4.06 parts in the fresh air outside. Why not let the convalescents step into a day room outside and receive their friends?

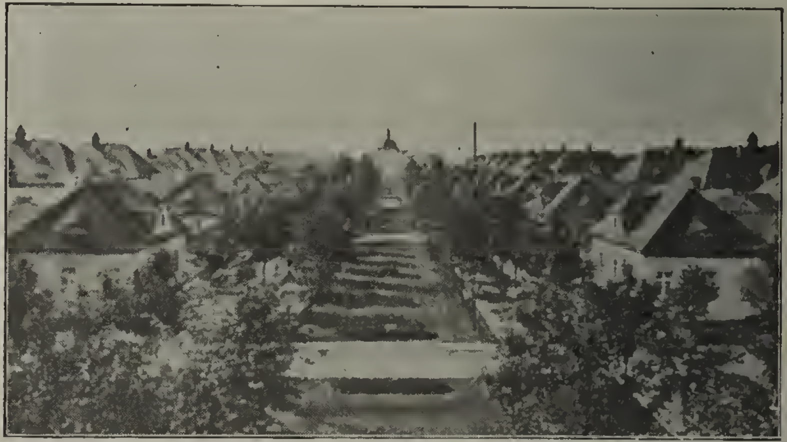

Fig. 5.—Virchow Hospital, Berlin. Central avenue leading to administration building and flanked by pairs of one-story pavilions, each pair joined by a two-story ward service structure.

3. *Flat Roofs.*—Flat roofs fitted with a ward kitchen and lavatories, with wind shelters, are very important. As Walter B. James[1] says, the "hospital roof should hereafter be defined as 'the floor of the top story'." This is perhaps less important for the pavilion type of hospital and may be incompatible with arched ward

ceilings, but it is an absolute essential for the many-story building, and the mansard roof should be forbidden absolutely. In winter especially there are many days when the roof can be cleared of snow, or when after a rain it will be much dryer and warmer than the ground and afford a suitable place for exercise, and in summer it catches breezes that may not be felt on the ground. With proper shelters or "lean-tos" and awnings the roof should be occupied by many patients every day in the year except in actual blizzards, as it now is at the Presbyterian Hospital and the Hospital for Ruptured and Crippled in New York, for example.

4. *Porches.*—Verandas accessible to every ward should be regarded as important as the wards themselves. They do not darken the wards, if properly constructed, as proved at Bellevue Hospital, and, if necessary, a segment of glass flooring may be let in over the windows of the wards below. The communicating door sills should be low and the doors wide, so that the patients' beds may be wheeled out easily. The balconies, like the roof, should be furnished with screens and awnings and placed with due regard to sun and with wind exposure, so that they may be in use the year round. I have kept pneumonia patients out on such balconies at Bellevue Hospital when the weather was so cold that their sputum froze in the cups, and it is always interesting to see how the fresh outdoor air lessens delirium, dyspnea and cyanosis in such cases and promotes sleep. It is the constant testimony of the nurses that delirious patients of every sort when placed in the open air require much less "nursing," for they become so much quieter and more comfortable than they are in the wards, where every breath of air they inhale has surely been at least once, if not a dozen times, in the lungs of some one else.

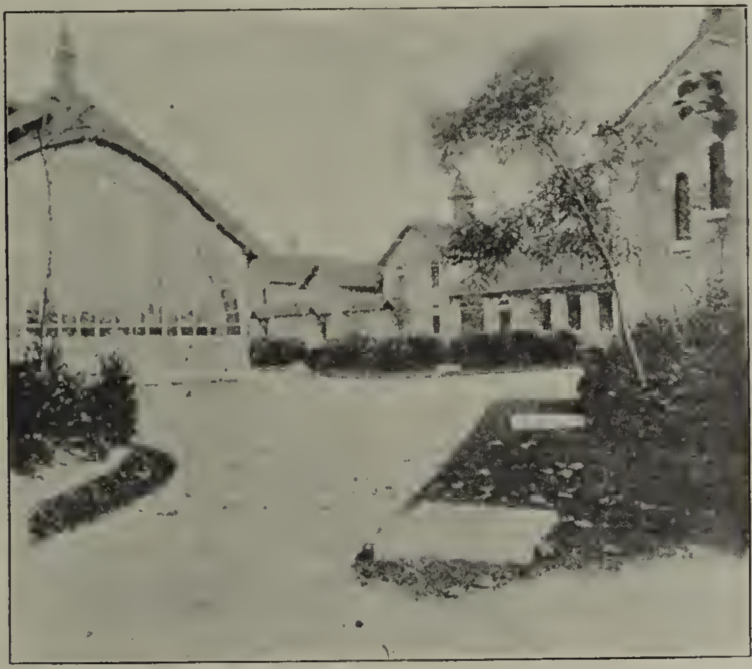

Fig. 6.—Boucicaut Hospital, Paris, showing one-story pavilions with two-story service buildings. To left, glass solarium at end of ward. Erected 1898, covers 6 acres, contains 250 beds. Pavilions are connected by a service subway.

5. *The Compass.*—The first thing to do in locating a new hospital is to study the points of the compass. The building is usually placed square with the lot in this country, whereas it should be placed with reference to the incidence of the sun's rays during the longest and shortest days, and also with regard to the prevailing winds, in order that the wards as well as the balconies may be correctly situated. I recently saw plans for a large suburban hospital on which the architect had not even placed the points of the compass, although the building was to stand in a lot of several acres.

6. *Ward Ventilation.*—Unquestionably the best type of ward window is the French casement opening outward, with a horizontal transom above. This type of window, which prevails in all the modern foreign hospitals, presents the following advantages: Either half may be opened, according to the direction of the wind, and when partially open there is less draft than from the sash window; the upper transom admits of additional air control, especially at night. The casement is less heavy to handle and easier to adjust than the sash, and it may be cut down to the floor in certain places to give exit to the balconies, the patients' beds being lifted by means of a special low truck. I have seen patients thus moved outdoors without awakening them. The ward windows should be planned with special reference to these needs, rather than exclusively for their appearance from the outside, as is usually the case, and it is by no means necessary that they should all be of identical size and shape.

7. *Light.*—All windows should be furnished with dark green shades, so that when needed the very ill may have the restfulness of tempered light, rather than the staring white glare to which all are usually subjected, irrespective of their condition. Similarly the wards should be tinted of an agreeable shade of green or blue, which is more restful to the eyes of those who have nothing else to gaze on all day. This has been recently done in several of the New York hospitals with marked improvement over the previous glaring white, and it is common in the foreign hospitals.

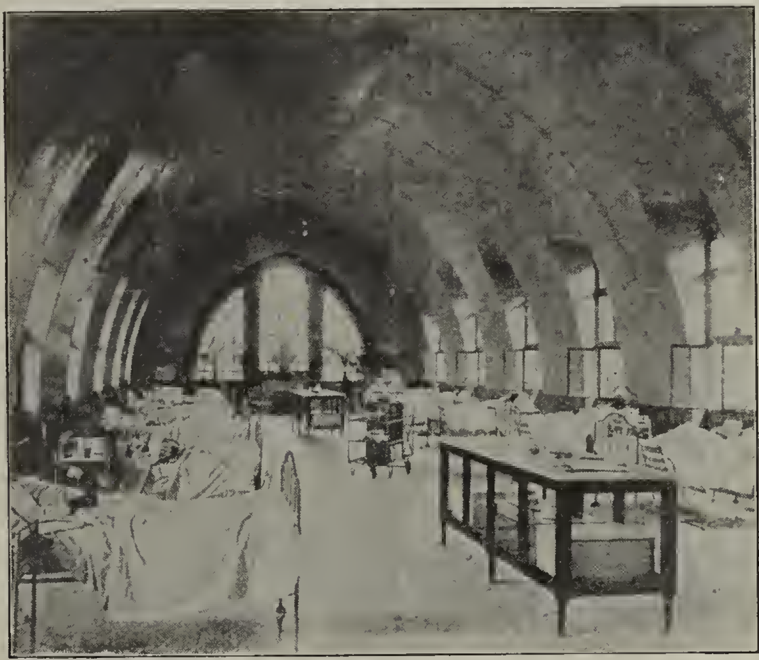

Fig. 7.—Interior of one-story pavilion ward at the Boucicaut Hospital, showing arched ceiling, casement windows, solarium, etc.

8. *Heating.*—The best method of ward heating in the changing American climates is by steam or hot water radiators in the wards, placed near certain of the windows. All hot air systems are open to the serious objection that in order to deliver the air through long conduits to the wards hot enough it has inevitably been previously superheated, often to 300 or 400 degrees Fahrenheit. Roasted air has lost some mysterious property which, for lack of better term, is called "vitality." Cooked air will sustain life, and so will sterilized milk and canned foods, but, as Walter James has said, "there is nothing uplifting about it," and it certainly will not cure anemia. This is not mere theory, but is borne out by extensive practical experience in various hospital wards. Whatever heating system be adopted there should always be at least one accessible heater for each

ward, preferably an open fire, where in exceptional weather the feeble may secure the comfort of direct heat radiation.

9. Rooms for hydrotherapy, thermotherapy and mechanical appliances for exercise should be provided, like those described above as existing in the foreign hospitals. There are many patients in a general hospital service who can inadequately be treated, if improved at all, by medicines alone. Such, for example, are cases of chronic gout and rheumatism, muscular rheumatism, neurasthenia, all manner of chronic joint diseases, many diseases of the nerves and muscles, paralyses, insomnia, certain surgical conditions, digestive disorders, etc., but such cases may be benefited greatly by non-medicinal treatment, for which adequate provision should be made in the structure of the hospital buildings.

Inhalation rooms should be provided for the treatment of a variety of respiratory system diseases, such as laryngitis, chronic or acute bronchitis, asthma, etc., which are slow to improve in the general ward air, without any form of local treatment.

SUMMARY.

Modern hospital buildings should be adapted as essential factors in the *treatment* of the patients, which can no longer be conducted to the best advantage in large wards alone, but which implies the use of many accessories, and especially the adaptation of environment, so that "in treating the disease" one may "not omit to treat the man."

34 East Thirty-first Street.

DISCUSSION

ON THE PAPERS OF DRS. THOMPSON AND OCHSNER.

Dr. George H. M. Rowe, Boston, agreed with Dr. Thompson most thoroughly and heartily. The trouble with the hospitals to-day, he said, is that the architect and not the experienced hospital man builds the hospital. Dr. Rowe emphasized the undesirableness and the injudiciousness of placing large, extensive, expensive hospitals in the center of a large city. He thought it would be a great deal better if there were an emergency hospital in the center of the city; or convert the old hospital, which may have been built five, twenty or forty years, into an in-town hospital, and build the large hospital—that is, the main portion—out in the country. There is a down-town emergency station in Boston which has twenty-four beds and fills up, often, in twenty-four hours. Most of the patients in the large hospitals can be transferred after a one day residence in the hospital. Of course, there are always some patients that can not be transferred, but the majority of them can.

Dr. W. Wyman, Washington, D. C., was of the opinion that the character of the hospital depends a good deal on the location and on the number of patients that are to be treated. Years ago marine hospitals were established in different parts of the country. They were solid brick buildings. About 1875 this style of building was abandoned and the new hospitals were constructed on the pavilion plan, the executive buildings being made of brick, but the wards being frame buildings. These latter were supposed to be temporary, with the idea that they would be destroyed in about ten years, and new structures provided. But none have been destroyed, the principles of disinfection and asepsis having been developed and making such destruction unnecessary. In later years the pavilion plan was abandoned, but Dr. Wyman said, too much should not be drawn from this, as the marine hospitals, twenty-one in number, are limited in size. It has been found, however, that these pavilion hospitals, for a limited number of patients, are expensive in maintenance and expensive in administration as compared with the brick structures which are not pavilion in character. Some of the best hospitals to-day are the old brick buildings, which meet every modern requirement. An example of this is the Marine Hospital at Cleveland, erected about 1850, and the Marine Hospital at Boston, erected in 1860, both of which, with additions and alterations, have been made modern institutions.

Dr. J. H. Stolper, Krebs, Okla., called attention to the fact that last spring he went over the identical field that Dr. Thompson went over, not knowing, however, that he was following in Dr. Thompson's footsteps. He had another view in mind. He went officially to investigate the railway sanitary conditions in Europe, and as a matter of personal interest, to look after hospitals and prisons in European countries. He found, beginning with Rome, and continuing through France, Germany and Austria, that the larger hospitals receive the very best attention and the largest appropriations. Dr. Stolper found that these modern hospitals of Italy, of France and of Germany do not compare favorably with the hospitals in the smaller cities of the United States. He thought that the whole force abroad has been concentrated on the larger hospitals. Dr. Stolper said further that the question of temperature has been neglected not only in our hospitals, but in all public buildings. The ventilation idea as mentioned by Dr. Ochsner has been improved on in the new addition to the New York penitentiary on Blackwell's Island. From Dr. Stolper's point of view they have obtained there as ideal a condition of ventilation as can be obtained.

Dr. Seneca Egbert, Philadelphia, thought that Dr. Ochsner's points have one element in their favor; that is, in the question of ventilation. It certainly is going to be more in consonance with natural laws of ventilation to have a comparatively high building than a building long-stretched-out on a horizontal plane. By drawing air through long horizontal flues and ducts one is working against Nature; and, practically speaking, it seems to Dr. Egbert that if the same air space and the same service are to be considered, the determining factor here will be the economy of ventilation and the economy of heating; because rules applying to ventilation will apply to the carrying of heat, no matter what the vehicle may be, whether air, water or steam. Another thing, he said, that has been demonstrated positively in some hospitals in the last few years is that the different floors of a vertical hospital may be just as much separated as the different parts of a horizontal hospital. These two things are of great importance and go far to make Dr. Egbert feel that, in cities, at least, Dr. Ochsner's plan is one worthy of great consideration.

Dr. W. Gilman Thompson, New York City, asked Dr. Ochsner to add one or two things to his plan. He would like to have him place balconies in connection with the wards, so that patients could be kept outdoors when desired; also, to have small wards for the proper classification of cases and room where the patients can obtain exercise. Patients are not in bed all the time; many surgical and other patients need to walk and exercise. There ought to be day rooms where convalescent patients could get out of the depressing influences of the ward. These are all very essential features; and the architect, in executing the plans, might place the windows in better relationship to the wards so that there would be room for the beds when the windows are opened, without too much draft. In all private houses we like to open windows and get fresh air, but in hospitals one usually finds stale, superheated air. Dr. Thompson said that there is no need for having trees so large that they would occasion dampness. They can be cut down, if need be, and replaced.

Dr. A. J. Ochsner, Chicago, stated that the low pavilion plan for the construction of hospitals was introduced in every detail by an English engineer named Roveland, who planned a complete cottage hospital for the town of Stonehouse, near Portsmouth, Eng., 150 years ago. So perfect was this plan in every detail that it might well serve as a model for the present time. One hundred and twenty years ago the pavilion plan received the official support of the French Academy of Paris, M. Poget having prepared the plans for a hospital with 5.000 beds. The French revolution prevented the construction of the hospital. It was, however, the work which was done by the commission in charge of the construction of the Johns Hopkins Hospital which attracted the greatest amount of attention everywhere and which virtually popularized the low pavilion plan. The Hamburg Hospital at Eppendorf, which was completed nineteen years ago, has stood as a model of this system of hospital construction ever since its completion. It was planned under the supervision of Professor Kurschmann, who followed very largely the ideas laid down in the report of the Johns Hopkins commission. Dr. Ochsner regarded the point brought out regarding the position of windows an important one. There are several modern contrivances in use in a number of hospitals which will permit the bed to be near a window without being in a draft. Every hospital, he said, should have a large area of balcony space, not balconies for ornamentation, but balconies for use. His plans provide for these at the end of all halls. The flat roofs of these institutions should be utilized for the same purpose. This can be done by arranging the elevators so that the patients can be carried to the roof. The most pernicious form of heating, in Dr. Ochsner's opinion, is that employed in the so-called closed systems of combined heating and ventilation, because in these hospitals all the air supplied to the patients is forced over steam coils during the cold seasons of the year. The lowest temperature possible in steam-heated coils is 212 F., and many times the steam is superheated so that it reaches 400 F. Consequently the air is spoiled by being scorched. This fault can readily be overcome by passing air over coils heated with hot water regulated with a very simple device at a temperature not to exceed 160 F., which is not sufficiently high to spoil the air. It requires, however, a very large number of coils, if this low temperature is maintained, to elevate the temperature of the outdoor air to the proper degree, which should be approximately six degrees F. above the normal temperature of the room. This is a very important matter which, in time, must be generally adopted. In the larger cities of this country the physician and surgeon is not usually concerned with obtaining the funds for construction and maintenance of hospitals. These funds are supplied by societies, by church organizations or by philanthropic individuals. It is quite different in the smaller towns. There the medical profession must virtually secure the financial support both for the construction and for the maintenance of hospitals. It is consequently imperative to secure efficiency in these institutions with the means at the command of the profession. Moreover, the hospital must be so planned that its maintenance is possible under existing conditions. In the large cities it is reasonable to expect important changes during the next few decades. With the introduction of ambulance systems similar to the system in vogue in Berlin, with the addition of automobile ambulances, the necessity for locating hospitals in the center of great cities virtually ceases to exist. Dr. Ochsner showed that with a careful distribution of automobile ambulance stations, properly supplied with ambulance surgeons, it will be possible to carry all emergency cases to hospitals located near parks in the city, or in good-sized parks in the outskirts of the city. By telephoning to the hospital the moment the patient is placed in the ambulance everything can be in readiness when the patient arrives at the hospital, so that there is virtually no loss of time. Dr. Ochsner contended that it is a serious error to build many storied hospitals because of lack of space. The same area of land should be utilized as for hospitals built on the low pavilion plan. We should build many storied hospitals because they provide better air, more sunlight, less street dust, less noise and because their construction and maintenance is more essential.

Habitual Users of Peruna.—In the *Lancet-Clinic*, Aug. 3, 1907, W. H. DeWitt reports having, within the past year, two patients suffering from chronic alcoholism due to the habitual use of peruna. The second patient suffered from extreme nervousness and insomnia, and denied using stimulants to excess, but admitted taking five or six drinks of peruna daily for two years. DeWitt comments on the explanations given by the manufacturers of peruna as to the incorporation, in this "hypothetical cocktail," of a laxative. "At the solicitation of friends" would more correctly read, "at the behest of Uncle Sam." The fact that the press of the country aids and abets the traffic in this nostrum is cause for caustic criticism on the part of Dr. DeWitt.

AN INHALER FOR THE ORDINARY SEQUENCES AND MIXTURES OF ANESTHETICS.

ON THE PRINCIPLE OF UNOBSTRUCTED RESPIRATION.*

VICTOR C. PEDERSEN, A.M., M.D.
Recently Anesthetist to the New York Polyclinic Medical School and Hospital and to the Roosevelt Hospital.
NEW YORK CITY.

Undesirable respiratory symptoms during anesthesia may be said to belong to two classes: those due to the patient's condition and those dependent on the means of administering the anesthetic. The former are often not remediable, the latter may fully be. Time does not permit discussion of the manifold causes which underlie stertor and other unfavorable respiratory signs during etherization, but does require mention of two which may be entirely dependent on the apparatus used, namely, first, added work being done by the lungs and by their auxiliaries, and, second, obstruction to the inflow and outflow of the tidal air.

Both, by virtue of the mass of gauze, of cotton or of sponge through which the patient must force his respiration, are actively inherent in the ether chamber of the average bag-inhaler of which Bennett's, Gwanthmey's, Clover's and Allison's inhalers are familiar types. Both are also caused by the space left below the packing in the old-fashioned newspaper-and-towel cone—a space insufficient, as a rule, for the 500 c.c. of tidal air of the average adult.

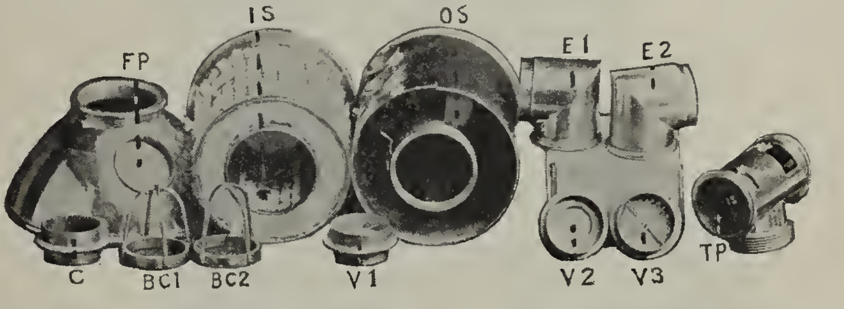

Fig. 1.—FP, metal face piece; IS, inner shell of ether chamber; OS, outer shell of ether chamber; E1 and E2, elbows used only with gas and oxygen mixture; TP, T-piece used in all sequences and mixtures; V1, V2 and V3, removable and reversible valves; BC1 and BC2, bag-cages; C, collar for attaching bag-cage to T-piece.

The specialty of anesthetization in this country is really just beginning to be developed because the importance of careful administration and because the possibilities of the anesthetic itself for determining the issue of a case favorably or fatally are now more fully realized than ever before. Gentleness and control of administration are the watchwords of modern anesthesia.

Many years ago I thought of the possibility of devising an inhaler which would accomplish four things: 1, leave the normal work being done by the lungs virtually unaffected; 2, offer no obstruction to the inflow and outflow of the tidal air, leaving its motions normal; 3, allow fresh air to be admitted with each inspiration and to be controlled by the anesthetist; 4, preserve sufficient expired air and expired ether-fumes to warm the fresh ether-fumes, thus reducing refrigeration.

Such an inhaler would have the following advantages:

First, gentleness of administration, which is particularly important in childhood and old age and, for example, in septic conditions, in respiratory and genitourinary lesions.

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* Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Second, simplicity of construction, so that all parts could be boiled for sterilization.

Third, minimal nausea, vomiting, pulmonary and renal congestion, not only on account of the graduated administration, but also on account of the measured quantity of air given.

Fourth, deliberation, as well as gentleness in producing the anesthesia. The time which this deliberation requires is a gain by securing the safety of the patient from the after-effects, to which the patient in the nature of things is entitled.

The inhaler has proved so valuable in my hands that it is hoped it will be found to be a gain along the lines of safety and precision. Its action is not unlike the vaporization methods of Junker and Braun, so admirably improved by Gwathmey, but the apparatus is in itself simpler and more readily operated and, so far as I have been able to make comparisons, gives quite the same results as to the induction of, the maintenance of and the recovery from the etherization.

The details of the inhaler are these: First, the maintenance of the normal labor of the lungs, and, second, the absence of obstruction to the tidal air are accomplished by taking two tubes larger than the adult trachea, fitted gas-tight over each other, with two matching windows opposite each other (see Fig. 1, OS and IS), so that when the indicator is at the word "air" of the scale the windows are closed and when it is at the word "ether" they are open to their full extent. Outside the windows of the outer tube screened with wire gauze is the packing of the ether-chamber.

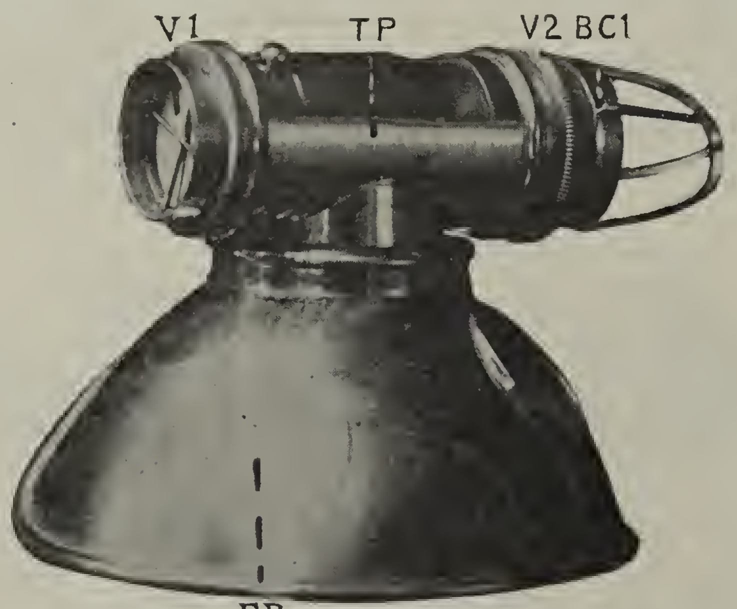

Fig. 2.—Inhaler assembled for administration of gas alone; FP, face piece; TP, T-piece; V1, valve in expiratory position; V2, valve in inspiratory position; BC1, bag-carrier.

Ether is fed through the lateral holes in the outer shell of the ether-chamber when the patient's face is turned to the side and through the end holes when his face is turned toward the front.

Breathing through a tube larger than his own trachea, the patient evaporates his ether from the ether-soaked gauze in the windows in a manner which is provided in no other inhaler so far as I am aware. The patient, furthermore, has no obstruction to his tidal air to overcome, as is quite obvious.

Third, fresh air is admitted with each inspiration by means of the inspiratory valve at one end of the T-form bag-carrier. This fresh air is controlled by the cut-off valve just within the tube (see Fig. 1, TP).

Fourth, warming of the ether-fumes and thus limitation of refrigeration are afforded by the bag as in all other bag-inhalers, which receives and stores the warmed expired ether-fumes, to be rebreathed by the patient, admixed with fresh ether-fumes from the windows.

This apparatus may be employed for the following anesthetics or sequences of anesthetics: 1, for gas alone; 2, for gas and air in definite proportions; 3, for gas and oxygen in definite proportions; 4, for the gas-ether sequence; 5, for the gas-ether sequence with oxygen; 6, for the ethyl-chlorid-ether sequence; 7, for the ethyl-chlorid-ether-oxygen sequence.

In addition to the unobstructed air-way of the ether-chamber, as already detailed, the special features of this inhaler are:

First, the T-form bag-carrier which permits the insertion or removal of valves at each end of the cross-piece of the "T" so that the foregoing sequences of anesthetics may be administered. The cross-piece also has a cut-off at each end for controlling connection with the bag and with the external air.

Second, the removal and reversible valves, which may, by simply turning them over, be made at will either expiratory or inspiratory. Thus, by manipulating the movable valves themselves rather than by providing special inhaler-parts containing fixed valves, as in Bennett's inhaler, the foregoing variations in use of the inhaler are provided for.

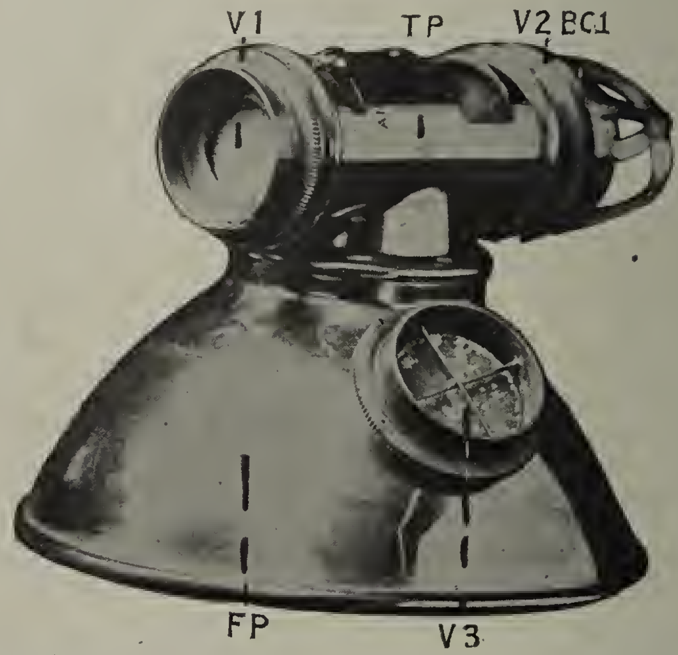

Fig. 3.—Inhaler assembled for administration of gas with measured quantities of air; FP, face piece; TP, T-piece; V1, valve in inspiratory position; V2, valve in the inspiratory position; V3, valve in expiratory position; BC1, bag-carrier.

The removable and reversible valves are shown in Figure 1 (V1, V2 and V3). each consists of: 1, the valve-seat, which bears an upper and a lower neck; 2, a thin brass, aluminum or mica disc; 3, two cross-wires, which hold the disc in place and limit its action.

Figure 1 shows the inhaler-parts for the seven sequences of anesthetics stated, for which the inhaler may be used. The parts are all separated to show how thoroughly they may be cleansed surgically. FP is the metal face-piece without the rubber face-cushion. The dotted line rests in the hole for the valve used in the administration of gas with measured quantities of air (Fig. 3) and of gas and oxygen (Fig. 4). IS is the inner shell of the ether-chamber, also called the gauze-carrier. The dotted line rests in one of the windows from which the ether is evaporated. The manner of packing the carrier with the gauze is fully shown. OS is the outer shell of the ether-chamber. The funnels of the side holes through which ether is fed into the gauze, are in plain view, together with the screw-head for operating the shutter of one of the holes. The dotted line rests in one of the windows of the inner tube.

When the inner and outer shells are assembled, the windows match each other when the ether is turned on, thus exposing the gauze, and when the ether is turned off the solid part of one tube covers the window of the other tube. E1 and E2 are the elbows used only with the gas-oxygen mixture (Fig. 4). TP is the T-piece used in all the sequences and mixtures, as shown in each of the subsequent figures. The oxygen- or air-end is toward the reader. The dotted line rests in the lumen of its cut-off, which is partly open. The head of the screw operating the cut-off is seen in the slot, under which is placed the scale for indicating the percentage of air or oxygen supplied through the cut-off. The gas-end is away from the reader. Its cut-off is so arranged that one looks through the air-window at a small chink in the shutter; in other words, if a patient were breathing through the apparatus (as in the figure) he would be getting a large percentage of air mixed with a small percentage of gas from the bag. V1, V2 and V3 are the three removable and reversible valves. One valve only is necessary in the gas-ether sequence, two for gas alone and three for gas with definite proportions of air, or for gas and oxygen. V1 is side view. V2 shows the seat and lumen of the valve. V3 the disc and cross-wires. BC1 and BC2 are the bag-cages; both of which are necessary only in gas-oxygen anesthesia. C is the collar for attaching bag-cage to the T-piece in all sequences excepting gas and oxygen. It is the duplicate of the valves, omitting only the seat, disc and cross-wires.

Figure 2. shows the inhaler assembled for the administration of gas alone. As in Figure 1, FP is the face piece, TP the T-piece, V1, the valve in the expiratory position, V2, the valve in the inspiratory position, BC1, the bag-carrier. The rubber face-piece and bag are omitted. The air cut-off is also partly open as shown by the screw-head and scale just behind V1. The air-window is open wide, closing the gas shut-off fully, therefore a patient breathing through the apparatus would get only air during inspiration and, during expiration, some escape would take place through V1, while most of it would occur through the air-window. When the latter is closed the patient receives gas from the bag through V2 during inspiration, and, during expiration, closes V2 and opens V1, through which his expiration occurs.

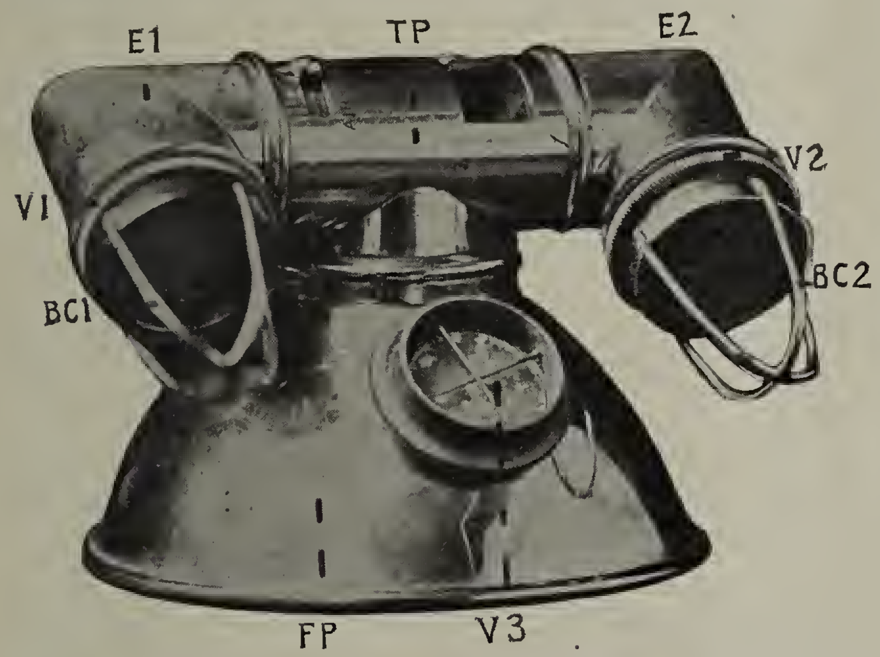

Fig. 4.—Inhaler assembled for administration of gas-oxygen mixture; FP, face piece; TP, T-piece; E1 and E2, elbows; V1 and V2, valves in the inspiratory position; V3, valve in the expiratory position; BC1 and BC2, bag-carriers.

The steps of inducing gas anesthesia are these:

1. The gas cut-off is closed and the bag filled with gas. The air-window is thus opened and permits air to enter freely during the early inspirations.
2. The air cut-off is opened wide, permitting the expiration valve to act.
3. The valve-hole of the face-piece is capped (Fig. 1).
4. The rubber face-cushion is now adjusted to the face and the patient told to breathe deeply through the nose and mouth.
5. Gas is thrown into his inspiration by opening the gas cut-off and closing the air-window. Expiration occurs through the valve at the other end of the T-piece, for which the cut-off has been left open.

Figure 3 shows the inhaler assembled for the administration of gas with measured quantities of air. The rubber face-piece and rubber bag are omitted. As in Figure 2, the air cut-off is partly open and the air window fully open, so that during inspiration the patient would receive no gas and only air through V1 and the air-window, while expiration will occur through V3 and the air-window. As the latter is closed the patient gets his supply of gas from the bag, his air through V1, the quantity of which is determined by the position of the shutter just behind it, as shown by the percentage scale, and he expires through V3.

The steps of inducing gas anesthesia with an admixture of air in definite proportions are these:

1. The gas cut-off and air-window are adjusted and the bag filled, all precisely as in anesthesia with gas alone.
2. The air cut-off is closed behind the inspiratory valve.
3. The valve-hole of the face-piece is uncapped and the expiratory valve is fitted into it.

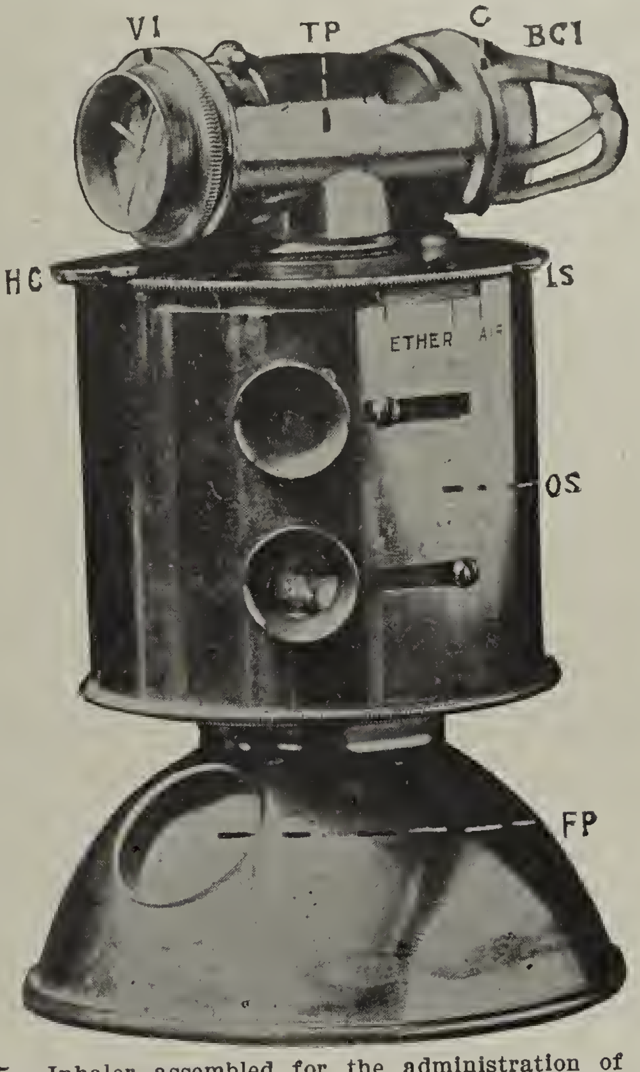

Fig. 5.—Inhaler assembled for the administration of the gas-ether, gas-ether-oxygen, ethyl-chlorid-ether or ether-chlorid-ether-oxygen sequences; FP, face piece; OS, outer shell; IS, inner shell; HC, hole-cover; TP, T-piece; V1, valve in expiratory position; C, collar; BC1, bag-cage.

4. The rubber face-piece is adjusted to the features of the patient and he is taught the proper vigor of breathing, then—
5. Gas is thrown into his inspiration by opening the gas cut-off and closing the air-window. Expiration escapes through the expiration valve in the face-piece.
6. When the gas anesthesia is nearly complete air is admitted into each inspiration by opening the air cut-off slightly (from 10 per cent. to 30 per cent. being the extremes for most subjects), thus throwing the inspiratory valve into action.

Figure 4 shows the inhaler assembled for the administration of the gas-oxygen mixture. The rubber face-piece and rubber bag are omitted. The air-window is again wide open, cutting off the gas bag. The oxygen cut-off is partly open. Thus during inspiration, the patient would get much air through the open air-window, a little oxygen through the cut-off, and would expire through V3 and the air-window. In instituting the gas-oxygen mixture, the oxygen cut-off is closed, then as the air-window is closed the patient receives gas from the bag through V2 and expires through V3. As he passes under the gas, oxygen is delivered to him through V1 by opening the cut-off, the quantity of oxygen being indicated on the scale, part of which may be seen to the left of the screw-head which operates this shutter.

The steps of inducing anesthesia with gas-oxygen mixture are as follows:

1. The gas cut-off is closed and the bag filled with gas. The air-window is thus opened and permits air to enter freely during the early inspirations.

2. The air cut-off, i. e., in this case the oxygen cut-off, is closed and the bag filled with oxygen.

3. The valve-hole in the face-piece is uncapped and the valve inserted thereinto in the expiration position.

4. As soon as the rubber face-piece is adjusted and the patient breathes in the proper manner, gas is thrown into his inspiration by opening the gas cut-off and closing the air-window. Expiration escapes through the valve in the face-piece.

5. As the patient passes under the gas, oxygen is admixed with it, by opening the oxygen cut-off (from 2 per cent. to 20 per cent. are the extremes for most patients), until the patient's color is good.

Figure 5 shows the inhaler assembled for the administration of the gas-ether, gas-ether-oxygen, ethyl-chlorid-ether, or the ethyl-chlorid-ether-oxygen sequences. As in Figure 1, FP, face-piece; the dotted line rests in the valve-hole used in Figures 3 and 4, but in this case closed by a cover screwed on from within the face-piece. OS is the outer shell of the ether-chamber. The funnels of the feed-holes face the reader, the upper being closed, the lower open, through which the gauze is seen. The scale is shown above the words "ether" and "air" by which the anesthetizer turns from "air" slowly to "ether." IS is the inner shell or gauze carrier of the ether-chamber. Only the base-piece of this shows. HC is a hole-cover at the end of the ether-chamber, pushed away from the hole to indicate how ether may be fed through the end of the apparatus if the patient hold his face to the front. TP is T-piece, V1 is the valve in the expiratory position, C is collar and BC1 is the bag-cage.

The air window is shown as before, fully open, while the air cut-off is partly open. With the inhaler in this position, the patient would get free air through the window, and expire partly through it and V1. When the gas is turned on he expires entirely through V1 so that the shutter must then be wide open. For rebreathing the shutter is closed. After he is fully under, and while the ether is being turned on, V1 is taken out and reversed to the inspiratory position. When the patient is fully under the ether and ready for the operation, air is admitted through V1 in the inspiratory position by opening the cut-off according to requirements.

In all the preceding methods of assembling the inhaler, the neck of the rubber bag is slipped over the rings seen at each end of the T-piece. Thus it is impossible for the valves or collar with the bag carriers to slip out. The apparatus does not, therefore, come apart during use at all, whereas, the fact that the parts are removable, makes surgical cleaning of each possible, and, at the same time, allows each part to be used for several different purposes, thereby reducing the cost of the inhaler. There is not one part of this inhaler which does not occur in one or other form in all other inhalers, but is more detachable and cleansible in this instrument.

The steps of inducing gas-ether anesthetic are these:

1. The gas cut-off is closed, and the bag filled with gas. The air-window being opened by the shutting of the gas-shutter permits free air to enter. during the preliminary inspirations.

2. The air cut-off is opened wide, permitting the expiration valve to act easily.

3. The valve-hole of the face-piece is capped as shown in Figure 5.

4. The windows of the ether-chamber are closed by having the indicator at the word "air."

5. The rubber face-cushion is now adjusted to the face and the patient told to breathe deeply through nose and mouth. When he does this properly, the gas is thrown into his inspiration by opening the cut-off and closing the window. Expiration occurs through the valve at the other end of the T-piece, for which the cut-off has been left open.

6. Rebreathing, otherwise called to-and-from breathing, is secured by closing the cut-off, thus checking the exit through the expiration valve.

7. By this time the patient is sufficiently under the gas to permit turning in a small amount of ether. The quantity of the ether is gradually increased until the full volume is being given. When the patient is fully under the ether the valve is reversed to the inspiration position and then as needed definite proportions of air are admitted to keep the blood well oxygenated. Thus it will be seen, the patient receives in series, gas alone, then gas with ether in increasing amounts, next ether alone and last ether with an admixture of air, as his color may indicate.

8. To deepen the narcosis, at any stage of the operation, the air is simply stopped by closing the cut-off again, while more ether is poured into the gauze.

For the administration of the gas-ether-oxygen sequence, the only detail additional to the foregoing is to attach the bag to the oxygen tank and thus deliver that gas into the bag, to be mixed with the warm ether-fumes in the bag. In this case, of course, the valve must be kept in the expiration position.

For the administration of the ethyl-chlorid-ether sequence or the ethyl-chlorid-ether-oxygen sequence, the ethyl-chlorid is sprayed through the air-window of the T-piece until the patient goes under its anesthesia. All the subsequent steps are the same as those already described when gas instead of ethyl-chlorid is being used.

This apparatus has been found easy to operate, certain in results, safe and gentle in administration and surgical in its separability of parts for boiling, in the designer's hands.

It is assured that it will be found such in the hands of all who, after a little study of it, employ it in their work.

For their valuable suggestions and kindly aid I beg to express at this opportunity my best and sincerest thanks to Mr. Seward W. Hartley in preparing the mechanical drawings, to Mr. John T. Hoyt, of the Department of Physiology, Columbia University, in making the earliest models, now almost four years ago, and to Messrs. George Tiemann & Co. in consenting to manufacture and market the final model as set forth in this article.

DISCUSSION.

Dr. James Tayloe Gwathmey, New York, said that anything that will decrease the dangers of anesthesia and make it pleasanter deserves a great deal of credit. The objection to all closed methods of giving anesthesia is that in the majority of cases, especially in hospitals, the internes do not pay the attention they should; they clap a closed inhaler with a deflated bag over the patient's face, thus forcing the patient to attempt to breathe from a vacuum. This throws a tremendous strain on the heart and lungs. It may not kill the patient, but he may suffer from the after-effects for several days, perhaps weeks and months. Probably half the fatalities with closed inhalers occur in this way, by having a patient attempt to breath from a vacuum. With the safety valve of Dr. Pedersen that is absolutely impossible. It does not make any difference how ignorant the person who gives the anesthetic is of the theoretical part, or how carelessly he may give it, he can not make the mistake of smothering the patient in that way.

In regard to the value of gas-oxygen anesthesia, Dr. Gwathmey quoted Hewitt's latest edition of "Anesthetics" that gas-oxygen is the greatest improvement in anesthetics that has been made in the last ten or fifteen years. The anesthetist can keep a deeper anesthesia, using oxygen instead of air, and remove the useless nitrogen in the air, and replace it by an equal amount of nitrous oxid gas, and in that way do away with cyanosis and stertor in the majority of cases. Dr. Gwathmey thinks Dr. Pedersen is to be congratulated on the apparatus, which is easy to operate. Dr. Dawbarn, he said, has stated that in the last eighteen years, since using different closed methods with not very much attention paid to the anesthetic, he does not know of a single case of pneumonia, and attributes it to the closed method of heating ether. Any apparatus that does not heat ether is based on wrong principles.

Dr. Victor C. Pedersen, New York, said that in the last six months he has had perhaps half a dozen distinctly dangerous cases in which to administer an anesthetic. One patient was a man 84 years old, who had abscess of one kidney. He went under the ether, with this apparatus, so gently and breathed so quietly that one operator thought something was the matter. The man came out quickly and was able to talk within ten minutes, and the operator said that he had done distinctly better than the average patient younger in years. Another case was an old man, ten years less advanced in life than the first, who underwent a prostatectomy with the same results of the anesthesia. Anything that tends to make the giving of anesthetics genuinely scientific is well worth going into, and Dr. Pedersen hopes, in the hands of others, as well as in his own, that this apparatus will be found serviceable and safe. Of the ether chamber he said that he has drilled a hole in one side of it so that when the ether chamber is unduly filled the danger will be communicated to the anesthetist.

AN EXPERIMENTAL STUDY OF INTESTINAL OBSTRUCTION.*

R. D. McCLURE.
BALTIMORE.

The problems in connection with intestinal obstruction,[1] aside from the investigation of the causes and best methods of treatment, are concerned chiefly with the explanation of the fulminant symptoms which follow an acute occlusion and which lead rapidly to death, unless the obstruction be promptly relieved. Such symptoms, in their intensity and sudden onset, seem almost out of proportion to the mere retention of intestinal contents, especially since fecal impaction, with an equally complete retention, may persist for a long time without such a violent reaction. Various hypotheses have been offered, and particularly in recent years a number of investigators have endeavored to find an explanation of these remarkable symptoms.

As is well known to every surgeon, vomiting, collapse, disturbances of blood pressure, sweating, etc., together with distension and more or less pain, follow quickly on an intestinal occlusion, and if this be not relieved a later train of symptoms appear, obviously due to a toxemia. There is a diversity of opinion, however, regarding the cause of these symptoms. Some consider them largely due to reflex disturbances set up by irritation of the nervous structures in the intestine. Others consider the whole syndrome to be the result of absorption of poisons from the obstructed intestine.

Bouchard was the originator of this theory of auto-intoxication, believing that poisonous substances are absorbed from the stagnant intestinal contents, having an especial affinity for the central nervous system. Lepine and Mollière thought that these substances were ptomains.

Kukula secured at operation the contents of obstructed intestinal loops, filtered them through Chamberland filters, and injected the filtrate into dogs. The results were negative as a rule, although an alcoholic extract of this material produced symptoms of intoxication when injected into animals. Such animals suffered from repeated attacks of nausea and vomiting, followed by diarrhea with tenesmus, sweating of the paws and depression or collapse. Occasionally there were tonic and clonic convulsions and paralysis of the hind limbs. These symptoms gradually passed off. He states that not only toxic fluids, but toxic gases as well, may accumulate in the obstructed intestine, mentioning hydrogen sulphid and methyl-mercaptan as especially important; that he further believes the vomiting and other results of obstruction can hardly be explained by the reflex theory, although in the early stage the vomiting may be incited by the irritation of the nerve endings, due to the acute stretching of the bowel.

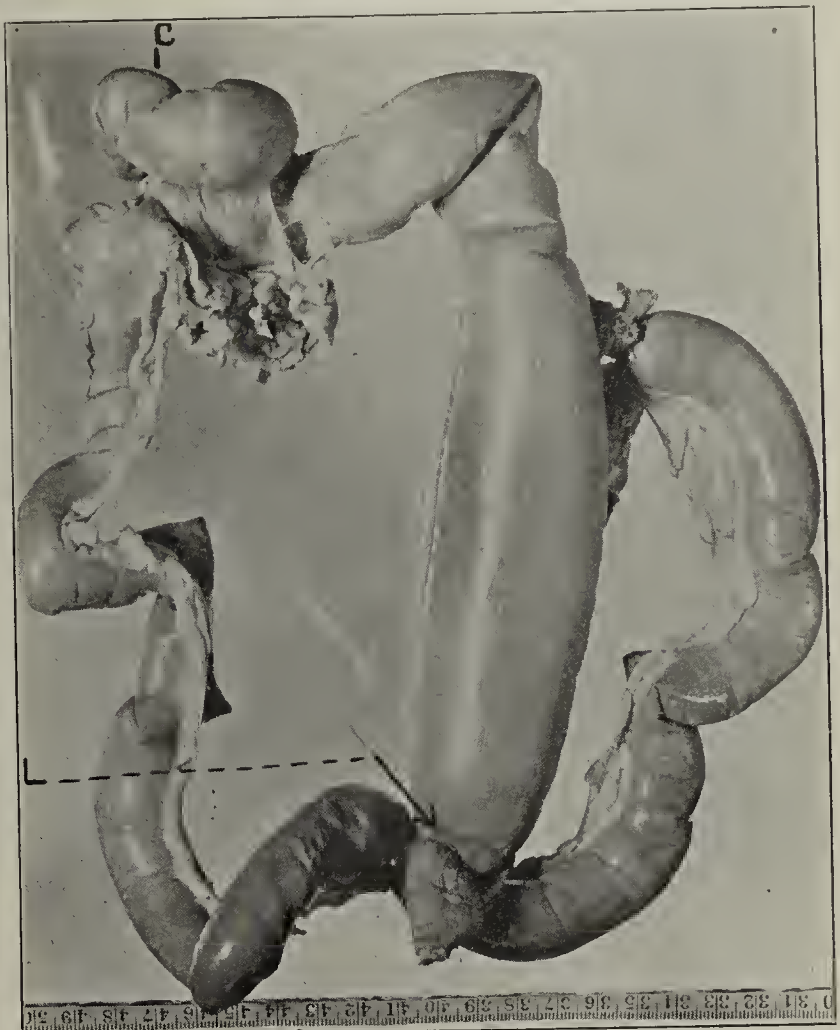

Fig. 1.—Obstruction in lower portion of colon; C, cecum; L, ligature.

Albeck found that the contents of an occluded loop of intestine were much more poisonous than those of the normal intestine, and he was able by injecting the filtrate from this material into rabbits and cats to produce diarrhea, convulsions and collapse, with death in from four to fifteen hours. He found that the poisons are soluble in water, pass through a Chamberland filter and withstand boiling. He thinks that they may be regarded as putrefactive poisons.

Boeszeky and Genersich considered the possibility of a general bacterial infection in ileus. In experimental obstruction of the colon in rabbits they found *B. coli* in the peritoneal cavity in 45 per cent. of the cases, in 29 per cent. in the blood and in 17 per cent. in both peritoneal cavity and blood. When the small intestines were ligated *B. coli* were found in the peritoneal cavity in 28 per cent., in the blood in 18 per cent., and in both peritoneal cavity and blood in 9 per cent. They consider the severe symptoms to be due to a general septicemia with intestinal bacteria, the *B. coli* playing an especially important rôle.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

* From the Hunterian Laboratory of Experimental Medicine.

[1] To Dr. W. J. McCallum I am indebted for the opportunity to do this work. It was carried on under his direction and with his assistance. Some of the experiments were done by him alone.

Clairmont and Ranzi agree with Kukula in rejecting the reflex theory in explaining the symptoms of ileus. They, too, injected the filtered contents of obstructed intestine into various animals, subcutaneously, intraperitoneally and intravenously, and found as a result a quickening of respiration, dilated pupils, increased reflexes, tonic and clonic spasms, etc. Filtrates from the aërobic bouillon cultures of the entire intestinal flora were also found to be toxic, though no definite toxin could be obtained from the culture of any individual organism. Filtrates from the bouillon cultures proved to be non-toxic.

Our experiments have been carried out along similar lines in the hopes of throwing further light on the clinically well-known symptoms. An obstruction is easily produced by ligating the intestine with a doubled cotton cord. Occasionally such a ligature cuts through the wall of the gut and is discharged per rectum, the continuity of the intestinal lumen is re-established and the obstruction relieved. Ordinarily, however, a complete occlusion of the bowel is produced, for even if the muscular layer is cut through by the cord the tough submucosa remains intact.

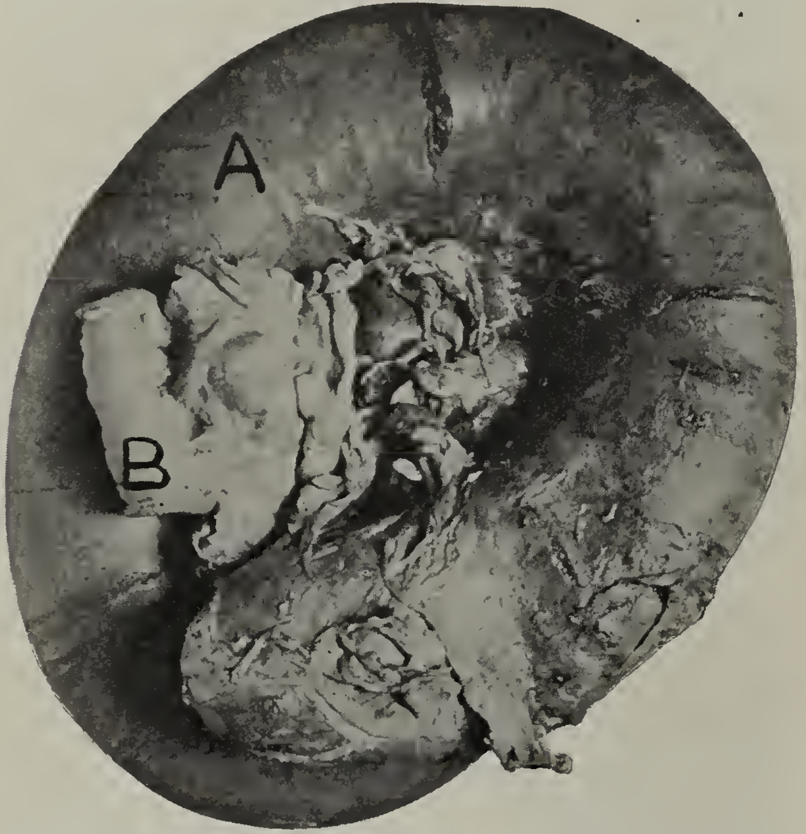

Fig. 2.—Isolated loop showing distension; A, isolated loop; B, normal intestine.

Certain of the symptoms which are so characteristic in man and so useful in the diagnosis of obstruction are difficult to detect in the dog, but in general the picture is the same in both. There is stoppage of the passage of feces, although when the obstruction is very high one stool may be passed on the first day. Peristaltic movements were felt through the abdominal walls in only one case, for the parietes are usually held rigid. Vomiting was a more or less prominent symptom in spite of the fact that no food or drink was taken by the animal after the obstruction was produced. Drowsiness and apathy were very marked. Perhaps it may be said that all the symptoms appear more slowly than in man, though they progressively increase in intensity.

The severity of the symptoms and the duration of life varies with the location of the obstruction. An obstruction in the large bowel is not followed by the symptoms of collapse as quickly as in the small intestine; the average length of life after obstruction in the colon was seven days, whereas after obstruction in the ileum it was four days. In one experiment, after the obstruction was produced by aseptically reopening the laparotomy wound, the intestine was examined daily. Seven hours after the obstruction the intestine above differed in no way from that below the ligature. There was no increased peristalsis, distension or evidence of vascular disturbance. At the end of twenty-four hours the omentum was slightly adherent and the serous surfaces slightly injected. The intestine below the ligature was collapsed, but was of normal consistency and size, while that above the obstruction was somewhat injected and slightly distended with fluid. There was no increased peristalsis. After forty-eight hours the distension above the ligature was much greater and the walls of the distended portion were of a purplish hue. No peristalsis was observed, but the loop was not yet paralyzed, for even after seventy-two hours contraction could still be induced in the purplish distended intestine above the ligature by snapping or pinching.

The dilatation of the intestine just above the ligature was sometimes enormous, the bowel reaching four or five times its normal diameter, but this gradually tapered down, and if the obstruction was low in the bowel the intestine near the stomach was normal in size. In obstruction of the colon, however, the distension is generally uniform up to the ileocecal valve, above which the smaller intestine gradually tapers to its normal diameter (Fig. 1).

In a few cases, after the obstruction had existed several days, peristalsis was studied by floating the intestines out in warm salt solution and administering pilocarpin intravenously. In one case of obstruction at about the middle of the small intestine there was found, two days afterward, only moderate distension above the ligature. On injecting pilocarpin there was a gradual, even contraction throughout the distended portion, but no waves were apparent as in the normal intestine below the ligature. A contraction ring could be induced at any point along the distended gut by pinching or snapping the wall, but this remained stationary and did not progress like a peristaltic wave.

In another animal, four days after the obstruction was produced, there was a much greater distension, and at the first injection of pilocarpin waves could be seen passing downward to within 10 cm. of the ligature, where they stopped. Later, waves brought out by pinching the gut were observed passing in the reverse direction. The lower 10 cm. of the distended intestine were completely paralyzed and no contraction could be induced even by pinching. Peristalsis in the part below the ligature was normal and passed in the normal direction. A hard stool was expelled during the experiment.

In cases in which the obstruction was allowed to continue until the death of the animal various conditions were found at autopsy. In most instances the greatly distended proximal loop was found to occupy most of the abdominal cavity, pushing aside the remaining loops, the ligature being surrounded by slightly adherent omentum. The distended portion was intensely hyperemic, but there was, as a rule, no dulling of peritoneal gloss, and whatever accumulation of fluid there was in the peritoneal cavity showed no coagulum of fibrin. Smears and cultures made in a considerable number of such cases from the peritoneal cavity, heart's blood, liver, spleen, and kidneys showed no bacteria. The contents of the distended loop, on the contrary, were very foul and contained myriads of bacteria of many varieties. In contrast with the flora of the normal intestine at these high levels, where very few bacteria are to be found, the number in the obstructed loop is astounding. Many of these organisms stained by Gram's method, but relatively few grew on ordinary culture media, and the agar plates made from the loop usually showed only *B. coli* or *B. lactis aerogenes,* although we knew that dozens of other species were planted.

In the time at our disposal it was deemed hopeless to try to determine whether any particular variety from these many organisms was especially concerned in producing symptoms in the animal. Since we had shown that the bacteria themselves, however, did not pass into the general circulation, nor even into the peritoneal cavity, we endeavored to determine whether or not some toxic material was present in the fluid in which they grew, absorption of which might produce the symptoms.

Clairmont and Ranzi showed that for the first twelve hours after distension there was an increased rate of absorption from the obstructed loop, followed by a decrease in rate. This they tested by determining the amount of potassium iodid in the urine after feeding. Garbarini similarly showed that, for a time, the distended intestine absorbs soluble material more rapidly than the contracted gut.

Our experiments consisted in the introduction of some of the contents of an obstructed loop into an isolated loop in another dog. The open end of this isolated loop had been allowed to heal into the abdominal wall. It was found impossible, however, to confine in this loop an amount of fluid sufficient to produce any symptoms, since the active peristalsis set up by the irritating substances quickly led to its expulsion, in spite of our efforts at closing the orifice.

In other experiments the contents of the obstructed loops were passed through a Berkefeld filter and injected into the peritoneal cavity after the manner of Kukula, Albeck and others. None of these experiments led to a fatality, but intense symptoms of depression and apathy, sometimes with vomiting and straining movements, occurred. Nevertheless, the animals recovered completely by the next day and remained well. As one might expect, the material which accumulates in the obstructed intestine does not seem to be very toxic in small quantities and a single dose, even when injected intraperitoneally, may be withstood, although its continued absorption over a period of several days, as in clinical cases of obstruction, may naturally lead to death from a cumulative action of the poison.

That these poisons are the product of the bacteria and not merely stagnant digestive secretions, we attempted to show by an experiment in which the intestinal loops were so anastomosed with the stomach and with one another that the bile and pancreatic juice was diverted from the whole upper part of the intestine and poured into the lower ileum.[2] Under these circumstances, if the obstruction were produced just above this anastomosis in the lower ileum, it was found that the symptoms proceeded quite as rapidly as before, hence they can not be attributed to stagnation of bile or pancreatic juice.

Other methods were tried in the effort to bring about a condition analogous to the above without producing actual obstruction. It was obvious that this could be done by the isolation or exclusion of a loop of intestine, the ends of which were closed, the circulation remaining intact. The continuity of the intestinal tract was reestablished by anastomosing the free ends.

Dr. W. S. Halstead in 1887 was the first to carry out such an experiment. He anastomosed the ends of the excluded loop forming a ring. One animal lived one month. It apparently showed no symptoms of intoxication, but became progressively emaciated. At autopsy the isolated loop was distended to about the size of an inflated human transverse colon, with fecal smelling, thick, brownish fluid. The wall of the loop was two or three times as thick as normal. Herman in 1892 carried out similar experiments and found that his animals died after about six days as the result of the swelling up and bursting of the isolated loop.

Salzer in the same year in a similar series of experiments found in two dogs, nine and ten months after operation, that the loops were strongly contracted and the walls entirely sound, the contents being only a crumbly epithelial detritus. Berenstein, Reichel and Baracz carried out similar experiments; Reichel operated in two stages, suturing the ends of the isolated loop to the abdominal wall in the first operation and anastomosing them in the second. He later found ulceration and a hypersecretion of mucus in some of these loops. Baracz found hypertrophy of the muscularis and a chronic catarrhal condition of the mucosa.

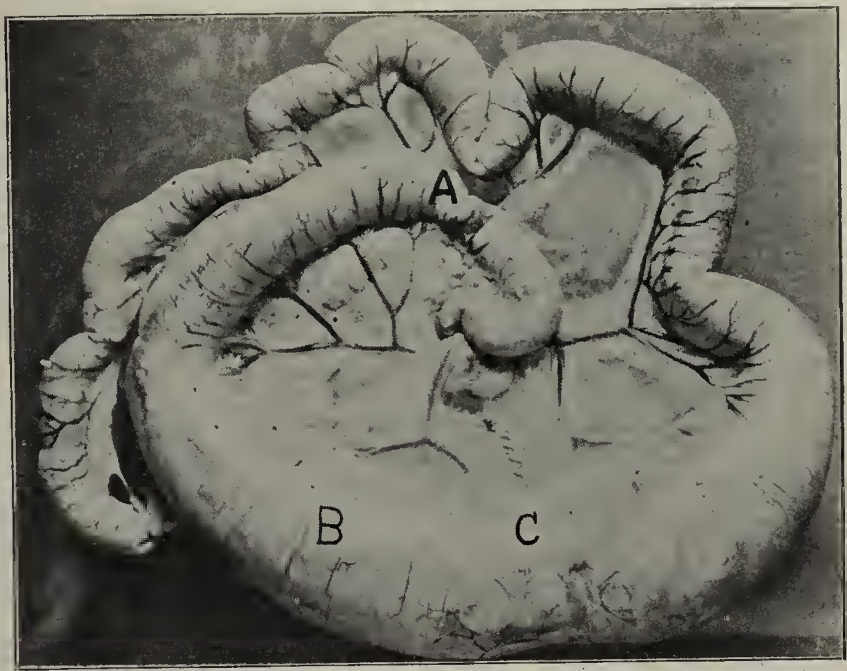

Fig. 3.—Showing dilatation in chronic obstruction produced by reversing a portion of intestine; A, lower end of reversed loop; B, reversed loop; C, upper end of anastomosed loop.

Enderlen, Juste and Kutscher, in experiments which were carried out in order to see whether such exclusion of an intestinal loop would be justified in surgical operations, found that with one exception the animals died after a few days with great distension and sometimes rupture of the excluded loop. The one animal which proved an exception lived 258 days and the intestinal loop was then distended and full of inspissated material.

In our experiments, thirteen in number, death has always resulted within a few days with symptoms similar to those of obstruction. In all instances the isolated loop became distended with fluid (Fig. 2) containing enormous numbers of bacteria. Evidently it acts like a culture tube in a thermostat, for smears taken from the mucosa, before closing the ends of the loop at the operation, showed very few organisms. Efforts at the partial disinfection of the loop by irrigating it with boric acid solution or isoform or by introducing crystals of thymol into it have not proved successful, since these substances are either too toxic or ineffectual.

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[2] Dr. Cushing's class in operative surgery prepared the animals for a few of these experiments.

From these experiments one gains the impression that the symptoms and death may result from the absorption of poisonous materials produced by the growth of bacteria in the isolated loop as it might from the growth of bacteria in an enormous celloidin capsule inserted into the peritoneal cavity. Still it must be said that not all of these experiments were free from objections, for in several of them the mesentery of the loop became twisted and disturbances of the circulation occurred sufficient to interfere with the vitality of the wall of the loop and allow of the wandering of bacteria. In one or two instances there was ulceration of the wall and perforation, with peritonitis and general septicemia.

Even in the simple obstruction of the intestine it is not uncommon to find, in the walls of the distended loop, changes which sometimes cause perforation. In several of our experiments autopsy revealed an acute general peritonitis, which had resulted from the formation of ragged ulcers above the obstruction in the distended hemorrhagic wall, with the extravasation of the contents of the loop. In such cases, of course, smears from all the organs showed bacteria. These ulcers have long been known in cases of chronic obstruction, and it seems that the old explanation that they are due to the irritation of stagnant fecal material is much less plausible than that of Kocher, who speaks of them as *Stauungs* or *Dehnungs-geschwüre* and ascribes them to the disturbance of circulation resulting from the stretching of the intestinal wall.

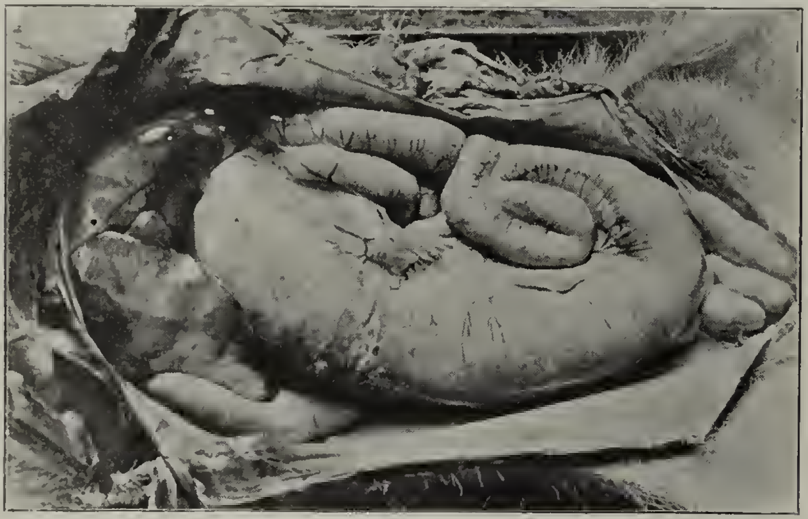

Fig. 4.—Same as Fig. 3, showing proportion of space occupied in the abdominal cavity.

In this connection some experiments were done with the aim of producing infarction or strangulation of part of the intestine, with results analogous to those so familiar to the surgeon. According to the time which elapsed before death, hemorrhage, necrosis, ulceration and even perforation might occur in the strangulated area, and the outwandering of bacteria through such an injured wall into the general circulation and organs seemed to proceed very rapidly.

It is interesting to compare the symptoms of a chronic obstruction with those of an acute obstruction. In a series of experiments by Mr. H. F. Derge of the Johns Hopkins Medical School and myself, in which a portion of intestine was reversed, a chronic obstruction was produced. After the first week there were no symptoms of acute obstruction. The animals became progressively emaciated. At autopsy several months later there was a distension of the intestine greater than in most of the cases of acute obstruction. Yet with all of this retention, and great distension, lasting over a long period of time, no severe symptoms were manifest (Figs. 3 and 4).

The excretion of indican in the urine was determined in a number of cases, and it was found that in general the amount was greater in cases where the obstruction was high up in the intestine, although, as a rule, the intensity of the color reaction would not permit a diagnosis as to the site of the obstruction.

Thus, if we exclude those conditions in which ulceration of the intestinal wall leads to perforation and peritonitis, or in which infarction renders the wall permeable to bacteria, it seems that obstruction of the intestine may persist for days, with stagnation and enormous growths of bacteria in the obstructed loop. The bacterial poisons alone may be absorbed while the organisms themselves do not leave the intestinal lumen. It seems probable that this is true in cases of obstruction in man, although there, too, for the reasons indicated, there may be an invasion of the bacteria into the tissues in the later stages, and the symptoms may then be those of a general septicemia.

In animals the progress of the symptoms is such that it is difficult to see how irritation of the intestinal nerves can play any considerable part in their production, and to us it seems equally reasonable to suppose that in man the symptoms of obstruction are rather the result of intoxication than of any mechanical disturbance with the nervous mechanism of the intestinal wall.

POSTOPERATIVE ILEUS.*

FRANK MARTIN, M.D.
Clinical Professor of Surgery, University of Maryland.
BALTIMORE.

In the list of complications and sequelæ following a surgical operation involving the opening of the abdomen, perhaps no single one is more to be dreaded or more urgently demands early recognition and prompt relief than intestinal obstruction, and occurring as a postoperative ileus it is, in fact, one of the most serious and dangerous, as well as one of the most fatal surgical conditions, the surgeon is called on to face. It frequently is insidious in its manifestations, but more often rapid in its progress and liable to sudden and progressive changes which steadily but surely put the patient in a condition of extreme peril. One naturally has a feeling of dread when he has to face a case of postoperative ileus, because so often surgical relief is not sought until the patient is exhausted or until necrosis of the bowel wall has taken place, and associated either with general sepsis or, at least, general peritonitis.

When seen in this condition, the symptoms, to say the least, are formidable and the mortality under any method of treatment is excessive. The cases that occur shortly after operation and can be carefully watched by the surgeon are dealt with much more speedily and the results attending operative interference are much more promising. I fancy it has doubtless been the experience of every surgeon to have had the misfortune of seeing such distressing conditions combating and defeating his best efforts and calling again for life-saving procedures. Postoperative ileus, unlike other forms of intestinal obstruction, is more grave, as there are in the majority of the early cases two factors present which materially diminish the chances of success; one is an unhealed wound, and the other is the weakened and worn-out patient recently having undergone a serious or possibly life-saving operation. The unhealed wound or drain track is a serious source of infection to the fresh wound that has to be made in another quadrant of the abdomen in order to gain access to the abdomen. It has so happened that I have met with most of the conditions which are generally assigned as the causes of the various forms of intestinal obstruction.

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* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907. The article is here abbreviated, but the complete article appears in the Transactions of the Section and in the author's reprints.

THE LITERATURE.

Postoperative ileus is an extremely interesting subject, although an old one. I believe it is an ordinarily accepted view that Sir Spencer Wells published in 1860 the first descriptive paper on this subject.

His cases show in 1,000 ovariotomies a frequency and a mortality of 1.1 per cent., without operation. Fritch reported 1.6 per cent. mortality, and Klotz 31 cases with 5 deaths in 421 abdominal sections. The first operation, for this condition, though unsuccessful, is credited to Schroeder (1878), but Olshausen was the first to operate successfully (1879). Rohe (1894) reported 75 cases, in all of which the patients died, while Baisch (1905) reported 23 cases in 1,110 laparotomies. Peck reports 3 cases with 2 recoveries; McWilliams, 86 cases; A. M. Pond, 5 cases with 2 recoveries; L. M. Hotchkiss, 3 patients successfully operated on; E. Eliot, Jr., 7 cases with 4 recoveries. J. S. Mitchell reports 2 cases, probably of the pseudo-postoperative type.

There are cases of ileus of the postoperative type which are occasionally observed following operations not involving the opening of the peritoneal cavity. Several cases of interest are reported.

Finney reports one patient who died from volvulus on the fifth day after prostatectomy and another who perished from adynamic ileus following nephrotomy; enterostomy was performed in the latter case, but without relief, the patient dying of peritonitis.

With reference to the etiology, postoperative ileus may be divided into dynamic, strangulated, in which there is obstruction with interference with the blood supply, and obturative, in which there is obstruction alone, without interference with the blood supply. Clinically it may wound has healed, and late, developing after convalescence has been established and at varying intervals of a few months or some years, in which perfect health has been enjoyed.

The two principal causes which are most prolific in the etiology of postoperative obstruction are of a mechanical or septic origin, and the third cause is due to disturbance of the nerve supply of the intestine or to circulatory changes with autointoxication which give rise to paralytic or adynamic ileus, so these three types are ordinarily accepted as the types of postoperative ileus; first, mechanical; second, septic; third, adynamic.

DIAGNOSIS.

The diagnosis of ileus is naturally of the utmost importance, for when it is finally determined there is but one rational method of treatment. No surgical condition more urgently calls for early recognition than cases of postoperative ileus, and if it is of the type of strangulation ileus it is perfectly obvious that every hour of delay adds to the gravity and jeopardizes the only chance of relief; if the condition goes unrelieved, naturally it leads to a long chain of sequelæ by disturbances in the circulation of the mesentery of the bowel and terminates usually in a fatal sepsis.

The symptom-complex is by no means always clear and often diagnosis exceptionally difficult. We have to determine in the first place as to the immediate cases where there appears immediately following operation in the first few days abdominal pain, more or less severe, more or less pronounced tympanites, persistent vomiting, inability to get the bowels open, retention of flatulence, with slight elevation of temperature, quickening of pulse with leucocytosis. This is a clinical picture of obstruction in normal cases seen after operation by every surgeon, and presents many of the symptoms of postoperative mechanical obstruction. These are of the pseudo-postoperative ileus type; these symptoms after a few days of much apprehension clear up absolutely without any further disturbances.

If these symptoms above mentioned occur after the third day they are very suggestive of obstruction, but when observed in the first few days immediately following operation they are of no aid in the differential diagnosis, and when the resort to the usual therapeutic measures is followed by the passage of feces and gas and relief of symptoms they are classed as cases of probable intestinal paresis or a form of adynamic ileus. Not infrequently these symptoms are marked and a number of hours are required before the usual remedies bring relief, and it is just such a clinical picture that causes most anxiety both to patient and surgeon, because frequently postoperative mechanical obstruction can be easily masked in these postoperative symptoms. The patient becomes much depressed and often critically ill. Naturally every sign should be sought for that will enable us to differentiate this pseudo-postoperative type from the true postoperative mechanical intestinal obstruction.

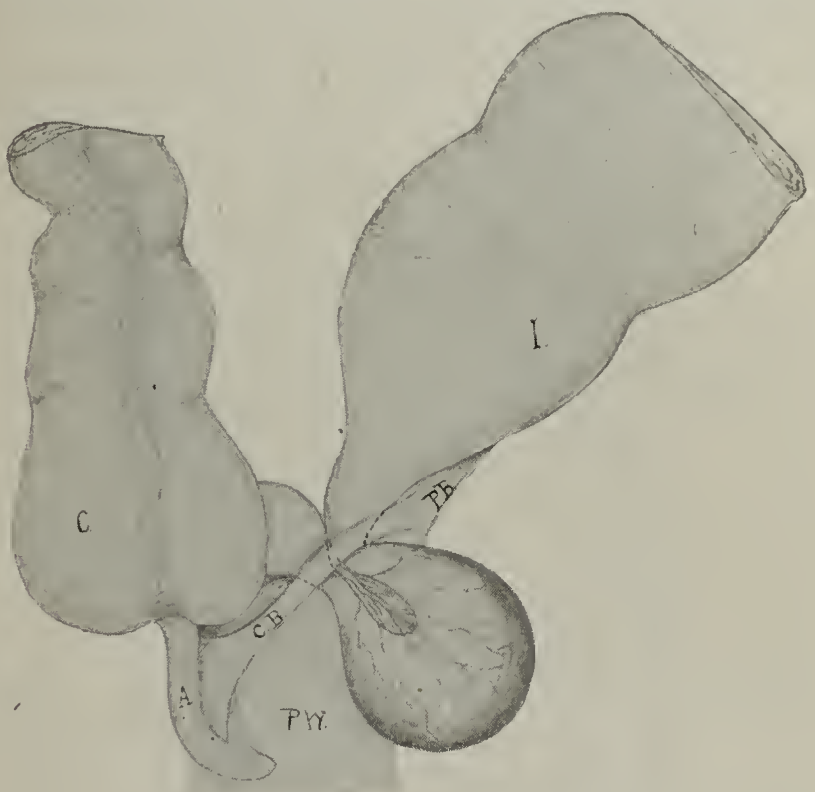

Fig. 1.—This drawing shows the knuckle of small intestine near the lower end of ileum which is acutely strangulated and the blood supply of the mesentery is likewise seriously interfered with. This case illustrates the great amount of meteorism that is usually noted in the afferent loop; the afferent loop in this case was enormously distended, congested, and near the seat of the obstruction dark and almost necrotic. Adhesions were released and bowel gotten up without resection and patient made an uninterrupted recovery. C., cecum; P. B., pelvic brim; P. W., pelvic wall; I., ileum; C. B., constricting band; A., vermiform appendix.

The first and most important link in the chain of symptoms has been severe abdominal pain, and I consider this one of the most important diagnostic symptoms, usually of an intense, violent character, and, though with slight intervals of subsidence, generally continuous, renewing itself in intensity and more acute exacerbations. In the majority of cases it is referred to the vicinity of the umbilicus; usually slight change in the character and rate of the pulse, a little or no rise in temperature, vomiting then becomes pronounced and persistent with marked peritoneal shock rapidly following; the leucocyte count is always high, ranging anywhere from thirty to forty thousand; soon asymmetrical distension is noted, and later on von Wahl's loop with visible peristalsis can be made out.

In mechanical obstruction the pulse is not much disturbed; it is full and the tension is good. In peritonitis, on the other hand, the pulse is small and the tension is low.

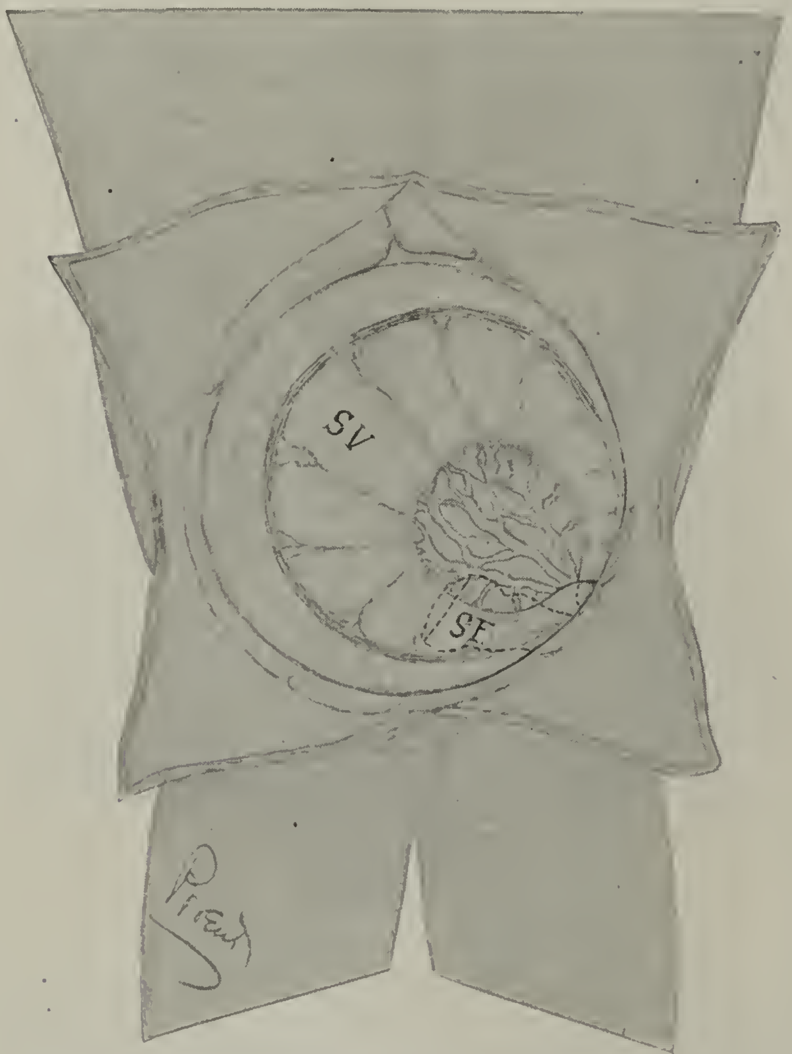

Fig. 2.—This illustrates the enormous distension to which the colon is capable; it shows a distended sigmoid the result of a volvulus of the sigmoid with thrombosis of the mesenteric vessels; the distended section was gangrenous and was resected.

SYMPTOMS.

The symptoms of ileus vary according to the causation in each case. The immediate form is largely of the adynamic type, and I am inclined to believe more often due to autointoxication than we have heretofore been wont to believe. The early obstructions are, in a large percentage of cases, due to infection following closely on operations done for an acute, suppurative condition about the appendix with spreading peritonitis or similar conditions concerning the pelvic organs, and in the vast majority of cases in my own individual experience the primary operation has been an appendectomy with drainage.

The late cases are due to bands, or drawn-out adhesions, resulting from old inflammatory exudates and loops of intestines are caught around them and become constricted, giving rise to true mechanical ileus. This type is more easily recognized and when promptly dealt with is followed usually with success. It goes without saying that in the early cases due to infection it is very difficult, and oftentimes impossible, to differentiate between peritonitis and a definite mechanical obstruction, as these conditions are often associated the one with the other.

When these symptoms manifest themselves by a late onset the diagnosis is usually clear, but when appearing early it is, indeed, often difficult to say whether they are those of peritonitis or intestinal obstruction. Many times the evidence gained by the examining hand is the most important aid in the differential diagnosis. The stiffening of the belly muscles imparted to the hand, and the marked universal muscle-spasm and rigidity which is noted in peritonitis, is generally not noted (and if so, not to such a degree) in acute intestinal obstruction.

In the late cases the abdominal wall in most instances remains flaccid and retains more or less of its normal softness. Furthermore, by inspection it is to be noted that in peritonitis abdominal breathing is apt to be less marked and often entirely absent; the abdominal muscles are held rigid, and also it should be observed as to whether or not there are any signs of intestinal movements. Absence of all signs of movements, visible peristalsis, etc., may be considered an index of the presence of peritonitis; whereas an increased peristalsis, when noted, points in favor of obstruction. Wilms considers peristaltic movements of considerable aid and says: "When they are stopped at a certain point, this characteristic stoppage of the peristalsis at a given point fixes the diagnosis."

It is, of course, of all importance to determine the character of the lesion and its position in the abdominal cavity, if possible; we know that the two types most commonly met with are mechanical and septic. The character and location of the pain in postoperative ileus is, as a rule, of no diagnostic value as a guide to the seat of the lesion, and is often misleading.

Local tenderness, as elicited by pressure with the examining hand, is, as a rule, entirely absent at first in the obstruction cases and always present in the peritonitic cases. Limited tenderness may appear about the second or third day and it is a symptom, when noted, of diagnostic value, as it may be restricted to the actual seat of the lesion and, therefore, of more value than the spontaneous pain which is always present. Diffuse tenderness generally indicates the onset of peritonitis and is always a symptom of marked clinical value.

The changes brought about in the bowel by an absolute occlusion are identical with those which attend a strangulated hernia. The bowel above the obstruction is red, congested and distended; below, the bowel becomes white and collapsed and the coil involved grows livid and purple. The afferent loop (that above the seat of strangulation) is distended, becomes paralyzed and is filled with gas and fluid, and the bowel wall which previously was impervious to the passage of bacteria now permits migration of bacteria and the absorption of toxins from the obstructed loop. Buchard, who was the first to call attention to autointoxication, and after him Mussat and Humbert, states that the general appearance of depression symptoms seen in ileus are brought about by the aborption of poisonous material from the stagnant and decomposing intestinal contents. Distension of the abdomen is at first comparatively slight and appears more marked about the third day, and is less marked in cases attended by extreme vomiting.

METEORISM.

Meteorism, when noted, is usually due to the rapid formation of gas in the lumen of the intestines. This interesting condition formerly was assumed to be due to the accumulation dependent on the simple fact that the bowel was blocked up. This has long since ceased to be a satisfactory explanation as to the matter of gas formation, and the pathology of meteorism is a subject about which there has been much discussion.

Much experimental work has been done in this line. The valuable series of experiments as performed by Kader[16] are as instructive and interesting as any of more recent work. The results of his experiments go to show that when the obstruction of the bowel is associated with marked interference with the blood supply of the mesentery going into the strangulated loop the formation of gas develops much more rapidly than in cases in which the bowel wall alone is pinched, without strangulation of the mesenteric vessels (Fig. 1). In no form of intestinal obstruction is meteorism more sudden and more severe than in volvulus of the sigmoid flexure. The enormous distension to which the colon is capable is well illustrated by the accompanying drawing (Fig. 2), which is a distended sigmoid, the result of a volvulus of the sigmoid with thrombosis of the mesenteric vessels; the distended section was gangrenous and was resected by me. It has also been shown in experimentally produced ileus that where the return venous flow from the constricted loop is obstructed or strangulated that this condition in itself is the greatest factor in producing the most marked symptoms, and, furthermore, when the arterial supply is cut off, the symptoms are slower in becoming manifest.

Vomiting is one of the earliest, most common and most persistent of the symptoms. Treves[17] considers vomiting under three heads as follows:

1. The vomiting which appears at the very commencement of an acute case he considers to be reflex and of precisely the same nature as the vomiting which follows a wound of the abdomen or other injury. Such sickness may be coincident with the initial pain and may be one of the earliest manifestations.

2. The vomiting which marks the close of a fatal case of obstruction, and it is very often the vomiting of a rapidly increasing septicemia.

3. The vomiting which occurs during the progress of intestinal obstruction, excluding the initial vomiting in acute cases and the final vomiting in fatal cases, depends for the most part on the actual obstruction in the lumen of the bowel.

It is first persistent and copious in its onset and consists of the stomach contents, then it becomes bile-stained, and finally has an intestinal odor and is called stercoraceous vomiting. It is persistent until the end, unless the case is relieved. It used to be considered due to reverse or antiperistalsis, but recent experimenters have shown that it is not due to reverse peristalsis, but largely brought about by contraction of the diaphragm and of the abdominal muscles and of the mutual pressure that the distended coils exercise one on the other along the normal peristaltic movement of the bowel.

Indican recently has been shown to be present in empyema, cancer of the uterus and stomach, extensive suppurative processes, and for these reasons its presence can not be reckoned as of any especial diagnostic value.

SHOCK.

In the attempt to explain the marked depression and intense peritoneal shock which is observed in these late and unrelieved cases there has been considerable discussion and wide diversity of opinion. According to Nothnagel[21] two distinct views are advanced as the causes for these symptoms; one is the "nervous reflex theory" and the other the "intoxication theory." Autointoxication, which was first called attention to by Bouchard, seems the most plausible explanation. There is absorption of the poisonous material from stagnant and decomposing intestinal contents. Especial attention in the last few years has been given to this and much experimental work has been done by Albu, Kukula, Clairmont and Ranzi.

The outcome of these experiments goes to show that the filtrate of normal intestinal contents injected into animals produces results almost entirely negative; but the filtrate from the distended coil in an obstruction case gave serious symptoms, and often fatal results. Kukula showed that after injection into the peritoneal cavity the animals showed salivation, pronounced vomiting, diarrhea with tenesmus, and in some cases the animals showed a marked picture of collapse and prostration; peritoneal injections gave more pronounced results than subcutaneous. Wilms, in his work on ileus, is of the opinion that the absorption of poisonous gases does not seem to have much effect on men, and is of the opinion that autointoxication in many cases of ileus is the chief cause of death.

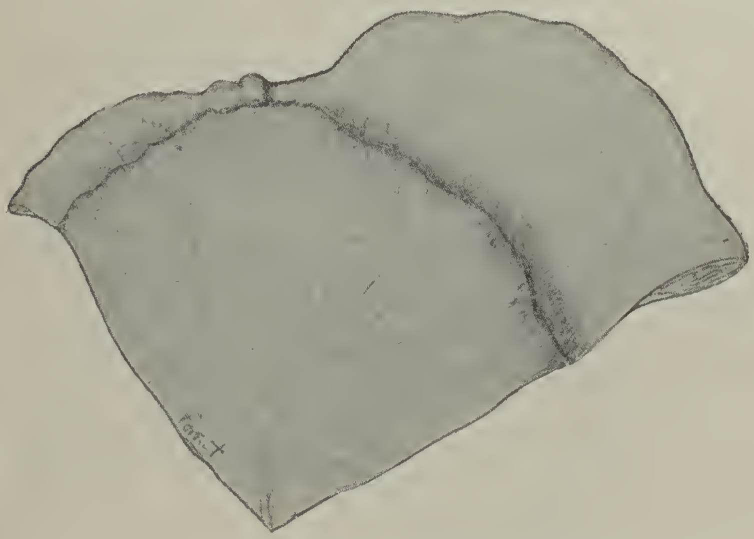

Fig. 3.—Obstruction of small gut, due to cicatricial contraction in the pinched knuckle of gut, following a strangulated femoral hernia—operated on for obstruction several months after the hernia operation.

Borszeky believes in the possibility of a general bacterial infection. He ligated the colon of twenty-four rabbits and recovered the *Bacillus coli communis* from fifteen; in eleven of these the *Bacillus coli communis* was recovered from the peritoneal cavity; in seven from the blood; and in four from both the peritoneal cavity and the blood. Death was brought about in sixteen of these cases before any anatomic changes in the peritoneum or necrosis of the intestinal wall were noticed, so that he is of the opinion that a general infection of the blood with bacteria, especially *Bacillus coli communis,* is the principal cause of the symptoms of ileus. Clairmont and Ranzi have in more recent times still further studied the subject of autointoxication and are of the opinion, with Kukula, that the reflex theory of the symptoms of ileus is no longer tenable. But they are strongly of the opinion that the symptoms of collapse and depression are entirely due to autointoxication, and are identical with those which mark the end of a fatal sepsis. Treves[17] graphically says:

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[16] Deutsch. Ztschr. f. Chir., 1891, p. 57.

[17] Intestinal Obstruction.

[21] Diseases of the intestines and peritoneum, page 394.

> There is about the patient who is dying of acute intestinal obstruction every suggestion of a poisoned man. He lies back in bed prostrate, with gaunt cheeks and sunken eyes. His pain had vanished, but some haunting fear has taken its place. The hands, which wander with pathetic restlessness over the bed-clothes, are cold and damp. Beads of sweat stand on the brow. There is still continued vomiting. The pulse has sunk to an uncountable thread. The breathing is labored and accompanied with faint sighs and groans, and the countenance is ashen and livid. Such a picture makes a reality of the metaphor of "the shadow of death."

A question which has a very particular bearing is, whether the intestine which has been for a long time strangulated ever becomes entirely normal again or not. Buchbinder from his experimentations is of the opinion that if the intestine has been for any considerable length of time strangulated, often it will never return to absolutely normal, but the walls remain more or less thickened and the peristalsis in this part of the intestine may be interfered with. The accompanying drawing (Fig. 3) bears on this point and illustrates this condition very clearly (Case 3 in my series). In my list of herniotomies, including all cases of hernias and all varieties, reducible, irreducible, inguinal, femoral or umbilical, strangulated or non-strangulated, there has been but one case of postoperative ileus, this one as shown in the drawing.

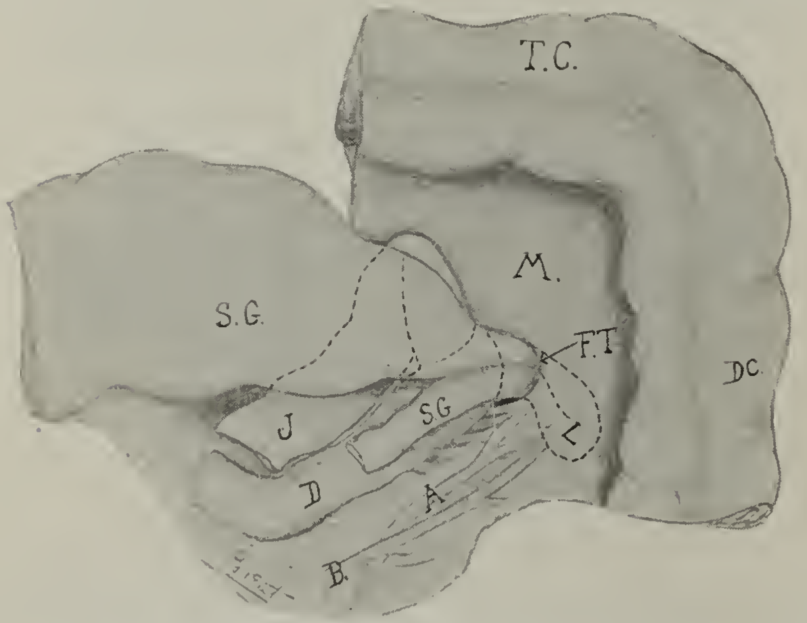

Fig. 4.—This illustrates obstruction due to a knuckle of gut caught in the fossa of Treitz; at the second operation no adhesions were found, whereas, there was every reason to believe that the obstruction was due to adhesions following general peritonitis. D., ascending duodenum; J., jejunum; A., inferior mesenteric vein; B., colica sinistra artery; M., mesocolon; L., strangulated loop of small intestine; F. T., fossa of Treitz; D. C., descending colon; T. C., transverse colon; S. G., strangulated gut.

A question which is of particular interest to surgeons is as to the disappearance of adhesions following cases where the abdomen has been opened for diffuse general peritonitis. It has been my experience, and I am quite sure the experience of all surgeons, to open secondarily the abdomen and find all adhesions cleared away, as in Case 2 in my series, where I had every reason to believe that the obstruction was due to adhesions following general peritonitis, but at the operation it was found to be due purely to a knuckle of gut caught in the fossa of Treitz, and no adhesions whatever were found as the result of the old peritonitis, as illustrated by accompanying drawing (Fig. 4).

Likewise, in Case 18 in my series, where a diffuse general peritonitis has been noted, at the secondary operation for the cure of a fecal fistula, no adhesions were observed. Both of these patients had been subjected to the same treatment; much traumatism had been inflicted by peritonitis, extensive gauze and rubber tube drainage had been used, yet the adhesions had entirely disappeared. In other cases, however (as in Case 14 in my series), they remain and are the cause of many of the postoperative cases now under discussion. In this case no drainage was used; abdomen closed, and then on secondary operation the abdomen was found full of adhesions, matting up the intestines everywhere.

This is an extremely important point and it illustrates that the surgeon, as a rule, can do very little to prevent the formation of adhesions or their subsequent disappearance. Every precaution should be taken to avoid inflicting undue traumatism on the intestines and peritoneum; the intestines should be kept within the abdomen as much as possible and prevented from being cooled or getting chilled. One of the most important factors is to have "blood free technic," to have the abdomen when closed as dry as possible and to prevent any oozing of blood from occurring.

Walthard is of the opinion that since asepsis has replaced antisepsis the air dried the serous covering of the intestines and therefore advocated moist asepsis. In 1895 there was a wide discussion regarding this matter by Zweifel, Schauta, Skutsch, Thaufer and Uhlmann. These men pointed out that dry asepsis did not cause adhesions to any great extent, and that some operators had more cases of postoperative ileus following moist asepsis than before.

Wormser reported five cases of severe postoperative ileus in a short time after the beginning of the use of moist asepsis. One of the most essential things, in my mind, is the avoidance of much gauze packing. I believe it to be an important factor in the production of adhesions. In my work I have largely abandoned it; I use gauze drainage, but protected by rubber tissue, so that the peritoneum of the intestines does not stick to the gauze. The use of castor-oil and other cathartics is of doubtful value in my mind.

PROGNOSIS.

The prognosis of postoperative mechanical ileus is better than the prognosis of paralytic or adynamic ileus. It depends largely on how soon operative procedures are brought about, and still further it is naturally influenced by the nature of the original illness which calls for laparotomy, and the nature of the causes of the obstruction. If the original condition was a simple one, calling for an operative procedure that was not complicated, the causes of the obstruction in many cases can be easily removed at a second operation; but, if the adhesions be due to inflammation or abscess formation, such as is seen in complicated appendicitis as a result of drainage or what not, the difficulty with which the adhesions become loosened is much more pronounced. The possibility of reinfection is very great; the prognosis in such cases is very much worse.

In my own experience with postoperative ileus and from the study of the few cases I have had, I believe that by carefully noting the warning symptoms occurring after operation that it is not difficult to make a diagnosis at a time sufficiently early that operative intervention will offer a fair promise of success. In a case where there is any doubt, I always have the stomach washed out and give absolutely nothing by mouth, relying on enemas of physiologic salt solution. Now, if it be noted after the usual therapeutic measures fail that there is still acute, abdominal pain, persistent vomiting and high leucocytosis, with inability to get movement of bowels or passage of gas, and there is still tenderness over seat of pain, with evidence of peritoneal shock or depression, I am convinced that prompt operative relief is called for and should be executed speedily.

THE SITE OF INCISION.

The selection of the incision varies. Usually I think the right or left rectus incision is to be preferred; I prefer not to go in at the site of the old incision, which is usually (in the infected cases) an unhealed wound from the drains that have been used in the primary operation. If it is an early case I believe in searching for the obstruction, finding it, and relieving it if possible without a resection. In the later cases where the intestine above the point of obstruction is much distended and ballooned, filled with fluid contents, and the seat of the obstruction difficult to find without undue shock, an enterostomy should be done as a quick operation, for the mortality following resection in these late distended cases is extremely high. The enterostomy will get rid of the foul, poisonous intestinal contents and prevent further autointoxication which is killing the patient, and a second operation can be done, if necessary, later. The earlier the operation can be done the greater the chance of doing a complete operation with success. It is surprising to note the immediate change in the picture; there is a sudden transition from great suffering to comparative relief; pain ceases and vomiting stops at once. The pinched, facial expression changes and improves. This is especially seen in these cases of the strangulation variety where the vessels of the mesentery have been involved in the pinch.

RESULTS.

No results in any surgical work are more gratifying than those following a successful operation for the relief of strangulation ileus. From the study of my own cases it is noted that in the majority of the cases they have appeared early, before the patient has left the hospital, usually between ten days and three weeks following operation. In this series there are eight cases which occurred early and the causes of the obstruction were acute adhesions. The earliest case noted occurred on the fourth day, and the latest one on the twenty-third day. All of them occurred before the patients left the hospital.

One (Case 2) was due to an acute strangulation of a knuckle of small bowel in the fossa of Treitz. One (Case 13) due to Meckel's diverticulum; one (Case 18) from pressure of large pelvic abscess; seven cases occurred at various intervals, from several months to several years, following primary operations due to adhesions. Only one case (Case 3) in this series was caused by the late results of a pinched bowel following strangulated hernia. The seat of the obstruction in all of these cases was found in the small intestines, generally somewhere near the lower ileum. In three of the fatal cases (Cases 10, 11 and 12) there was associated with the condition of obstruction, peritonitis at the time of the operation, and in two of these cases it was difficult to say which preceded; whether the obstruction was followed by peritonitis, or the peritonitis followed by obstruction. They died from the results of continuation of the peritonitis, the obstructive symptoms having been overcome. In this list of nineteen cases there have been fourteen recoveries and five deaths, making the percentage of recovery 73 per cent.

CONCLUSIONS.

1. Postoperative ileus is by no means a rare condition.

2. The percentage of cases following laparotomies of all kinds ranges anywhere from one-tenth of 1 per cent, to 2 per cent.

3. The differential diagnosis between the pseudopostoperative ileus and the true mechanical ileus in the early stages is exceptionally difficult.

4. Prognosis in true mechanical ileus is far better than adynamic ileus. In the absence of infection the prognosis is generally good.

5. The chief factor in the causation of ileus is adhesions, and the only rational method of dealing with such cases is prompt operative interference.

CASE 1.—Miss M. was admitted to St. Joseph's eighteen months after operation for appendectomy, with symptoms of intestinal obstruction which had existed one week. When the abdomen was opened under ether a rupture of the intestine was found which was due to strangulation by a band of adhesion in the right iliac fossa the result of gauze drainage. Resection of the gut was ineffective, death occurring on the following day.

CASE 2.—C. H., male, aged 16, admitted April 24, 1902. Previous operation, appendectomy for acute, gangrenous, perforated, suppurative appendicitis with general peritonitis: a large quantity of gauze drainage used. The appendix was removed; abdomen was full of pus everywhere, up under liver, down in pelvis; four incisions were made in order to get thorough drainage.

Through these openings the peritoneal cavity and intestines were flushed out with physiologic salt solution and free drainage put down in pelvis on either side, consisting of gauze and rubber tube combined, and the same character of drainage was used through and through from front to back. Patient made an uninterrupted recovery from the general peritonitis; he drained for some time and left the hospital, thirty-nine days after entrance, apparently entirely recovered. He had a small granulating surface in right side. He returned to the hospital forty-three days following previous operation with pronounced symptoms of intestinal obstruction. Two days before his admission he was seized with sudden, severe cramps in abdomen around the region of umbilicus, radiating in various directions; immediately following these cramps he began to vomit, and vomiting and pain were persistent. There was very little peristalsis noted and only slight, if any, abdominal distension. Leucocyte count was high, 40,000; there was no increase of temperature noted, and pulse gained in rapidity; slight wound which had not entirely cicatrized up from previous operation; other wounds healed.

Operation.—Operation was done on day of entrance, April 24, 1902. Incision made through left rectus, and as soon as peritoneum was opened bloody serum was noted in abdomen, and ballooning of small intestines which were excessively engorged, congested, and dark in color. The obstruction was due to a loop, not larger than 1½ or 2 inches, of small intestines having been pushed into and caught in the fossa of Treitz.

Constriction was so tight I thought bowel would give way, but the marked congestion of bowel soon grew better and contents passed on into distal end of bowel. To my great surprise very few adhesions were found in abdomen; this I thought would be the cause of the obstruction on account of the serious peritonitis he had had so recently, as above stated. The entire peritoneal cavity and intestines seemed free of adhesions. Abdomen closed without drainage. Patient immediately ceased vomiting and the wound healed under one dressing. Good recovery.

CASE 3.—Miss M. M., aged 50. Primary operation November 13, 1902, for acute, strangulated, femoral hernia. She made an uninterrupted recovery. My attention was not called to her until Jan. 18, 1903. Examination revealed definite postoperative obstruction; the obstruction was not complete, but I said she should be operated on, but operative interference was declined until January 23. The obstruction was now complete and I sent her into hospital and operated on the morning of the twenty-fourth.

Operation.—When the abdomen was opened the coils of small intestines were found stiffened, ballooned, and distended, and in searching for the seat of obstruction it was found to be in this knuckle of bowel which had been strangulated in November. The loop had never recovered from the pinch, it had cicatrized down and had completely obstructed the small intestine. It was some several feet away from ileocecal valve. Patient was in a most unpromising condition, and a lateral anastomosis was made, side-tracking off this obstructing loop, but as the operation was done late, and the patient's condition was so bad, the outcome was not successful and she died within the next thirty-six hours. This is the only case in all of my hernia work, strangulated or non-strangulated, where postoperative ileus followed. Diagram (Fig. 3) indicates seat of stricture.

CASE 4.—F. L., male, aged 29, admitted March 17, 1903. Primary operation for acute, perforated, suppurative, post-cecal appendicitis. Gauze drainage was used freely; tucked off post-cecal cavity. It was noted at time of operation that there was a knuckle of small bowel adherent to the side of the pelvis; this was freed and gauze tucking placed in this region. All went well with him until evening of March 31, when obstructive symptoms began; pain persisted, vomiting was continuous; he had no fever, but marked increase in leucocytes, 25,000. There was a complete change from a convalescent to a dying patient; whole expression changed; pinched, hollow-eyed, pulse increased in rapidity.

Operation.—Operated twenty-four hours from onset of symptoms; incision made through right rectus; small intestines were found ballooned as soon as abdomen was opened, and numerous tight adhesions were found down in right iliac fossa adherent to drain tract from previous operation; one loop was entirely obstructed by a band made up of adhesions encircling and completely shutting off lumen; this was dissected loose and obstruction released. Abdomen was closed, vomiting stopped immediately, and patient made an uninterrupted recovery. He was seen August 31 of same year; was entirely well and had a good abdominal wall.

CASE 5.—W. L. T., aged 40. Symptoms of intestinal obstruction developed three weeks after appendectomy followed by peritonitis. The abdomen was opened, the obstruction relieved, the abdomen closed without drainage. Vomiting stopped immediately, wound healed under one dressing, and he was allowed to convalesce, but a second operation was necessary to close the fecal fistula.

CASE 6.—Miss S. F., aged 48. Obstruction following hysterectomy; ileum found gangrenous; operation unsuccessful.

CASE 7.—Miss M. B., aged 24. Obstruction a year after appendectomy without drainage, but slow healing in consequence of infection and removal of sutures. Operation with good recovery.

CASE 8.—Miss M. V. H., aged 12. Obstruction eighteen days after appendectomy with gauze drainage.

Operation.—On June 11, 1904, I shut off drain track as best I could, opened abdomen through right rectus. A lot of thin, bloody serum was found in the abdominal cavity and the small intestines were ballooned, distended, congested, and on tracing these distended coils down to right ileocecal region they were found completely strangulated by adhesions absolutely occluding bowel. Coils below seat of obstruction were collapsed and pale. The adhesions were broken up and the lumen of bowel freed without injuring bowel wall. The peritoneal surface of bowel was torn in several places in getting it up, and peritoneum was whipped over with fine silk. As soon as the obstruction was released the contents in the afferent loop passed on into the collapsed loop, showing that the obstruction was released. The patient was profoundly shocked and it was feared she would die on the table. Physiologic salt solution was given freely and reaction was prompt, vomiting ceased at once, and she went on to a perfect recovery.

CASE 9.—Mrs. W. B. T., aged 45, had obstruction seven years after double oophorectomy.

It was impossible to locate the point of obstruction, but it was manifest that such existed. She had no fever and leucocytosis of 24,000.

Operation.—Nov. 6, 1904, I opened abdomen through right rectus, and as soon as peritoneal cavity was opened a quantity of dark, muddy seropurulent fluid escaped; the small intestines were markedly engorged, of a deep red color and considerably distended. On searching in the upper abdomen I pulled up a knuckle of small intestines where a constricting point had held it tight; distal to this the bowel had collapsed and the afferent loop was markedly distended and congested; this point of obstruction was in the small intestines about 18 or 20 inches from the ileocecal valve, and was due to a knuckling of the intestinal wall on itself; the peritoneal surfaces were stuck together, making a knuckle at the point where the adhesions had held it. In separating this exudate, which was thrown out between the two surfaces of the peritoneum, the wall of the bowel looked ugly, black, and a little area of gangrene was unquestionably present; lumen of the bowel was not opened. By separating these adhesions and opening up the kinking, I was able to pass my little finger through the lumen of the bowel by invaginating the bowel on it into this strictured area, and gradually got it opened up in this wall, so that the gas and contents of the intestine passed through. This seemed to give sufficient opening, and I deemed a lateral anastomosis, which I had almost concluded to do, unnecessary. As she was practically in the beginning of a general peritonitis I desired to do as little as was possible to give her relief. A knuckle of the small intestines nearer on to the ileocecal valve was adherent by a tense adhesion to the anterior abdominal wall; there were other adhesions down in pelvis, but none seemingly doing harm. The acute distension of afferent loop subsided and abdomen was closed without drainage. She made an uneventful recovery and remains well to-day.

CASE 10.—M. R. P., male, aged 25, admitted March 19, 1904. Primary operation, appendectomy for gangrenous appendicitis, with abscess. Drainage. March 23 he vomited and had pain in the abdomen. All efforts to move the bowels were ineffectual.

Operation.—Operated on March 25, 1904; opened abdomen in midline and found small intestines stiff, distinctly engorged, congested and distended. Searching for some cause for the distension, I passed my hand down to his right side where appendix had been removed, and found the drain track shut off from the general abdominal cavity, and found there a knuckle of small intestines tightly tied down by inflammatory exudate, obstructing the lumen of the bowel at this point. On pressing it down in the pelvis I found an additional coil which was obstructed by being held by inflammatory exudate, which went to make up the wall of an abscess, which was found in the pelvis. After this was pulled loose a large abscess was found filling the pelvis and several coils of intestines sticking around, making up the wall of the above-mentioned abscess. On these coils of intestines was thickened, stiff, fresh exudate, which stuck the coils of intestines together to roof in the abscess; the abscess was evacuated, wiped out, and large bits of sterile gauze drainage tucked down into pelvis to drain it. The intestines were, as I said before, deeply engorged, and there was a beginning diffuse general peritonitis. He became profoundly shocked on the table and did not respond to the operation; his shock increased and he died the following morning.

CASE 11.—H. D. B., male, aged 26. Obstruction following appendectomy. Operation to remove knuckling of small intestine unsuccessful; continued obstruction necessitated enterostomy, which was performed without relief.

CASE 12.—M. F., male, aged 24. A few days after an exploratory operation for examination of the kidney, persistent vomiting began, leading in a few days to a condition for which it was determined to operate. Numerous knuckles of intestines were found adherent to cicatrix with complete obstruction of intestine about four feet from the ileocecal valve. Although the obstruction was relieved by operation, the injury to the intestine resulted in death in about a week's time, probably from peritonitis.

Case 13.—R. M., male, aged 11. Obstruction due to Meckel's diverticulum occurred two years after operation for appendicitis. Operation; recovery.

Case 14.—Miss A. M., aged 34. Mechanical intestinal obstruction twelve years after double oophorectomy and hysterectomy. First operation gave only partial relief; second likewise; third operation was followed by permanent relief.

Case 15.—Miss M. S., aged 24. Mechanical postoperative ileus following curettement. Obstruction due to the wrapping of small intestine around a mesentery held fast by adhesion from old peritonitis. Recovery after operation which involved great shock and necessitated the injection of salt solution while patient was on the table.

Case 16.—Miss M. M., aged 22. Obstruction following curettement in which the abdomen had not been opened.

Operation.—May 24, 1906, her condition was most unpromising. The abdomen was filled with dark, bloody fluid, the intestines intensely congested and bound down by adhesions in two places and almost the entire length of the small intestines was twisted around on the mesentery in the form of a volvulus, and the mesentery was so tightly twisted that the vessels were strangulated and apparently gave rise to this thrombosis. Uninterrupted recovery followed.

Case 17.—Miss E. S., aged 17; admitted June, 1906. Primary operation by another surgeon, appendectomy and nephrotomy in 1904. This was an incomplete mechanical obstruction from adhesions. Uninterrupted recovery.

Case 18.—Miss E. C., aged 17; admitted Nov. 17, 1906. Primary operation, appendectomy for acute, gangrenous appendicitis, with general peritonitis; appendix was removed, and abdomen drained with gauze drainage and large tube in pelvis, and patient put up in Fowler's position. On the morning of December 4, I found she had obstruction.

Operation.—I opened down again into pelvis and evacuated a large quantity of pus which had caused the obstruction of bowel; this obstruction was of a septic character. It was noted a few days following the secondary exploration of the pelvis for drainage that the bowel wall in the drain track became more and more distended and finally ruptured, and a large fecal fistula formed. In this way the bowel emptied itself and the distended abdomen went down.

Gradual recovery from the septic condition followed. The second opening of the abdomen showed no adhesions.

Case 19.—Spastic ileus following appendectomy. Recovery. This was a chronic case, and the vomiting, the principal symptom, was due to the bowel being caught and held by adhesions from the former operation.

DISCUSSION

ON THE PAPERS BY DRS. LENNANDER, M'CLURE, CANNON AND MURPHY, ROBERTS, MARTIN, MUNRO AND MAYO, IN THE SYMPOSIUM ON ILEUS.*

Dr. S. J. Meltzer, New York, stated that while he did not relish the idea of discussing the paper of a man who is not present and can not controvert his argument, yet he was persuaded to enter into a discussion of that paper by the belief that the majority of surgeons entertain the same views as expressed in the paper by Professor Lennander with regard to the question of pain in abdominal organs. Professor Lennander's paper, he said, contained three main statements. One is that in the many laparotomies which he has performed under local anesthesia he has invariably observed that the gastrointestinal canal is not sensitive to pain. The second statement is that there are no nerve fibers going to the abdominal organs. The third is that the abdominal pain which well and sick people actually do feel is due to some irritation of the parietal peritoneum. Dr. Meltzer claimed that the last two statements are mere hypotheses; only the first statement is a fact and a fact which he did not intend to question. On the contrary, he was deeply impressed with the painstaking careful method by which Lennander established this fact, a fact which was observed by many who paid attention to that question. In a long series of experiments carried out on dogs by Dr. L. Kast and Dr. Meltzer at the Rockefeller Institute, they established beyond a doubt that the intestines of dogs are very sensitive to pain, and that this sensitiveness is greatly increased by inflammation.

Dr. Meltzer suggested that one might think that the difference is due to a difference of animals, that the intestines of the human animal have no nerve fibers for pain, while the intestines of the other kind of animal, the dog, have. That is, to a degree, true. The intestines of rabbits, for instance, do not seem to be sensitive to pain. But the intestines even of rabbits are not deprived of pain fibers. Electric stimulation of the mesenteric nerve fibers accompanying the blood-vessels causes pain. In looking for other explanations, Kast and Meltzer discovered that cocain has the property of abolishing pain not only locally, but also in distant parts, through the circulation, especially in the intestines. In the case of dogs, which before have shown a great sensitiveness to pain, if a small dose of cocain, one-sixth or one-third of a grain, is injected anywhere, preferably in a muscle, within two or three minutes the sensitiveness disappears completely. Not only does the pain disappear, but the animal is also quieted in a remarkable degree.

Lennander, in all his laparotomies, used five centigrams of cocain. Kast and Meltzer therefore suggested that, possibly, the absence of pain in the gastrointestinal canal in the human being during laparotomy may be due to the use of cocain. Of course, Dr. Meltzer said, there is a difference in the weight between the experimental dog and the operated human being, a very great difference; but they found that one centigram of cocain might have the same effect on a dog weighing fifteen kilos as on a dog weighing four or five kilos only. He suggested that five centigrams might be a sufficient dose even for a human being.

While it is true that the intestines of dogs are sensitive to pain, Kast and Meltzer found that this sensitiveness disappears temporarily if the opening of the abdomen and the escape of the intestines occur rapidly. The sensation of pain would then disappear for five or ten minutes and sometimes for a much longer period of time. Sometimes the sensation of pain never returned, and the animal went later into shock. During the period of mere painlessness the blood pressure remained high and the heart-beats were unchanged.

In Dr. Meltzer's opinion this disappearance of pain in that case is one of the early symptoms of shock, a symptom from which the animal recovered. He does not think that shock is due to a fall of blood pressure, but that loss of pain, increase of heart-beats, fall of blood pressure, and perhaps still some other functional changes are correlated symptoms due to the onset of something else, and this something is the development of a state of inhibition.

With regard to the profound effect which the simple opening of the abdomen has on the motor conditions of the gastrointestinal canal, Dr. Meltzer said that if one stretch out a normal rabbit on its back, cut off the hair and watch the abdomen, he will discover, without any trouble, that the stomach and cecum show steady, strong rhythmical movements. But open the abdomen under any precaution and with any rapidity, and not a trace of these movements can be discovered. The opening of the abdomen causes their disappearance. In experiments carried out by Dr. Auer and Dr. Meltzer, they firmly established for the cecum that the disappearance is due to reflex inhibition. The cut and the opening of the abdomen inhibit the motor phenomena of the gastrointestinal canal.

Dr. Meltzer also suggested that as for the motor phenomena the simple incision and opening of the abdomen causes in some species of animals an inhibition of the sensation of pain. In conclusion, Dr. Meltzer stated briefly and emphatically that from observations made at laparotomies no unqualified conclusions can be drawn as to the actual state in normal conditions.

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* The papers of Drs. Lennander, Roberts and Cannon and Murphy appeared in The Journal, September 7, those of Dr. Munro and Mayo, September 14.

Dr. W. G. MacCallum, Baltimore, regarded the paper by Dr. Cannon as of first importance in connection with the distinction between the two types of alteration in the motility and power of motility of the intestinal tract; that is, as the result of changes in the walls of the intestinal tract and changes in the innervation of this tract. He cited two observations which support Dr. Cannon's conclusions very well. One of these illustrates the change which takes place in the wall of the intestine itself and which may confirm, in a way, the remarks made as to the effect of peritonitis on the motility of the intestines. This was a case in which there was every symptom of intestinal obstruction quite high up in the intestine. At the operation there was found to be no sign of a mechanical obstruction to the intestine, although certain portions of the intestine, notably the duodenum and jejunum, were quite rigid. The patient died soon after the operation, and at the necropsy there was found no obstruction of the intestine of organic character, but the entire upper part of the small intestine was converted into a rigid tube like a garden hose. At the operation it was noted that this did not exhibit any signs of peristalsis. Macroscopically and microscopically it was determined that this was due to an inflammatory process in the intestinal wall. It was infiltrated with leucocytes and streptococci. A phlegmonous enteritis had affected the wall of the intestine and had caused a paralysis so complete as to give rise to symptoms of obstruction. Dr. MacCallum thought that, to a certain degree at least, this same process offers an explanation of the paralysis of the intestinal wall in peritonitis.

The other case illustrated the effect of the disturbance of innervation. The case was observed by Dr. Halsted. There were manifested all the symptoms of intestinal obstruction, with great distension of the intestine and vomiting. An operation was undertaken for the relief of this condition, but no obstruction was found. Later, at the necropsy, there was found a dissecting aneurism which had resulted from a break in the wall of the aorta high up. There occurred an infiltration of blood into the walls of the aorta and retroperitoneal tissues, which extended quite low down into the lumbar regions. This, Dr. MacCallum thought, was probably an affection of the splanchnic nerves, the result of the infiltration of blood and the stimulation of the nerves. He believed that these observations fall in line with Cannon's results and, perhaps, confirm them.

As to the experimental work carried out at the Johns Hopkins University, and mentioned by Mr. McClure, Dr. MacCallum emphasized what he said and gave it as his conviction that here they had to deal with symptoms of intoxication rather than with any nervous disturbances. It was remarkable, he said, to notice the alterations which took place in the contents of such obstructed intestinal loops, as far as the development of bacteria was concerned. There are relatively few bacteria in the upper part of the intestine in the normal state. It was impossible to cultivate many bacteria from that portion of the bowel; but after the obstruction had occurred, the whole obstructed portion acted exactly as a test tube culture put in a thermostat. The intestine became filled with masses of bacteria.

As to the migration of the bacteria, in connection with what Dr. Mayo said, Dr. MacCallum is convinced that bacteria do not wander through the intestinal wall, unless there is disturbance of nutrition, as in strangulation of the bowel, when there takes place a rather rapid migration of the bacteria. Without any disturbance of the circulation it was not possible to determine the presence of bacteria either in the intestine or in any other organ or tissue, but in the process of distension which occurs after obstruction, there very rapidly occurs a disturbance of nutrition of the wall over the distended portion. Dr. MacCallum stated that the consequent disturbance of the circulation, as has been pointed out by Kocher, is the cause of the formation of ulcers, which as Mr. McClure said, were spoken of as "Dehnungsgeschwuere" or distension ulcers by Kocher. Unless, then, there is disturbance of nutrition in the intestinal wall, the bacteria are confined to the intestine and there is absorption of toxic products only into the general circulation.

Dr. J. W. Draper Maury, New York, spoke of the work done at Columbia University, where they studied the effect of blockage of the intestine in what has already been alluded to as the "aseptic area." Almost all of the work has been done in the primitive foregut; that is, in the gut arising from it. The technic was as follows: The intestine was closed at a point varying from two centimeters oral to the bile duct to a point thirty-five to forty centimeters aboral to it. The closure was not made by ligature because it was thought not sufficient to close it, but the bowel was cut and turned in so as to be certain of the closure. A piece of twine was placed so as to cut out a piece of intestine and stomach on the principle of the McGraw ligature. This removes a triangular piece in from seventy to one hundred hours. The stomach and this loop are blocked absolutely for a specific time. This time, although varying somewhat in different individuals, is, on an average, the same. It was noted that if the obstruction was made from one to thirty-five centimeters aboral to the bile duct, the dogs invariably died of tetanic convulsions. If, however, it was made aboral to the thirty-five centimeter line, the animal lived until this triangle cut out and gave drainage. If the drainage was instituted at the time of the operation, either of the stomach or of the loop, by an enteroenterostomy or by an open enterostomy, the dogs always lived. The dogs also lived if instead of making the opening aboral to the duct it was made oral. A portion of the pylorus may even be removed. This involves a greater nervous element so that one can hardly consider shock to enter into the thing at all.

Thus if the obstruction be placed at the pylorus, the dogs will survive a complete closure of the stomach until this triangle cuts out and apparently suffer no discomfort. Dr. Maury thought that these cases prove that the convulsive agent in the bile is the cause of death in certain forms of high intestinal obstruction.

Apropos of what Mr. McClure said Dr. Maury stated that in some work done at the laboratory for Dr. Blake they occluded portions of the colon, after cleaning them out and then left them in place. They have done only a few of these, but the dogs lived, and although the occluded part of the intestine was cleaned out mechanically, on examination, some months later, it was found full of material of a fecal odor. He was very much interested to know why they did not die if death from obstruction is due to bacterial infection. Toxins would presumably be absorbed as readily from such an occlusion as from an obstruction. This duodenal loop, in most of the cases observed, had not been dilated materially. They have tried to drain this loop by a tube into the stomach, thinking that pylorospasm might have something to do with it, but the animals died just the same. Cases blocked just aboral to the duct of Santorini terminated fatally, and cases blocked 35 centimeters aboral to it did not. This, and the interesting work done by Dr. Meltzer on the toxicity of the bile, led them to believe that there must be some relation between the bile or the pancreatic juice and this convulsive death.

This work was reported before the Academy of Medicine last month, and Dr. Abbe thought that there was ground for the belief that the pancreatic juice or the bile, either in combination or alone, were responsible. They have transplanted the duct bearing portion of the duodenum. This is not an easy operation, but it can be done by infolding and then transplanting down into the ileum so that the bowel receives wherever desired the bile and pancreatic juice. An analogous condition can also be attained, he said, by the operation of cholecystenterostomy. Their results are not positive as yet, but they think that the toxic element in high obstruction may be of biliary rather than of bacterial origin.

Dr. James F. Mitchell, Washington D. C., having become convinced by a series of observations of the truth of Lennander's findings, that is, that the seat of intestinal pain is in the parietal peritoneum, said that he was much interested in Dr. Meltzer's first report of his work in this field. He thought it would be very instructive, if one could examine the peritoneum of human beings uninfluenced by any drug. Therefore he selected two individuals far removed in the scale of intelligence, realizing the difference in the grade of sensibility of the two persons, and did two explorations, the first on a very intelligent and well educated man; the second on an ignorant negro. The first operation was an exploratory laparotomy on an educated white man for suspected carcinoma of the stomach. The second was done on a colored man with a large irreducible inguinal hernia. In the first case no preliminary dose of morphia was given. The man was placed on the operating table and the field of operation prepared. With normal salt solution, a wheal was produced in the skin as in the ordinary procedure with cocain, except that the wheal was made much larger in order to produce greater tension. The skin was incised through this wheal. The production of the wheal caused no discomfort; but the incision elicited a complaint of pain, in striking contrast to an incision made under cocain infiltration. The anterior sheath of the right rectus muscle was opened and the muscle fibers separated. The posterior sheath and peritoneum were opened in a similar manner and a clamp placed on either edge of the parietal peritoneum. The patient complained bitterly at each step of the incision, and when the peritoneum was clamped cried out with pain. All manipulations were now discontinued for some time, allowing a rest, until the patient said he felt perfectly comfortable. The omentum was then picked up with a clamp, care being taken to avoid the parietal peritoneum. The omentum was clamped and then torn slightly till a bleeding point necessitated the placing of a ligature. In reply to questions the patient stated that there was no sensation. The transverse colon was seized with a clamp and pinched till a distinct imprint of the serrations was left on its surface. The patient said he felt nothing. A clamp was placed on the suspensory ligament of the liver; there was no sensation. The colon was held and its surface rubbed with gauze: there was no pain. Traction was made on the omentum and on the colon and the patient complained of pain. Traction on the suspensory ligament of the liver also caused pain. The parietal peritoneum was rubbed gently with gauze, the patient immediately tightening his abdominal muscles and crying out with pain. In the second case no preliminary dose of morphia was given. The skin was infiltrated with salt solution and an incision made extending somewhat below the external ring. The injection was made rapidly and as thoroughly as possible, producing a wheal much larger than that customary with cocain. The anesthesia produced was slight, the patient complaining as the incision was made. The sac was opened for a distance of several centimeters, the patient complaining as the peritoneum was cut. Small intestine presented and protruded into the wound. After a few minutes' rest, when the patient expressed himself as feeling perfectly comfortable and free from pain, the intestine was seized with a clamp, rubbed with gauze and pricked with a needle. There was no pain, no sensation whatever. The intestine was gently lifted out of the sac without traction, was handled with instruments, with the fingers and with gauze without producing any sensation. When the intestine was further withdrawn so that the mesentery was stretched, the patient complained of a dragging pain and nausea. At this point the skin was injected with 1:1000 cocain plus adrenalin and the incision prolonged upward. The external oblique muscle was divided and the ilioinguinal and iliohypogastric nerve injected with 1 per cent. cocain. The operation was then continued. Just before closing the sac the appendix was inspected and its removal advised, to which the patient consented. The appendix was seized with a clamp and brought through the internal ring into the wound and its base exposed without any difficulty. Traction on the appendix caused the patient to complain of a dragging and nauseating pain which he referred to the region of the umbilicus. The mesentery of the appendix was ligated with fine silk and divided. The tightening of this ligature caused the pain described above. A cuff of the outer coats of the appendix was turned back about its base, and in reply to a question the patient stated that he felt nothing. Care was taken during this procedure to avoid traction, the cecum lying in place at the internal ring. The base of the appendix was clamped, crushed, and burned across with a cautery: there was no sensation during these procedures. A purse string suture was placed about the base of the appendix in the cecum, turning in the stump of the appendix. There was no pain. The small intestines were again tested with negative findings as to sensibility. The edge of the sac was now clamped and drawn on bringing forth a complaint of the same dragging and nauseating pain. The operation lasted two hours, and was completed without any further complaint. The pulse at the beginning of the operation was 60 and at its close 60. The highest pulse rate was 70. This occurred first, when the skin incision was made under salt solution infiltration, secondly, during the division of the neck of the sac, and again during traction on the mesentery of the appendix. These two observations seemed to show exactly the same conditions which are encountered when operating under cocain anesthesia.

Dr. Carl Beck, Chicago, called attention to one point in connection with what Dr. Martin mentioned as to the diagnostic value of the Roentgen ray in intestinal obstruction. This work, he said, has been developed by Holzknecht and Tonas of Vienna. During the past year Dr. Beck examined a number of cases by a method of systematic and repeated exposure at regular intervals after meals and was able to make a diagnosis in some cases in which otherwise the diagnosis by the usual means is impossible. He has been able to bring to operation some very early cases of carcinoma, of adhesions, of the intestinal tract, etc.

Dr. John B. Murphy, Chicago, took this subject from the laboratory to the bedside where surgeons meet it. Nine years ago, he said, he published a classification of ileus and endeavored to give a definite meaning to the term, retaining the term ileus and carrying with that this meaning: Ileus is a complexus of symptoms, occurring, usually in a fairly regular form and order and represented by pain, nausea and vomiting, meteorismus and coprostasis. One must come to the bedside with these four essential symptoms, and arrive at some definite conclusion for action or non-action. Dr. Murphy divided ileus at that time into two classes—dynamic, meaning obstruction to the lumen of the bowel by excessive power of the bowel; adynamic, meaning a paralytic ileus or absence of power in the bowel. If the surgeon will take the intestinal tube and picture it in his mind's eye as an ordinary mechanical tube with the power of expulsion in its own walls, and that power controlled by the nerve supply, ileus is not a dark or disagreeable subject. Dr. Murphy agreed that there have been a number of splendid points brought out by the laboratory work in illustrating subjects that are important. He was pleased that Dr. Meltzer still maintains that there is pain in the intestinal wall under certain conditions. It is there at the bedside. In the last experiment referred to, there was pain elicited when traction was made on the liver ligament. If one take the intestines of dogs on the table and apply traction, the same pain can be elicited as when making traction on the mesentery.

The symptoms of ileus, Dr. Murphy said, in the order of their importance, represent pain, which is usually present, and shock. The intoxications, he said, occur later in the lower intestinal tract, less violently, if it is intoxication that kills, which he still doubts. He had a case, that of a man with strangulation of eight feet of the upper intestine right below the beginning of the jejunum. The man died in forty-nine hours from shock. Take the same amount of intestinal strangulation, in the lower ileum or even in the large intestine, where the intestine is distended to an enormous degree, and there is great shock from the overdistension but not from the absorption. There is still another element, he said, in favor of absorption, which is very striking, and that is, that if one has operated in a case of intestinal obstruction, a nice clean operation, the intestine is returned to the abdomen, the patient collapses when the intestinal contents pass down into the lower segment.

Dr. John B. Deaver, Philadelphia, said that meeting this subject practically and not in the laboratory, one encounters three types of paresis of the intestines—that following immediately operation; that the result of mechanical intestinal obstruction, and that the result of septic peritonitis. The former, in the majority of instances, should not occur. Paresis immediately following operation is in most instances due to prolonged operation, unnecessary intra-abdominal manipulations and prolonged anesthesia. Paresis the result of mechanical obstruction, in the majority of instances, should not occur, because cases of intestinal obstruction should be recognized and operated on before the intestine becomes distended. Possibly, he said, this is not true in all instances, but it is true of the majority of cases under observation in the hospital. The type of cases are of two classes, the clean and the septic ones. Dr. Deaver has seen very few cases of obstruction occur where the abdomen was clean; where there was absence of sepsis. When this did occur it was in cases where the intestine was attached to the stump, or the omentum became elongated and acted as a band, or where Meckel's diverticulum existed. But the majority of cases he sees are septic; as appendicitis is the most common affection for which surgeons are called to operate. The great majority of cases of intestinal obstruction are seen following it. We see all varieties of obstruction consequent on sepsis the result of an appendicitis, such as the evacuation of a large abscess and contraction of the abscess wall resulting in angulation and intestinal obstruction.

Dr. Deaver believes, too, that after these operations very careful feeding should be instituted. He does not feed his patients early, and he gives very little. Frequently for one week he feeds them per rectum with saline solution and predigested food, and does not allow solid food for two weeks. By this care he believes it possible to overcome to some extent the tendency to the occurrence of intestinal obstruction. It is a mistake, he said, to place too much faith in enemas, particularly the giving of large enemas and purgatives. He has seen obstruction caused by them, and paresis of the large bowel following the giving of a very large enema. Dr. Deaver also deems it a mistake to eviscerate or do too much handling. The early operation for obstruction is the *sine qua non*. He does not wait until the bowel is distended or until the patient begins to vomit fecal matter. He opens the abdomen on the appearance of paroxysmal pain and nausea. He has great faith in the early application of the aseptic scalpel. The percentage of intestinal obstruction, in septic cases, is about one in sixty.

To illustrate the importance of early operation: Last year, in the Mary J. Drexel Home, Dr. Harry C. Deaver, and he, had ten cases of intestinal obstruction occurring after operation on septic cases of appendicitis. All of the patients recovered, but all were operated on immediately after the development of the pain. They did not wait for the appearance of all the classical symptoms of obstruction, otherwise there would have been a mortality.

Dr. Theodore A. McGraw, Detroit, said that one thing is very important in the matter of intestinal obstruction for the general practitioner, and that is to recognize early the symptoms of this condition. There are certain symptoms of intestinal obstruction from mechanical causes about which, he thinks, the general practitioner is a little in the dark. It has always seemed to him that in such cases the physician is inclined to wait too long instead of recognizing the symptoms at the very earliest stage of the disease. The symptoms in the very early stage of a mechanical intestinal obstruction are, first, pain and vomiting. In the early stages there is no distension. The practitioner must not wait for distension. When there is pain, vomiting and obstinate constipation, there is almost always obstruction. And, by the way, he said, there is an absence of fever. There is no fever in the early stages of intestinal obstruction. It is important to recognize these conditions in their very early stages. A patient seized with pain and vomiting, may have acute pancreatitis and inflammatory disease. If so, he will have fever, but he would not have fever in the early stages of intestinal obstruction. If there is pain and vomiting from inflammation of the mucous membranes, there is no constipation, but diarrhea. Dr. McGraw insisted that with the combination of symptoms of pain, vomiting, constipation without fever, without distension, for the distension comes later, without tenderness, for there is no tenderness at first, the patient surely has an obstruction of the bowel. At first there is no tenderness. One can handle the abdomen with perfect impunity so far as causing pain or tenderness on pressure is concerned. When such a condition exists, it is intestinal obstruction and one must proceed accordingly.

Dr. M. H. Richardson, Boston, said that postoperative ileus is of the greatest possible interest to the surgeon. The most important thing connected with so broad a subject, and the chief cause of painful suspense after an abdominal operation, is to tell what is really ileus and what is not. When, after a clean abdominal operation, the patient has pain, distension, and vomiting, without fever, perhaps, or even with it, it is impossible to tell whether one is going to have a general peritonitis and death or a day or two of discomfort and an easy convalescence. John Homans used to say, he said, that the worst symptoms after an abdominal operation are vomiting and distension, that he never could feel sure that they were not the beginning of a fatal peritonitis. Dr. Richardson agreed, in the main, with what Dr. Deaver said on this subject. He regards abdominal pain as the first and most important symptom in any abdominal case. When that pain is accompanied by distension, vomiting, and constipation, he looks on the condition as very grave. But, he said, there is a post-operative condition not infrequently seen which can not but excite grave apprehension, and yet it often subsides—and that is the condition in which there is pain, distension and vomiting, without fever. Dr. Richardson did not agree that fever must always be present before the symptoms can be regarded as alarming. Distension, pain and vomiting, he said, are the most serious symptoms of postoperative ileus. In many cases these trying symptoms disappear; in many they persist till death. In the one case they mean little and indicate no intervention; in the other they mean much and demand intervention. What more important thing, then, than the accurate diagnosis of the postoperative condition? His practice is not to reopen the abdomen unless the indications are strong. One's experience in these cases is often distressing, for the uncertainty is necessarily great, and on certainty of diagnosis depends the question of opening the abdomen. The condition either is practically of no serious account or is practically fatal, even if an operation is done. In one case the patient goes to a fatal end in spite of all one can do, and in the other she recovers spontaneously. There is either a fatal lesion or none at all. The latter is a peritoneal condition which, for lack of a better name, Dr. Richardson has spoken of as a peritonism—a peritoneal irritation without sepsis, in which operation is not demanded; indeed, in which it is worse than useless, for under catharsis it spontaneously subsides. When the symptoms persist, in spite of all efforts, they mean not a mechanical construction, but a general peritonitis. Dr. Richardson regretted to say that, in his experience, the majority of cases that begin with vomiting and distension go on to a peritonitis, on which no treatment, whether operative or palliative, seems to exert any beneficial influence.

Dr. John C. Hemmeter, Baltimore, said that when one reflects on the experiments of Aldor on the extreme distension of the bowel with water and air, and still no pain, and the experiments of Lennander on the extreme contraction of the gut to a thin, white hard string, the patient conscious, and still no pain, and then the other enterprising invasions of the peritoneum and still no pain, the average practitioner comes very quickly to the conclusion that under no conditions has a human being a right to a bellyache. There are three sets of nerves to the intestine—motor, sensory and secretory. Cannon has shown beyond doubt that one can check the motor nerves by crushing the testicles. There is no doubt about that, because one can see it. It can be objectively demonstrated. But a similar crushing experiment on animals can also check the secretory nerves. Why doubt that one can check the sensory nerves or inhibit their action? The reason the inhibition of sensory nerves is not so universally convincing is because it can not be demonstrated. This, said Dr. Hemmeter, is not a case of the physiologist trying to thrust knowledge on the surgeon. Quite the contrary. Lennander is a surgeon, and he is working in physiology. He says that there are no sensory nerves in the intestine, although Berkley and others demonstrate abundant plexuses of nerve fibers from the sympathetic and the central nervous system. If it ever becomes necessary to open abdomens without general anesthesia, the absence of pain, so far from meaning that it guarantees freedom of manipulation, indicates the greatest care in manipulation, and Dr. Hemmeter agreed absolutely with Dr. Meltzer that it is an indication of shock.

REPORT OF TWO THOUSAND OPERATIONS FOR THE RADICAL CURE OF HERNIA

PERFORMED AT THE HOSPITAL FOR RUPTURED AND CRIPPLED FROM 1890 TO 1907.

WILLIAM T. BULL, M.D., and WILLIAM B. COLEY, M.D.
NEW YORK CITY.

The year 1890, the beginning of this series of cases, marks an important milestone in the history of the radical cure of hernia. This was the year that Bassini's epoch-making paper describing his method for the radical cure of inguinal hernia was published in the *Archives f. Klin. Chir.*, giving additional report of the results in 261 cases. Halsted's method, in many points similar to Bassini's, had been briefly described in the first number of the *Bulletin of the Johns Hopkins Hospital,* 1889, although Bassini's had been published in an earlier paper read before the Italian Surgical Society, 1888.

But it was not until 1890 that the two methods were prominently brought before the profession. Prior to this time, beginning with Steele's first operation for the radical cure of hernia in 1874, Czerny's in 1877, Marcey's in 1878, one method after another had followed in rapid succession. While the immediate results of some of these methods were very good, particularly in the hands of their originators, the sum total of results was far from satisfactory and there was in 1890 a strong tendency on the part of the more conservative surgeons to regard with doubt the claims of any of the methods to the designation "for the radical cure of hernia" for the reason that the statistics of the most reliable sources showed a proportion of from 30 to 40 per cent of relapses within the first year. In addition the risks of operation for hernia at this time were by no means to be ignored. Four of the largest hospitals in London in 1890 showed a mortality of 6 per cent. The enthusiasm for the radical cure of hernia was beginning to wane when the methods of Bassini and Halsted were published.

The two methods differed in several important points: In Halsted's method the cord is transplanted more externally so that it lies just beneath the skin and superficial fascia, whereas in Bassini's operation the cord is covered by the aponeurosis of the external oblique as well as the skin and fascia. The most important difference, however, is that in the Halsted method the internal oblique muscle is cut upward from one to two inches before it is sutured to Poupart's ligament. The results of operation have shown this step to be entirely unnecessary. In many cases, we believe, the cutting of the internal oblique greatly increases the chances of recurrence and weakens the very structure we must rely most on for radical cure. Another point of difference is the resection of all but one or two veins of the cord. Here again the results of the method, showing atrophy of the testicle in a considerable proportion of the cases, have proven its disadvantage.

The unquestionable superiority of Bassini's method to the earlier methods, as well as to those since devised, is shown by the fact that this operation with slight modifications is to-day the operation of choice in practically all the clinics of the world. The secret of the success of Bassini's operation, we believe, depends largely on the fact that it was the first operation in which the attempt to cure the hernia was based on a true appreciation of the etiology of hernia.

In none of the earlier methods was it possible to remove thoroughly the sac flush with the peritoneal cavity. At present we are beginning to appreciate the fact that the great predisposing cause in all inguinal, and probably the majority of femoral, herniæ is a congenital or preformed sac, and, on the basis of this, the first and essential principle of a radical cure must be the thorough removal of such a sac.

The principles of Bassini's method are easy of understanding and simple of performance. The first and most important principle consists in the cutting high up of the external oblique aponeurosis, thus giving free access to the internal ring, thereby making it possible to completely remove the sac well beyond the neck, thus obliterating entirely any funicular process. Second, suturing the internal oblique muscle to the shelving process of Poupart's ligament. Third, and least important, as results have shown, is that of transplanting the cord to a higher position than normal, by suturing the internal oblique muscle underneath the cord instead of over it, then covering the cord with the aponeurosis of the external oblique and, lastly, with the subcutaneous fascia and skin.

That only the first two steps are the essential ones to success is shown by the fact that the last step may be dispensed with with almost equally good results. "Suture of the canal without the transplantation of the cord," the other steps being the same as in Bassini's operation, is now regarded by many surgeons as superior to the original or typical Bassini method.

This method has been frequently called the "Ferguson method" in Chicago, and Ferguson himself claims to have been the author of it. He first published[1] it in 1900, yet Dr. Bull and myself began using it in 1892 and published reports of cases in which this operation was done in 1895, 1897, 1898 and 1900, as follows:

Annals of Surgery, April, 1895 (Coley): Whether the transplanting of the cord is to be regarded as essential to the highest degree of success in hernia operations it is hardly possible to state positively. It may be that the high ligation of the sac, and the perfect closure of the canal made possible by slitting up the aponeurosis has quite as much to do with the good results as transplanting the cord. Coley's own cases operated on by this method have none of them relapsed, and some have gone more than three years.

Am. Jour. of the Med. Sci., May, 1895: The Operative Treatment of Hernia in Children with a Report of One Hundred and Thirty-Three Cases. Methods of Operation and Technic. Ligation of the sac and suture of the canal, without transplanting the cord, was the method employed in ten cases.

Ann. of Surg., March, 1897: The Radical Cure of Hernia, with a Report of Three Hundred and Sixty Cases. During the past four years Drs. Bull and Coley have been operating on a series of patients in the same way as Bassini's method, with the exception of the transplantation of the cord. This series is yet too small to justify conclusions.

Ann. of Surg., November, 1898: Observations on the Operative Treatment of Hernia at the Hospital for Ruptured and Crippled. (Bull and Coley). Methods and Results of Operations. Bassini's method, with kangaroo tendon, 342 cases; Bassini's method, with silk sutures, 1 case; slitting up aponeurosis of external oblique with high ligature of the sac and closure of canal in three layers with kangaroo tendon, without transplanting cord, 34 cases.

International Text-Book of Surgery. Warren and Gould. (Copy received at the N. Y. Academy of Med., March, 1900). Suture of the Canal, as in Bassini's Method, Without Transplantation of the Cord: The writers (Bull and Coley) have employed this method, which is exactly the same as Bassini's, with the exception that the cord is not transplanted, but allowed to drop back beneath the lowermost layer of buried sutures; the internal oblique is sutured to Poupart's ligament and the aponeurosis is sutured separately with sutures of chromicized kangaroo tendon; the skin is closed with fine catgut. The results have been nearly as good as those following Bassini's method proper.

In these earlier reports we stated that the operation had much to commend it and that more time and a larger series would be required before it could be determined whether the transplantation step was necessary or not. It is too slight a deviation, however, for any one to claim it as an original method. It is merely Bassini's operation for inguinal hernia in the female, as published in his original report of 1890, applied to inguinal hernia in the male, the cord, like the round ligament in the former, being allowed to drop back into the lower angle of the wound.

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[1] The Journal A. M. A., July 1, 1900.

At the Hospital for Ruptured and Crippled we have used this operation in 360 adult cases of inguinal hernia in the female, with only one relapse in a very large strangulated hernia in a woman seven months pregnant. The sac was greatly thickened and inflamed, the tissues infiltrated, and there was little expectation of obtaining a radical cure in this condition. The patient's life, however, was saved and pregnancy was not interrupted. In addition to this, Drs. Bull, Walker and Coley, at the Hospital for Ruptured and Crippled, have operated in 346 cases of inguinal hernia in the male, without transplanting the cord, with only seven relapses. Three of these relapses occurred in the earlier cases, prior to 1892, and the operations were done by the method of Socin and Czerny and should have been included in the same group. This leaves four relapses in 340 cases of inguinal hernia in the male, in which the patients were operated on by the method of suturing the internal oblique to Poupart's ligament without transplanting the cord, or 1.1 per cent.

For comparison with this we have a series of 1,185 cases of inguinal hernia in the male, in which the cord was transplanted according to the typical Bassini method, with nine relapses, or 0.7 of 1 per cent.

A careful study of these relapses is of importance. It will be seen that most of the relapses occurred in the early cases of patients operated on between 1890-2-3, when the technic was necessarily less perfect than later. These statistics show that in children at least the results are almost as good whether the typical Bassini operation is performed or whether the step of transplanting the cord is omitted.

The charge has often been brought against our statistics that they deal only with children, in which it is assumed that operation is much more simple and that perfect results can be obtained from almost any method. In Ferguson's recent work on "Modern Operations in Surgery" the statement is made that practically all of Coley's operations were on children. While it is true that a majority, 1,034 in number, have been performed on children, it is not fair to deny Coley the privilege of having an opinion on the subject of hernia operations in adults, as he has also operated on 900 adult patients. Our conclusions are, therefore, based on a careful study of the results of operations on both children and adults. We have found the results in adults to be little different from those in children. That hernia in children can be cured by any method, no matter how indifferently performed, is a mistaken view, as is shown by the earlier statistics of the Hospital for Ruptured and Crippled, containing a group of twenty patients operated on between 1888 and 1890, of which 40 per cent. relapsed within the first year.

In 900 cases of hernia in adults operated on by Coley there have been thirteen relapses—1.4 per cent. It should be noted that most of the Bassini relapses have occurred in direct herniæ. Here the only way of closing the opening above the pubic bone is by transplanting the cord, and the Mayo's, who have given up the transplanting step as a routine measure, still perform it in direct hernia. These cases are very difficult to cure in any method of operation, and as the Bassini method is still performed in the great majority of cases for direct hernia, we necessarily find a larger proportion of relapses accredited to Bassini's method than we would if the direct herniæ were operated on by the non-transplanting method. We never transplant the cord in hernia associated with undescended testis for the reason that in these cases we obtain a from ½ to ¾ in. longer cord by not transplanting. The early objections to Bassini's method, recently revived by Ferguson, have proved to be of no practical weight. The cord is not injured by the transplantation, orchitis does not follow if the veins are not removed and the operation is properly performed. That there is no functional impairment of the testicle is proven by the fact that many of our boys operated on when from 12 to 15 years of age, have grown up, married and have children.

As to the length of time required for the performance of the two methods, this is practically the same; either can be done in ten minutes in uncomplicated cases, and we have frequently done the operation in seven minutes.

SUTURE MATERIAL.

The choice of the proper suture material for the buried sutures, we believe to be an important element in the technic of operations for the radical cure of hernia. We have so frequently in earlier papers pointed out the disadvantages of non-absorbable sutures, that it seems unnecessary to more than refer to the matter here. That non-absorbable sutures, in a certain number of cases, cause slowly-healing sinuses, which greatly enhance the chances of relapse, is a fact that has been confirmed by upwards of 30 personal observations. In some of these cases sinuses have developed nearly four years after the introduction of the sutures.

Non-absorbable sutures were first used in operations for hernia, because at that time there were no methods known, by means of which absorbable sutures could be perfectly sterilized. Now, that catgut and tendon may not only be absolutely sterilized, but chromicized so as to remain unabsorbed for any desired period of time, we believe there is no reason for any longer continuing the use of non-absorbable sutures. In the series of cases which forms the basis of the present report, with the exception of half a dozen of the earlier cases, kangaroo tendon, chromicized so as to remain unabsorbed for from 3 to 4 weeks, has been the suture material uniformly employed. Non-chromicized catgut was used for the ligatures of the arteries and, in the great majority of cases, for closing the external wound.

Dividing our cases into two periods, i. e., before and after the introduction of rubber gloves, it will be seen that distinct improvement has followed their use: Of 567 cases in which operation was done before the introduction of rubber gloves, suppuration occurred in 25, or 4.4 per cent.; and of 1,433 patients operated on since the use of rubber gloves suppuration was observed in 20, or 1.4 per cent. We believe that after one becomes accustomed to operating with gloves, operation can be performed quite as rapidly and easily as without them.

For several years we have been more and more impressed with the belief that the great majority of cases of inguinal hernia, in children at least, the rupture was due to the presence of a preformed, or congenital sac. Our statistics at the Hospital for Ruptured and Crippled seem to confirm this opinion.

Hamilton Russell of Melbourne, Australia, in a series of articles in the *Lancet*, during the past six years, has expressed the conviction that practically all inguinal herniæ, except the direct, both in children and adults, are due to a preformed sac or an unobliterated portion of the processus vaginalis. More recently he has gone even further and included most cases of femoral and some of direct hernia. He has collected much data in support of this theory and as far as oblique inguinal hernia is concerned, we are inclined to believe it is correct. Russell has certainly demonstrated the necessity of abandoning the words "congenital" and "acquired" as used at present by writers on hernia.

The term "congenital sac" as ordinarily used, means a sac communicating with the tunica vaginalis. Hence, the sacs of all inguinal hernia in female children, even though they existed at birth, and all sacs in male children not communicating with the tunica vaginalis, are called acquired. According to this definition many sacs of unquestionably pre-natal origin are classed as acquired.

To avoid this confusion, we believe it wise to give up the use of the words "congenital" and "acquired" and adopt instead the classification of total or partial funicular sacs. This, of course, would apply only to oblique inguinal hernia. In direct hernia and femoral hernia the sacs are, we believe, in the great majority of cases acquired, although in a certain number of cases it has been proven that preformed or congenital sacs are found also in these types of hernia.

At the Hospital for Ruptured and Crippled 1,528 male patients with inguinal hernia have been operated on. In 646 of these cases the sac was of the so-called acquired type, in which there is no communication with the tunica vaginalis; in 363 the sac was of the so-called congenital variety, in which there is communication with the tunica vaginalis; in 519 cases the type of sac was not stated.

All of these patients were children, in many of whom the hernia had been noticed since birth. Hence, it is fair to assume that in a great majority, the sac was of prenatal origin, irrespective of the fact whether it communicated with the tunica vaginalis or not.

INDICATIONS FOR OPERATION.

Although there is a growing tendency at present, especially among English and French surgeons, to extend the indication for operations for the radical cure of hernia, to very young children and even infants, we still believe that a considerable number of children under the age of 4 years are cured by a properly applied truss. There is little risk from strangulation during this trial period of truss treatment. Our own statistics at the Hospital for Ruptured and Crippled do not show a single death from strangulation in infants or young children. On the other hand, the risk of operation during infancy is decidedly greater than in older children, as is shown by the statistics of Stiles and Carmichael. If a child has reached the age of from 3 to 4 years and still has a hernia, we advise operation. In all children over the age of 4 years we no longer advise preliminary truss treatment, for the reason that the chances of a cure are smaller and the possibility of a relapse after a supposed cure from truss treatment greater.

In cases of hernia complicated with irreducible hydrocele, or adherent omentum, both of which conditions are comparatively rare in children, mechanical treatment is of no avail, and immediate operation is advised. Likewise, we never advocate truss treatment in femoral hernia, inasmuch as there is no possibility of curing the condition by mechanical means and there is nothing to be gained by delay.

From May, 1890, until July 1, 1907, 2,032 operations[2] for the radical cure of hernia were performed at the Hospital for Ruptured and Crippled:

Fifteen hundred and twenty-eight were for inguinal hernia in the male; 374 were for inguinal hernia in the female; total number of inguinal herniæ, 1,902.
Twenty were for femoral hernia in the male; 56 were for femoral hernia in the female; total number of femoral herniæ, 76.
Twenty-nine were for umbilical hernia.
Eighteen were for ventral hernia.
Six were for epigastric hernia.
One was for lumbar hernia.

There were a total of 137 cases of hernia in adults, of which 86 of the inguinal herniæ were in the female, 30 of femoral hernia, 15 of umbilical hernia, 5 of ventral hernia, 1 of epigastric hernia.

In 24 cases the operation was for strangulated hernia; of these 17 were in children, 7 in adults. There were no deaths among the children, and only one in the adults, which was a strangulated umbilical hernia in a very stout woman.

Of the children 10 were under the age of 2 years; 6 under 1 year of age. The youngest was an infant 13 days old, with a hernia of 14 hours strangulated. An operation for its radical cure was performed. The patient left the hospital in 3 days and when last seen, five years after the operation, there was no recurrence.

In every case, with one exception, strangulation was due to the tight external ring, and not to the neck of the sac, which has long been regarded by most writers on hernia as the frequent cause of strangulation. In one case, a strangulated sigmoid hernia in a child 3 years of age, strangulation was apparently due to a fecal occlusion, the gut being markedly distended by some semisolid feces of about the consistence of putty.

In several of these cases the condition of the child at the time of operation was extremely critical. In one case a temperature of 107 F. followed the operation and the child was kept in a continuous bath of a temperature of 98 F. for nearly 24 hours. The child made a good recovery.

CONTENTS OF THE SAC.

The appendix alone was found in the sac ten times and was removed in most cases. The cecum and appendix seven times; the cecum alone eighteen times; the sigmoid alone once, cecum and sigmoid once. The tube and ovary were found five times; the tube alone once; the ovary alone, twice; a total of 8 cases. The bladder was found in 3 cases.

UNDESCENDED TESTIS.

We have operated in 114 cases of undescended testis, 25 of which were of the inguinosuperficial variety, the sac emerging from the external ring and passing upward to the anterior superior spine, resting on the aponeurosis of the external oblique. This condition, while regarded by previous writers as extremely rare, is, we believe, much more common than has been supposed. Moschcowitz[3] states that only 17 cases have been recorded in the literature.

There has been no recurrence in any of our cases of hernia associated with undescended testis, although in a certain proportion the testis has retracted up to the region of the external ring, where it has remained and has not materially increased in size.

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[2] These operations were performed by the following men: Dr. Bull, 327; Dr. Coley, 1,027; Dr. Walker, 566; assistant surgeons, 112.

[3] Medical Record, 1902.

The ages of the children ranged between 4 and 14 years; 54, or about one-half of the entire number, were over 10 years of age. We seldom advise operation in these cases in children under the age of from 5 to 6 years. We do not consider it wise to operate at the age of 2 years, as advised by some of the French surgeons. In cases in which the testis can not be palpated, operation had best be deferred until a later time. We no longer advise suturing or fixation of the testis to the bottom of the scrotum, believing it possible in most cases, by freeing the cord sufficiently to bring the testicle into the scrotum and where it will remain without suture. The method we have employed is very similar to that advocated by Bevan of Chicago. We do not transplant the cord in these cases, inasmuch as by not transplanting we gain from ½ to ¾ in. in the length of the cord. In no case has castration been performed.

The danger of malignant disease developing as a result of an undescended testis, we believe, has been exaggerated. No case of sarcoma or carcinoma of the undescended testicle has been observed at the Hospital for Ruptured and Crippled, at least, during the last twenty years, although it is but fair to state that one of us has seen sarcoma of the undescended testis in two cases observed outside of the hospital.

UNUSUAL CASES.

We have observed two cases of umbilical hernia of the cord. This is an extremely rare condition. Furthermore, we have seen 3 cases of tuberculosis of the hernial sac; one of multiple cyst of the omentum; 7 cases of hernia with a definite traumatic history, i. e., inguinal herniæ appeared within a very few days after a local injury. In all of these cases there was found a well-developed sac, similar in every respect to the ordinary preformed or prenatal sac; and there is every reason to believe that in these cases the sac had existed since birth and the local injury merely constituted an exciting cause.

While we have seen three of lumbar hernia in children, only one of the patients was operated on. In this case the operation was done by Dr. Bull and the child is now well and without relapse, ten years later.

UMBILICAL HERNIA IN CHILDREN.

This condition can nearly always be cured by mechanical means. The method of treatment we employ at the Hospital for Ruptured and Crippled is to apply a small pad, usually made of a wooden button mold, 1 inch in diameter and covered with adhesive plaster, directly over the umbilical opening; this is held in place by a strip of zinc oxid adhesive plaster, 2 inches wide, which entirely encircles the abdomen. This rarely causes irritation and can be left in place for a week or ten days, when it should be changed.

We have never seen a belt or truss that was of much value in umbilical hernia in children, for the reason it is most difficult to keep it in position. It may be necessary to continue this treatment for from 1 to 2 years. Occasionally a hernia persists, in spite of mechanical treatment, in which case it is wiser to operate. We have operated in only 13 cases of umbilical hernia in children under the age of 14 years at the Hospital for Ruptured and Crippled since 1890.

FEMORAL HERNIA.

Seventy-six operations have been performed for femoral hernia, 56 female and 20 male, without a single relapse. The method employed in nearly all cases has been the following: Oblique incision parallel with and about ⅛ or ¼ in. below Poupart's ligament; high ligation of the sac, with thorough removal of all the overlying extraperitoneal fat; closure of the femoral ring by a purse-string suture of kangaroo tendon. The suture is introduced through the outer portion of Poupart's ligament, or the roof of the canal; it passes downward through the pectineal fascia and muscle, or the floor of the canal, then through the fascia lata over the femoral vein, upward, emerging again through the roof of the canal, about ¼ inch from the point of introduction. When tied the roof and floor of the canal are approximated without tension and without pressure on the vein.

This is one of the simplest methods, both in principle and technic. One of us has operated on 125 patients with femoral hernia by this method, without a single relapse. In view of these perfect results, it seems to us unnecessary to employ any of the complicated methods of operation for femoral hernia that have recently been advocated.

FINAL RESULTS.

Eight hundred and thirty-seven cases of inguinal hernia have been traced and were found perfectly sound from 1 to 14 years after operation. Of these:

Two were well upward of 14 years.
Three were well from 12 to 14 years.
Twenty were well from 10 to 12 years.
Fifty-nine were well from 8 to 10 years.
One hundred and eight were well from 6 to 8 years.
Seventy-eight were well from 5 to 6 years.
Seventy were well from 4 to 5 years.
Ninety-three were well from 3 to 4 years.
One hundred and seventy were well from 2 to 3 years.
Two hundred and thirty-four were well for 1 year.

The cases of femoral hernia were traced as follows:

Four cases were traced in which the patients had remained sound from 8 to 10 years.

Three cases were traced in which the patients had remained sound from 6 to 8 years.

Three cases were traced in which the patients had remained sound from 5 to 6 years.

Three cases were traced in which the patients had remained sound from 4 to 5 years.

Four cases were traced in which the patients had remained sound from 3 to 4 years.

Nine cases were traced in which the patients had remained sound from 2 to 3 years.

Eleven cases were traced in which the patients had remained sound from 1 to 2 years.

DEATHS FOLLOWING OPERATION.

Case 1.—Male, aged 9; right inguinal hernia; Bassini operation Feb. 27, 1894. Patient died on the eighth day of double bronchial pneumonia, probably caused by ether. There was no wound infection.

Case 2.—Male, aged 5; right inguinal hernia; operation June 11, 1895; sac very large; cord not found. Suture of internal oblique to Poupart's ligament without transplantation of the cord; time of operation much prolonged (70 minutes). Temperature next morning 104 F., pulse 140. Death 37 hours after operation, due to acute septic peritonitis.

Case 3.—Male, aged 8; Bassini operation, March 1, 1895. Hernia complicated with Pott's disease; patient was in very bad condition at time of operation; took ether very badly. Temperature 12 hours after operation 105.6 F. Wound opened and drained on third day; some pus found. Patient continued to fail and died on the twelfth day. Autopsy showed apex pneumonia, pericarditis.

Case 4.—Male, aged 6; left inguinal hernia; Bassini's operation, June 13, 1903. Rubber gloves used by assistants and operator. High temperature on the night following operation which continued the next day. The wound was opened and extensive infiltration of the tissues was found with a spreading cellulitis. In spite of free incision, irrigation and wet dressing the patient continued to get worse and died on the fourth day, of acute sepsis. This patient was operated on by one of the assistant surgeons.

Case 5.—Male, aged 7; right inguinal hernia, with undescended testis. Operation, 1905; the same was easily performed in 15 minutes; the patient took ether well and there were no complications. Twenty-four hours after operation he developed a high temperature and rapid pulse and afterward a slight rash. Pulse and temperature remained very high; the patient was markedly prostrated and continued to grow worse rapidly and died on the following day, probably from scarlet fever, as there were several cases in the hospital at this time. The wound showed no evidence of infection.

Thus we have a mortality of five cases in 1,978 cases of inguinal and femoral hernia, or one-fourth of 1 per cent. We have had one other death following operation for incarcerated umbilical hernia, occurring in a woman 56 years of age, in December, 1906.

RELAPSES.

Case 1.—Male, aged 10; operation Dec. 12, 1891; Czerny's method; catgut sutures; slight relapse from 1 to 4 months after operation; truss worn for a short time. Examination 12 years later, showed no protrusion; cured.

Case 2.—Male, aged 13; operation December, 1891; Bassini's method; silk sutures; extensive suppuration; extrusion of sutures; relapse in three months.

Case 3.—Male, aged 9; operation Jan. 15, 1892; Czerny's method; silk sutures; relapse in three months; reoperated on July, 1892, by Bassini's method; well July 30, 1907, fifteen years later.

Case 4.—Male, aged 10; Czerny's method; chromicized catgut; relapse sixteen months later; reoperated on by Bassini's method; cured.

Case 5.—Male, aged 6; operation Aug. 7, 1899; Bassini's method; slight bulging in canal 6 months later; examination six years later, showed condition the same; no protrusion.

Case 6.—Male, aged 6½; operation Oct. 9, 1894; Bassini's method; small relapse six months later; reoperated on July 19, 1895.

Case 7.—Male, aged 6; operation Nov. 26, 1897; Bassini's method; relapsed two months after operation.

Case 8.—Male, aged 5; operation Dec. 27, 1899; Bassini's method; slight relapse; truss for short time; examination showed patient well seven years later.

Case 9.—Male, aged 12; operation Nov. 21, 1900; Bassini's method; relapse two years after operation; upper scrotal.

Case 10.—Male, aged 6; operation February, 1901; cord not transplanted; sliding hernia of cecum; relapse after four months.

Case 11.—Male, aged 6; operation April, 1904; Bassini's method (operated on by assistant surgeon); slight relapse 5 months later; truss 1½ years; examination two years thereafter showed only slight impulse on coughing.

Case 12.—Male, aged 6; operation June, 1903; Bassini's method; had severe attack of whooping cough four weeks after operation; two weeks later small lump was noticed on coughing; truss was applied and worn for six months; examination two years later showed no swelling on coughing; apparently cured.

Case 13.—Female, aged 35; operation October, 1904; round ligament not transplanted; relapsed in three months (slight bulging).

Case 14.—Male, aged 8; right inguinal hernia; operation Aug. 18, 1905; cord not transplanted; recurred 18 months after operation.

Case 15.—Male, aged 12; left inguinal hernia; operation Feb. 17, 1905; Bassini's method; slight relapse at internal ring two years later.

Case 16.—Female, aged 35; right inguinal hernia, strangulated twelve hours; very large enterocele; patient seven months pregnant; opened Feb. 15, 1906. The sac and surrounding tissues were infiltrated and edematous and the operation was greatly hurried on account of the patient's condition; the wound suppurated badly; slight infection, and, although pregnancy was not interrupted, the wound was unable to stand the severe strain of labor two months later, and the hernia relapsed shortly afterward.

Case 17.—Female, aged 38; umbilical hernia; operation June, 1904; vertical overlapping (Blake) operation; relapsed five months later.

Case 18.—Male, aged 8; operation Aug. 18, 1905; cord not transplanted; other steps same as Bassini; slight relapse eighteen months later.

Case 19.—Male, aged 7; Operation Feb. 8, 1907; bladder hernia; cord not transplanted; very difficult to close canal; relapse April 10, 1907; slight bulging in canal.

ANALYSIS OF RELAPSED CASES.

One relapse followed operation for a large umbilical hernia (vertical overlapping method). Two relapses followed operation for inguinal hernia in the female. One of these cases occurred in a woman seven months pregnant, with a very large strangulated hernia. The sac, muscle and fascia were all infiltrated with inflammatory exudate. Deep and prolonged suppuration followed. Pregnancy was not interrupted, but shortly after childbirth a recurrence developed.

Of the four relapses which occurred in the 340 cases two were of inguinal hernia in the male, in which the cord was not transplanted, the other steps being the same as the Bassini method. One was a large bladder hernia, one a sliding hernia of the cecum, conditions most unfavorable for a radical cure by any method.

Of the nine relapses occurring in 1,185 cases operated on by Bassini's method (with the substitution of kangaroo tendon for silk used by Bassini for the buried sutures), one occurred during a severe attack of whooping cough which developed immediately after the operation. A truss was worn for a short time and the child was permanently cured without further operation, so that it is hardly fair to class this as a true relapse. In two other cases the relapse was merely a slight bulging which disappeared after wearing a truss a short time. In both of these cases the patients were personally examined and found perfectly well, the one six and the other seven years after operation.

This leaves only six actual relapses or failures to obtain a radical cure by operation, or 0.5 per cent in 1,185 cases operated on by the Bassini method.

CACTUS GRANDIFLORUS AND CACTIN OR CACTINA.

R. A. HATCHER, Ph.G, M.D.
Member of Council on Pharmacy and Chemistry of the American Medical Association; Assistant Professor in Pharmacology, Cornell University Medical College.
NEW YORK CITY.

There has never been an analysis of *Cactus grandiflorus* made and very little is known of its chemistry, nevertheless there are on the market certainly widely advertised proprietary, or semi-proprietary, preparations said to contain definite quantities of cactina or cactin, described as an alkaloid or, less definitely, as a concentration, on which the therapeutic activity of the several preparations depends. While cactin is said to be a *concentration,* the manufacturers of cardiac tonic (cactin) claim that each pillet contains 1/134 grain, a very unusual and minute dose, and explicable only on the assumption that its potency and constancy of composition are comparable to such alkaloids as strychnin and atropin.

Cactus grandiflorus (Linné), *Cereus grandiflorus* (Miller and De Candolle), is a member of a large family, and an understanding of the subject necessitates the consideration of other members of the cactus family, for there is probably a certain amount of confusion existing in regard to the therapeutic actions of *Cactus grandiflorus* and related cacti. In the same family are found the *C. flagelliformis, C. fimbriatus, C. paniculatus, Opuntia vulg., Melocactus com., Anhalonium Lewinii* and *Mammillaria simplex.* The pharmacologic study of some of the latter seems to show that they have an entirely different action from that attributed to *Cactus grandiflorus.*

Lewin[1] in 1888 demonstrated the presence of an extremely active principle in one of the cacti, *Anhalonium Lewinii.* This substance, while acting as a narcotic on man, produced a remarkable effect on frogs and animals, acting on them much like strychnin and inducing a tetanus lasting for some time.

Heffter[2] examined eight species of cactus and found alkaloids in all of them, from which he concluded that alkaloids are extraordinarily widely distributed in the cactus family. One can not avoid the feeling that this conclusion of Heffter has helped those who were too willing to find alkaloids in *Cactus grandiflorus.*

The alkaloids isolated from different cacti include mezcalin, anhalonidin, anhalonin, lophophorin, anhalamin, pellotin, pectenin and pilocereïn. Mogilewa[3] studied these and found that they possessed much similarity of action, all causing slowing of the heart without increasing the volume of the pulse. (Hardly to be considered a digitalis action!) They appeared to exert a narcotic effect on the motor heart ganglia. He concluded that anhalonidin alone might have some action on the musculature of the heart.

Heffter[2] found 8 to 10 milligrams of pellotin to increase the reflex excitability in the frog in thirty to forty minutes and to cause a tetanus lasting from one to three days. A rabbit was rendered convulsive by 7 centigrams, death resulting from 11 centigrams. A sense of weariness and heaviness of the limbs and eyelids followed a dose of 5 to 6 centigrams in man, while marked collapse was reported by Langstein after 1 centigram had been taken by a user of tobacco.[4]

Carl Lumholtz[5] likens the effects of anhalonium to that of coca; he states that this species is used medicinally by the Indians, but he does not mention the use of *Cactus grandiflorus.*

Boinet and Boy Teissier[6] used aqueous and alcoholic extracts of *Cactus grandiflorus,* and an alkaloidal substance, which they called cactin, prepared by a pharmacist after the general method of Pelletier and Caventou for alkaloids, and lixiviation with ether. They found that 2 milligrams of this substance (cactin?) injected into a frog caused a greatly increased systole in ten minutes. It is doubtful, however, if they were dealing with the substance now called cactin, as no chemist of scientific standing has been able to prepare pure cactin. Cactin, according to Kobert,[7] is a glucosidal substance, hence the method of preparation would be different from that used in the preparation of an alkaloid.

A remarkable paper—remarkable from one point of view at least—by a Dr. O. M. Myers appeared in 1891, in which the results were given of a pharmacologic study of cactin. Myers[8] stated that cactina is the proximate principle of *Cactus grandiflorus,* that it was successfully isolated by Frederick W. Sultan, "the well-known pharmaceutical chemist of St. Louis." He quotes Sultan as follows: "The flowers are decidedly richer in active principle, yielding 0.021 to the 1,000, or over 2 per cent." (Sic!).

Since Myers does not state the source of his cactina, and since his paper is used in part in the exploitation of cactina pillets, one is justified in assuming that the cactina he used is identical with the cactina pillets made by the Sultan Drug Company. Either this or the use of Myers' paper by this company is a deliberate fraud.

A glance at the protocols of Myer's experiments shows that he was dealing with a substance resembling strychnin in its action—an action which is absolutely unmistakable. Since, as previously stated, this paper is used in the exploitation of cactina pillets, I shall quote it at some length. Myers states:

> Therapeutic doses of cactina cause primarily an acceleration of the pulse and a rise in arterial pressure, and secondarily a diminution of both. Cardiac pulsations become arrhythmic and cease in systole. Systole, just before death, becomes incomplete, probably due to superirritability of the cardiac ganglia. Death is preceded by clonic and tetanic convulsions, due to overstimulation of the motor side of the cord. This is not cerebral, as it occurs after section of the cord in the upper cervical region. The motor nerves are unaffected, for, after death, galvanism causes contraction of the muscles.

The following is taken from the Myers protocols (apparently only two experiments were made): Seventy-two milligrams of cactina injected into a normal dog caused clonic and tetanic convulsions. In one experiment, after cutting the vagi, 2 milligrams were injected, after which galvanism of the cut vagus failed to arrest the heart. (!) The following are samples of Dr. Myers' physiology:

> After section of the vagi and sympathetic, 32 milligrams maintained a rise of blood pressure and acceleration of the pulse rate, and it is fair to conclude that the drug produces its effect chiefly by direct stimulation of the intracardiac accelerator ganglia.[9] Five milligrams of cactina increased the pulse of a dog from 180 to 222, and the cardiogram, normally showing a pressure of 145 mm., showed a rise to 198 mm. *If in such a dog the spinal cord be cut high up the blood pressure will instantly drop about 20 mm.* This would indicate that the increased pressure was not wholly due to increased cardiac action, but a result of stimulation of the vasomotor centers in the brain.

(The above italics are mine. I have never heard of an instance where the high blood pressure of a dog did *not* drop after its spinal cord had been cut "high up." except during the *continuous* administration of adrenalin.)

Myers recommends cactina in functional cardiac and circulatory disturbances and for its strychnin-like action on the cord.

The want of space forbids an extensive reference to the article of Gordon Sharp,[10] who reviews the literature of *Cactus grandiflorus* and gives the results of his own observations covering a period of more than two years, during which time he used pounds of the plant. He concluded that it was not of the slightest therapeutic value in any condition whatsoever. He found it practically inert in large doses taken by himself, and he and Owens were unable to find any evidences of an alkaloid after repeated examinations of a number of specimens of the plant. He calls attention to a small sugar-coated pill advertised in Great Britain as containing an alkaloidal principle obtained from the Mexican *Cactus grandiflorus,*[11] of which he took forty at a dose without perceptible effect; later he took one hundred of them at a single dose without inconvenience, but he did observe some acceleration of the pulse for which he could not account.

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[1] Arch. Exper. Path. and Pharm., xxiv, p. 401, and xxxiv, p. 374.

[2] Arch. Exp. Path. and Pharm., xl, p. 385.

[3] Arch. Exp. Path. and Pharm., xlix, p. 137.

[4] Compare with Myers' results with cactina and the use of that preparation for the "tobacco heart."

[5] Unknown Mexico, ii, p. 358.

[6] Bull. gen. de Ther., cxxi, p. 343.

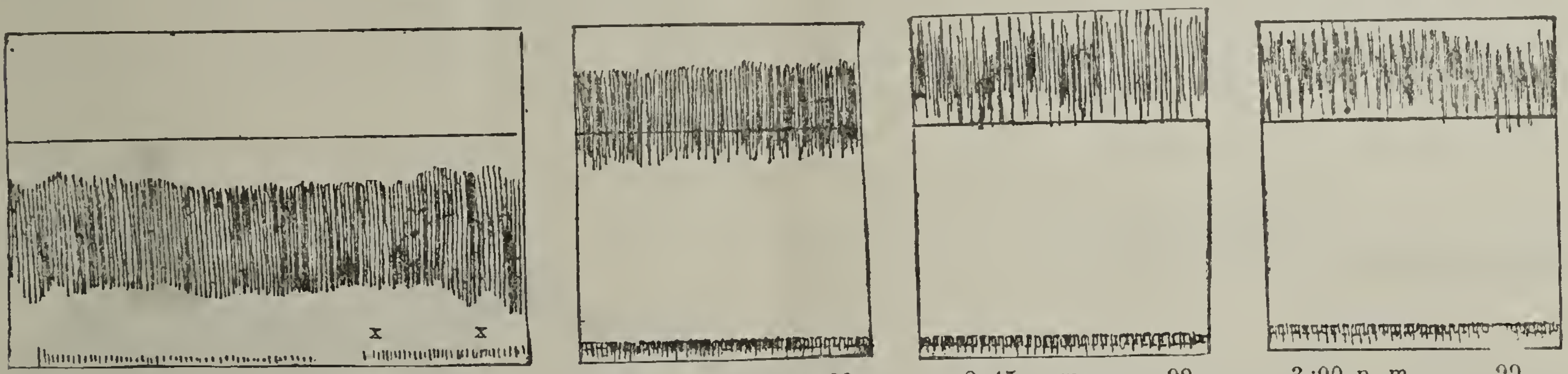
[7] Lehr. d. Intoxicationen, ii, p. 1220.

[8] Cactina: A New and Valuable Cardiac Stimulant. Its Origin, Physiologic Action, Therapeusis, etc., N. Y. Med. Jour., liii, p. 681. (A letter of inquiry addressed to Dr. Myers in regard to the source of his cactina was returned marked: Name not found in the city directory.)

[9] Acceleration usually follows section of the vagus alone.

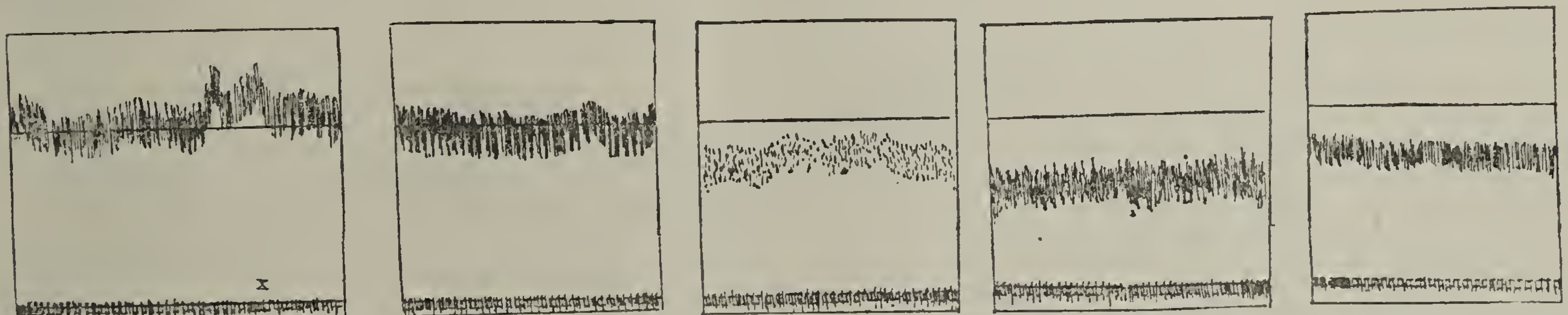
[10] London Pract., 1894, liii, p. 101.

Dr. Rubini,[12] a homeopathic physician, who is credited with having popularized *Cactus grandiflorus* about 1868, used it in doses entirely too small to have any therapeutic value. Dr. F. Ellingwood,[13] an eclectic physician, maintains that *Cactus grandiflorus* is in every way superior to digitalis, but the experiments of Boinet and Boy Teissier are the only ones of which I have been able to find an account which support the view that *Cactus grandiflorus* acts like digitalis, and, as their best results were obtained with an alkaloid which no one at this day is able to prepare, we can not give much weight to their testimony.



2:12 p. m. Pulse rate: 84. 2:30 p. m. 93. 2:45 p. m. 99. 3:00 p. m. 99.

Fig. 1.—(Tracing 1.) Samples of blood pressure tracings in experiment on male dog weighing 9 kg. Showing blood pressure at time of injection (x to x) of cardiac tonic and every 15 minutes thereafter. The horizontal line represents a blood pressure of 80 mm. of mercury.



3:14 p. m. Pulse rate: 135. 3:30 p. m. 135. 3:45 p. m. ? 4: p. m. 156. 4:15 p. m. 162.

Fig. 2.—(Tracing 1 continued.) Samples of blood pressure tracing in experiment on dog; a continuation of Figure 1. Cactina pillets injected at x. Horizontal line represents a blood pressure of 80 mm. of mercury.

Clinical testimony is so conflicting that between the extreme views of Gordon Sharp and those of Ellingwood there is room for an honest difference of opinion concerning *Cactus grandiflorus.* Heinz's pharmacology does not even mention cactus among the very large number of drugs having a digitalis action, and Cushny's Pharmacology (3d ed., p. 440) says: *"Cactus grandiflorus* (Cereus), which has been recommended as a substitute for digitalis, has no similar action and does not belong in this series."

Kobert[7] states that *Cactus grandiflorus* contains an alkaloid, according to Dragendorff, and probably a glucosid; he says further: *"Sicher ist dass er wie Digitalis bei Kranken mit Herzkrankheit und Wassersucht verwendbar ist und auch auf Tiere wie Digitalis wirkt."* ["It is certain that it (*Cactus grandiflorus*), like digitalis, is applicable in cases of heart disease and dropsy and also that it acts on animals like digitalis."] If that is comforting to certain persons, perhaps the following from the same authority may not be: *"Das uns hier interresierende wirksame Prinzip—das glycosidische Cactin ist aber noch nich reint dargestellt worden."* ["The active principle that interests us here—the glucosid-like cactin—has not yet been prepared in a pure state."]

It is surprising to find in this connection, however, that Kobert's authority for the statement in regard to its action on animals rests on the two papers which I have shown to be unreliable, viz., those of Boinet and Boy Teissier.

It is obvious from the testimony of reputable men that some of the cacti contain very active principles, and it is quite possible that *Cactus grandiflorus* may at certain times and under certain conditions contain a principle with a strychnin-like action, but it is my purpose in this place to demonstrate that cactina pillets of the Sultan Drug Company have no such action, and, indeed, no perceptible action of any sort so far as the circulatory system is concerned, and that the cardiac tonic (cactin) 1/134 grain, of the Abbott Alkaloidal Company, is equally devoid of any physiologic activity as may be seen by reference to the protocols of my experiments:

EXPERIMENTS ON FROGS.

Two frogs were injected, each with one cactina pillet dissolved in physiologic salt solution. Six hours later one seemed to be slightly depressed and the other showed no effect whatever.

Six frogs were injected in the lymph sac, each with one cactina pillet dissolved in physiologic salt solution. No perceptible effect in the period of observation lasting seven days.

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[11] Cactina pillets are small sugar-coated pills, said to contain 1/100 grain cactin in each, obtained from the Mexican *Cactus grandiflorus.* They are sold in Great Britain at 36 Basinghall St., London.

[12] N. Y. Med. Jour., lii.

[13] Med. Record, June 3, 1905, 857.

A frog was given 15 cactina pillets[14] by the mouth. No effect during period of observation lasting several days.

A frog was injected in the lymph sac with 12 cardiac tonic (cactin) 1/134 grain each (Abbott Alkaloidal Company) dissolved in N. S. No effect during period of observation lasting two days.

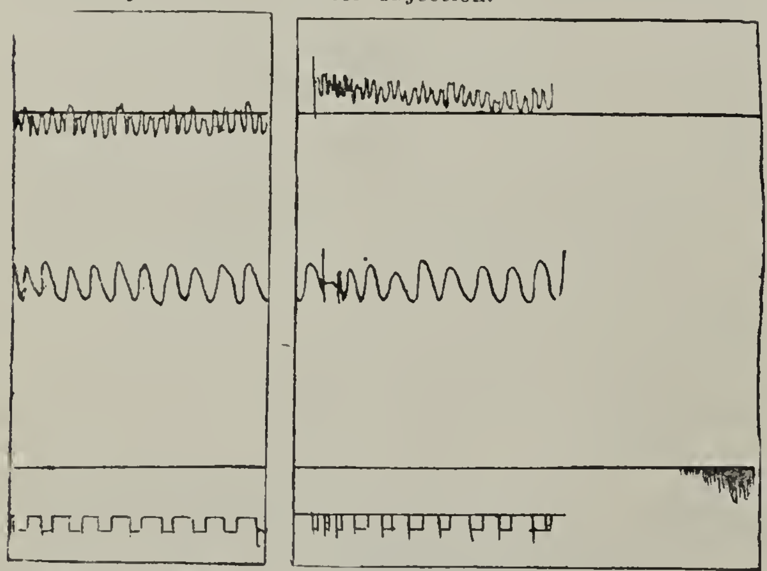
EXPERIMENTS ON CATS.

Experiment 1.—A female cat, weighing 3 kg., was given 1 cactina pillet per kg. daily for five days, the pulse rate being taken by means of a cardiograph. The daily record was as follows: Before injection (first day), 192; second day, 232; third day, 222; fourth day, no record; fifth day, 184; sixth day, 180. The slowing of 12 beats may be accounted for by ordinary variation, for this same cat subsequently showed a pulse rate much slower than this.

Experiment 2.—Male cat, weighing 3.6 kg. July 8, 3 p. m., pulse rate 174; 3:50 p. m., injected subcutaneously 5 cactina pillets per kg. in physiologic salt solution. July 9, 10 a. m., pulse rate 180.

Experiment 3.—Male cat, weighing 3.6 kg. July 13, 4:30 p. m., pulse rate 172; 4:37 p. m., injected 5 cardiac tonic (cactin) 1/134 gr., Abbott Alkaloidal Company, per kg., in physiologic salt solution. July 14, 10:30 a. m., pulse rate 164.

Experiment 4.—Female cat, weighing 3 kg. July 13, 4:45 p. m., pulse rate 142; 4:50 p. m., injected 35[15] cardiac tonic (cactin) per kg., Abbott Alkaloidal Company, in physiologic salt solution. July 14, 11 a. m., pulse rate 156.



Before Injection. After Injection.

Pulse rate: 175. Respiration: 70.

Pulse rate: 200. Respiration: 60.

Fig. 3.—(Tracing 2.) Two samples of blood pressure tracing in experiment on mongrel bitch weighing 7 kg. Showing blood pressure before and after injection of cactina pillets. The wavy line in the middle is the respiratory tracing. The upper horizontal line represents a blood pressure of 80 mm. of mercury. Compare this tracing with that in Figure 4.

Not one of the cats in series showed the least effect even from such colossal doses.

EXPERIMENTS ON DOGS.

Six experiments were made, in which from 2 to 25 cactina pillets per kg., and from 2 to 35 cardiac tonic (cactin) 1/134 gr. each, Abbott Alkaloidal Company, per kg. dissolved in physiologic salt solution were injected directly into the blood stream through the femoral vein. Since not the least effect in any way resembling that of strychnin or digitalis was perceptible in any case, the protocol of but one experiment will be given, in which both preparations were given without perceptible effect (Figs. 1 and 2); and one in which 5 cactina pillets per kg. (the equivalent of more than 300 pillets for a man weighing 150 pounds) were injected in the same way. The latter tracing (Fig. 2) shows blood pressure and respiration immediately before, and forty-eight minutes after, administrations of the pillets.

Male dog, weighing 9.0 kg., excellent condition. July 17, 1:25 p. m., 0.01 morphin sulphate hypodermically.

1:37 p. m., 0.02 chloretone in 40 per cent. alcohol by stomach. Cannulas into the carotid artery and femoral vein.

Fig. 1. 2:14 p. m., 2 cardiac tonic (cactin), Abbot Alkaloidal Company, per kg. in physiologic salt solution into vein. (A total of about 9 milligrams of cactin.)

Fig. 2. 3:15 p. m., 2 cactina pillets per kg. in physiologic salt solution into vein. (A total of more than 11 milligrams of cactina for the dog, or 20 milligrams of cactin (Abbott's) and cactina combined.)

Time in seconds. Time tracing marks zero blood pressure. The tracing was continuous except for time lost in changing drums—about two minutes in every fifteen. Samples of tracing before injection and every fifteen minutes thereafter are given (Figs. 1 and 2). It will be seen that there was a gradual lessening of the excursion, without any important change in blood pressure, such rise as did occur being due to the increased pulse rate. The pulse rate per minute is given under each section of the tracing.

Fig. 3. July 9, mongrel bitch, weighing 7 kg.

2 p. m., 0.02 gm. per kg. morphin sulphate hypodermically.

2:25 p. m., ether for light anesthesia.

3:33 p. m. (Fig. 3, before injection), blood pressure 77 mm., pulse rate 175.

3:40 p. m., 5 cactina pillets per kg., in physiologic salt solution into vein.

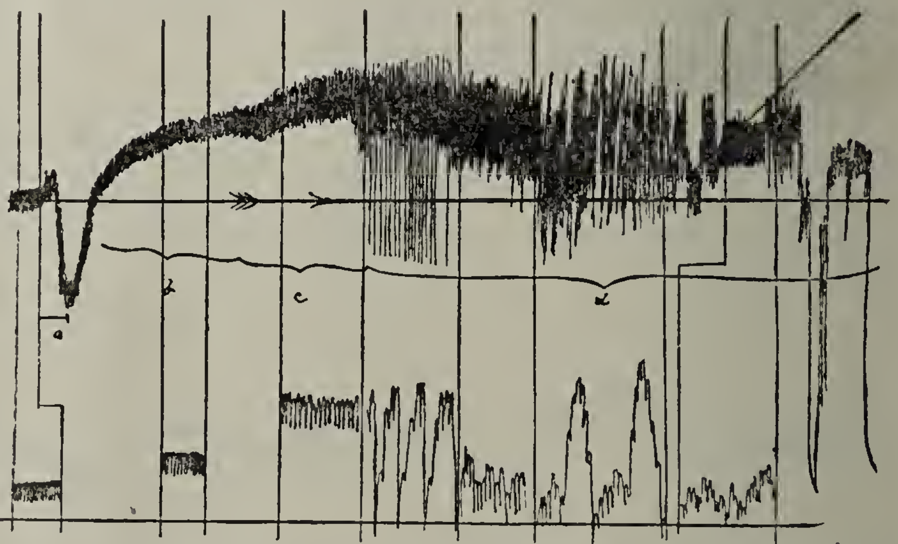


Fig. 4.—(From Fig. 85 of Sollmann's Pharmacology, second edition.) Digitalis on blood pressure. The upper tracing is taken on a slowly moving drum to show the successive effects. The lower tracing is taken with faster speed. The vertical lines indicate the correspondence of the fast and slow tracings. The upper horizontal line corresponds to the original mean pressure; the lower to zero pressure. The digitalis was injected at *a*.

4:28 p. m. (Fig. 3, after injection), blood pressure 84 mm., pulse rate 200.

No slowing, no considerable rise of blood pressure, no stimulation of the respiratory center. Compare tracings (Fig. 3) with those given (Fig. 4) in Sollmann's Pharmacology (second edition, pp. 480, 481), showing the effects of digitalis on blood pressure.

EXPERIMENTS ON RABBITS AND GUINEA-PIGS.

A rabbit was injected hypodermically with 2 cactina pillets per kg. in physiologic salt solution, and a rabbit and a guinea-pig were injected hypodermically with 10 per k g.[16] of cardiac tonic (cactin) 1/134 gr., Abbott Alkaloidal Company. In none of the three experiments could the slightest effect be noticed.

Ten experiments were made on frogs, four on cats, six on dogs, two on rabbits and one on a guinea-pig. In no single instance was there any evidence of a digitalis or strychnin-like action or, in fact, of any decided action of any kind.

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[14] Fifteen cactina pillets for a frog are in the proportion of approximately 25,000 for a man weighing 150 pounds.

[15] Thirty-five pillets per kg. are equivalent to 2,380 pillets for a man (weighing 68 kg.) 150 pounds.

[16] This rabbit, weighing 1.65 kg. (about 3.6 pounds) received a total of 165 pillets, or in the proportion of more than 6,800 pillets for a man weighing 150 pounds.

The pulse rate of the cat normally varies considerably, but drugs with a digitalis action produce a slowing which Fraenkel[17] has termed "colossal," amounting in some cases to about 100 beats per minute..

I have been unable to find the report of a single conclusive piece of pharmacologic work showing that *Cactus grandiflorus* possesses any physiologic action whatsoever; on the other hand, the work of Sayre[18] (and Houghton) points to its entire uselessness, and that of Gordon Sharp, previously quoted, indicates that it is wholly inert.

When one seeks to unravel the tangle involving the work of Myers and the exploitation of the cactina pillets he is forced to one of two conclusions: Either Myers' work was a pure fabrication, or he was dealing not with cactin but with a substance similar in action to the pellotin of Heffter, the action of which resembles that of strychnin to a certain extent. Such an action is demonstrable physiologically with as much ease and certainty as is the case with a simple chemic reaction. But whatever may be said of Myers' experiments (and his protocols show that they are unworthy of serious consideration), it can not be stated with too much emphasis that cactina pillets of the Sultan Drug Company and the cardiac tonic (cactin) of the Abbott Alkaloidal Company are absolutely devoid of any such action as that described by Myers in the article referred to. It may be said with equal emphasis that these two preparations are not only devoid of a digitalis or a strychnin-like action, but they are inert when used on animals in doses that are hundreds, and even thousands, of times as large as those recommended by their exploiters.

Loomis Laboratory, 414 East Twenty-sixth Street, New York.

SALPINGITIS CAUSED BY APPENDICITIS.*

I. S. STONE, M.D.
WASHINGTON, D. C.

A number of cases of suppurative salpingitis have been mentioned in the literature of pelvic surgery as having resulted from appendiceal infection. I intend to add a few cases to those already reported, so as to emphasize the fact that such cases exist and with greater frequency than is generally believed. In my cases I not only observed the appearance of the diseased organs before, during and after removal, but the presence of the diseased and ruptured appendix with the colon bacillus in the pus in the tubes. I observe many different symptoms, as well as marked dissimilarity between such diseased adnexa and those having the more frequent gonorrheal infection. There is also an appreciable difference between the tube with streptococcic invasion and that with gonorrhea. All of these pathologic changes, I think, are characteristic of the peculiar micro-organisms which produce the disease, and each has its own type and life history and selects some special anatomic tissue for its ravages. Thus the gonorrheal diplococcus will close the fimbria and protect the peritoneum until the tubal mucosa has been destroyed and perhaps until rupture occurs from distension. The streptococci or staphylococci cause lymphatic and connective tissue invasion rather than take the course pursued by the gonococci. My observations lead me to believe that the pus from an appendiceal infection, while probably due to the colon bacillus, may be, in part, caused by a mixed infection. At least my investigation only proves that salpingitis can be and is frequently caused by infection which has no other origin than that which came with the infectious micro-organisms found in appendiceal pus.

Deaver and Moore[1] speak of the possibility of right tubal infection through the lymph vessels in the ligament of Claudius. J. B. Sutton reports a case of salpingitis caused by the bursting of an inflamed appendix into the mouth of the Fallopian tube.[2] The symptoms were those of appendicitis, but the pain was localized below that region or nearer the normal position of the tube. The tube and appendix were removed without disturbing their relations. M. Potherat[3] reports an interesting case of associated appendicitis and salpingitis. He calls attention to the usual custom of calling the appendicitis secondary. He declares his case to have been one of primary appendicitis. His patient was unmarried and without any history of genital disease, and was in good health and was suddenly attacked by all the signs of appendicitis. Subsequent attacks of pain drove her to the hospital and to have the operation performed. He reports another case in which the symptoms resembled typhoid fever in a young girl of 17.

That the appendix is responsible for a large number of cases of pelvic peritonitis and resulting adhesions is so well known that I only mention it without discussion, and with the intention of limiting the discussion to acute infectious pyosalpingitis and its results. In order to show that salpingitis may result from an appendiceal infection, I report the following case which leaves no doubt as to its character.

Mrs. C., aged 35, white, mother of two children, and perfectly healthy until Sept. 26, 1905. I saw her first with her family physician, September 29, three days after the commencement of an attack of appendicitis. The physician in charge and the patient lived in a suburb of the city, six miles from a hospital, and having heard of the "Ochsner method" of treatment, he determined to adopt the conservative course. Accordingly I found the patient, a woman of very intellectual type, resolved on a trial of cure without operation. Our decision was to open the abdomen if we could get the patient in the city and in the hospital that same evening. Her pulse was 135, her temperature 102.5, and her bowels had been well cared for by enema and there was absolutely no distension. Her excellent condition (perhaps I should say the excellent condition of her alimentary canal) was undoubtedly due to the very capable management of the family physician. She had not been purged nor had food been administered. On reaching the hospital after a rather rough trip in the ambulance, the patient still declared herself anxious to avoid operation and we waited until a later period. We could now discover a mass at the appendix point, but there was absolutely no evidence of tubal or ovarian disease. Her temperature was reduced to normal on the sixth day of the disease and we opened the abdomen, expecting to find a necrotic appendix. To our surprise and greatly to our instruction there was necrosis of the appendix and a portion of the cecum which appeared to be about the size of a silver dollar. We found the pelvis and infected area pretty well walled off and an ounce of free pus in Douglas' cul-de-sac. The rupture of the abscess in the appendix had occurred recently, for the pelvic structures were not greatly changed in appearance by the contact with very infectious pus. The adnexa were positively not involved and as we saw that nothing short of a resection of the bowel, amounting to excision of the cecum, would suffice if we attacked the appendix, we decided on further delay in radical operation, and, after placing a drainage tube, closed the abdomen. The patient continued to improve until the tenth day, when the temperature and other symptoms plainly showed that the right tube was distended with pus. We opened this through a postcervical incision in the vagina and evacuated a considerable quantity of pus with the odor of that already observed in the pelvis at the first operation.

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[17] Arch. Exp. Path. und Pharm., II, p. 84.

[18] Ther. Gaz., 1906, xxii, 822.

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

[1] Amer. Jour. Med. Sci., N. S., cxxiii, 1902.

[2] Brit. Med. Jour., 1905, p. 118.

[3] Bull. et Mem. de la Soc. de Chirurg. de Paris, N. S., xxviii 1902, 204.

The patient's condition now improved as before until finally the Fallopian tube on the left side behaved in precisely the same manner and we opened it and secured a complete and satisfactory recovery of the patient. I have omitted the result of drainage of the appendiceal region, at the time of the first operation. A fecal discharge occurred a few days afterward which continued for two weeks, then ceased and the tube was removed. The patient is now in good health.

Many physicians are skeptical of the cause of salpingitis in very innocent young women who ought to be above suspicion. It is a common experience to suspect any woman who has an infectious disease of an ovary or tube. The following case illustrates this statement and shows how easily one may reach a conclusion wrongfully:

Miss ————, white, aged 18, a virgin. There was no question of her excellent character and she had always had good health until 1906, when she was taken ill with appendicitis, having all of the well marked symptoms. Her physician treated her without consultation for nearly two weeks before he realized her condition or consented to have assistance in the management of the case. Finally she was brought to the hospital in a dying condition. Her abdomen was distended and we were led to believe that there were symptoms of salpingitis, and peritonitis from that cause. But on careful examination we came to a different conclusion. Although we drained the pelvis from below, and opened and drained from above the pubis, nothing could save the patient. But we discovered what was sufficient proof to show that the appendix was the cause of the pus collections in the pelvis and the diffuse peritonitis which killed the patient. It may be considered impossible for salpingitis to cause an appendicitis and we found in this case (a virgin) large pus tubes, and a perforated and gangrenous appendix.

There was in this case as in the other, the colon bacillus, and every other indication of the intestinal origin of the infection.

Authors differ greatly as to the possibility of making a diagnosis before operation. Without quoting those who are ranged along opposite sides of the question, I think it is the rule for the Fallopian tube to become infected secondarily or as a result of the appendiceal disease.

This would be in line with the pathology, as we believe it to be found that whether there is lymphatic or direct infection it must come from the appendix and not from the tube to the appendix. Our position and our cases show direct purulent infection of the Fallopian tube by the colon bacillus directly from the ruptured appendix.

In support of this position, I also add the case of J. Bland Sutton, already mentioned, and that of Geneu,[4] who reported a similar case in which the appendix was actually inserted into the inflamed tube. I can not believe that any direct or indirect infection has been shown conclusively to have proceeded from the tube to the mucosa of the appendix, although I do not question such a possibility. The development of pelvic peritoneal adhesions may involve the appendix indirectly by adhesive bands which constrict and perhaps close the lumen of the appendix. This would be a secondary appendiceal complication, but one which would be difficult of diagnosis and one which I insist should be called an association of the two conditions.[5]

DISCUSSION.

Dr. L. Tod Gilliam, Columbus, Ohio, agreed with Dr. Stone that it is not often, if ever, the case that the appendix is infected from the tube. Kelly, he said, has demonstrated the fact that there are no lymphatics passing directly between the tube and the appendix, and, on the other hand, it is known that the gonococcus does not go along the lymphatic channel, but along the mucous surfaces. Therefore, he can not conceive of an appendix being infected from its peritoneal covering, but believes that instances of infection from the tube are exceedingly rare. There must be an abraded surface or vulnerable point somewhere to permit of infection. On the other hand, he continued, it is possible for a tube to become infected from the appendix. It is his opinion, however, that the colon bacillus will not infect a mucus-covered surface where there is no abrasion. It may be that in the cases cited there was a mixed infection—a gonococcus plus the streptococcus, and it is to the latter one must look for the penetrative infection, a property not possessed by the gonococcus. Dr. Gilliam believes that the colon bacillus may go along the mucous surface without producing severe infection. Where the appendix is in the hollow of the tube, in the fimbriated extremity of the tube or anywhere near it, one can understand how the germs might get into it, how the tube might become infected through any lesion that destroys the continuity of its surface. Dr. Gilliam is convinced that where there is an infection of the tube from the appendix it is a mixed infection and not a pure colon bacillus infection.

Dr. S. W. Bandler, New York City, did not feel in a position to make an absolute differential diagnosis between infection of the tubes and ovaries subsequent to appendicitis, and infection of the tubes in which the involvement of the appendix is subsequent to the tubal disease. That appendicitis may result in salpingitis, he said, no one is disposed to question. He has found in these cases that the condition is not so much that of endosalpingitis as of adhesions around the tube, or perisalpingitis. An illustrative case was that of a girl of 17, on whom he operated for double salpingo-oophoritis. The ovary on the right side was quite large; adhesions were marked, and the omentum was adherent to the abdominal wall and to the bladder, completely walling off the appendix region from the general peritoneal cavity. The adhesions were so slight and elastic that it was believed they followed an appendicitis. The appendix was separated from the cecum by the space of an inch—a case of spontaneous amputation of the appendix. It seemed absolutely certain that the salpingo-oophoritis had followed the appendicitis. Subsequent operations have shown Dr. Bandler that in those cases, in which there is a predominance of the salpingo-oophoritis on the right side, with a cystic ovary, especially those cases in which the ovary contains only one cyst the size of a walnut, with slight and elastic adhesions, the condition occurred subsequent to appendicitis. On the other hand, with pyosalpinx due to gonorrhea, and with salpingitis due to gonorrhea, the appendix often is involved. At all events, he said, it is often impossible to say whether the involvement of the appendix is primary to the salpingitis or *vice versa*.

Dr. I. S. Stone, Washington, D. C., regretted that in the examination of the specimen he did not ask for a definite diagnosis of the pus. He suspected the colon bacillus, but was not in a position to speak positively, except to say that the appearance of the gonorrheal pus tubes is absent in the variety of infection under discussion. The fimbriæ are closed readily in the gonorrheal variety, and, generally, before there is much peritoneal infection; whereas, in the other varieties, they are not closed readily. Dr. Stone has seen them repeatedly when they were not closed. When the pus comes from the exterior of the tube the peritoneal surface will be more or less involved, when the fimbriæ may reopen.

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[4] Faure (J. L.): Gynécologie, 1901, vi, p. 32.

[5] I take special pleasure in calling attention to a trenchant article by Dr. Baldy on this subject in the Trans. So. Surg. and Gyn. Assn., 1903, p. 263. I fully coincided with his views until I saw a certain case like mine, above mentioned, caused by direct contact with appendiceal pus.

Clinical Notes

A CASE OF ACETANILID POISONING FROM HEADACHE CAPSULES, WITH EXTREME TACHYCARDIA THE DOMINANT SYMPTOM.

FRANK B. WYNN, M.D.
INDIANAPOLIS.

History.—On July 28, 1907, Dr. A. W. Hon was called to see Mrs. F., a rather delicate woman, aged 44. She was complaining of great prostration, nausea, some dyspnea and a sense of oppression and pain in the precordial region.

Examination.—I saw the patient in consultation July 30. An examination at that time revealed, besides the symptoms above enumerated, the following: Normal temperature; slight puffiness of the skin, notably of the hands and face; mild degree of palor, but no cyanosis; abdominal viscera normal; lungs negative except accelerated respiratory movements, but not a labored breathing; urine and blood negative. The conspicuous sign was an extreme grade of tachycardia. The pulse, although weak, was palpable at the wrist, but could not be counted there. The rate, as determined by auscultation and a sphygmographic tracing, was 210 (Fig. 1). The heart was small; its sounds were clear, with accentuation of the second pulmonic. The Riva-Rocci instrument registered a blood pressure of 80 mm.

Further History.—On August 2, Dr. A. C. Kimberlin was asked to see the patient when there was noted some improvement in the rate (204), as well as the quality of the pulse (Fig. 2). The blood pressure had risen to 90 mm. and the patient herself was conscious of gain.

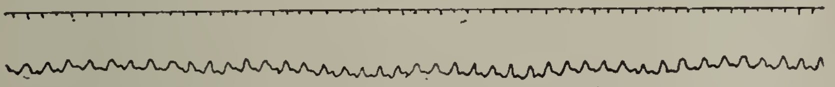


Fig. 1.—Sphygmogram showing tachycardia. Rate 210. Time markings one-fifth of a second. Jaquet instrument.

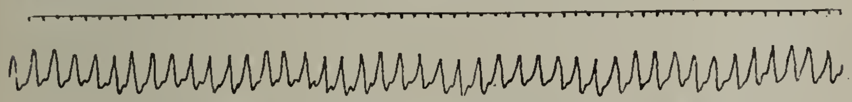


Fig. 2.—Tachycardia slightly improved over that shown in Figure 1.

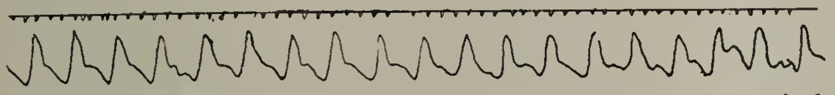


Fig. 3.—Sphygmogram showing a pulse rate of 100, the sixth day after the poisoning.

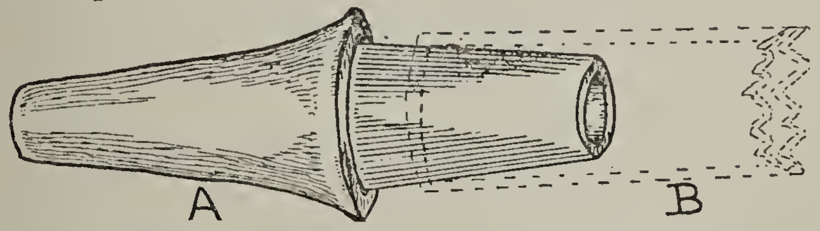
Treatment.—Under the free ingestion of water and moderate saline purgation, the pulse rate gradually dropped to 100 on August 5 (Fig. 3), since which time convalescence has been rapid.

Diagnosis in the case was at first perplexing. Certainly no infectious process was present to account for the symptoms, nor did there appear to be any source of autointoxication. The rapid heart action was too prolonged for paroxysmal tachycardia. The absence of exophthalmos, thyroid enlargement, tremor and general nervousness excluded Basedow's disease. The conclusion forced was that the patient's condition arose from taking "neuralgic capsules" obtained at a drug store. For several years past she has been subject to severe and prolonged attacks of facial neuralgia. It was while suffering from the last seizure that she sought relief at the hands of the druggist. He was willing to prescribe and furnished her with his stock remedy ("Neuralgic Capsules") for pain, in a neat little box, with printed label which read: "Take one, repeat in fifteen minutes, and then every two hours." She took six of the capsules, obtaining relief from the pain but developing the alarming symptoms for which medical aid was sought. Qualitative analysis by the state chemist, H. E. Barnard, shows that the capsules consist of acetanilid and caffein.

A SIMPLE, ASEPTIC MOUTH-PIECE FOR THE SPIROMETER.

THOMAS A. STOREY, M.D.
Associate Professor and Director Department of Physical Instruction of the College of the City of New York; President of the Society of College Gymnasium Directors.
NEW YORK CITY.

So far as I am aware there is no spirometer tip on the market which can be cleaned easily. In view of the thousands of spirometer tests that are made each year in our various gymnasiums, this fact assumes a serious hygienic significance. A recognition of these facts justifies me, I believe, in presenting this device to the medical profession and particularly to those men engaged in anthropometric work.



Simple, aseptic mouthpiece for the spirometer.

This mouth-piece (A) is made of wood, bevelled on one end to fit easily between the lips. The other end is made to fit snugly in the bore of the rubber tubing (B) which leads to the spirometer. These may be made anywhere. The Narragansett Machine Company of Providence, R. I., has furnished me with tips at the rate of three dollars a thousand. Each mouth-piece is used but once. It is then thrown away. At one-third of a cent apiece this is not extravagant. With such tips in use the danger of spreading contagion from mouth to mouth in our anthropometric examinations would disappear.

TRAUBE'S SEMILUNAR SPACE IN EMPYEMA.

W. J. CALVERT, M.D.
COLUMBIA, MO.

The value of Traube's semilunar space in differential diagnosis is briefly discussed in modern texts. The statement usually found is that the tympany is replaced by dulness in pleurisy. Cabot[1] says that it "is of very little value in diagnosis. This tympanitic area is obliterated in many pleuritic effusions (not in all)." In this connection the following history is of value:

A boy with pneumonia continued to have fever and severe general symptoms after the time of the anticipated crisis. Pleurisy, possibly empyema, was considered.

Physical examination showed a normal tympanitic semilunar space. Next day, before tapping, the same condition was found. After withdrawing about one-half pint of pus, the space was dull as far as the lower boundary of the pleural sinus. This last examination was not more than fifteen minutes after the second examination when tympany was found. During this interval the patient had taken neither liquid or solid matter.

While being tapped the patient was fairly quiet; no local anesthetic was used. Within a few hours a portion of a rib was resected by Dr. Nifong and a thick fibrinous deposit was found on the parietal pleura. A large quantity of pus was removed.

Undoubtedly, the pleura on the thoracic wall had been glued by the deposit to the diaphragmatic pleura, thereby preventing the pus from filling the sinus. The manipulation of the patient during puncture broke the weak union between the two pleural layers. The pus then filled the sinus and produced dulness.

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[1] Physical Diagnosis, Third Edition, p. 370.

Ferber, in 1875, mentions the possibility of the two layers sticking together.

A dull note or a dull tympanitic note extending in Traube's semilunar space to the lower limit of the pleural cavity is a valuable differential sign in pleural effusions or empyema. Little difficulty should be experienced in differentiating this note from dulness due to a full stomach or intestines, if the anatomic boundary of the pleural cavity is kept in mind. Occasionally, an enlarged lower lobe of the lung fills this space.

When a tympanitic space is found in a suspected pleural effusion, the possibility of the sticking together of the two pleural membranes should be kept in mind. These exceptional cases should not diminish the value of dulness as a differential sign in the general run of pleurisies.

EXCISION OF THE TONGUE FOR CARCINOMA.

C. E. RUTH, M.D.
Professor of Surgery Keokuk (Iowa) Medical College.

The great number of methods for excision of the tongue gives abundant testimony of the unsatisfactory state in which the various procedures are held by the profession and justifies me in presenting the following plan, which has proved perfectly satisfactory in my hands. It enables the total removal to be made without preliminary tracheotomy, without any annoyance whatever from hemorrhage, without danger, and assures a rapid and an easy convalescence while giving the maximum protection against recurrence.

In every case which can with certainty be diagnosed as carcinoma of the tongue accompanied by infiltration the lymph nodes in line with the lymph current are already involved. The removal of these glands is as important as the removal of the primary growth and should be done in all operable cases. The first step, therefore, should be the making of an incision under the lower jaw from behind one carotid bifurcation to a corresponding point on the opposite side. Through this incision the platysma and mylohyoid muscles are sectioned and all adipose tissue and lymph nodes removed from the symphysis menti and body of the jaw above and in front to the hyoid bone below and the carotid bifurcation behind. The carotid area should be traced downward from the bifurcation of each artery and any nodes discovered should also be removed.

The necessity for removal of the lymph nodes on both sides of the neck is at once apparent when we remember that the lymph vessels freely anantomose across the median line and are not confined to one side as the arteries and veins. If but one side of the tongue be involved and only one side be removed the lymph nodes must be removed from both sides.

The removal of the lymph nodes should also include excision of the submaxillary and probably also the sublingual glands. Careful search should be made for nodes in the digastric triangles and also directly under the symphysis menti. Both lingual and both facial arteries are easily secured through this incision and should be ligated before any work whatever is done in the mouth. Considerable annoyance may be avoided in this as in all operative procedures within the mouth by the administration of enough atropin to cause slight dryness of the fauces and thus obviate the accumulation of mucus in the throat, which is at times a very serious annoyance.

The wound in the neck having been closed, the throat is cleared of all mucus and a rubber tube as large as possible is passed through each nostril well down to but not beyond the top of the larynx. One of these tubes is to be used for inhalation of air and the other for the anesthetic, which should usually be chloroform. Moist gauze is packed lightly in the back part of the fauces so that there shall be no opportunity for blood to gain access to the larynx should there be more hemorrhage than was expected. The tongue can be grasped with volsella and removed by scissors without any difficulty and with no hemorrhage beyond a slight oozing, principally of venous blood. The administration of hyoscin, morphin and strychnin one and one-half hours before the operation will enable the work to be done with very little anesthetic. The floor of the mouth is best sutured with catgut. The patient can be easily fed by passing the food through a catheter introduced either through the nose or mouth for the first week or ten days. After that time he will usually swallow most or all of the food. Swallowing seems to be mainly prevented by the soreness of the sectioned muscles and the large tender stump, which is distributed by every movement in attempts at swallowing.

The resulting scar below the chin is insignificant and the floor of the mouth is perfectly smooth. One who has had no experience with excision of the tongue will be surprised to note how well these patients talk, for they can soon make themselves perfectly understood, although they talk very deliberately to increase the distinctness of articulation. The importance of preliminary ligation of all the main vessels which supply a part undergoing malignant degeneration or liable to the same remains to be determined. We have, however, reason to expect that the liability to recurrence will be greatly lessened in view of the favorable influence exerted on such growths by any plan which will limit their nutrition.

1370 Gilpin Street, Denver, Colo.

A Physician's Bravery Rewarded.—The chapter general of the Order of St. John of Jerusalem has awarded the medal of the order to Dr. Albert von Lecoq, of Berlin, in recognition of an act of humanity. The *Lancet* in giving an account of the incident states that Dr. von Lecoq was traveling in Chinese Turkestan last September and met Capt. J. D. Sherer, a British officer, at Kashgar. They agreed to travel back to India by the Karakoram route, and had crossed the Karakoram Pass when Captain Sherer was laid up with typhoid fever and pneumonia. Dr. von Lecoq, after caring for him for eleven days, decided to go forward to Panacuik to bring back assistance. To do this he was obliged to travel from dawn till sunset for nine consecutive days, crossing the dreadful Sassar and Murghi passes twice. During this time Dr. von Lecoq lived on flour balls dipped in melted grease, as he had left all the other stores with Captain Sherer, fearing that he would run short of supplies. This heroic man, says the *Lancet*, was himself in a debilitated condition from dysentery and hard living during two years' travel on scientific research in Turkestan. The *Lancet* quotes the following comment from the official account of this feat: "That Dr. von Lecoq, a mere road acquaintance of Captain Sherer, and a man of different nationality, should cross the Sassar and Murghi passes three times in fourteen days, the third time in a blinding snowstorm, the first named pass being 17,840 feet high and the summit consisting of some three miles of perpetual glacier, appears an act of self-sacrifice, humanity and devotion which is deserving of exceptional recognition."

New and Non-Official Remedies

The following articles have been tentatively accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in the proposed annual, "New and Non-official Remedies." Their acceptance has been based largely on evidence supplied by the manufacturer or his agent, but to some extent on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before final acceptance and publication in book form.

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that so far as known it complies with the rules adopted by the Council.

W. A. PUCKNER, Secretary.

ADRENALIN INHALANT.

A neutral oily solution for application to mucous membranes, containing 2.5 per cent. of chloretone, adrenalin chloride (1 :1000), 13 per cent. of alcohol, and aromatics.

Actions and Uses.—Astringent, antiseptic and mildly anesthetic.

Dosage.—See adrenalin.

Prepared by Parke, Davis & Co., Detroit, Mich.

ADRENALIN OINTMENT.

One part of adrenalin chloride in 1,000 parts of oleaginous ointment base.

Dosage.—See adrenalin.

Prepared by Parke, Davis & Co., Detroit, Mich.

ADRENALIN AND CHLORETONE OINTMENT.

Contains 5 per cent. of chloretone and 0.1 per cent. of adrenalin chloride, in an ointment base of hydrous wool fat and petrolatum. See adrenalin inhalant.

Dosage.—See adrenalin.

Prepared by Parke, Davis & Co., Detroit, Mich.

ADRENALIN TABLETS.

Each tablet contains 3/200 grain (1 mg.) adrenalin, as borate, yielding a 1 :1000 solution when dissolved in 15 minims (1 Cc.) of water.

Dosage.—See adrenalin.

Prepared by Parke, Davis & Co., Detroit, Mich.

ADRENALIN AND COCAIN TABLETS.

Each hypodermic tablet contains cocain hydrochloride 1/6 grain (10 mg.) and adrenalin, as borate, 1/300 grain (0.2 mg.)

Actions and Uses.—Local anesthetic for dentistry and minor surgery.

Dosage.—See adrenalin.

Prepared by Parke, Davis & Co., Detroit, Mich.

ATOXYL.

Atoxyl, $C_6H_4(NH_2)(AsO.OH.ONa) + xH_2O = C_6H_7O_3NAsNa + xH_2O$, is sodium aminophenyl arsenate. Its composition corresponds to sodium-dihydrogen arsenate in which one hydroxyl of the arsenic acid is replaced by a molecule of phenylamine (aniline). It contains about 26 per cent. arsenic.

Atoxyl is a white powder having a faint salty taste, soluble in about 6 parts of water at ordinary temperature and more soluble in warm water. On standing the aqueous solution assumes a yellowish tint.

An acid solution of Atoxyl is not affected by hydrogen sulphide in the cold; when the solution is warmed the arsenic may be completely precipitated by hydrogen sulphide. If a solution of Atoxyl is treated with hydrochloric acid and potassium iodide, iodine is set free. The resulting liquid, whether freed of iodine or not, gives even in the cold a precipitate of arsenous sulphide when treated with hydrogen sulphide.

The per cent. of arsenic and of water contained in Atoxyl may be determined by the methods given, J. A. M. A., p. 1041.

Actions and Uses.—Atoxyl has the same action as arsenic in other forms, but is said to be less poisonous than other forms of arsenic. Investigation appears to show that the aniline takes no part in the poisonous action. It is claimed that the use of atoxyl is not followed by irritation, abscess formation, etc., which sometimes follow the use of other preparations of arsenic.

Atoxyl has been recommended for the conditions which are favorably influenced by arsenic, such as anemia, nervous affections and diseases of the skin. It is said to have been very successful as a remedy for trypanosomiasis, both of animals and of man.

Dosage.—Hypodermically from 0.02 to 0.04 Gm. (1/3 to 2/3 grain) may be given every other day. In sterilizing atoxyl solutions prolonged and excessive heating is to be avoided.

Manufactured by Vereinigte Chemische Werke Actiengesellschaft, Charlottenburg, Germany. (Victor Koechl & Co., New York.)
U. S. trademark No. 38879.

CODRENIN.

SOLUTION ADRENALIN AND COCAIN.

Contains cocain hydrochloride 1 per cent., adrenalin chloride 0.02 per cent., chloretone 0.5 per cent., dissolved in physiological salt solution.

Actions and Uses.—Local anesthetic and hemostatic in dentistry and surgery. The adrenalin delays the absorption of cocain and thus intensifies and prolongs its effects.

Dosage.—See adrenalin.

Prepared by Parke, Davis & Co., Detroit, Mich.

COLALIN.

Colalin consists essentially of a mixture of bile acids. It is said to be obtained from bile by a process similar to that used by Jolin to obtain hyocholalic acid. To preserve the pulverent condition, a little magnesium carbonate is added.

Colalin is a yellow powder of faint odor and persistent bitter taste. It melts at 103 degrees to 107 degrees C. It is slightly soluble in water and acid toward litmus.

Colalin should be readily soluble in alcohol and this solution should rotate polarized light to the right. It should dissolve almost entirely in a dilute solution of sodium carbonate with evolution of carbon dioxide and in a dilute solution of sodium hydroxide. The solution in sodium hydroxide should not be rendered turbid by the addition of barium hydroxide T.S. (absence of fatty acids). It should not contain more than a trace of sulphur (absence of taurin).

Actions and Uses.—It is claimed that Colalin represents the active principles of the bile and acts like it in the intestinal canal, assisting in the saponification and emulsification of fats, aiding the pancreatic juice, promoting peristalsis and acting as an antiseptic. Being absorbed and conveyed to the liver, it stimulates that organ to the production of bile.

Colalin is said to be useful in cholelithiasis as a preventive and as a remedy to obviate the recurrence of attacks of colic. It is claimed that it acts as an intestinal antiseptic, and by preventing intestinal autotoxemia is helpful in the treatment of various neuroses, such as epilepsy, neuralgia, etc., which are supposed to depend on the absorption of poisons from the intestinal canal. In addition, it is claimed that it is useful as a hepatic stimulant in affections in which the liver is insufficiently active.

Dosage.—0.015 to 0.030 Gm. (¼ to ½ grain) three to four times daily; for children from 0.008 to 0.015 Gm. (⅛ to ¼ grain).

Colalin is marketed in the form of powder and in tablets of ⅛, ¼ and ½ grain each.

Manufactured by Rufus Crowell & Co., Somerville, Mass. (Schieffelin & Co., New York). Not patented or trademarked.

(To be continued.)

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SATURDAY, SEPTEMBER 21, 1907.

THE DISPENSARY PROBLEM.

The use and abuse of the dispensary has been the subject of a vast amount of discussion, and in some states various legislative measures have been enacted for the purpose of bettering conditions. These measures have met with more or less success, but at present conditions are far from ideal in the best of regulated communities. In a recent article Dr. S. S. Goldwater,[1] secretary of the Hospital Conference of the City of New York, offers some very pertinent suggestions. Dr. Goldwater points out that there is one evil, of no small importance in itself, which, if corrected, would tend to minimize the difficulties of meeting several of the other evils. This is the overcrowding to which many of the dispensaries are subjected. In an overcrowded dispensary it is utterly impossible for the patient to receive the time and attention which should be given him in order to secure even reasonably good results from the standpoint of either patient or physician.

Two measures are proposed to meet this evil: First, that the license granted to each dispensary shall limit the number of patients which the dispensary is allowed to treat, basing the limitation on the facilities which the dispensary possesses, and, second, that the area from which patients come who attend a given dispensary shall be limited to a certain district. These measures would probably be opposed by two classes of dispensaries: those which, for obvious reasons, desire to report a large number of patients treated and those which demand a large amount of clinical material for teaching purposes. The first should be made to conform to standards of quality rather than quantity of work, while the objection of those controlling the teaching dispensaries is fairly met by Dr. Goldwater's suggestion that their field may be broadened by utilizing other dispensaries for this purpose. As dispensaries are now located, the districts would necessarily overlap to some extent, and it might be found expedient to establish new dispensaries in certain districts; but even this would be more economical than to continue the present system of overcrowding.

In connection with this suggestion for the better coöperation of dispensaries through the scheme of districting, Dr. Goldwater urges an extension of the system of following certain patients to their homes in order to control, to a certain extent, the hygienic conditions under which they live. There are many conditions, such as tuberculosis, heart and kidney diseases, and many functional disorders, in which such a supervision is of paramount importance if any material benefit is to be obtained by the patient. The practicability of this plan is attested by the success attained by certain of the New York dispensaries, by the out-patient department of the Massachusetts General Hospital, and by many of the special tuberculosis clinics, which employ visiting nurses, physicians or social workers. The increase in efficiency in dispensaries which employ such methods is marked.

In certain communities, the laws aim to protect the dispensaries from imposition by individuals who can afford to pay a physician, by requiring that applicants for treatment shall demonstrate that they are suitable objects for dispensary charity before receiving treatment, and that all doubtful cases shall be investigated. The accomplishment of this purpose would be very much simplified if the suggestions made by Goldwater were carried out. A limited number of patients from a given district could be investigated with comparative ease, particularly if the dispensary possessed the machinery for home visiting. The community would suffer a very much slighter risk of being "pauperized" from such a system, carried out, as it should be, by trained workers, than it does at present in the indiscriminate or semi-regulated provision of dispensary treatment, while the deserving sick poor would be immensely benefited.

The solution of the dispensary problem may not be accomplished for many years, but it is evident to students of the question that progress is bound to come along the lines indicated by Dr. Goldwater. The effect on the health of a community in which such a scheme should be put into effect would be very material, while many of the ills to which the present dispensary system is subject would be wholly or partially eliminated.

CACTUS GRANDIFLORUS.

There is so much obscurity about this unofficial drug, and especially about the claims of the proprietary preparations of the drug, that Dr. Hatcher's summary, in this issue,[1] of the scientific and would-be scientific literature of the chemical and experimental phases of the subject, and the record of his own investigation of two of these products, will make interesting reading. They reveal the following facts:

1. The chemical analysis of *Cactus grandiflorus* has yielded such variable results in the hands of different investigators that we must conclude that the active principles—if such exist—have never been isolated. This is now practically acknowledged by the Abbott Alkaloidal Company, who formerly claimed that their "cactin" was a glucosid, but who now state that it is only a "concen-

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[1] Amer. Jour. Med. Sciences, September, 1907, abstracted in this issue of The Journal, p. 1056.

[1] Page 1021.

tration"—a loose and indefinite term designating a pharmaceutical and not a chemical product.

2. It is evident, therefore, that commercial products said to contain the pure, isolated, active principle can not be strictly true to their claims. In the absence of any known chemical tests for these hypothetical "active" substances, and so long as the proprietors see fit to keep the true nature of their products secret, it is impossible to know whether they contain all, several, one or none of the reputed active principles, and whether the "cactin" of one proprietor is the same as, or altogether different from, that of another proprietor.

3. The therapeutic claims for cactus as a cardiac tonic are difficult to control directly, although the disinterested negative evidence of Gordon Sharp appears more convincing than the more enthusiastic positive claims. The question can be settled much more definitely, however, by experiments on animals.

4. Experiments made with non-proprietary preparations have yielded results so variable and indefinite that it is probable that the investigators have been working with different principles perhaps obtained from different plants. At any rate, results so indefinite and variable would not justify the therapeutic use of any drug. From a practical standpoint these investigations would be of very limited value in the present connection, even were they positive, since we do not know what relation the proprietary articles, which are used almost exclusively, bear to the products obtained directly from the cactus.

5. Only two investigations appear to have been made directly with the commercial products: That of Myers on "cactina," and the present work of Hatcher on "cactina" and "cactin—Abbott." The conclusions of these two investigators are directly opposed, Hatcher's results being entirely negative, while Myers claims to have obtained more positive data. To these it may be remarked: The investigations of Myers appear to have been restricted to two experiments, and his results were such that a competent experimenter would have drawn from them but one conclusion, namely, that he would have to do some more work before rushing into print. Even were his results accepted, they would not justify either his pharmacologic or his therapeutic conclusions. Myers' experiments were made with "cactina" as supplied to him in 1891 by Mr. Sultan. Those of Hatcher were made with the pillets of "cactina" and "cactin" as *now* marketed respectively by the Sultan Drug Company and by the Abbott Alkaloidal Company. Dr. Hatcher is an experimenter of acknowledged standing; Dr. Myers does not appear to be so.

Those who have commercial interests at stake, and those who are not very familiar with animal experimentation, might object that the negative results on animals do not constitute a case against the therapeutic reports. The exploitation of the faulty experimental work of Myers by the commercial interests would, indeed, disprove the sincerity of such objection on their part. To those who honestly have this doubt it may be pointed out that there is no instance known of a drug which produces an acute therapeutic effect on man, and is at the same time inert when administered to animals, although it must be remembered that the effects are sometimes not the same. In the case of drugs which act on the circulation, however, the agreement has been found to be particularly striking, so that animals are even used for the quantitative estimation of such drugs as digitalis, strophanthus, suprarenal preparations, etc. The claim that a drug acts powerfully in cardiac disease in man, although it is found to produce no effect whatever in from a hundred to many thousand times the therapeutic dose when administered to healthy men, and to dogs, cats, rabbits, guinea-pigs and frogs would be as absurd as the proposition that $2 + 2 = 5$. If any one doubts this let him inject into a frog a thousand times the proportional therapeutic dose of digitalis, strychnin, alcohol, amyl nitrite, or any other drug which really does act on the circulation, and watch developments—the experiment will not consume much time.

Every one is free to draw his own conclusions from the facts presented by Dr. Hatcher. Our own conclusion is that those who lean on cactus in the treatment of cardiac diseases do not even lean on a broken reed, but on nothing more substantial than air.

CONCERTED ACTION IN TUBERCULOSIS CONTROL.

At its second meeting, held near the end of August, the Saranac Lake Society for the Control of Tuberculosis adopted its constitution and by-laws in which the objects of the association are formally declared. As this society represents a movement which is of interest particularly to all communities in which, for reasons of health, a number of consumptives, in addition to the ordinary quota of these patients that would normally occur, is to be found, it has seemed deserving of special notice. Such centers of tuberculous population have become more numerous in recent years in this country, and it is recognized that special precautions are needed in them. Besides, the regulations adopted at Saranac, where there has always been a commendable conservatism in dealing with consumptives, represent the form of control of tuberculosis which is likely to be of benefit wherever there is a noteworthy amount of the disease. The general objects of the society are declared to be the enforcement of sanitary laws, the education of the general public, dispensary treatment for needy patients, and the general dissemination of reliable information with regard to Saranac Lake and its vicinity both for the benefit of those already in the region and those who contemplate coming to it.

The greatest emphasis is laid on the education of the general public with regard to tuberculosis. It is recognized that the most important field for education is among those who, as boarding house keepers, are brought in intimate contact with tuberculosis and in whom a knowledge of the necessary regulations to prevent its spread may prove especially fruitful in good results. It is realized, however, that much good will not be accomplished in this matter without the sanction of law, so it is proposed also to act coordinately with the board of health in bringing home to the people the necessity for enforcing such measures as deal with expectoration and disinfection, and by encouraging and assisting all hotels and boarding houses to enforce the sanitary laws. All cases of pulmonary tuberculosis must be reported and registered, and all rooms that have been occupied by patients suffering from pulmonary tuberculosis must be disinfected thoroughly. The society purposes to help the board of health in preventing expectoration on the streets and favoring the carrying of pocket sputum cups with the proper disposal of sputum. These regulations reassure the healthy inhabitants, save occasional visitors from fear of contamination, and prevent the spread of the disease.

The interests of the tuberculous patients are also promoted, however, and this feature of the new society promises to be its most helpful phase of work. It is proposed to maintain a free bureau of information with a competent manager, whose duties shall be: (a) to furnish reliable and impartial information concerning the conditions and cost of living in Saranac Lake and vicinity; (b) to explain conditions under which admission to the various semi-charitable institutions is to be gained; (c) to investigate needy cases and to provide temporary aid or nursing when necessary; (d) to cooperate with the board of trade and business interests in distributing suitable literature.

The scheme thus outlined represents a movement in the crusade against tuberculosis, the details of which should be familiar to all who are interested in the attempt to suppress the white plague of the north or at least to reduce its ravages. The organization which outlines it would seem to be worthy of emulation in every community which, like Saranac Lake, must assume the burden of more than its normal quota of consumptives, though every small town in the United States might well follow the example thus set and as a result be sure of distinctly lowering its mortality from the most serious factor in its death rate.

A POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

In the department of Medical Economics in this week's issue[1] appears an outline of the first month's work of a course of postgraduate study for county societies, which is presented in the hope that it may prove of some service as a suggestion and a starting point for those societies which are in a position to take up systematic postgraduate study. The principal object of the county society is to be of the largest possible service to each member by adding as much as possible to his individual efficiency as a physician. Many societies are doing thoroughly valuable work; in many others the membership is not large enough to enable them to maintain a continuous scientific program from month to month. In such cases it may be necessary, in order to sustain the interest in the meetings and to make the societies of the greatest value to the members, to obtain assistance from without. It seems apparent that a systematic course of study, drawn up to meet the needs of the average society and conducted from a centrally located bureau from which can be sent out suggestions, advice, instructions, references to journals and textbooks, etc., will go far toward making the average county society more efficient and of more value to its members. The proposed course has been drawn up, not as an ironclad system to which it is necessary to conform, but as a suggestive outline to serve as a basis for county societies that desire to take up such work. It is probable that many modifications will be required. Perhaps no single county society can use the course exactly as it stands. It is presented in the hope that, from this as a beginning, there may be evolved a systematic, practical course of postgraduate study for county societies, which may later on be supplemented by personal instructions from competent teachers, as well as by laboratory demonstrations and instructions in practical methods, which will go to make up a satisfactory and complete course of postgraduate instruction at home.

AN OBJECT LESSON IN THE ADVANTAGES OF ORGANIZATION.

According to the *British Medical Journal,* a medicoeconomic dispute of a somewhat singular character has recently taken place in England. The Halifax Board of Guardians, in November of last year, changed the terms of their advertisement calling for a resident medical officer for the Union Hospital, from one without restriction to sex and with a salary of $700 a year to a request for a "lady doctor" at a salary of $500 a year. The position was sought and obtained by a woman physician. The London School of Medicine for Women, however, took the matter up and communicated with the local division of the British Medical Association, which, on investigation, found that the guardians were under the impression that the services of a woman should be obtainable at a less rate than those of a man. A warning notice was published in the *British Medical Journal,* and the appointee resigned before entering on her duties, continuing, however, to act as locum tenens until a successor should be appointed. In June, 1907, another woman physician was appointed, but, on learning the circumstances, requested to be released from her appointment and from the bond signed by her which required her to forfeit $250 if she should not remain twelve months. The outcome was that a conference took place between the guardians and the representatives of the association, which resulted in an amicable settlement, by the acknowledgment of the principle that no distinction should be made on the ground of sex as regards the emoluments of medical posts. It is a matter for congratulation, also, that the subsequent treatment of the women engaged in this controversy with the board of guardians appears to have been in every way satisfactory. As the *British Medical Journal* aptly says, "this should stand as a splendid object lesson to medical men who are concerned in disputes, and it would be difficult to find a better example of the advantages of organized and associated action."

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[1] Page 1043.

TRADEMARKS AND PROPRIETARY MEDICINES.

A recent decision[1] of the United States Circuit Court in Rhode Island interestingly presents the United States law on the claims of proprietary medicines and the rights given by trademarks. In this case the complainant, while suing for an injunction against what it claimed to be an infringement of its trademark rights, took the position, as stated by the court, that it could make certain representations the truth of which it did not propose to prove, and that it was entitled to the protection of a court of equity in so doing. The court, on the other hand, laid down the rule that the proof should be required from that person within whose knowledge the fact rests, and "that there should be no such technical application of rules concerning presumptions or the burden of proof as to relieve a complainant from the obvious duty of satisfying the court that his goods are what they purport to be and what he represents them to be." The courts of the United States seem now to be fairly well committed to the principle that proprietary preparations must use only the truth in their advertisements if they are to have the protection of the law under their trademarks. This is what ought to have been expected—the federal government does not intend to give protection to frauds, not even against other frauds. The impression seems to have been otherwise, hence this suit. It is probable that only a minority, possibly a very small minority, of proprietors of secret remedies advertised for popular sale adhere strictly to the truth in their advertisements. Most of them, if not all, depend more or less on human credulity for their success, and whatever medicinal value their goods may possess is apt to be dearly paid for by the purchasers. It is a good thing to have it established legally that proprietors of nostrums have no special rights over those of other litigants—such as this decision says have been sometimes accorded them by courts of equity—and that trademarks will not protect them against others of the same class. But this alone is not enough. It might merely mean free trade in frauds; we ought to have a body of decisions fixing the civil and criminal responsibility of those who by such methods build up the habit of dangerous and too frequently fatal self-drugging. The homicide record of advertised secret nostrums will probably never be fully made up, but it would be appalling to the public could it be known.

SCIENTIFIC SUPERVISION OF COMMERCIAL CLAIMS.

Some time ago there was introduced in Germany, unthe name of "Atoxyl," a new organic compound of arsenic. Although this preparation was advertised to a considerable extent, both in Europe and in this country, it did not come into special notice until the investigations of the Liverpool School of Tropical Medicine and those of Koch in Africa alleged favorable results from its use in trypanosomiasis. The prominence conferred on it, however, through its semi-endorsement by such high authorities, coupled with the claims made by others as to its value in various conditions in which arsenic is indicated, and especially with the fact that the manufacturers were making decidedly extravagant claims for it—it was asserted, for instance, that forty times more arsenic could be exhibited in the form of atoxyl than in any other way—led to the investigation of its composition by scientific men in three different countries, viz., in France by Fourneau, in Germany at the instance of Ehrlich by Bertheim, and in this country at the instance of the Council on Pharmacy and Chemistry by the Association's chemists, each working independently of the others. On another page will be found the result of the investigation in the United States, as made in the laboratory of the American Medical Association. We think it necessary to point out that this report from the chemical laboratory is not to be taken as condemnatory of atoxyl itself. It will doubtless seem strange that in one part of this issue a preparation should be published as approved, while in another part the same preparation should be subjected to what may be considered condemnatory strictures. In explanation of this seeming inconsistency, it must be remembered that though the manufacturers and their American agents have now modified their former extravagant statements concerning the preparation, many physicians who read them in the past may have been, and may remain, misled thereby. As will be noted in the report, under "Pharmacology," the same general conclusions were reached by the French and German investigators as have been arrived at by our chemists and by the subcommittee of the Council on Pharmacy and Chemistry. The medical profession of this country is surely to be congratulated on the fact that the assertions of manufacturers and others financially interested in the use of medicinal preparations are no longer to be taken without question or investigation as in the past. That such investigation is needed has surely been amply demonstrated by the findings in so many instances where it has been made. We are clearly at the dawn of a new era in scientific therapeutics.

Medical News

CALIFORNIA.

Diphtheria.—An epidemic of diphtheria is said to be raging at Floriston, Nevada County, where a number of cases have been found and two deaths have occurred.

Hospital Notes.—Work is soon to be commenced on the new hospital to be erected in the Claremont district of Berkeley at a cost of $100,000. Dr. George F. Reinhardt is to be in charge of the hospital when completed.——A change in the management of the Truckee Hospital has been made, Mr. W. Baumann retiring and Drs. J. Gordon Mackay and George W. Bryant assuming charge of the institution as managers.——Dr. Frank K. Ainsworth, head of the Southern Pacific hospital department, is looking over sites at Roseville, preparatory to building an emergency hospital for railroad employés at that place.

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[1] Abstract in Medicolegal Department, this issue, page 1053.

Resolutions of Thanks.—The San Francisco County Medical Society, at a recent meeting, adopted the following resolutions of thanks to those who aided in re-establishing its library, destroyed by the earthquake and fire last year:

> WHEREAS, Through the great kindness and hearty cooperation of very many physicians throughout the United States, a large number of bound volumes and unbound journals have been sent to this Society for the purpose of re-establishing its library, and.
>
> WHEREAS, In almost every instance there has been nothing to indicate from whom the various parcels of books and publications came, and,
>
> WHEREAS, In view of this fact, it has been impossible for the librarian to express the thanks of the society to the donors, therefore be it
>
> *Resolved*, That the San Francisco County Medical Society extends its sincere thanks to all those who have so willingly and so graciously contributed to the reconstruction of our library, whoever and wherever they may be, and be it further
>
> *Resolved*, That a copy of these resolutions be sent to THE JOURNAL of the American Medical Association and to the *California State Journal of Medicine*, with the request that these journals publish the same, and ask other medical journals to do so likewise.

DELAWARE.

Wilmington Water Inspection.—The city bacteriologist of Wilmington, in his annual report, announces that a typhoid fever epidemic threatens the city, because unfiltered and polluted water is used for drinking purposes. The report commends the effort of the health commissioner of Pennsylvania to keep the Brandywine River, from which the water supply of Wilmington is derived, free from pollution.

ILLINOIS.

State Board Will Act.—Dr. E. F. Baker, inspector of the State Board of Health, has visited Aurora and investigated the fifteen cases of smallpox now in quarantine. The State Board of Health is taking a firm stand in the controversy between the health authorities and citizens of Aurora regarding the necessity of vaccinating school children.

State Epileptic Institute.—At a meeting of the Madison County Medical Society, held in Granite City September 6, resolutions were adopted that the influence of the society be exerted in favor of the establishment of a state colony for the care and treatment of epileptics; and that a copy of the resolution be sent to the state authorities and a copy to the state medical society for similar action.

Free Antitoxin.—On September 10 the State Board of Health awarded the state contract for diphtheria antitoxin, to be furnished in sterilized syringes of clear flint glass, ready for use, with sterilized needles. The State Board of Health will supply antitoxin free to all people of Illinois who need it, through physicians of the state, who may obtain the antitoxin at the different stations of the board, of which about 300 are to be established. It will be necessary only for the physician who obtains the antitoxin to receipt for the same, and later to furnish the board a clinical report of the case. Antitoxin may be obtained at the antitoxin stations on or after October 10.

Personal.—Dr. Joseph De Silva, Rock Island, recently appointed a member of the board of trustees for the Illinois Institution for Feeble-Minded, Lincoln, has been elected president of the board.——Drs. Aroid E. Kohler, Moline, and Carl O. Bernhardi, Rock Island, left for Mexico, September 2.——Dr. John W. Hairgrove, Jacksonville, is reported to be ill in Chicago.——Dr. J. H. Butler, Hartsburg, is ill at the Deaconess Hospital, Lincoln, with appendicitis.——Dr. Eugen Cohn, a member of the staff of the Illinois Eastern Hospital for the Insane, Hospital, has resigned to become assistant superintendent of the Illinois Southern Hospital for the Insane, Anna.——Dr. W. G. Bain, bacteriologist of the state board water survey department at the University of Illinois, Champaign, has accepted the directorship of the laboratories of the State Board of Health. This necessitates a change in his plans, announced in THE JOURNAL of September 14, of going to California to live.——Dr Omar A. Kell, has been appointed chief of the medical staff of the Illinois Eastern Hospital for the Insane, Hospital, vice Dr. Samuel A. Graham, resigned.——Dr. Ernest W. Potthoff, Oak Park, dislocated his neck by a fall when hurrying to make a professional call, September 6, and is at the Oak Park Hospital.

Chicago.

Communicable Diseases.—During the week ended September 14, 56 cases of diphtheria, 71 of scarlet fever, 28 of typhoid fever and 24 of tuberculosis were reported. This is an increase of 33 cases of diphtheria and 22 of scarlet fever over the preceding week.

Correction Desired.—Dr. Channing W. Barrett requests the announcement made that the appearance of his name in the catalogue of the Jenner Medical College, in connection with the chair of gynecology, is an error, and that it was inserted without his knowledge or consent.

The New People's Hospital.—At a meeting, held September 8, of the Founders Club of the New People's Hospital Association, which is undertaking the erection of a new hospital at Archer Avenue and Twenty-second Street, several hundred dollars were subscribed by the members. About $35,000 is necessary to complete the building.

Coroner's Cases.—During August 367 deaths were reported to the coroner of Cook County, or 10 fewer than for August of last year. Of the deceased 31 committed suicide, 27 were killed by railroad accidents, 15 by street cars, and 13 were murdered. Tetanus caused 5 deaths; elevator, 5 deaths; illegal operations, 3 deaths; alcoholism, 14 deaths; burns and scalds, 13 deaths; drowning, 24 deaths, and electrocution, 2 deaths.

Hospital Workers Meet.—The ninth annual conference of the American Hospital Association, consisting of leading hospital workers, both physicians and laymen, in the United States and Canada, was held at the Palmer House, September 17 to 21, under the presidency of Dr. Renwick R. Ross of the Buffalo (N. Y.) General Hospital. Dr. George W. Webster, president of the Illinois State Board of Health, delivered the address of welcome. The annual banquet was held September 18 at the Palmer House.

Mortality of the Week.—During the week ended September 14, 570 deaths were reported, four fewer that for the preceding week and 22 fewer than for the corresponding week of 1906. The annual death rate for the week was 14.10 per 1,000. Acute intestinal diseases caused 132 deaths; consumption, 48; violence (including suicide), 43; nephritis and cancer, each 39; pneumonia and heart disease, each 37; typhoid fever, 11; diphtheria, 8; scarlet fever, 7; whooping cough and influenza, each 2, and measles, 1.

Personal.—Dr. and Mrs. Daniel N. Eisendrath and Dr. Arthur D. Bevan have returned from Europe.——Dr. John Edwin Rhodes has returned from North Manitou Island; Dr. and Mrs. Julien E. Hequembourg have returned from Rye Beach, and Dr. and Mrs. John B. Murphy from Yellowstone Park.——Dr. and Mrs. Archibald Church are spending September in the Adirondacks.——Dr. and Mrs. Frederick Gillette Harris will remain abroad until January.——Dr. Marie A. Fellows suffered severe internal injuries in a collision between street cars, September 5.

INDIANA.

Do Not Wish Names Published.—At the August meeting of the Grant County Medical Society at Marion, new resolutions were passed, reiterating the declarations previously made by the society against the publication of physicians' names by the lay press.

To Investigate Tuberculosis Hospitals.—The members of the commission appointed by the governor to select a site and build a state hospital for tuberculosis patients, are taking a trip of investigation and inspection which will include the state and private institutions of Saranac, N. Y., Rutland, Vt., Tewksbury, Mass., Pembroke, N. H., and other localities.

Violation of License Law.—The State Board of Medical Examination and Registration has had filed with it affidavits against two practitioners of Bloomington, charged with furnishing prescriptions whereby whisky was obtained by individuals at drug stores.——A druggist of Emison is under trial at Vincennes, on the charge of selling beer over the counter without license.

Portrait of Dr. Fletcher.—Accompanying its account of the memorial exercises to the late Dr. W. B. Fletcher, of Indianapolis, on August 25, the *Indiana Medical Journal* issues as a supplement a beautiful steel engraving of Dr. Fletcher. It is not only a striking likeness, but an excellent work of art, reflecting the highest credit on all concerned in its reproduction and distribution.

Personal.—Dr. William W. Wright, Indianapolis, has been committed to the Central Hospital for the Insane.——Dr. Felix W. Hazelwood has been appointed a member of the New Albany board of health, vice Dr. Henry F. Bader.——Dr. Jesse H. Briggs, Churubusco, is reported to be convalescent after typhoid fever.——Dr. Fletcher D. Norton, Columbus, for 26 years superintendent of a Sunday school in that city, was presented with a silver loving cup by the school on his retirement.

Communicable Diseases.—Smallpox is reported to have been prevalent near Deer Creek since May last, and recently eight cases have been reported to Dr. William R. Quick, Delphi, secretary of the Carroll County board of health. The schools in the neighborhood are not to be allowed to open until the disease is under control.——It is estimated that there are more than 150 cases of typhoid fever in Hammond. In St. Margaret's Hospital alone there are said to be 30 patients suffering from the disease.——During August 91 cases of typhoid fever were reported to the Indianapolis board of health, with 12 deaths.——Typhoid fever is reported to be prevailing to an alarming extent near Bridgeport, and at Hymera, a mining town near Clay City.——A severe epidemic of typhoid fever is reported at Burnettsville. An epidemic of typhoid fever is reported at New Market.

IOWA.

Personal.—A branch bacteriologic laboratory for the State Board of Health has been established in Burlington, with Dr. E. J. Wehman in charge.——Dr. Charles J. O'Keefe, Marble Rock, was seriously injured in a train wreck on the Rock Island System at Norris, September 6.——Dr. and Mrs. Carl Matthey and family, Davenport, have returned from Europe.——Dr. and Mrs. William E. Sanders, Alta, left for Europe, September 9.

Appeal to Legislature.—The Story County Medical Society, it is reported, has taken an appeal to the legislature in the matter of the college physician at the State Agricultural College, Ames, on the ground that this physician violates the principle of ethics in being a contract practitioner. The resolution states the disapproval of this method of contract labor, and recommends the appointment of a committee to confer with the board of trustees of the college and state legislature, if necessary, to effect such readjustment of the situation as will render it in harmony with the accepted principles of ethics of the profession.

KANSAS.

War on Typhoid.—The State Board of Health has sent out instructions to all county health officers, requiring the reports of physicians of all typhoid cases, together with the cause of the disease. In this way the board hopes to get reliable data whereby steps may be taken to remove the cause.

KENTUCKY.

New Staff for City Hospital.—On September 1 the following staff went on duty at the Louisville City Hospital: Drs. Oscar Bloch and Charles W. Hibbitt, surgery; Drs. Frank W. Fleischaker and R. Alexander Bate, medicine; Dr. Samuel E. Woody, diseases of children; Dr. Harry A. Davidson, obstetrics; Adolph O. Pfingst, ophthalmology; Dr. Oliver H. Kelsall, genitourinary diseases, and Dr. Argus D. Willmoth, rectal diseases.

Louisville's Health.—Dr. Meverell K. Allen, health officer, has submitted his annual report to the board of safety for the year ended August 31. During the year there was a total of 4,227 deaths and 3,867 births.——Based on an estimated population of 256,402, the total death rate per 1,000 was 16.4; the death rate among whites was 14.8 and among blacks 23.3. Tuberculosis proved the most fatal of all diseases, there being 490 deaths from this cause. Among the other causes of death are: Pneumonia, 374 deaths; heart disease, 312; typhoid fever, 168; apoplexy, 352; meningitis, 100; inanition, 216; cancer, 110; Bright's disease, 174, and enterocolitis, 106. A number of recommendations were made in the report, among them the following: Enforcement of the resolution providing for nonemployment of teachers affected with tuberculosis; the need for additional public bath houses; the installation of public hydrants for the free use of the public for drinking purposes and the elimination of public pumps; the importance of smoke consumers; the use of refrigerator cars on all railroads for conveyance of milk to the city; the employment of at least two sanitary inspectors clothed with police authority and the appointment of two women health inspectors. Dr. Allen also suggests that an appeal should be made to the next General Assembly to amend the city charter, permitting an enactment of the statutory law providing for the establishment of the city board of health, with independent powers and the authority to institute all proper rules and regulations for the enforcement of sanitary measures. This should carry with it a special taxation sufficient to create a fund of at least $25,000 per annum.

MARYLAND.

Personal.—Dr. G. Lane Taneyhill, Baltimore, has been elected surgeon-general of the Grand Army of the Republic.——Dr. Israel J. Woodward has been elected president of the health board of Havre de Grace.——Dr. John Luetscher, Baltimore, a member of the staff of the Johns Hopkins Hospital, is reported to be ill at that institution.

New Building for Johns Hopkins.—It has been found necessary to build a new pathologic department for the Johns Hopkins Medical School. The new structure will be erected in Wolfe Street and will be a two-story building, 80 by 30 feet. On the first floor will be constructed an amphitheater, while the second floor will be used for students in their work of investigation and research.

Typhoid Fever.—While there are a great many cases of typhoid fever in Baltimore, the assistant health commissioner states that the disease is not epidemic. The cases are well distributed over the city, and not confined to one district. He advises precautions as to drinking water, and believes that many of the cases are contracted out of town by people who are taking summer vacations.

Tuberculosis Exhibit.—The tuberculosis exhibit of the Association for the Prevention and Relief of Tuberculosis, which was on view at the Baltimore County Fair last week, was on exhibition this week at the Lawrence Settlement House, Baltimore, and later will be shown at the county fairs of Talbot and Frederick counties. On September 13 a special lecture was given in Lithuanian for the people of that race. The association now has 3,000 subscribers. On September 12 the secretary, H. Wirt Steele, delivered a lecture before the Kent County Teachers' Institute on "The Responsibility of the Community in Preventing Tuberculosis."

MASSACHUSETTS.

Medical Supply Table Revised.—The list of medical and surgical appliances required for factories and shops has been revised by the Boston board of health, on account of protest made by small shops against the expenditure required. The new list is as follows:

Two elastic tourniquets (minimum 24 inches); 2 rolls half-inch zinc ox. adhesive plaster; 2 rolls two-inch adhesive plaster; 4 dozen gauze bandages, assorted size, from one to four inches; 1 pound absorbent cotton; 1 yard sterilized gauze; 1 dozen emergency slings; 1 pair scissors, straight (2½-inch blade); 5 yards canton flannel (used with carron oil for burns); 500 tablets 1¾ gr. corrosive sublimate and citric. Splint material—6 whitewood strips, 40 by 4 by 3-16; 2 pillows; 1 package of pins; 3 dozen safety pins; 8 ounces spts. ammon.: aremat. (rubber stopple); 1 gallon carron oil; 1 pint brandy; 1 basin.

MICHIGAN.

Tuberculosis Sanatorium Opened.—The first building of the Michigan State Sanatorium for the Treatment of Incipient Tuberculosis, Howell, is now open for the reception of patients and can accommodate 16. Plans for the main building are being perfected. When completed the main building will be 160 feet in length and will contain the offices, laboratories, headquarters for superintendents and attendants, beside the kitchen and dining room, and also two infirmary wings, each accommodating ten patients who will require special care. Seven patients entered the institution at the time of its opening.

Personal.—Dr. Charles J. Ennis, Sault Ste. Marie, has returned from Ireland.——Dr. Wellington H. Holtzman, Vernon, who was recently operated on for appendicitis, found a second operation necessary, but is now reported to be improving.——Dr. Albert P. Ohlmacher has resigned as director of the biologic laboratory of Frederick Stearns & Co., Detroit, and will devote himself to private laboratory work.——Dr. Peter J. Livingston, Caro, returned September 4 after several months abroad.——Dr. S. Rudolph Light, assistant physician of the Michigan Asylum for the Insane, Kalamazoo, has resigned.——Dr. Moses A. Fechheimer, formerly city physician of Detroit, has returned from Europe.

MISSOURI.

State Sanatoriums.—Work is progressing on the second villa of the Missouri State Sanatorium, Mount Vernon. The medical wing of the administration group is to be started soon. There are four patients at the sanatorium, and nearly enough formal applications have been received to fill the available space. The sanatorium can now accommodate 47 patients.

College Transfer.—The formal transfer of the Barnes Medical College and the Centenary Hospital of St. Louis to the University of Missouri, to take effect June 1, 1908, was completed September 6, with the signing of the final contracts between the president of the board of trustees of the college, the president of the hospital trustees and the committee for the university. The contracts call for the donation to the state institution of buildings and property valued at $300,000, together with their furnishings and equipment.

NEBRASKA.

Personal.—Dr. La Roy Crummer, Omaha, left for Vienna September 12.——Dr. Orlando P. Shoemaker, Clay Center, whose health has compelled his retirement from practice and who left for California September 2, was given a reception and dinner at the Hotel Harvard by the medical profession of Clay County, prior to his departure.

NEW YORK.

Wants County Laboratory.—At the meeting of the Hornell Medical and Surgical Association in Hornell, September 2, Drs. Burtis R. Wakeman and Leon M. Kysor were appointed a committee to secure the proposed county bacteriologic laboratory for Hornell.

Map System for Locating Diseases.—The health department of Buffalo has adopted a system of locating contagious diseases in the city by means of a system of maps and colored tacks. Blue tacks mark the location of diphtheria; yellow tacks, scarlet fever; black tacks, consumption; checkered tacks, typhoid fever; red, cerebrospinal meningitis, etc.

Faculty Changes.—The following changes have occurred in the faculty of the College of Medicine, Syracuse University: Frank P. Knowlton, M.D., assistant professor of physiology, has been made professor of that branch; Dr. Harold Dickenson, Sr., M.B., F.R.C.S., at present assistant in anatomy at the Wistar Institute of Anatomy, Philadelphia, has been made professor of anatomy and director of the anatomical laboratory, and Gustave M. Meyer, B.S., Sc.D., for four years assistant professor of physiologic chemistry at Columbia University, has been made professor of physiologic chemistry.

New York City.

More School Inspectors.—The health department has added 25 new members to its staff of inspectors of schools; ten for Brooklyn, three for the Bronx, one for Richmond, one for Queens and nine for Manhattan.

Typhoid Fever.—The health department has given out the typhoid figures for August, as compared with the same month of last year. They were, by boroughs ,as follows: Manhattan, 1906, 252 cases; in 1907, 326. Brooklyn, 1906, 259; in 1907, 167. Queens, 1906, 27 cases; in 1907, 32. Bronx, 1906, 24 cases; in 1907, 73; and Richmond, 1906, 6 cases; in 1907, 41.

Personal.—Dr. and Mrs. William T. Bull arrived from Europe August 27.——Dr. Raymond R. Westover, retiring house surgeon of Williamsburg Hospital, was given an informal banquet by the staff September 2, and was presented with a set of surgical instruments. Dr. Benjamin Vogt succeeds Dr. Westover as house surgeon.——Dr. Virgil P. Gibney returned from Europe September 10, and Dr. and Mrs. John W. Brannan September 13.

New Children's Hospital.—The Association for the Improvement of the Poor has raised $250,000 to be devoted to the erection of 14 three-story pavilions, each to accommodate 60 patients. The pavilions are to be used for the care of children suffering from tuberculosis. The city owns a five-mile tract on the ocean front at Rockaway Beach, and the strip to be used for the new hospital is part of this tract. In addition to the hospital the new buildings will include nurses' quarters, a nurses' training school, a pathological laboratory and a kindergarten.

OHIO.

Assistant Physicians to Meet.—The Association of Assistant Physicians of the State Hospitals of Ohio will hold its annual meeting at Toledo, October 2 and 3.

Personal.—Dr. A. E. Griffin, Columbus, is reported to be seriously ill at his home.——Dr. and Mrs. Edmund B. Mosher, Columbus, celebrated their golden wedding anniversary September 6.——Dr. McFarland, Blooming Grove, celebrated his eightieth birthday anniversary August 29.

Typhoid Epidemic.—A number of cases of typhoid fever have appeared at Cadiz, and one death has occurred.——During August, 27 cases of typhoid fever were reported in Youngstown. An analysis of the drinking water obtained from the different wells has already been commenced by the city chemist.

Hospital Notes.—Dr. Benjamin F. Lyle, Cincinnati, formerly superintendent of the City Hospital for Consumptives, Lick Run, will soon open a private institution for treatment of tuberculosis in Glenway Avenue and Rapid Run pike. The institution will accomodate 15 patients, who will be housed in tents and in two buildings on the site.——Dr. William S. Hoy, Wellston, has made a proposition to Athens Commercial Club for the establishment of a general hospital in that city.

PENNSYLVANIA.

Money for Charity.—William E. Pennypacker, West Chester, executor of the estate of the late Joseph Anderson, has given $12,000 to the Phoenixville Hospital. The gift was received by the trustees and a memorial to Mr. Anderson was ordered to be placed in the institution.

The State Meeting.—The annual meeting of the State Medical Society next week is looked for with great interest. The August issue of the *Pennsylvania Medical Journal* gave a well illustrated description of the city of Reading, where the meeting is to be held September 23 to 26. There is a list of the members, officers and house of delegates, news regarding the meeting, and the full program with abstracts.

Typhoid at Ridgway.—The epidemic of typhoid fever at Ridgway shows evidence of decline and fever cases are being reported each day. Dr. Dixon, state health commissioner, has issued a decree condemning the water supply of Ridgway as unfit for drinking purposes, and ordering the abandonment of all its supplies, with the requiremnt that new sources be obtained and that the water be filtered. Among the sources condemned were numerous springs used as private water supplies about the town, including the county spring.

Personal.—Dr. Markley C. Cameron of Pittsburg was seriously injured by being thrown from his automobile September 12.——Dr. Robert G. Boak, New Castle, fell while attempting to board a street car September 9, and sustained a severe sprain of the ankle.——Dr. L. G. Penton, resident physician at Chester Hospital, has resigned.——Dr. J. Edward Richmond has succeeded Dr. J. W. Wilson as surgeon of the Pittsburg division ceeded Dr. J. W. Wilson as surgeon of the Pittsburg division of the Panhandle System at Collier.——Dr. Joseph S. Miller, York, has been appointed county medical inspector, vice Dr. Isaac C. Gable, York, resigned.

Philadelphia.

Society Meeting Date Changed.—The annual meeting of the central branch of the County Medical Society, usually held on September 25, will be omitted on account of the meeting of the Medical Society of the State of Pennsylvania in Reading during that week.

Hospital Report.—The report of the Mount Sinai Hospital for August shows that 4,629 visits were made to the outpatient department. Of this number 1,180 of the visitors were new patients. In the emergency department 451 patients were treated, and 87 patients were received in the house.

Personal.—Drs. William C. Posey and William M. Sweet have returned from a prolonged stay in Europe.——Dr. Charles B. Penrose was seriously injured September 2, while hunting in the mountains of Montana in an encounter with a bear. His right arm was broken and other injuries were received. He is recovering in a hospital in Rochester, Minn.

Hospital to Make Improvements.—Ground was broken September 11 for the erection of a new dispensary building for the Polyclinic Hospital to cost $41,000. The building will be three stories high, constructed of brick with stone trimmings, and will contain an operating room, receiving room, sterilizing and etherizing rooms, and quarters for the resident physicians.

Alcohol in Treatment of Consumption.—According to the statistics in the report of the Henry Phipps Institute for the study and prevention of tuberculosis, alcohol neither prevents nor cures tuberculosis, neither does it strongly predispose persons to the disease, as is evidenced by the preponderance of non-alcoholic patients applying for treatment. The report states that it can not be demonstrated that the children of alcoholics are more prone to this disease than the children of non-alcoholics.

Hospital Makes Appeal.—The Polyclinic Hospital has issued a booklet entitled "Everyday Incidents," appealing for financial help for the present service. This appeal is made because the number of cases coming from the poorer sections of the city has increased out of proportion to the hospital's income. The floating debt is $37,942, and during the first six months of the year there was a deficit of $7,481. The hospital receives no regular contributions and more than 90 per cent. of its work is gratuitous.

Strict Watch for Defective Children.—With the reopening of the public schools September 10, the board of health has instituted a rigid daily medical inspection of the pupils. This examination is expected to swell the number of children found to be medically defective. Under the more restricted inspection conducted last term the medical authorities found that more than one-fourth of the public school pupils were afflicted with physical or mental defects of a more or less serious nature. Out of 135,959 children examined, 36,920, or 27.7 per cent., were classified as suffering from some defect.

Health Report.—The total number of deaths reported for the week ended September 14 was 457. This is a decrease of 5 from the number reported last week, and a decrease of 43 from the number reported in the corresponding week of last year. The principal causes of death were: Typhoid fever, 8; scarlet fever, 2; pertussis, 7; diphtheria, 8; consumption, 48; cancer, 17; apoplexy, 25; heart disease, 35; acute respiratory disease, 30; enteritis, 67; cirrhosis of liver, 6; Bright's disease, 23; congenital debility, 17; suicide, 5; accidents, 17, and marasmus, 15. There were 146 cases of contagious disease reported, with 18 deaths, as compared with 150 cases and 17 deaths reported in the preceding week.

UTAH.

Councilor District Meeting.—The first quarterly meeting of the Third Councilor District Medical Society was held in Richfield, August 13 and 14, under the presidency of Dr. Frederick Clift, Provo. The constitution of the society was read and adopted, and acting president Clift was elected president and acting secretary-treasurer, Dr. W. J. Hasler, Lehi, was elected secretary and treasurer. The committee reported favorably on, and the society adopted, resolutions formulated by the American Medical Association regarding the $5 fee for life insurance examinations, and, furthermore, deprecated the use of traveling medical examiners, and advised the use of local medical examiners wherever practical. The society also adopted resolutions providing that health officers and quarantine physicians should receive fees equivalent to those obtained by physicians in family practice, and that in cities of the first and second class a salary should be paid not less than that paid to city attorneys in the respective localities.

WASHINGTON.

Raise in Rates.—The physicians of Spokane, it is reported, have advanced prices for their services. Hereafter the rate for calls is to be $4 instead of $2.50 and $3, and night calls are to be $6 instead of $5, as heretofore.

Warfare Against Rats.—The board of health of Seattle, at its meeting September 2, authorized Dr. Grant Calhoun, city health officer, to prepare an ordinance providing as far as possible for the removal of rats as a source of the spread of disease, especially the bubonic plague. Dr. Calhoun believes that warehouses where rats find their food, should be made ratproof and that buildings infested with rats, especially in the oriental section of the city, should also be protected from rats.

Personal.—Dr. Rose A. Bebb, Tacoma, has been made state bacteriologist and will open offices in Seattle.——Dr. George T. Boyd, Palouse, has recovered from his recent operation for appendicitis and has resumed practice.——Dr. J. Earl Else, formerly of Chicago, has located in Palouse and has been made surgeon to the Palouse General Hospital.——Dr. Hamilton Allan, Tacoma, was taken seriously ill with asthma at Montreal and was forced to abandon his trip abroad. He is now in the middle states and is reported to be improving.

GENERAL.

July Mortality in Havana.—The local board of health of Havana reports the total mortality of that municipal district for July to have been 676, equivalent to an annual mortality of 27.04 per 1,000. During the month no acute quarantinable disease was reported. Chief among death causes were diseases of the circulatory system, 126; tuberculosis, 109; enteritis, 108; bronchitis and pneumonia, 46; meningitis, 37; congenital debility, 24; cancer, 19; influenza, 17; cerebral congestion and hemorrhage, 16; accidents, 14; nephritis, 11; cirrhosis of the liver, 8; measles, 8, and typhoid fever, 7.

Anatomist Wanted for Army Medical Museum.—The United States Civil Service Commission announces an examination, on October 23-24, at the usual places throughout the United States, for an anatomist (male), at $1,600 per annum, in the Army Medical Museum, office of the surgeon general, and other similar vacancies as they may occur. The examination will be thus graded: Human anatomy, 40 points; anatomic drawing (pen-and-ink drawing from photolithograph furnished), 20; gross pathology (of tissues), 15; construction, care and use of microscope, 10; training and experience (rated on application), 15; total, 100. Age limit, 20 years or over. The man appointed to this position should be, preferably, but not necessarily, a graduate in medicine. Applicants may apply to the United States Civil Service Commission, Washington, D. C., for application form 1312. As examination papers are shipped direct to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant.

Yellow Fever.—Word from Governor Magoon September 13 reported three new cases at Cienfuegos, Cuba, and four on the previous day. Six patients were Spaniards, and one was an American soldier. The latter, it is believed, contracted the disease in town, therefore the case does not indicate infection of the camp. Nevertheless the barracks have been fumigated and all precautions taken. The discovery of these cases is attributed to increased efficiency of medical patrol. One new case is also reported at Alacranes and one at Nuevapaz, both in Spaniards. By decree of the governor, army surgeons are made members of the sanitary board.——The health authorities of Havana have ordered a quarantine against all steamers from Mexican ports on account of the presence of a case of yellow fever in Vera Cruz, Mexico.——Dr. P. J. Shaver, assistant to the state health officer of Texas, who was detailed to make an investigation into the origin of three cases of yellow fever found on the steamer from Vera Cruz, Mexico, quarantined at Sabine Pass, reports he is unable to trace the origin of these cases.

The Plague Situation in San Francisco.—On September 13 Passed Assistant Surgeon Rupert Blue, U. S. Public Health and Marine-Hospital Service, assumed charge of the situation in San Francisco, working in conjunction with the city authorities and utilizing their special organization, which consists of 12 medical inspectors, who are experts in bubonic plague, and 36 sanitary inspectors, who direct a large force of rat-catchers and laborers. After a conference between Dr. Blue and the city and state officials, the following statement was issued to the people of San Francisco:

> Rumors of an alarming nature having reached the Board of Health in regard to bubonic plague, the president of the board, by its authority, hereby declares that there exists nothing in San Francisco that need cause any alarm, much less the quarantining of the city, and that there is at present no intention to make such quarantine. So far, there have been detected but 24 verified cases of the disease since May 27 last. Every precaution is being taken by the federal authorities to cooperate with the state and city boards of health to stamp out such of the disease as is here. It is well to bear in mind that the bubonic plague seldom becomes an epidemic, except in the tropics. W. Ophüls,
> President San Francisco Board of Health.
>
> We concur:
> Rupert Blue, Passed Asst. Surgeon, U. S. Public Health and Marine Hospital Service.
> Edward R. Taylor, Mayor of San Francisco.
> Martin Regensburger, President State Board of Health.

The Year's Yellow Fever in Havana.—The following is a statement of yellow fever in Havana and suburbs from Jan. 1, 1906, to Sept. 4, 1907. The great improvement in the number of admissions and deaths noted soon after the American occupation, October, 1906, reflects great credit on Major Jefferson R. Kean, surgeon, United States Army, and sanitary adviser to the provisional governor of Cuba:

Month.	Cases.	Deaths.
January, 1906	5	2
February, 1906	1	0
June, 1906	4	1
August, 1906	4	1
September, 1906	7	2
Total	21	6
SINCE OCT. 1, 1906.		
October, 1906	24	3
November, 1906	23	3
December, 1906	3	0
January, 1907	0	0
February, 1907	0	0
March, 1907	0	0
April, 1907	0	0
May, 1907	0	0
June, 1907	0	0
July, 1907	0	0
August, 1907	1	0
Total	51	6
Total, January to September, 1906	21	6
Total October, 1906, to August, 1907	51	6
Grand total since Jan. 1, 1906	72	12

CANADA.

Personal.—Dr. Gilday of the Toronto General Hospital has gone abroad for two years.——Dr. O. M. Jones, Victoria, B. C., is returning home after several months in the old country.——Sir Charles Tupper, M.D., Bart., the founder of the Canadian Medical Association, came from England to attend the fortieth annual meeting.——Sir James Grant, M.D., Ottawa, claims to have attended thirty-seven of the forty annual meetings of the Canadian Medical Association. This is a record.

Canadian Medical Association Meets.—The fortieth annual meeting of the Canadian Medical Association was held in Montreal, Sept. 11-13, 1907, under the presidency of Dr. Alexander McPhedran, Toronto. Two items made of it an extremely interesting and important meeting, namely, the inauguration of a section of laboratory workers and the adoption of a new constitution and by-laws. For several years the general secretary in his annual reports has been calling attention to the need of being established on a better business basis, in order, among other things, to facilitate better work in the scientific associations. At Halifax two years ago a special committee was organized and one year ago made a report, which was not seriously discussed. This year the report was perfected and after careful revision was adopted. Ideas were borrowed from both the American Medical Association and the British Medical Association. There is to be an executive council corresponding to the House of Delegates of the former, with a finance committee modeled somewhat after the Board of Trustees. The provincial societies in Canada are brought into line and made the connecting link between the Canadian Medical Association and the county and city societies. The establishment of a medical journal, to be the official organ of the association, is an essential part of the scheme. A special committee was appointed in this connection, which will go into the question of finances and report at the next annual meeting. An address in medicine was delivered by Dr. H. D. Rolleston, London, Eng., on the suprarenal bodies; an address in pathology was delivered by Professor Adami, Montreal, which dealt largely with the embryology of certain forms of monsters, and an address in surgery by Dr. Ingersoll Olmsted, Hamilton, Ont. The meeting reported favorably on having cerebrospinal meningitis placed with infectious diseases under the control of boards of health. It was decided to meet at Ottawa in 1908 with Dr. Frederick Montizambert, director general of public health, as president; Dr. George Elliott, Toronto, general secretary, and Dr. H. Beaumont Small, Ottawa, treasurer.

FOREIGN.

Physicians Refuse to Serve at Duels.—The medical association of the district of Palermo, in Italy, have taken the initiative in refusing their services to duelists. They think that the inability to obtain a physician may help to deter would-be duelists, and arouse an agitation against dueling in general.

Committee for Cancer Research in Russia.—The German cancer research committee has succeeded in arousing the Russians to organize a similar band of workers in the line of cancer research in Russia. The director of the Institute for Experimental Medicine and editor of *Russkii Vratch*, Prof. V. V. Podwyssotzky, has been appointed chairman of the Russian committee, which includes Sirotinin and Trojanow.

Addition to Rotunda Hospital.—A new wing of the Rotunda Hospital, Dublin, was opened August 27. This cost $40,000 and comprises six wards, rooms for nurses and women students, and a disinfecting chamber. Lady Aberdeen, who officiated at the formal opening, said that the new wing is the result of the wish expressed by Queen Alexandra that poor women might be enabled to stay in the hospital longer than the usual eight days.

Boric Acid as a Preservative.—The Berlin authorities recently asked the advice of experts as to the harmfulness of boric acid as a preservative in foods. The opinion was expressed that the use of preparations of boric acid as a preservative for food should be unhesitatingly condemned, both boric acid and borax, even in small amounts, being injurious to health, while they enable the public to be deceived into buying stale and spoiled goods for fresh and sound articles.

Souvenir for Lucas-Championnière.—The friends and pupils of the Paris surgeon, Lucas-Championnière, propose to present him with a souvenir plaque on the occasion of his nomination to be commander of the *Légion d'honneur*. Lord Lister is chairman of the committee in charge, and M. G. Steinheil, éditeur, 2 rue Casimir-Delavigne, Paris, has been appointed the treasurer. A subscription of $5 entitles the subscriber to a bronze copy of the plaque, which is to be designed by Paul Richer.

Dismissal of Medical Officer for Voting the Socialist Ticket.—The physician connected officially with the Wiesbaden post-office cast his vote for the social-democratic candidate for member of parliament at the recent election, and has been dismissed from his position on this account. The local medical society protested against this action of the postal authorities, and the *Leipziger Verband* has taken the matter up, so that no physician can be found willing to accept the place left vacant by his removal.

Cancer Literature.—Dr. Anton Sticker of Berlin has been making a special compilation of cancer literature during the last five years, and states that 3,395 special works have appeared on this subject. Of this number, 1,960 were in German, 607 were in English, 549 in French, 113 in Italian, 70 in the Slavic tongues and 37 in the Scandinavian, with 7 in Portuguese, 3 in Japanese and 2 in Greek. Even this list is not complete, and still the cancer question is as much of a problem as ever.

Second International Congress for Industrial Accidents.—A congress is to be held at Rome in the autumn of 1908 to coincide with the eighth international congress for insurance of work people. Further particulars can be obtained from Dr. Luigi Bernacchi, via Paolo Sarpi, No. 7, Milan, secretary of the congress. Dr. M. De Cristoforis is chairman of a committee appointed at the last congress to collect works bearing on industrial accidents, the regulations in various countries and the means of defence against industrial accidents, with a library, museum and endowment for prizes, in connection with the newly created clinic for industrial accidents at Milan, in charge of De Cristoforis and Bernacchi. The former is senator from the Milan district.

Tuberculosis in Ireland.—The annual report of the local government board for Ireland for the year ended March 31, 1907, states that the death rate from tuberculosis is far higher in Ireland than in either England or Scotland. The board considers that many difficulties in dealing with the tuberculosis problem would be overcome if the county councils were given power to establish and maintain suitable institutions for the treatment of consumptives. The following plan is suggested: 1, Segregation in hospitals of advanced cases; 2, sanatoriums for incipient cases; 3, tuberculosis dispensaries in large centers of population; 4, local committees appointed by sanitary authorities. In addition the board follows the example of the Scotch board and recommends compulsory notification of pulmonary tuberculosis, safeguards being provided to ensure that no unnecessary restraint is placed on the liberty of tuberculous patients.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, Sept. 7, 1907.

Irish Vital Statistics.

The forty-third annual report of the Registrar-General for Ireland, which has just been issued, states that the birth rate was 23.6 per 1,000, 0.04 above the average for the preceding decade; the death rate was 17 per 1,000, which is 0.9 under the rate for the preceding decade. The natural increase of population or excess of births over deaths was 29,109, but the loss by emigration was 35,344, making a decrease of 6,235 in the population during the year, against which there is a set-off in immigration, of which there is no official record. The estimated population in the middle of the year was 4,388,006, while in 1896, it was 4,542,061, showing a decrease in the eleven years of 154,055. Ireland has always furnished remarkable examples of longevity. Among the deaths registered in the year were 606 of persons stated to be 95 years of age and over—312 males and 294 females; of these, 133 (57 males and 76 females) were reported to be aged 100 years or more. In the absence of public records for remote periods, verification of the age of very old persons is not possible; but inquiries made as regards persons returned during some recent years as centenarians showed that almost in every instance, so far as the registrars could ascertain, the age was correctly stated. Prominent among the causes of death in Ireland is tuberculosis. The registrar-general again deplores the fact that while the death rate for tuberculosis has fallen in England since 1864, the rate still remains very high in Ireland. However, it is a matter for some congratulation that the high death rate of 2.9 per 1,000 of the year 1904 has been followed by a decline to 2.7 in the years 1905 and 1906.

A Centenarian Physician.

Sir Henry Alfred Pitman, who has just entered on his hundredth year, claims the distinction of being the oldest physician in the United Kingdom. He took the degree of B.A. at Cambridge in 1831 and the degree of M.D. 67 years ago. For the last half century he has been on the staff of St. George's Hospital, of which he is now senior consulting physician. From 1858 to 1889 he was registrar of the Royal College of Physicians. He enjoys good health and is very active considering his great age.

Notification of Births Bill.

A new law in England and Wales requires births to be registered within forty-eight hours, instead of within six weeks. The birth of a stillborn child must also be reported. This duty is thrown first on the father, and failing him, on the midwife or medical man who has attended the mother. A penalty is to be imposed for failure. The bill is a good one, and where effectively put in force should go far toward saving life and lowering infantile mortality. This act is what is termed an adoptive one, that is to say, it has not been made compulsory on all county councils to adopt it.

National Health Authority for England and Wales.

At a recent meeting of representative sanitary authorities of England and Wales, in Newcastle-on-Tyne, a resolution was passed expressing the opinion that a permanent union of the sanitary authorities of England and Wales should be established as a supreme national health authority, with the object of safeguarding and promoting the interests of the people at large against tuberculosis in men and animals, meat and milk supplies, infant mortality, water supplies, vaccination, physical degeneration, the drink problem, the disposal of sewage, the pollution of rivers, the prevention of disease through shell fish in polluted waters, the prevention of syphilis as a national evil, the housing question, and the assistance necessary in carrying out other sanitary reforms, and questions relating to the public health. It is proposed to hold a conference to discuss the matter in London.

The Planning of Suburbs.

The obsolete land system of Great Britain is one of the causes of the unsatisfactory condition of that pressing problem, the housing of the people. A most important deputation from the Association of Municipal Corporations waited on the prime minister and the president of the local government board on the question of the planning of suburbs. Councilor Nettleford of Birmingham pointed out that there is at present waste due to the absence of cooperation between land owners and local authorities. The system forces local authorities to harass land owners on details without giving them comprehensive control. It forces them to hamper honest builders without enabling them to stop jerry-building, with the result that the poorer classes have to pay "through the nose" in rent and rates for what they do not want and would be better without. During the last 30 years enormous sums have been spent out of the taxes in widening streets, and the greater part of this was for compensation for the demolition of buildings which never ought to have been put up. Mr. Fox, town clerk of Leeds, said that it has been estimated that if sufficient foresight had been used a sum of $70,000,000 would have been saved to the country in the last 30 years. The general proposition was that municipalities should be empowered to buy land, not merely for statutory municipal purposes, but sufficient to develop the estate on sound lines of town planning. The premier made a sympathetic reply. He condemned the present system which involved pulling down slums with one hand and allowing them to grow up with the other. Very properly rapid means of communication into better air and pleasanter scenes have been introduced for those who work in the great towns, but the very provision of that rapid means of communication creates in the country the evils it was sought to remove. The whole thing should be controlled by the municipal authorities. Mr. John Burns, president of the local government board, promised to introduce a bill in harmony with the views of the deputation.

Inebriates in Great Britain.

The report of the inspector under the new inebriates' act of Great Britain for 1906, issued recently, shows that 404 persons sentenced to detention under this act, were duly admitted to reformatories during the year ended Dec. 31, 1906, 110 men and 294 women, a decrease of about 40 as compared with the previous year, mainly due to the smaller number of women. The mental characteristics of two-thirds of the number committed is dealt with, showing that these were of unsound mind, and demonstrating the fact that few persons committed were sufficiently sound in mind or body to warrant hope of reformation. Many were found to be hopelessly diseased and irreformable, really fit for nothing but permanent detention for their own good and for that of the community. The inspector says that so far as reformatories themselves are concerned, there is ample reason for an expression of content. Reformatories generally, so far as the unsatisfactory nature of their inmates will allow, have run smoothly, and have given evidence of ability to fulfill their object.

Railway Carriages for Invalids.

The London & North Western Railway Company has recently put into service a new type of carriage for the conveyance of invalids. The width of the vehicle has been utilized to the fullest extent; the main compartment is both light and spacious, and the provision of a full-size bed lengthwise is an improvement over the earlier types of invalid carriages. The invalid compartment is nearly the center of the car and is over eighteen feet long. It is fitted with an ornamental gold-lacquered brass bedstead with a box mattress on top. The lighting is by electricity, the heat is steam and there is a good ventilation system.

VIENNA LETTER.

(From Our Regular Correspondent.)

Vienna, Sept. 7, 1907.

Visiting French Physicians.

During the months of August and September a number of French physicians are visiting various places in Austria, notably Carlsbad, Marienbad and the clinics of Vienna. The visitors will include in their itinerary all the Austrian universities, seven in number, and will conclude the tour with a visit to the Tyrol.

Milk Supply of Vienna.

The Vienna board of health has made the following regulations for the control of the milk supply of the city: All milk coming from without the city limits must be placed in sealed vessels at the place of origin and the seals must be unbroken. The dairy from which such milk comes must conform to certain rules laid down by the board of health or their product can not be sold in Vienna. The milk from these out-of-town dairies will be examined at irregular intervals and supervision thus maintained. The milk from dairies within the city will be examined at least twice weekly and the inspection of the cattle of such dairies by the official veterinarians has been made obligatory. No milk may be sold in open vess

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Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Asthma.

Dr. E. L. Smith, Chicago (*Medical Record*, June 29, 1907), sums up the treatment of this condition based on his observations of 300 cases. Of course, all etiologic factors that can be removed must receive surgical attention, as nasal polypi and hypertrophies. When asthma is caused by certain dusts or odors these should be avoided, if possible. Disturbances of the throat and larynx should be treated, and bronchitis should be stopped by treatment or change of climate. Arteriosclerosis should be considered and treated. Gout, kidney lesions, or any toxemia should be prevented, if possible, before actual treatment is instituted. The favorable action of iodids or iodin, Smith believes to be due to their ability to reduce the swelling of the bronchial glands, and hence, to relieve pressure. He also thinks that the specific action of iodids on the nasal tissues has something to do with the benefit they cause in asthma. The action of nitrites as general vasodilators is due to the equalizing of the circulation in the entire vascular system. "The pressure is, therefore, relieved in the asthmatogenic areas."

Adrenalin can do good, he states, only as a local vasoconstrictor, which is another method of arriving at the same relief of local congestions. Unless there is cardiac asthma due to cardiac depression adrenalin or suprarenalin given hypodermatically, or in any manner except by local sprays or applications, can do no possible good in asthma. Atropin in large doses to relieve the irritabilty of the terminal endings of the pneumogastric nerves will probably generally be of temporary benefit in asthma. Whether this atropin is administered as atropin, as hyoscyamin, or even hyoscin, or as stramonium or belladonna, does not seem to make much difference. Theoretically, if atropin is needed and will do good, it is best administered hypodermatically.

Smith believes that the good results obtained by inhaling the fumes of burning niter paper, or cigarettes and stramonium and niter, "is due to the vasoconstriction that the irritation of the fumes causes in the asthmatogenic areas."

Gargles.

℞.	c.c.		
Aquæ hydrogenii dioxidi	200	or	fl℥vi

Sig.: Dilute with three parts of water and use as a gargle every three hours.

℞.	gm. or c.c.		
Potassii chloratis	10	or	ʒiiss
Aquæ	200		fl℥vi

M. et Sig.: Use as a gargle every three hours.

℞.	gm. or c.c.		
Acidi borici	6	or	ʒiss
Aquæ	200		fl℥vi

M. et Sig.: Use as a gargle every three hours.

℞.	gm. or c.c.		
Acidi tannici	3		ʒi
Glycerini	10	or	flʒiiss
Aquæ	ad 200		fl℥vi

M. et Sig.: Use as a gargle every three hours.

The Therapeutic Uses of Ergot.

The preparation selected should be a pure fluid extract, and in emergencies should be given intramuscularly, and best into the deltoid. It may be used in any condition of cardiac and circulatory failure, whether it be in typhoid fever, pneumonia meningitis, operative shock, or shock from injury. When the condition of collapse is serious, two, three, or even four hypodermic syringefuls may be injected at one time; later at six-hour intervals. In chronic cardiac weakness ergot is not indicated, but when there is intense pulmonary congestion and edema from failure of the right side of the heart, venesection followed by ergot hypodermatically has saved life. In severe hemorrhages saline transfusion will be more efficient combined with the administration of ergot than without it.

In acute inflammations of the brain and spinal cord ergot, intramuscularly, is of the greatest value. This combined with local applications of ice to the head and back is a most efficient treatment of cerebrospinal meningitis. It also intensifies the action of the morphin that must be given for pain, unless this be due to the passage of a calculus. In sleeplessness with low blood tension ergot is of value, and without a hypnotic, even when administered by the mouth, may cause sleep. Congestive headaches are often relieved by ergot. Delirium tremens and the meningitis of pneumonia are benefited by ergot given intramuscularly.

Hysterical pains and referred nerve pains are often benefited by ergot as much as by bromids, and this without giving a depressant drug.

In paralysis of the intestines after abdominal operations, a condition feared by all surgeons, injections of ergot are a distinct aid in promoting peristalsis. This treatment may be combined with atropin or eserin, given hypodermatically, as the surgeon deems advisable.

In certain forms of asthma in which there is marked congestion of the bronchial mucous membrane injections of ergot will do good. The value of causing contraction of the blood vessels in asthma is often demonstrable by suprarenal solution sprayed in the nostrils or throat. The action of suprarenal solution, however, is often so short-lived that prolongation of the contraction of the vessels by ergot is of value. When the asthma is made better by vasodilators, as nitrites, ergot would not be indicated.

The vasomotor dilatations, hot flashes, profuse sweatings and nervous irritability in Graves' disease is often made better by the internal administration of ergot. Of course, it should not be given just before or during the menstrual period.

Ergot is always of value in the treatment of morphin or opium habit, especially when the drug is gradually reduced. As above stated, in all ordinary conditions, the action of any one dose of morphin or opium is intensified by the coincident administration of ergot.

In a number of instances ergot has also been of marked benefit in diabetic insipidus, and in the albuminuria of adolescence.

The value of ergot as a uterine contractor in dilated conditions of the uterus associated with hemorrhage is too well recognized to need any discussion.

When the ergot is administered intramuscularly perfect cleanliness must be observed. The parts should be thoroughly scrubbed with soap and water, then cleansed with alcohol, and the injection made with clean hands, clean needle, clean syringe, and an aseptic preparation of ergot. If swelling, pain and heat occur in the region of the injection, a wet dressing, consisting of one part of alcohol to three parts of water, covered with rubber tissue or oil silk, and bound gently to the part, will soon reduce the slight inflammation. With these precautions abscesses will rarely, if ever, occur from the injection of ergot.

Diarrhea in Adults.

℞.	gm.		
Hydrargyri chloridi mitis	|30	or	gr. v
Sodii bicarbonatis	1		gr. xv

Fac chartulam 1.

M. Sig.: Take at bedtime.

Follow with:

℞.	
Pulverem effervescentem compositum	1

Sig.: Take in the morning on arising, and follow with:

℞.	gm.		
Bismuthi subnitratis	10	or	ʒiiss
Phenylis salicylatis	3		gr. xlv

M. et fac chartulas 10. Sig.: A powder every two hours.

When the diarrhea is checked use the following tonic for a few days:

℞.	gm. or c.c.		
Strychninæ sulphatis	|02	or	gr. 1/3
Ferri reducti	1		gr. xv

M. et fac capsulas 10. Sig.: A capsule, three times a day, after meals. Or:

℞.	c.c.		
Tincturæ ferri chloridi	10		flʒiiss
Acidi phosphorici diluti	10	or	flʒiiss
Elixiris aromatici	50		fl℥iss
Aquæ	ad 100		fl℥iii

M. et sig: A teaspoonful in water, three times a day, after meals.

Lotion for Acne.

℞.	gm. or c.c.		
Potassii sulphuratis	5		ʒi
Sulphuris præcipitati	5	or	ʒi
Zinci sulphatis	5		ʒi
Aquæ	ad 150		fl℥iv

M. et sig.: Apply externally night and morning.

Lotion for Dandruff.

℞.	gm. or c.c.		
Chlorali hydrati	10		ʒiiss
Glycerini	20	or	flʒv
Aquæ	ad 200		fl℥vi

M. et sig: Apply freely to scalp.

Ointment for Dandruff.

℞.	gm. or c.c.		
Resorcinolis	5		ʒi
Sulphuris præcipitati	10	or	ʒii
Petrolati	ad 100		ad ℥iii

M. et sig: Apply to scalp once a day.

Pharmacology

[Contribution from the Chemical Laboratory of the American Medical Association.]

ATOXYL.

W. A. Puckner and A. H. Clark.

About five years ago the attention of the medical profession was directed to a new organic compound of arsenic called atoxyl, which was claimed to be a meta-arsenic anilid having the formula $C_6H_5NHAsO_2$. It was said to contain 37.69 per cent. arsenic (As). It claimed consideration because of the statement that in the form of atoxyl apparently unlimited amounts of arsenic could be administered without toxic effect.

Atoxyl was submitted to the Council on Pharmacy and Chemistry in January, 1907, and was represented to be "meta arsenite of anilid." Its examination at that time by a subcommittee of the council showed that it is not an arsenite, but an arsenate, and that in other ways the statement made in regard to its composition should be questioned. The examination of atoxyl was therefore taken up in the Association laboratory. The analysis given in detail below[1] shows that the specimen of atoxyl examined did not contain 37.69 per cent. of arsenic, as stated in the literature, but instead contained only 25.77 per cent. From the analysis and the reports of other investigators, it was concluded that atoxyl is the sodium salt of arsenic acid in which one hydroxyl radical of arsenic acid has been replaced by a molecule of anilin. Agreeing with this, the manufacturers now have adopted this formula—i. e., $C_6H_4(NH_2)(AsO.OH.ONa)$[2]— as indicating the composition of atoxyl, whereas heretofore they have given the following: $C_6H_5NHAsO_2$. While our analysis indicates that the atoxyl molecule is combined with 3 molecules of water, the results of other chemists make it appear that the water content is variable. It is desirable, therefore, that the amount of arsenic in atoxyl, as found on the market, be controlled from time to time. To facilitate such control, the method of examining atoxyl used by us is published in detail.

Since physicians in using this new compound of arsenic will wish to compare its effect with other arsenic compounds, a comparison of the dosage of atoxyl with Fowler's solution will be of interest at this time. As atoxyl contains the arsenic as an arsen*ate* while in Fowler's solution it is present as an arsen*ite*, the doses are compared by calculating in each case the weight of the element arsenic itself.

In the advertising literature it is stated for atoxyl that "forty times as much arsenic may be assimilated in this form as when the element is exhibited in Fowler's solution or other of the ordinary arsenical preparations." The average dosage is stated to be from 1/3 to 4/5 grain, given every other day. It is also stated that the dose may be cautiously increased to as much as 3 grains daily.

The ordinary dose of Fowler's solution is 3 minims, three times daily, and it may be increased to much greater quantities; 30 to 60 minims per day is no uncommon dose.

Each minim of Fowler's solution contains approximately 1/133 grains of arsenic (As), therefore the ordinary daily dose, 9 minims, contains about 1/15 grain arsenic (As), and 60 minims contain nearly ½ grain of arsenic (As).

Since atoxyl was found to contain 25.77 per cent. arsenic, the average daily dose recommended (1/3 to 4/5 grains every other day, or 1/6 to 2/5 grains per day), contains 1/24 to 1/10 grain arsenic, and the maximum daily dose of atoxyl—3 grains—contains ¾ grain arsenic.

Thus while it is stated that forty times more arsenic can be given in the form of atoxyl than in other arsenic preparations, in reality the recommended dosage of atoxyl is but one and one-half times as great as the advised dose of arsenic given as Fowler's solution.

Permanent Apomorphin Solution.—M. G. Pegurier (*Rep. de Pharm.*, xix, 1907, page 301), has advised a tedious and complicated process for preparing solutions of apomorphin which will not turn green on exposure to light. His theory is that the green color is produced by oxidation in the light, which is accelerated by the presence of ammonia in the atmosphere. To obviate this he works in a room lighted by red light and evaporates a small amount of acetic acid to neutralize the ammonia in the room. He acidifies the solution by the addition of hydrochloric acid. A. Trautmann (*Pharm. Zeitung*, 61, 1907, page 640), believes that the discoloration is due to oxidation and states that it may be prevented by the addition of alcohol. He uses the following formula:

Apomorphin hydrochlor.	0.1
Alcohol (90 per cent.)	50.0
Hydrochloric acid, dil.	10.0
Distilled water to	200.0

The apomorphin is first shaken with the alcohol and the water then added, by which process a clear solution is obtained. The acid is subsequently added. When a fresh solution is to be prepared a clean, dry glass vessel must be taken. The solution is preserved in containers of brown glass Hermetic sealing is unnecessary.

EXAMINATION OF ATOXYL.

1. Arsenic. A weighed quantity of atoxyl was placed in a strong flask of about 150 c.c. capacity, 50 c.c. of a freshly prepared saturated solution of sulphur dioxid added, and the flask stoppered with a sound cork tied down firmly (Sutton's Vol. Analysis, 7th Ed., page 150). The flask and contents were heated in a water bath for one hour, allowed to cool, the contents transferred to an Erlenmeyer flask and evaporated on a water bath until all sulphur dioxid was expelled. After cooling the solution was made nearly neutral with sodium hydroxid, 2 gm. sodium bicarbonate added and the arsenic titrated with N/10 iodin V. S., using starch as an indicator.

(a) .2948 gm. atoxyl required 20.37 c.c. N/10 iodin V. S., indicating 25.71 per cent. As. (b) .5065 gm. atoxyl required 35.16 c.c. N/10 iodin V. S., indicating 25.82 per cent. As.

As a check on this method, a modification of the method for estimation of arsenic in presence of organic matter as proposed by F. A. Norton and A. E. Koch in the *Journal of the Amer. Chem. Society*, 1905, p. 1247, was tried as follows: A weighed quantity of atoxyl was placed in a Kjeldahl flask and digested with 20 c.c. concentrated sulphuric acid until clear and nearly colorless. The mixture was transferred to a flask, using about 100 c.c. water to complete the transfer, made neutral with sodium hydroxid, 2 gm. sodium bicarbonate added and the arsenic titrated with N/10 iodin V. S. 0.3727 gm. atoxyl required 25.3 c.c iodin V. S., indicating 25.25 per cent. As.

Sodium was determined by moistening a weighed quantity atoxyl with concentrated sulphuric acid carefully igniting, adding a little ammonium carbonate toward the end of the ignition and weighing the residue as Na_2SO_4.

.4519 gm. atoxyl yielded .111 gm. Na_2SO_4, indicating 7.97 per cent. Na.

Water was determined by drying at 100° to constant weight, .7717 gm. Atoxyl lost .1357 gm., indicating 17.58 per cent. The drying was continued, increasing the temperature gradually and weighing occasionally until 150° C. was reached, slight further loss was sustained. The substance turned brown, showing slight decomposition.

In March, 1907, a report by Bertheim, in the *Berl. klin. Wochschr.*, March 11, 1907, (footnote page 282), appeared which stated that atoxyl does not have the composition given by the manufacturers, but instead is a sodium salt of a combination of ortho-arsenic acid with aniline, containing water of crystallization and much less arsenic than claimed. Bertheim concluded that the formula of atoxyl is $C_6H_4.NH_2.AsO(OH)(ONa)$ 1:4 + $4H_2O$

In April, 1907, Forneau, in the *Jour. de Pharm. et Chem.*, April, 1907, p. 332, reported that atoxyl has the composition $C_6H_5NH.AsO(OH)(ONa) + 2H_2O$. That is, while Bertheim concluded that the arsenic acid radical and the amido group are in the para position, Forneau holds that the arsenic acid radical replaced one hydrogen atom of the amido group. While Bertheim assigns four molecules of water of hydration to the compound, Forneau's formula contains but two molecules. In the later article, in the same publication (June, 1907, p. 528), Forneau accepts the structure given by Bertheim. Since this formula has also been accepted by the manufacturers, no attempt was made in this laboratory to further investigate the structure of atoxyl.

The correctness of this formula is further established in a recent contribution by P. Ehrlich and A. Bertheim (Ber. d. chem. Ges., vol. xl, p. 3292).

According to Bertheim's formula, atoxyl should contain 24.09 per cent. arsenic (As) and 23.03 per cent. water of hydration. Forneau's formula indicates 27.25 arsenic (As) and 13.1 per cent. water, the difference in percentage of arsenic being due solely to the difference in amount of water.

The result of our analysis shows that atoxyl contains 25.77 per cent. arsenic (As), 7.97 per cent. sodium and 17.58 per cent. water of hydration, which agrees in theory closely with the formula $C_6H_4NH_2.AsO.OH.ONa + 3H_2O$. The results as regards the amount of water lies between those of Bertheim and Forneau.

Calculating the arsenic and sodium represented by the above formula, minus all water of hydration, 31.35 per cent. arsenic (As) and 9.64 per cent. sodium (Na) is indicated.

Calculating the amount of arsenic and sodium actually found by analysis, to such a compound 31.14 per cent. arsenic (As) and 9.67 per cent. sodium (Na) is indicated.

This shows conclusively that anhydrous atoxyl contains the theoretical amount of arsenic and sodium indicated by the formula $C_6H_4NH_2.AsO.OH.ONa$. The variation in the amount of arsenic found by different investigators evidently is due to a variation in amount of water present.

2. New and Non-Official Remedies, this issue of The Journal, p. 1029.

Correspondence

Plastic Radiography.

Cleveland, Ohio, Sept. 5, 1907.

To the Editor:—In The Journal, Aug. 31, 1907, page 751, Drs. Stern and Rosenberg describe a method for obtaining plastic *x*-ray photographs. While not denying that the method gives more pleasing effects than the ordinary *x*-ray photograph, it seems to me that practitioners should be warned against placing any confidence in the "plastic" appearance, which stands in no necessary relation to the actual spatial relations of the parts photographed, and in respect to these spatial relations, therefore, is always unreliable and misleading.

The method is evidently a modification of a well-known photographic dodge for obtaining exaggerated relief effects resembling bas-relief. The method consists in printing a positive from any negative, of a sufficient density nearly to neutralize all contrast. The two are placed back to back, shifted slightly on each other and a print taken, thus obtaining the exaggerated relief effects. In the method given, instead of shifting the plates, oblique illumination is used, but a consideration of the fact that the photographic film has a definite though small thickness shows that oblique illumination produces similar results and for like reasons. The relief effects are, therefore, pure artefacts depending entirely on the light and shade distribution, and thickness of film in the original plates, and the angle of illumination. The double-coated plates have the effect of softening the harshness of the contrasts obtained. As to the effect of the double exposure, I can not speak with certainty, but it can in no wise register spatial relations normal to the plate.

As *x*-ray photography in medicine is not so much interested in pretty and artistic pictures as in the accurate determination of anatomic conditions, the time spent in producing these plastic effects, which have no merit except pleasing appearance, and the fatal disadvantage that they are certainly misleading, would seem to be time worse than wasted.

For those who would be interested in an elementary mathematical discussion of the method the following is given:

Given a negative whose extinction factor F (x, y) or F, for short, is a function of the position of any point on the plate, a positive is printed from it whose extinction factor is F′ (x, y) or F′. If the positive destroys all contrast when placed on the negative we evidently have the relation

$$FF' = K,$$

where K, the extinction factor of the combination, is constant over the surface of the plates. Therefore,

$$F = \frac{K}{F'}.$$

If now we shift the positive a short distance Δx in the X direction, we have for the extinction factor of the combination K′:

$$K' = K \frac{F'(x + \Delta x, y)}{F'(x, y)}$$

If Δx is small, we can expand by Taylor's theorem and neglect higher orders in Δx..

$$K' = K \left(1 + \frac{1}{F'} \frac{\delta F'}{\delta x} \Delta x + \cdots\right)$$

Or writing $\Delta F'$ for $\frac{\delta F'}{\delta x} \Delta x$

$$K' = K \left(1 + \frac{\Delta F'}{F'}\right).$$

I. e., the lights and shades in the resulting print depend on the percentage rate of change of lights and shades in the original plate, in the direction of displacement, and vary with the magnitude and direction of the displacement, when that displacement is small.

In the above discussion the thickness of the film has been disregarded. In the case of a thick film and oblique illumination it would be necessary to replace log. F (x, y) by an integral of the form $\int f(x, y, z)\,dz$. Without more knowledge of the distribution of the silver deposit in the film, along the normal to the plate, no definite results can be arrived at, but in any case the results can not differ essentially from the simpler case discussed above. Therefore, "according to the law and the prophets," the results experimentally obtained are just what, *a priori*, one might predicate.

J. E. Tuckerman, M.D.

[By an error in the publication of the article referred to, the printing plates of Figures 1 and 2 were transposed. This fact is not referred to by Dr. Tuckerman, doubtless because it is self-evident on inspection by any one familiar with Roentgenographs. Furthermore, it has nothing to do with Dr. Tuckerman's remarks, but we mention it to prevent confusion in the minds of a few.—Ed.]

Ivy Poisoning.

Fulda, Minn., Sept. 4, 1907.

To the Editor:—An abstract of several articles on "Efficient Treatment of Ivy Poisoning" was published in The Journal, Aug. 31, 1907, page 789. Dr. Syme advises against the use of alcohol in this affection. I, on the contrary, have satisfied myself, after considerable experience with this affection, that no other remedy is so efficient if properly used.

Many years ago Prof. Theo. G. Wormley, I believe, suggested the use of hyposulphite of soda. I, therefore, prescribe a 1 per cent. solution of this salt in 95 per cent. alcohol. When a patient with ivy poisoning comes to me within forty-eight hours after the eruption appears, I wash the affected part thoroughly and repeatedly with the above mixture, directing the patient to continue its use in the same manner every four hours. Following this plan, I have often cured these patients in two days. Severe cases, first seen late, are also benefited by its use, but I here find that lead acetate is better than the hyposulphite of soda. Later, when the poison is neutralized, soothing ointments may be used.

Since alcohol dissolves the toxin, its free use washes it away and Nature does the rest.

Emil King, M.D.

Manila, P. I., Aug. 12, 1907.

To the Editor:—I have found tincture of lobelia a specific for ivy poisoning. I am aware that this is a very old remedy, but as some practitioners may never have tried it, I suggest that you publish the following prescription:

℞. gm.
Tincturæ lobeliæ
Cretæ preparatæ, āā.................... 30 | or ℥i
M. Sig.: Apply locally.

J. Perez.

County Society Supervision of Pure Milk Production.

Louisville, Ky., Sept. 11, 1907.

To the Editor:—I note in The Journal, September 7, the letter from Dr. C. G. Parnall of Jackson, Mich., with editorial comment following and lest some may infer from reading it that this method of procedure is new, I write to correct any such impression.

This work by the committee appointed by the Jackson County (Mich.) Medical Society is the same that is being accomplished by twenty or twenty-five medical milk commissions located in cities from Boston to Los Angeles. The importance of the work of these milk commissions was emphasized by a notable gathering at Atlantic City the day preceding the American Medical Association meeting. This meeting was called at the instance of Dr. Henry L. Coit of Newark, N. J., founder of the first medical milk commission, and Dr. Otto P. Geier of Cincinnati. At this meeting the American Association of Medical Milk Commissions was organized.

In Louisville the Jefferson County Milk Commission certifies to the product of three dairies and is ready to certify to the product of any dairy which will meet its requirements. One dairyman has just been fined $20 and costs as a result of a suit brought by the State Pure Food Commission for using the term "certified" on his milk when it was not certified by the county commission. This dairyman had been invited by the commission to produce certified milk under their requirements, but had refused.

In view of the importance of the work being done by the American Association of Medical Milk Commissions in spreading knowledge of the character of work which can be done by commissions appointed by county societies, we feel that as much prominence should be given to their work as to the work of the Jackson County committee.

Henry Enos Tuley.

[Our comments, to which the above refers, called attention to the work of a county society, and gave an abstract of the details of that work. The object of the comment was to suggest to other county societies to take up similar work, for, in most instances, if the county society does not do it, it will not be done. This propaganda for the pure milk supply in large cities, and even in small towns, is world-wide, for there is an appreciation in practically every civilized country of the part that milk may play in the spread of disease, and the necessity of its regulation in the interest of public health.—Editor.]

The Rocking Chair for the Fowler Position.

Columbus, Ohio, Sept. 9, 1907.

To the Editor:—One of the greatest advances in the treatment of purulent peritonitis we owe to Dr. Fowler, who first suggested putting the patient in a semi-recumbent position after operation in order to secure better drainage, and to keep the pus as much as possible from the upper portion of the abdomen where absorption is rapid. His suggestion was to elevate the head of the bed. I used this method in a number of cases, but found it rather difficult to keep the patient from sliding down toward the foot. A number of devices were resorted to to prevent this, but none of them were entirely satisfactory. I then tried to get up some sort of a mechanical device which could be placed on the bed and which would answer the purpose better. It finally struck me that a rocking chair would furnish just the kind of support which was needed, and for the last two years I have used that method exclusively, and have found it to be in every way entirely satisfactory. A large, comfortable chair should be selected, with good, wide arms, if possible, and then with a few pillows and blankets the patient can be made exceedingly comfortable, while his position can be slightly changed up or down, or the chair can be moved from one part of the room to another. By a suitable arrangement of the pillows in the bottom of the chair a rectal tube is easily inserted for salt solution or nutritive enemata. Such a chair can be found in every house. A friend recently told me that some such device as I had in mind was exhibited at the last meeting of the Association.

J. F. Baldwin, M.D.

Schools for Cure of Stammering.

Philadelphia, Sept. 5, 1907.

To the Editor:—Among the many forms of quackery now so prevalent there is probably none so seductive or so susceptible of harm, at least to the patient's pocketbook, as the average institution for the cure of stammering and other defects of speech. The following letter, sent to a patient in reply to a request for information with reference to the treatment of a defect of speech due to a cleft palate, is typical and illustrative of the methods employed:

> *My Dear Sir:*—Glad to give you the best of cheer, in the assurance that your case falls well within the purview of my art. One of the most successful pieces of work I ever did was with a Miss T., of Phoenixville, Pa., who had precisely the elements of difficulty that you describe.
>
> In a few days her stammering has disappeared, and then, in a week or two she could say all sounds that she had missed, by reason of the root trouble; and then I addressed myself to the task of putting the sweet, silver tones into her voice, in place of that unpleasant nasal drawl, and in six weeks from the time she started, it was all accomplished. I give you my word of honor as a Christian minister that I can relieve you entirely, and give you a perfectly natural voice.
>
> We do not encourage the hope of a perfect cure. In such cases, unless one will come to us, so that we may superintend the process from start to finish. Is it yourself or your sister, or both of you? I have mailed you both my booklet. You will see from title page that I cover all such cases. I guarantee each case, or to refund the price. Our best rate has passed, but as you live some distance, and to induce immediate attendance, I will take you for $100, board being extra at $5.00 a week. When can you come? Hoping to hear from you soon and to have you enter early,
>
> I am yours cordially,
>
> ———

Every one knows how impossible it is to give to an adult cleft palate patient a "perfectly natural voice," but here is one who on his "word of honor as a Christian minister" can not only accomplish this impossible task but can also put "sweet, silver tones" into the voice, and that, too, in the brief space of six weeks. The "guarantee" and "refund the price" clause, of course, is not omitted.

Although no such cure as described in the foregoing letter has ever been, or can be, accomplished who has ever heard of the price being refunded?

Stammering is a serious nervous affliction and the unfortunate subjects are, therefore, particularly susceptible to such deceptive literature, especially when it holds out to them the hope of a cure. If the true nature of these so-called schools for the cure of stammering were understood, fewer names of prominent men (including physicians, I regret to have to add) would appear in their advertisements.

G. Hudson-Makuen.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

POSTGRADUATE COURSE.

Suggested Course of Study for Use by County Societies Now Ready.

The outline for the first six months of the "Course of Postgraduate Study," for which provision was made in June at Atlantic City, is now ready for distribution in pamphlet form. It is desired that this be placed in the hands of each county secretary in the United States and that the officers of each state society, especially the councilors, familiarize themselves with the plans and details of the work. It will also be sent to each state journal so that those desiring to do so may print the outline for each month's work. It is expected that most societies will have to adapt this outline to their needs, many of them doubtless not following it in detail.

"Suggestions" concerning the course, as well as the outline or skeleton program for the first month and the elaboration for the weekly meetings, appear below. The outline for each month will appear in The Journal.

For further information or suggestions concerning the course of study, write to Dr. John H. Blackburn, Bowling Green, Ky.

SUGGESTIONS FOR THE USE OF THE COURSE.

1. A skeleton program for the first month will be found below, followed by an "Elaborated Weekly Program" for each weekly meeting in the month. It is expected that the secretary or program committee of each county society will use this skeleton program in assigning work to the leaders or teachers. Each teacher will then find his subject outline in the elaborated weekly program.

2. *Essentials to a Successful Meeting:* Meet promptly. Arrange that only those who are prepared shall lead in any subject. Allow 45 minutes to teacher, if only one; 25 minutes each, if two; 15 minutes each, if three. Allow five minutes to each member to discuss the subject or to ask questions.

3. *Anatomy:* Discuss those structures that will undergo morbid changes as a result of the particular disease under consideration, exhibiting gross and microscopic specimens when possible. Demonstrate fresh specimens from the lower animals, if those from the human are not obtainable.

4. *Physiology:* Study the functions of those organs which undergo changes.

5. *Pathology:* Study the pathologic anatomy and physiology, and their relations to the symptoms presented.

6. *Bacteriology:* Study the morphology and biology of bacteria, and the methods of recognizing and differentiating them.

7. Present clinical cases or brief reports, bearing on the subject, whenever possible.

8. *Treatment:* Study materia medica, pharmacology and therapeutics, exhibiting crude drugs and their U. S. P. and N. F. preparations. Encourage members or classes to carry

out experiments on animals in regard to the effects of drugs. Emphasize the work of the Council on Pharmacy and Chemistry. Prescription writing, with blackboard demonstrations, should be made a prominent feature whenever practicable.

9. *Reporter:* It is insisted that there should be a reporter for every society, whose duty it shall be to present a digest or review of the recent literature of the subject of study for that month.

10. Adjourn promptly one and a half hours after the time for the meeting to be called to order.

FIRST MONTH.

TUMORS.

First Weekly Meeting.

Anatomy and Histology. (Exhibit Microscopic Sections.)
  1. Epithelial Tissue.
  2. Connective Tissue.
  3. Muscular and Nervous Tissue.

Second Weekly Meeting.

Differential Diagnosis of Malignant and Benign Tumors.
  Location, Varieties and Microscopic Appearance:
  1. Fibroma, Lipoma.
  2. Chondroma, Osteoma, Myoma.
  3. Myxoma, Neuroma, Glioma.

Third Weekly Meeting.

  4. Angioma, Lymphangioma.
  5. Sarcoma.
  6. Carcinoma.

Fourth Weekly Meeting.

  7. Papilloma, Adenoma.
  8. Dermoids, Cysts.

Cancer of Uterus.

Monthly Meeting.

  Etiology of Carcinoma.
  Probability of Recurrence in Sarcoma and Carcinoma.
  Benign Tumors of Breast, Diagnosis and Treatment.

FIRST WEEKLY MEETING.

ANATOMY—MICROSCOPIC SECTIONS.

Epithelial Tissue.

Origin, Structure, Cells and Stroma.

Varieties: Simple and compound.
Shape, Arrangement and Distribution: (1) pavement, (2) cubical, (3) columnar, and (4) ciliated. Describe ciliary motion, causes.
Transitional Epithelium: Arrangement, distribution and location.
Stratified Epithelium: Shape, arrangement and distribution.
Nutrition of Epithelium: Chemistry of epithelium.

Connective Tissues.

Origin, Structure, Function.

Areola: Distribution, structure. Microscopic appearance, cells, matrix, white and yellow fibers.
Fibrous: Distribution, structure, functions.
Elastic: Structure, distribution, histology.
Adipose: Distribution, structure, function, nutrition.
Lymphoid and Retiform: Distribution, histology.
Jelly-like: Structure, chemistry, distribution.
Cartilage: Varieties, structure, function, chemistry.
Bone: Chemistry: structure (gross and microscopic), nutrition.
Blood: Corpuscles (red and white), plasma, serum and fibrin.

Muscular Tissue.

Origin. Voluntary and Involuntary.

Striated and Plain. Distribution of each.
Striated, Voluntary: Epimysium, perimysium, endomysium. Sarcolemma and contractile substance. Sarcomere, sarcostyle and contraction. Attachment to tendon. Nutrition of muscle. Nerve supply.
Plain, Involuntary: Distribution. Shape, size, arrangement of cells.
Cardiac Muscle: Differs from others.

Nervous Tissue.

Origin. Central and Peripheral Systems.

Cells and Fibers. Distribution.
Fibers.—Medullated: Sheath, axis, cylinder, neurilemma, nuclei, nodes of Ranvier.
  Non-medullated: Transverse and longitudinal sections.
Cells: The neuron, cell body, dendrites, axite.
  Bipolar cells, distribution, function, description.
  Multipolar cells, Golgi cells, two types.
  Histology of the cell, staining, shape, size, etc.
Nerve degeneration and regeneration.

SECOND WEEKLY MEETING.

Differential Diagnosis of Malignant and Benign Tumors.

(1) Mobility, (2) capsule, (3) vascular supply, (4) rate of growth, (5) pain, (6) infiltration, (7) recurrence, (8) lymphatic involvement, (9) metastasis.
Fibroma: Gross and microscopic appearance, distribution.
Lipoma: Size, number, distribution, varieties, gross and microscopic appearances.
Chondroma: Varieties, distribution, gross and microscopic appearances.
Osteoma: Varieties, number, gross and microscopic appearances. Odontomes.
Myoma: Distribution, mixed tumors, gross and microscopic appearances.
Myxoma: Gross and microscopic appearances. Secondary changes.
Neuroma: Pathology, number, distribution.
  Ganglionic neuroma. Neurofibromatosis. Molluscum fibrosum.
Glioma: Microscopic changes.

THIRD WEEKLY MEETING.

Angioma.

Structure.

Simple Nevus: Varieties, structure of each, distribution.
Cavernous Nevus: Structure, distribution, prognosis.
Plexiform Angioma: Structure, distribution.

Lymphangioma.

Structure.

Lymphatic Nevus: Microscopic changes, distribution.
Cavernous Lymphangioma: Structure.
Lymphatic Cysts: Structure, occurrence, distribution, prognosis.

Sarcoma.

Structure, Varieties.

Round-Celled Sarcoma: Microscopic section, distribution, age, prognosis.
Lymphosarcoma: Microscopic section, distribution, age, prognosis.
Spindle-Celled Sarcoma: Microscopic section, distribution, prognosis.
Alveolar Sarcoma: Microscopic section, origin, distribution.
Melanosarcoma: Microscopic section, pigment, origin, distribution, prognosis.
General Characters of Sarcoma: Vascular supply, metastasis, capsule, infiltration, lymphatic supply, secondary changes, distribution.

Carcinoma.

Origin, Microscopic Structure, Varieties.

Glandular Cancer: Distribution, gross and microscopic appearances, lymph- and blood-vessels, secondary changes, differentiate from adenoma.
Squamous-Celled Cancer: Distribution, gross and microscopic appearances, characteristic margin, infiltration, secondary changes.

FOURTH WEEKLY MEETING.

Papilloma.

Origin, Structure, Varieties.

Warts: Microscopic section, distribution, number, pigment, secondary changes.

Villous Papilloma: Structure, gross and microscopic, prognosis.

Intracystic Papilloma: Structure, gross and microscopic, distribution.

Psammoma: Structure, chemistry, location, prognosis.

Adenoma.

Structure, varieties, capsule, fluid, recurrence, infiltration, secondary changes.

Dermoids.

Structure, Distribution.

Sequestration Dermoids: Location, mode of origin, contents, prognosis.

Tubulo-Dermoids: Distribution, contents, size.

Lingual, Branchial and Rectal: Location of each.

Ovarian Dermoids: Origin, structure, contents, size, age.

Moles: Distribution, structure, secondary changes.

Teratoma.

Differentiate from dermoids.

Cysts.

Mode of Origin, Structure, Contents.

Retention cysts, tubulo-cysts, hydroceles and gland cysts.

Cancer of Uterus.

Cancer of Cervix.

Pathology—Squamous Celled: Origin, gross and microscopic changes in cervix, excrescences, degenerative changes, ulceration, excavation, extension to vagina.

Adenocarcinoma: Origin, changes in cervix, rate of growth, secondary changes.

Extension to surrounding structures. Metastasis.

Diagnosis: History, age, child-bearing. Hemorrhage, leukorrheal discharges, pain. General symptoms, cachexia, etc. Physical examination, touch, sight and smell. Differences between squamous-celled and adenocarcinoma in early stages. Microscopic examination. Method of getting specimens, staining and mounting. Differentiate normal and malignant specimens.

Treatment: Prophylactic—Repair of lacerated cervix.
Radical—Hysterectomy, probability of recurrence.
Palliative—Curettement and cauterization, medicinal treatment.
Use of X-rays.

Cancer of Body of Uterus.

Pathology: Adenocarcinoma, origin, extent of growth, degeneration, ulceration, extension through wall, rate of growth. Extension to adjacent structures. Metastasis.

Diagnosis: Age, child-bearing. General symptoms, hemorrhage, discharge, pain. Physical signs by touch, sight and smell. Microscopic examination, only means for early diagnosis.

Treatment: Radical, hysterectomy, technic. Palliative.

Queries and Minor Notes

THE "THERAPEUTIC GAZETTE" AND NOSTRUM ADVERTISING.

LANGDON, N. DAK., Aug. 23, 1907.

To the Editor:—Will you kindly inform me as to the standing of the *Therapeutic Gazette,* edited by H. A. Hare and Edward Martin? Please don't think that I am an ignoramus to ask such a question, when I see the name of one of our chief writers on therapeutics and medicine as one of the editors; but allow me to explain myself. Since coming to live and practice medicine in this country—a little over a year ago—I have been a constant reader of THE JOURNAL, and I have noticed with especial pleasure your fight against quackery and fraud in all and every form, your exposure of the false claims put forward by manufacturers of proprietary and "patent medicines"—e. g., anasarcin, anedemin, pepto-mangan (Gude)—and your endeavor to have journals of every form clean the false rubbish from their advertising pages. Now I think I may be excused for asking the above question, when I find every month advertised in the advertising pages of the *Therapeutic Gazette* such preparations as the above mentioned, to say nothing of such preparations as glycothymolin, hyo-sco-phin, antiphlogistin, listerin, Tyree's antiseptic powder, tongalin, syrupus roborans, glyco-heroin, campho-phenique, bovinin, katharmon, thialion, Gray's glycerin tonic, uriseptin, echitoue and Fellow's syrup of hypophosphites. I know, or at least believe, that advertisements in a journal help to pay expenses and so lower the price of the journal to the subscriber, but if lay journals and papers are being pressed to refuse good incomes in the fight for truth, much more so surely should medical journals keep their pages clean. I am quite confident from what I have seen and heard that there are many young physicians—and, I am sorry to say, some old ones also—who will use any sort of a new preparation so long as they find it advertised in what they consider "a good medical journal," and at the same time many of them would scorn to place any belief in advertisements seen in lay journals. It is wonderful how easily some physicians will excuse their own laziness or ignorance in the matter of proper therapeutics, and I am really sorry to see that they can find such an excuse.

J. J. MUGAN, M.D.

ANSWER.—The *Therapeutic Gazette* is owned and published by Parke, Davis & Co., although the name of their manager, E. G. Swift, is given as publisher. Such an arrangement has been in effect during the régime of their last three managers. The reason for this is not apparent, but it certainly can not be that the firm does not care to father the character of its reading pages, as they are of an unusually high quality.

As for the present status of the advertising pages, the firm is, in a measure, to be congratulated, for we no longer find there "The Original Lymph-Orchitic Fluid Compound, Roberts-Hawley;" the great acetanilid trio, "Antikamnia," "Ammonol" and "Phenalgin;" nor "Glycozone" and "Hydrozone," which are said to cure anything from a sore throat to yellow fever, and which are advertised alike to the public and to the profession. "Labordine," which was exposed in THE JOURNAL last March, has gone; "Duffy's Malt Whiskey" and "Micajah's Medicated Uterine Wafers" (that relative of "Piso's Consumption Cure") are also missing. To find that these have been dropped is encouraging.

As intimated by our correspondent, however, there is yet considerable room for improvement, and as an illustration we take the following from the last (August) issue of the *Therapeutic Gazette,* the wording of which should have been sufficient reason for its rejection:

> "UNGT. CADINOL. COMP.
>
> "The most wonderful remedy ever offered the medical profession in the treatment of Eczema, Pruritus, Burns, Scalds, Erysipelas, Hemorrhoids, Acne, etc.
>
> "We will guarantee *Ungt. Cadinol Comp.* to cure any and all burns or scalds, without leaving scar tissue or disfiguration. We also guarantee Ungt. Cadinol Comp. to cure any case of Eczema or Pruritus."

Could any statement be more ridiculous or asinine when placed before a body of supposedly intelligent, educated physicians? Parke, Davis & Co. have scientists, including eminent chemists, pharmacologists and pharmacists, in their employ, hence it can not be laid to ignorance that such statements and such nostrums are permitted to appear in their publication. Neither would it be just to lay it to mendaciousness on their part, but rather to the ambition of the business department to make a good financial showing. However, it is now time for those firms that are sincere and desire to cooperate with the medical profession in getting rid of fraudulent nostrums, to "get off the fence" and show their colors. Parke, Davis & Co., we are sure, can afford, and want to be on the side of decency and honesty, and will sacrifice the—to them—comparatively small revenue they get from those who use their journal to delude and humbug the medical profession.

WARBURG'S TINCTURE—TINCTURA ANTIPERIODICA.

RED CLIFF, COLO., Sept. 8, 1907.

To the Editor:—Kindly inform me through THE JOURNAL what is Warburg's Tincture, its dose and uses.

PAUL R. SIBERTS.

ANSWER.—Warburg's tincture was originally a proprietary medicine invented by Dr. Warburg, a British army surgeon in India, who later revealed the formula. With some modification it has been adopted into the National Formulary as "Tinctura Antiperiodica." The original formula included "confectio Damocratis," an antiquated combination containing over thirty ingredients, some of which are now unobtainable. This is contained in the original formula in such small quantities that it has probably no therapeutic influence and has been omitted from the official formula. Tincture antiperiodica, N. F., consists of 8 gm. each of rhubarb and angelica seed, 4 gm. each of elecampane, saffron, fennel, prepared chalk, 2 gm. each of gentian, zedoary, cubeb, myrrh, camphor and white agaric, 0.25 gm. opium, 0.35 gm. black pepper, 0.75 gm. cinnamon, 0.75 gm. ginger, 20 gm. quinin sulphate, with enough alcohol and distilled water to make 1,000 c.c. The tincture with aloes is made by adding to the above formula 17.5 gm. of extract of aloes. The dose is from 4 to 16 c.c., 1 to 4 drams. The mixture was introduced as a remedy for malarial fever, for which it has been warmly recommended, especially in chronic and cachectic cases and in cases in which quinin has failed. It is a conspicuous example of polypharmacy and of the tendency of those who introduce proprietary mixtures to complicate them in such way that the effective ingredients can not be separated from the inert rubbish which accompanies it. Such mixtures handed on from one generation of physicians to another complicate pharmacy and therapeutics, but if the essential ingredient were known it might afford opportunity for advance in knowledge by the investigation of similar substances or by its application to other analogous diseases.

ORIGIN OF PRESCRIPTION SYMBOLS.

Chicago, Sept. 13, 1907.

To the Editor:—In The Journal of Aug. 10, 1907, page 514, a correspondent asks for information regarding the derivation of the ounce, dram and scruple signs used in prescription writing. In Gould's book, "Suggestions to Medical Writers," the chapter on medical paleography gives the following explanation: The first stroke of the sign ℥ is the letter *u* of *uncia* (ounce) straightened out, the remainder of the symbol being the slurred, cursive form of the semicolon. It should be said that the semicolon was originally used to denote the elision of the final *-ue* and *-et* in many Latin words, but later was used to signify the omission of any final syllable. In writing this abbreviation—the semicolon—the dot and the comma were doubtless connected by a curved line, and the resulting sign was inaccurately represented by the modern printer by the letter *z*. Hence the final *z* in abbreviations, such as *viz.* (videlicet), *oz.* (uncia-ounce), etc. The sign for dram (drachma) ʒ shows how in the evolution of language the sign of a contraction may become the sign of the whole word, for the *d* has disappeared entirely. In the sign for scruple the old-fashioned long *s* (drawn out like the modern italic *f* without the cross-bar) is crossed by the cursive form of the *r* and the combination conventionalized until its original form is lost. A. J. C.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Sept. 14, 1907:

Morse, C. F., asst.-surgeon, granted 10 days' leave of absence, effective Oct. 1, 1907.

Woodall, W. P., asst.-surgeon, granted 30 days' leave of absence.

Kiersted, H. S., asst.-surgeon, on expiration of the leave of absence granted in S. O. 58, March 11, 1907, War Department, will proceed to Presidio of Monterey, Cal., for duty.

Farr, C. W., asst.-surgeon, relieved from further duty in the Philippine Islands, and on expiration of present leave of absence will proceed to Fort McKinley, Me., for duty.

The following will, on their arrival at San Francisco, in compliance with orders heretofore issued, report at the stations set opposite their names for duty: Morse, A. W., asst.-surgeon, Fort Leavenworth, Kansas; Yost, J. D., asst.-surgeon, Fort Lawton, Washington; Gosman, G. H. R., asst.-surgeon, Columbus Barracks, Ohio; Zinke, S. G., asst.-surgeon, Fort Leavenworth, Kansas; Culler, R. M., asst.-surgeon, Fort Slocum, N. Y.; Bailey, H. H., asst.-surgeon, Fort Myer, Va.

Crosby, W. D., surgeon, detailed as member of the Army Retiring Board, appointed to meet in Washington, D. C., by Par. 8, S. O. 239, Oct. 9, 1906, War Department, vice Major James D. Glennan, surgeon, hereby relieved.

Phalen, J. M., asst.-surgeon, is detailed as a member of the board of medical officers, appointed by Par. 21, C. O. 16, Jan. 19, 1906, War Department, for the study of tropical diseases as they exist in the Philippine Islands, vice Capt. P. M. Ashbnrn, asst.-surgeon, hereby relieved.

Ford, J. H., Ashbnrn, P. M., Winn, R. N., Roberts, W. M., Van Poole, G. McD., Thornburgh, R. M., Van Dusen, J. W., Shepard, J. L., Peed, G. P., Davis, W. R., Siler, J. F., and Cole, C. LeR., asst.-surgeons, are relieved from duty in the Philippines Division, to take effect at such time as will enable them to comply with this order, and will proceed on the transport to sail from Manila on or about Nov. 15, 1907, to San Francisco, and on arrival will report by telegraph to the Adjutant General of the Army for further orders.

The following will report in person, on the dates specified, to Major William H. Arthur, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., for examination to determine their fitness for advancement: Clark, J. A., and Kilbourne, E. D., asst.-surgeons, October 4, Coffin, J. M., and LeWald, L. T., asst.-surgeons, October 8. Morris, S. J., and Hanner, J. W., asst.-surgeons, October 11, Hathaway, L. M., and Powell, W. A., asst.-surgeons, October 15, Talbott E. M., and Fife, J. D., asst.- surgeons, October 18.

Winter, F. A., surgeon, detailed a member of examining board, Army Medical Museum Building, Washington, D. C., for the promotion or advancement of medical officers during the absence of Major W. D. McCaw, surgeon.

The following will report in person, on the dates specified, to Lieut.-Col. George H. Torney, dept. surgeon-general., president of the examining board, at the General Hospital, Presidio of San Francisco, for examination to determine their fitness for advancement: Harris, J. R., and Scott, G. H., asst.-surgeons, October 1; Huntington, P. W., and Carswell, R. L., asst.-surgeons, October 8.

Crosby, W. D., Mason, C. F., and Winter, F. A., surgeons, appointed members of a board of officers to meet at the Army Medical Museum Building, Washington, D. C., on Sept. 17, 1907, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion.

Flagg, C. E. B., asst.-surgeon, ordered to report in person on Sept. 17, 1907, to Major W. D. Crosby, surgeon, president examining board, Army Medical Museum Building, Washington, D. C., for reexamination to determine his fitness for promotion.

Pipes, H. F., asst.-surgeon, in addition to his other duties at the General Hospital, Washington Barracks, D. C., is assigned to duty with Co. C., Hosp. Corps, relieving First Lieut. J. B. Huggins, asst.-surg., who, on being thus relieved, will report to the commanding officer, General Hospital, Washington Barracks, D. C., for duty.

Wadhams, S. H., asst.-surgeon, assignment to duty in the Philippine Islands, revoked.

Cnller, R. M., asst.-surgeon, assignment to duty at Fort Slocum, N. Y., revoked, and instead ordered to Fort Monroe, Va., for duty at that station.

Smith, L. L., asst.-surgeon, relieved from temporary duty at Fort Monroe, Va., and ordered to return to station, West Point, N. Y

Nelson, K., asst.-surgeon, granted four months' leave of absence.

Arthur, W. H., surgeon, granted 15 days' leave of absence.

Marshall, J. S., examining and supervising dental surgeon, reported at Camp Yosemite, Cal., for temporary duty.

Worthington, J. A., contract surgeon, will proceed from Fort Oglethorpe, Ga., to Fort Moultrie, S. C., for temporary duty.

Archer, W. M., Jr., contract surgeon, reported at Fort Sam Houston, Texas, for duty.

Bell, R. P., contract surgeon, ordered from Fort Levett, Me., to his home, Baltimore, Md., for annulment of contract.

Dillon, G. P., contract surgeon, left Fort Bliss, Texas, for Fort Clark, Texas, for temporary duty.

Lincoln, H. F., contract surgeon, left Fort Robinson, Neb., for Fort Leavenworth, Kansas, for duty.

Wall, F. M., contract surgeon, left Fort Oglethorpe, Ga., for Fort Moultrie, S. C., for temporary duty.

Wells, F. M., contract surgeon, returned to duty at Fort Robinson, Neb., from temporary duty at Fort Leavenworth, Kansas.

Enders, W. J., contract surgeon, granted leave of absence for one month.

Jarrett, A. R., contract surgeon, will proceed from Fort Hamilton, N. Y., to Fort Myer, Va., to accompany squadron, 13th Cavalry, to Gettysburg, Pa., and return.

Stockard, J. K., contract surgeon, leave of absence extended ten days.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending September 14, 1907.

Price, A. F., medical director, detached from duty as member of the naval retiring board, Washington, D. C., and ordered to continue other duties.

Gnnnell, F. M., medical director, retired, detached from duty as senior member of the naval examining and naval medical examining boards, Washington, D. C., and ordered home.

Myers, T. D., P. A. surgeon, retired, detached from duty in connection with the naval medical school, Washington, D. C., and ordered home.

Fauntleroy, A. M., P. A. surgeon, detached from the naval station, Tutuila, Samoa, and ordered to the naval hospital, Mare Island, Cal.

Rossiter, P. S., P. A. surgeon, detached from the Naval Academy and ordered to the naval station, Tutnila, Samoa.

Hongh, F. P. W., acting asst. surgeon, detached from the naval hospital, Annapolis, Md., and ordered to Washington, D. C., Sept. 16, 1907, for examination for appointment as assistant surgeon in the Navy, and then to wait orders.

Clayton, J. C., acting asst.-surgeon, appointed acting asst.-surgeon from Sept. 5, 1907.

Curtis, E. E., asst.-surgeon, detached from the naval hospital, Norfolk, Va., and ordered to the *Culgoa*.

Wells, H., medical inspector, detached from command of the naval hospital, Boston, and granted sick leave for three months.

Straeten, R. J., asst.-surgeon, detached from the naval hospital, Mare Island, Cal., and ordered to instruction at the naval medical school, Washington, D. C., September 30.

Stibbens, F. H., asst.-surgeon, detached from the naval training station, Newport, R. I., September 22, and ordered to instruction in the naval medical school, Washington, D. C., September 30.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Sept. 11, 1907:

Wertenbaker, C. P., surgeon, assigned to duty as sanitary officer of the Jamestown Ter-Centennial Exposition, effective Sept. 7, 1907.

Rosenau, M. J., P. A. surgeon, granted leave of absence for 6 days from Sept. 1, 1907, on account of sickness.

Blue, Rupert, P. A. Surgeon, relieved from duty at the Jamestown Ter-Centennial Exposition, and directed to proceed to San Francisco for special temporary duty.

Oakley, J. H., P. A. surgeon, directed to proceed to Seattle, Washington, for special temporary duty; on completion of which to rejoin his station at Port Townsend, Washington.

Cofer, L. E., P. A. surgeon, directed to proceed from Englewood, N. J., to Morris Heights, N. Y.

Lavinder, C. H., P. A. surgeon, granted leave of absence for 5 days from Sept. 13, 1907.

Goldberger, Joseph, P. A. surgeon, granted leave of absence for 5 days from Aug. 26, 1907, on account of sickness.

Korn, W. A., P. A. surgeon, granted leave of absence for two months from Sept. 21, 1907, with permission to go beyond the seas.

Rucker, W. C., P. A. surgeon, temporarily relieved from duty at the Jamestown Ter-Centennial Exposition and Vineyard Haven, Mass., and directed to proceed to San Francisco, reporting to P. A. Surgeon Blue for special temporary duty.

Roberts, Norman, asst.-surgeon, granted leave of absence for 7 days from Sept. 11, 1907, under Paragraph 191 Service Regulations.

Stiles, Ch. W., chief Division of Zoology, Hygienic Laboratory, detailed to represent the service at the meeting of the International Dermatological Congress, New York City, Sept. 10, 1907.

Brinckerhoff, W. R., director Leprosy Investigation Station, excused from duty, without pay, for a period of 28 days, from Sept. 14, 1907.

Cleaves, F. H., acting asst.-surgeon, granted leave of absence for 6 days from Aug. 26, 1907, under Paragraph 210 Service Regulations.

Griffitts, T. H. D., acting asst.-surgeon, granted leave of absence for 7 days from Sept. 3, 1907, under Paragraph 210, Service Regulations.

James, W. F., acting asst.-surgeon, leave of absence granted for 15 days from Aug. 17, 1907, revoked.

Kennard, K. S., acting asst.-surgeon, granted leave of absence for 28 days from Sept. 10, 1907.

Naulty, Charles W., Jr., acting asst.-surgeon, granted leave of absence for 4 days from Sept. 10, 1907.

Turner, L. A., acting asst.-surgeon, granted leave of absence for 6 days from Sept. 3, 1907, under Paragraph 210, Service Regulations.

Walker, T. Dyson, acting asst.-surgeon, granted leave of absence for 4 days from Sept. 11, 1907.

BOARDS CONVENED.

A board of officers was convened to meet at Seattle, Wash., for the examination of alien immigrants. Detail for the board: P. A. Surgeon J. H. Oakley, Chairman; P. A. Surgeon M. J. White; and Acting Asst.-Surgeon F. R. Underwood, Recorder.

A board of officers was convened to meet at Wilmington, N. C., for the purpose of examining cadets in the Revenue-Cutter Service. Detail for the board: P. A. Surgeon C. H. Lavinder, chairman, and Acting Asst.-Surgeon Thomas M. Green, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Sept. 13, 1907:

SMALLPOX—UNITED STATES.

Alaska: St. Michael, Aug. 7, 1 case.

California: Sacramento, July 1-30, 1 case; San Francisco, Aug. 18-24, 3 cases.

Indiana: Anderson, Aug. 1-31, 1 case; Indianapolis, Aug. 26-Sept. 1, 1 case; Marion, Aug. 1-31, 3 cases.

Kentucky: Covington, Sept. 1-7, 1 case.

Louisiana: New Orleans, Aug. 25-31, 1 case (imported).

New York: Buffalo, Aug. 26-31, 1 case.

North Carolina: 17 Counties, July 1-31, 141 cases; Greensboro, Aug. 25-31, 2 cases.

Ohio: Dayton, Aug. 25-31, 1 case.

Oregon: General, June 1-30, 11 cases, 1 death; July 1-31, 6 cases.

Texas: San Antonio, Aug. 18-24, 2 cases.

Virginia: Eight counties, July 1-31, 21 cases.

Washington: Tacoma, Aug. 18-24, 1 case.

Wisconsin: Milwaukee, Aug. 30-Sept. 4, 2 cases.

SMALLPOX—FOREIGN.

Argentina: Rosario, June 1-30, 19 deaths.

Australia: New South Wales, New Castle, June 1-30, 1 case.

Austria: Vienna, Aug. 11-17, 6 cases.

Brazil: Rio de Janeiro, July 29-Aug. 4, 6 cases, 1 death.

France: Paris, July 29-Aug. 4, 7 cases, 1 death.

Greece: Piraeus, Aug. 11-17, 1 case.

India: Bombay, July 24-Aug. 6, 3 deaths; Madras, July 27-Aug. 2, 1 death.

Java: Batavia, July 21-27, 2 cases.

Madeira: Funchal, Aug. 14-25, 6 cases, 3 deaths.

Portugal: Lisbon, Aug. 11-17, 4 cases.

Russia: Moscow, Aug. 4-10, 3 cases; Riga, May 1-31, 16 deaths; St. Petersburg, July 28-Aug. 3, 1 case.

Spain: Barcelona, Aug. 18-27, 3 deaths; Valencia, Aug 19-25, 10 cases, 4 deaths.

Turkey in Europe: Constantinople, Aug. 18, 1 death.

Turkey in Asia: Bagdad, to Aug. 3, present.

CHOLERA.—UNITED STATES.

Maryland: Baltimore, Sept. 1-7, in quarantine, 8 cases from Norwegian *S. S. Aagot*, from Daiquire.

CHOLERA—FOREIGN.

India: Bombay, July 24-Aug. 6, 69 deaths; Calcutta, July 21-27, 2 deaths; Madras, July 27-Aug. 2, 5 deaths.

Japan: Yokahama, Aug. 3, 5 cases, 3 deaths; (on *S. S. Yamashiro Maru*).

Russia: Opposite Black Sea Ports, Aug. 14, present; Samara, government district, to Aug. 5, 50 cases, 10 deaths; Samara, 35 cases, 10 deaths; Stavropol, 3 cases.

YELLOW FEVER.

Brazil: Rio de Janeiro, July 29-Aug. 4, 1 case, 1 death.

Cuba: Cienfuegos, Aug. 30-Sept. 5, 4 cases, 2 deaths, from Aug. 3 to Sept. 5, 34 cases, 8 deaths.

Mexico: Manzanillo, Aug. 17, 1 case (on *S. S. San Juan*); Veracruz, Sept. 5, 1 case.

PLAGUE—UNITED STATES.

California: Berkeley, Sept. 1, 1 case, 1 death: San Francisco, Sept. 10, 3 cases, 1 death; total for San Francisco since the new outbreak, 21 cases and 9 deaths, the case and death in Berkeley was originally reported with the San Francisco cases plague, foreign.

PLAGUE—FOREIGN.

Australia: Brisbane, July 7-25, 3 cases, 3 deaths.

Brazil: Bahia, July 27-Aug. 10, 16 cases, 2 deaths; Rio de Janeiro, July 29-Aug. 4, 5 cases, 1 death.

China: Amoy, July 26, epidemic.

India: Bombay, July 24-Aug. 6, 24 deaths.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

OKLAHOMA Territorial Examining Board, Guthrie, September 24-25. Secretary, Dr. J. W. Baker, Enid.

COLORADO State Board of Medical Examiners, 1723 Tremont St., Denver, October 1. Secretary, Dr. S. D. Van Meter, Denver.

IDAHO State Board of Medical Examiners, Capitol Building, Boise, October 1. Secretary, Dr. W. F. Howard, Pocatello.

MINNESOTA State Board of Medical Examiners, Old Capitol, St. Paul, October 1. Secretary, Dr. W. S. Fullerton, St. Paul.

MONTANA Board of Medical Examiners, The Capitol, Helena, October 1. Secretary, Dr. W. C. Riddell, Helena.

NORTH DAKOTA State Board of Medical Examiners, Grand Forks, October 1-3. Secretary, Dr. H. M. Wheeler, Grand Forks.

NEW YORK State Board of Medical Examiners, Albany, October 1-4. Chief of Examining Division, Charles F. Wheelock, Albany.

INDIAN TERRITORY, Western District Board of Medical Examiners, Muskogee, October 7. Secretary, Dr. M. F. Williams, Muskogee.

UTAH State Board of Medical Examiners, Salt Lake City, October 7-8. Secretary, Dr. R. W. Fisher, Salt Lake City.

ARKANSAS State Board of Medical Examiners, State Capitol Building, Little Rock, October 8. Secretary, Dr. F. T. Murphy, Brinkley.

ARKANSAS Homeopathic Board of Medical Examiners, Little Rock, October 8. Secretary, Dr. V. H. Hallman, Hot Springs.

GEORGIA Board of Medical Examiners (Regular), Capitol Building, Atlanta, October 8. Secretary, Dr. E. R. Anthony, Griffin.

MICHIGAN State Board of Registration in Medicine, Lansing, October 8. Secretary, Dr. B. D. Harison, 205 Whitney Building, Detroit.

MISSISSIPPI State Board of Health, Jackson, October 8. Secretary, Dr. J. F. Hunter, Jackson.

WYOMING State Board of Medical Examiners, Laramie, October 9. Secretary, Dr. S. B. Miller, Laramie.

RHODE ISLAND State Board of Health, Room 313, State House, Providence, October 10-11. Secretary, Dr. Gardner T. Swarts, Providence.

DISTRICT OF COLUMBIA Board of Medical Supervisors, Law School of Georgetown University, Washington, October 10-14. Secretary, Dr. Geo. C. Ober, Washington.

GEORGIA Board of Eclectic Medical Examiners, Senate Chamber, Atlanta, about October 15. Secretary, Dr. C. H. Field, Marietta.

LOUISIANA State Board of Medical Examiners, Tulane University Medical Department, October 15-16. Secretary, Dr. F. A. LaRue, 211 Camp St., New Orleans.

NEW JERSEY State Board of Medical Examiners, State House, Trenton, October 15-16. Secretary, Dr. J. W. Bennett, Long Branch.

TEXAS State Medical Examining Board, Fort Worth, October 21. Secretary, Dr. G. B. Foscue, Waco.

INDIANA Board of Medical Registration and Examination, Indianapolis, October 22-24. Secretary, Dr. W. T. Gott, Crawfordsville.

ILLINOIS State Board of Health, Great Northern Hotel, Chicago, October 23-25. Secretary, Dr. J. A. Egan, Springfield.

Tennessee May Report.—Dr. T. J. Happel, secretary of the Tennessee State Board of Medical Examiners, reports the written examinations held at Memphis, Nashville and Knoxville, May 1, 1907. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 273, of whom 133 passed, including 11 non-graduates, and 140 failed, including 129 non-graduates. The following colleges were represented:

PASSED.

College.	Year Grad.	Per Cent.
George Washington University	(1905) 94.2; (1906)	86.5
University of Louisville,	(1896) 76.1; (1905) 88.6; (1906)	75; (1907) 81.5, 93.7.
Hospital Coll. of Med., Louisville	(1896)	75
Kentucky University	(1907)	87.3
American Med. Miss. Coll.	(1900)	76.7
College of P. and S., Baltimore	(1889)	95
Johns Hopkins University	(1899)	87.2
Maryland Med. Coll.	(1900)	76
Boston University	(1888)	88.5
Eclectic Med. Institute, Cincinnati	(1898)	75
Western Pennsylvania Med. Coll.	(1900)	80
University of Pennsylvania	(1897 90.5; (1906) 92, (1907)	84.6
College of P. and S., New York	(1904)	83
Memphis Hosp. Med. Coll.,	(1904) 84; (1905) 77; (1906)	79; (1907) 75.2, 76, 78.2, 78.2, 78.5, 90.
College of P. and S., Memphis	(1907)	78.2, 84, 82, 97.
Vanderbilt University,	(1894) 75.3; (1902) 95.1; (1903)	89; (1906) 91.2; (1907) 80.5, 87, 87, 87, 88, 91.2, 91.5, 92.3, 92.3, 93, 93, 93, 94.2, 95, 95.1.
Meharry Med. Coll.,	(1904) 85.5; (1906) 78.2, 89; (1907)	77.5, 77.5, 78.3, 80, 80, 82.3, 84.5, 85.7, 86.
Tennesse Med. Coll.,	(1903) 75; (1906) 93.5; (1907)	75, 75, 78, 78, 80, 83.1, 84.2, 84.2, 86.1, 86.5.
University of Nashville,	(1905) 87.5; (1906) 75.6, 80, 80; (1907)	75, 75.5, 76.1, 77, 77.6, 81, 87.
Chattanooga Med. Coll.,	(1904) 75.5; (1906) 77.7; (1907)	75, 76.5, 81.1, 85.
University of the South	(1906)	75, 86.2
University of Tennessee,	(1903) 79, 88.7; (1907)	75, 78, 78.1, 79, 79.6, 81, 83.6, 84.7, 85.5, 85.5, 85.7, 86.3, 86.6, 87.1, 87.3, 88.7, 89, 89.2, 92.1, 93.5, 93.7, 95.5, 95.5.
University of Virginia	(1903)	87.5
Queen's University, Ontario	(1906)	80

FAILED.

College.	Year Grad.	Per Cent.
Kentucky University	(1904)	59.6
Meharry Med. Coll.	(1905) 60; (1906)	59.3, 59.8
Knoxville Med. Coll.	(1905)	48.5
Tennessee Med. Coll.	(1906) 42; (1907)	50, 52, 56
Chattanooga Med. Coll.	(1907)	21, 45

Marriages

Frank M. Burns, M.D., to Miss Emma Dreihs, both of Cincinnati, August 28.

Otto Balensiefer, M.D., Peru, Ill., to Miss Helen Wilkins of Chicago, August 31.

Oliver J. Roskoten, M.D., to Miss Olga Beseman, both of Peoria, Ill., recently.

Grace Scholz, M.D., and J. LeRoy Mountjoy, both of Columbia, Mo., September 3.

Hoyt E. Dearholt, M.D., to Miss Edith Tweeden, both of Milwaukee, August 31.

Robert Worth Robb, M.D., Blanchard, Iowa, to Miss Porter of Albia, Iowa, August 29.

Charles Stephan, M.D., to Miss Wilda Lower, both of New Bedford, Ohio, September 1.

Edwin Alan Hannum, M.D., to Miss Ollie Lilian Martin, both of Cleveland, September 4.

Carl F. Fechheimer, M.D., Detroit, Mich., to Miss Laura Offman of Cincinnati, September 3.

Deaths

James Carroll, M.D., Major and Surgeon U. S. A., one of the commission assigned to study the cause and prevention of yellow fever, and the third of the four of that commission to die, died after a long illness, in Washington, September 16. He was born in Woolwich, Eng., June 5, 1854; received his early education in Albion House Academy; enlisted in the U. S. Army in January, 1874, and served as private, corporal and sergeant in Company E, First Infantry, and as private, sergeant and first sergeant in Company C, Seventh Infantry, from that time until September, 1883, when he was given his warrant as hospital steward, in which capacity he served until May 21, 1898. During the latter part of this time he was studying medicine and showed unusual adaptability to research work, and for that reason was on duty in the Army Medical Museum, Washington. He pursued his studies in the Columbian University and was graduated from the Medical Department of the University of Maryland, Baltimore, in 1891. He took a postgraduate course in pathology in Johns Hopkins Hospital the same year, and in the next year a postgraduate course in bacteriology.

He was appointed acting assistant surgeon in the United States Army and served for several years. He was associated with the late Major Walter Reed, U. S. Army, and the late Dr. James W. Lazear, U. S. Army, and Dr. A. Agramonte, as a commission to study the yellow fever situation with especial reference to the *Bacillus sanarelli* in the United States and Cuba. As the commission, after study of the situation, came to the decision that the disease was spread by the bite of infected mosquitoes, Dr. Carroll volunteered to be bitten by a mosquito that had previously been caused to bite three yellow fever patients. Within four days he was taken ill and suffered a severe attack of the disease, the first case of experimental yellow fever on record.

On Oct. 27, 1902, Dr. Carroll, although past the age limit for admission to the Medical Department of the Army, was commissioned first lieutenant and assistant surgeon, and on May 2, 1907, largely through the efforts of the National Committee on Medical Legislation of the American Medical Association, Congress ordered that he be commissioned as major and surgeon in the Army. He still retained his position as curator of the Army Medical Museum. On May 27, 1907, Dr. Carroll had conferred on him the degree of doctor of laws by the University of Nebraska, in appreciation of his scientific and humanitarian achievements.

Dr. Carroll was a member of the American Medical Association; the Association of Military Surgeons of the United States, Society of American Bacteriologists, and its vice-president in 1902; Clinico-Pathological Society of Washington; Washington Academy of Sciences, and of many other national and semi-national societies. He was instructor in bacteriology, pathology and clinical microscopy in the Army Medical School; professor of bacteriology and pathology in the George Washington University, and pathologist to the Columbian Hospital, Washington. He was an earnest research worker and a frequent contributor to medical journals and to the proceedings of scientific societies.

Lester S. Hill, M.D. New York University Medical College, New York, 1872; a member of the Rhode Island State and Providence County medical societies; assistant surgeon general of Rhode Island, and during the Spanish-American War major and surgeon of the First Infantry, R. I. N. G.; a veteran of the Civil War; a member of the school committee of Providence for 25 years, and a member of the General Assembly for two years; died suddenly at his home in Providence, September 9, from heart disease, hastened by shock due to a street car accident two weeks before, aged 63.

John Norman Dixon, M.D. Cincinnati College of Medicine and Surgery, 1878; a member of the American Medical Association; once president of the Sangamon County Medical Society; one of the founders of and surgeon to the Springfield (Ill.) Hospital, and consulting surgeon to the Illinois Central Railroad at that point; died September 8, from disease of the kidney, after an illness of three weeks, at a private sanitarium in St. Louis, aged 52.

Alexander Warner Shepard, M.D. Long Island College Hospital, Brooklyn, N. Y., 1866; a member of the American Medical Association; for a long time county physician of Kings County, and conspicuous in medical and political affairs in Brooklyn for many years, died at his summer home in Fort Hamilton, September 8, from heart disease, aged 75.

Samuel Bane, M.D. Northwestern University Medical School, Chicago, 1897; a member of the American Medical Association, and one of the most promising young practitioners of Peoria, Ill.; died at his home in that city, September 6, from intestinal paralysis, following typhoid fever, after an illness of two weeks, aged 36.

Daniel H. Kelley, M.D. University of Vermont, College of Medicine, Burlington, 1881; a member of the American Medical Association; one of the best known practitioners of Penobscot, Maine, and formerly a practitioner of Mattawamkeag; died at his home in Oldtown, from cancer, August 28, after a long illness, aged 52.

Timothy Willis Miles, M.D. Eclectic Medical Institute, Cincinnati, 1875; a member of the State Board of Medical Examiners of Colorado, and of the national and state eclectic medical societies; died at his home in Denver, Colo., September 8, from typhoid fever, after an illness of two weeks, aged 58.

James Curry Shook, M.D. Jefferson Medical College, Philadelphia, 1891; of Windber, Pa.; fell from a freight train while on his way from South Fork, September 7, and sustained injuries from which he died at the Memorial Hospital, Johnstown, a few hours later, aged about 40.

John H. Boyer, M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1895; of Moreauville, La.; a member of the American Medical Association; surgeon for the Avoyelles division of the Texas & Pacific Railroad; died in Philadelphia, September 2, aged 33.

Joseph Alexander Winkler, M.D. New York University Medical College, New York City, 1854; a member of the Massachusetts and Suffolk County medical societies; one of the oldest practitioners of Jamaica Plain, Boston; died at his home in that place, August 30, aged 77.

Fred Jason Beckwith, M.D. Medical School of Harvard University, Boston, 1882; health officer of New London, Conn., and for a time marine physician of the port; died suddenly, from heart disease, September 2, while making a professional call in Waterford, aged 52.

Perry Rubel Crosswait, M.D. Miami Medical College, Cincinnati, 1877; formerly of Des Moines, Iowa; a veteran of the Civil War; died at a hospital in Tacoma, Wash., September 5, as the result of injuries received in alighting from a street car the day before, aged 72.

Jay Warren Shelley, M.D. Jefferson Medical College, Philadelphia, 1906; of Fort Royal, Pa.; a member of the Juniata Valley Medical Society, and first resident physician of the Pottsville (Pa.) Hospital; died at his home in Fort Royal, August 15, aged 25.

Kenneth Nicol Mackenzie, M.D. University of Toronto, Faculty of Medicine, 1907; interne in the St. Luke's Hospital, Ottawa, Ont.; died from pneumonia following diphtheria, in that institution, September 7, after a short illness, aged 23.

William Thomas G. Whiteford, M.D. Baltimore (Md.) Medical College, 1904; a practitioner of Parkville, Baltimore; died in the Baltimore City Hospital, September 8, a week after an operation for appendicitis, aged 23.

Aquilla Talbott (Years of Practice, Ky., 1893); a Confederate veteran, and since 1870 a practitioner of Lexington, Ky.; died at his home in that city, September 3, after a short illness, from acute nephritis, aged 69.

Walter Spiva, M.D. Kentucky School of Medicine, Louisville, 1905; physician of the State Penitentiary Farm, Betheden, Miss.; died from typhoid fever, September 7, after an illness of two weeks, aged 48.

Harvey L. Jewell, M.D. University of Vermont, College of Medicine, Burlington, 1877; a veteran of the Civil War; died suddenly at his home in Bangor, Maine, September 6, from cerebral hemorrhage.

J. F. Richards, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1903; license, Mississippi, 1891; died at his home near Oxford, Miss., from congestion of the brain, September 8.

Henry A. Fritcher, M.D. Rush Medical College, Chicago, 1875; formerly of Buffalo and North Tonawanda, N. Y.; died in the Masonic Home, Utica, N. Y., September 2, aged 64.

George Douglas Soule, M.D. Eclectic Medical College of New York City, 1889; formerly of Clinton, Iowa; died at Camanche, Iowa, September 9, after a prolonged illness, aged 47.

Joseph Taylor Surbaugh, M.D. Missouri Medical College, St. Louis, 1874; was found dead in his office in Grimes, Cal., September 5, from fatty degeneration of the heart.

Harrison Lilly, M.D. Cleveland Homeopathic Medical College, 1878; of Butler, Ind.; died suddenly at the home of his sister in Cleveland, Ohio, September 4, aged 60.

George Long, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1885; formerly of Springfield, Ill.; died at his home in Watson, Mo., July 11, aged 60.

Charles Herman Kiehl, M.D. Detroit College of Medicine, 1905; died at his home in Albuquerque, N. M., recently, aged 26.

Frank M. Gross, M.D. Eclectic Medical Institution, Cincinnati, 1881; died at his home in Mechanicsburg, Pa., September 7.

Caspar Schulte, M.D. Frederick William University, Berlin, Prussia, 1854; died at his home in Detroit, June 29, aged 79.

John P. H. Gray (License, Mo., 1883); died suddenly at his home in California, Mo., September 2, aged 86.

Society Proceedings

COMING MEETINGS.

Medical Society of the State of Pennsylvania, Reading, Sept. 23-26.
Southern Medical Association, Birmingham, Ala., Sept. 24-26.
Amer. Acad. of Ophthal. and Oto-Laryng., Louisville, Sept. 26-28.
American Public Health Assn., Atlantic City, Sept. 30-Oct. 4.
Medical Assn. of District of Columbia, Washington, Oct. 1.
American Roentgen Ray Society, Cincinnati, Oct. 2-4.
Idaho State Medical Society, Boise, Oct. 3-4.
Delaware State Medical Society, Wilmington, Oct. 8.
Nevada State Medical Society, Reno, Oct. 8-9.
Mississippi Valley Medical Association, Columbus, O., Oct. 8-10.
Medical Assn. of the Southwest, Hot Springs, Ark., Oct. 8-10.
Vermont State Medical Society, St. Johnsbury, Oct. 10-11.
Kentucky State Medical Association, Louisville, Oct. 15-17.
Assn. of Military Surgeons of the U. S., Norfolk, Va., Oct. 15-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.

INTERNATIONAL DERMATOLOGICAL CONGRESS.

Sixth Meeting, held in New York City, Sept. 9-14, 1907.

The President, Dr. James C. White, Boston, in the Chair.

FIRST DAY, SEPT. 9.

The meeting was called to order by the president. After the secretary-general, Dr. John A. Fordyce, New York, had made his report, addresses of welcome were delivered.

The New Era in Naval Medical Affairs.

Surgeon-General P. M. Rixey, U. S. Navy, extended a hearty welcome in the name of President Roosevelt and all that he represented, and emphasized the universal interest that the President takes in all matters pertaining to the welfare of the human race. There has been none who has been more interested in the progress of the medical profession than Theodore Roosevelt. Dr. Rixey spoke feelingly of the time, five years ago, whes he came to the head of the Bureau of Medicine and Surgery of the Navy, when it was sorely in need of all that great advance which was being made. At that time there was a corps of medical officers one-half short as to numbers, no opportunity for advancement in their profession, and ground down to routine work. Ships and hospitals were out of date and wanting in modern facilities. To-day they can show a working corps with advantages in professional and even research that is the envy of their civil brethren. A graduate medical school and a new medical school hospital at Washington, a number of new naval hospitals at home and abroad, with old ones being modernized, with battleships and cruisers having space assigned to the sick and injured, etc., all have been accomplished because of the interest of President Roosevelt. In the naval medical work the proportion of dermatologic diseases to all others is about 13 per cent. More and more attention is given to skin troubles in the graduate school at Washington, and many of the most interesting reports to-day are on this subject, especially in connection with tropical medicine.

Affiliation Between Universities and Medical Schools.

Dr. Ira Remsen, president of Johns Hopkins University, expressed welcome to the congress in behalf of the universities, the training ground of research. Success in research depends on the character of the university, and this is recognized in this country now, there being a well-defined university movement among the medical schools here. Within twenty-five years this university movement has acquired a great momentum. Universities have taken possession of the medical schools and, to the same extent, the medical schools are trying to get under the cover of the universities. So, at the present time, the prominent medical schools have gathered with the prominent universities. If this movement keeps up there does not seem to be enough universities to go around. Connection between the universities and medical schools is desired because the atmosphere of research is the best atmosphere for teaching; this is the fundamental connection with the university movement. This is recognized in most countries and is coming to be recognized more and more. Another reason is that many medical schools were established for profit; but that day has gone. To conduct a medical school now is an expensive operation. The medical schools and the medical department of universities are now on the same footing, as in other kinds of higher education. A medical school, as such, can not hope for any endowment; whereas universities can.

Welcome from the Medical Profession of the United States.

Dr. **Joseph D. Bryant**, president of the American Medical Association, extended a greeting and fraternal welcome in behalf of the American Medical Association, and the medical profession of the country.

Address by the President of the Congress.

Dr. **James C. White**, Boston, after welcoming the congress, offered a sketch of some of the changes that have taken place in the study and practice of dermatology in the last half century, and then noted the changes which the same period has brought to pass in their department everywhere. He uttered a word of caution regarding the unnecessary division of diseases and multiplication of titles. They tend to magnify the significance of slight clinical variations, to attribute to them specific importance, and to emphasize their pseudo-independence by bestowing on them titles of individuality. Well-established landmarks should not be changed except for reasons founded on demonstrable differences in anatomy and etiology. He believed in the creation of a standing committee of the association to consider the subject in a broad way, on which should be representatives of all our great nations, unprejudiced by past systems of schools or individuals. Among the important questions for them to act on are: 1. What are the influences of race, geographical conditions, climate, national customs, etc., on the evolution and type of diseases of the skin? 2. What variations does emigration induce in dermatoses? 3. What cutaneous affections should national governments regard as infective, and seek to control by restriction of immigration, by enforced insulation, and similar measures? 4. How far is it possible and incumbent on national governments to control the continuance of hereditary dermatoses by restriction on marriage laws? 5. Should not the influence of this body be directed to induce governments to aid in the support of researches bearing on sanitary questions of national importance?

Other affections, of which some see only an occasional immigrant example, should be studied in their tropical homes by experienced dermatologists. A large fund should be raised, and the aid of the respective governments should be solicited in behalf of the plan. An international committee, composed partly of members of this body, partly of well-known authorities on tropical diseases in all parts of the world, might be established to raise the means and to superintend such investigation. He suggested that a committee be appointed to consider the subject and report before adjournment. Looking backward over his fifty years of study and practice in affections of the skin, he said that there were three eras of advance within his experience: 1. The knowledge founded on a more careful study of the external manifestations and unbiased interpretations of clinical phenomena. 2. A deeper knowledge of the minute anatomy of tissue changes in and a more scientific grouping of dermatoses. 3. The recognition of the real nature and cause of visible lesions and underlying tissue changes and the essence of disease—a true system of pathology—the promise of attainment of the power of prevention, of establishing immunity, of founding a broader system of rational therapeutics.

Dr. White then considered the results of our knowledge of modern cutaneous pathology on practical therapeutics. We are well-nigh as helpless in the control of our gravest, as well as of our most common, dermatoses, as we were half a century ago, and that our most successful therapeutics measured are as empirical in nature as they have ever been. So far researches in the portentous realms of immunization have not brought forth such practical results as did the shrewd, unaided observations of that old English country doctor, Jenner. He asked who can confidently predict the curative results of a prescription in any individual case of eczema, or psoriasis, or lichen, or acne, or the other common dermatoses which fill daily clinics. Have we any power over the pigment-producing layer of the cuticle? Can the members of this congress control the disordered actions of the sweat glands? Have they a surer power over the deeper and graver forms of cutaneous disease than the surgeon's hand of fifty years ago? Dr. White disclaimed being a pessimist in therapeutics; still he believed in an honest recognition of present limitations as one of the steps toward securing greater power of control in the future.

(To be continued.)

OHIO STATE MEDICAL ASSOCIATION.

Annual Meeting, held at Cedar Point, Aug. 28-30, 1907.

(Continued from page 964.)

The Improvement of the Medical Profession.

In his presidential address, Dr. B. R. M'Clellan, Xenia, made an earnest plea for that reorganization which stands for a united profession free from petty jealousies, envy and discord. He said that during the past year he had visited many of the county societies of the state and that, without exception, wherever men were found who really graced the profession of medicine, there was found a good medical society and men living in harmony with each other; on the other hand, where many men were found who disgraced their calling, whose offices were dingy and untidy and devoid of modern equipment, where the men themselves, unshaven and in soiled linen, spent much time in scandalizing each other, there organization languished and harmony and good fellowship were untasted and unknown fruits. As a rule, the fault, he asserted, lies at the door of an incompetent secretary, which office Dr. M'Clellan considers one of the utmost importance. Dr. M'Clellan commended the work of the Ohio League for the suppression of Fraudulent Advertising and of the *Ohio State Medical Journal*, and expressed grateful appreciation of the work of the American Medical Association in bringing about a course of instruction in medical economics in the medical schools of the land. He advocated the establishment of systematic postgraduate courses throughout the state, in which well-chosen instructors should go from district to district, giving a course of instruction on topics of mutual interest to the medical profession and the people, especially on the great questions of sanitation and prophylaxis, as well as on those questions that involve moral issues.

Surgery of the Stomach Based on One Hundred and Four Personal Cases.

Dr. **George Crile**, Cleveland, said, in part, that the advances made in gastric surgery have been mainly along two lines: the improvement in technic and the better understanding of surgical indications. If any great improvement is to be reached in cases of gastric carcinoma it will either be by the discovery of some new clinical methods, whereby the case may be early diagnosed, or because a larger number of suspected carcinomas will be subjected to exploratory incision. Surgical treatment either has failed or has made a very poor showing in simple dilatation of the stomach without obstruction, especially in neurasthenic subjects, in splanchnoptosis, in acute gastric ulcer without obstruction of the pylorus and in cancer of the stomach without obstruction of the pylorus and yet too far advanced for excision. Surgery, he stated, is less effective than other methods in hemorrhage from ulcers. In nonmalignant obstruction of the pylorus surgery may give prompt and lasting relief. In gastric carcinoma with obstruction, simple gastroenterostomy is the best treatment. In cancer of the stomach in its resection stage, complete excision increases the expectancy of life and comfort of living and offers a definite percentage of chances of cure. The surgeon and internist should agree that the joint management of such cases will bring out the most effective methods from both and the greatest number of cures.

The Treatment of Gastric Hypoacidities.

Dr. **M. J. Lichty**, Cleveland, reviewed the literature on the subject and cited cases and treatment in six patients of his own. He said that the patients do not need much treatment for the stomach alone, neither can they be well treated without recognition of the many associated pathologic conditions so often noted. The treatment of this condition with hydrochloric acid has been disappointing and unsatisfactory in his hands. Of the greatest need and urgency is the treatment to improve the patient's nutrition. This requires good food in plenty and properly prepared; proper exercise, a moderate amount of rest, some medicines and some wholesome advice, especially about the details of the diet. In neurasthenic patients sometimes prolonged and complete rest in bed, with the care of an experienced and tactful nurse, is necessary to effect a cure. He often gives bitter tonics, such as nux vomica, condurango, small doses of quinin, gentian and quassia, occasionally combined with small doses of hydrochloric acid. In mild neurasthenia the bromids are occasionally most effectual. Electricity is perhaps valuable along the line of suggestive treatment. Many of these patients are unwilling to make any sacrifices whatever and occasionally one fails to accomplish anything even after the most painstaking effort and in the best surroundings.

The following papers were read and discussed, in connection with the foregoing: Clinical Notes on the Acute Dilatation of the Stomach and Arteriomesenteric Ileus, Dr. W. B. Laffer, Cleveland, and A Clinical Study of 500 Gastric Cases, by Dr. J. D. Dunham, Columbus.

DISCUSSION.

DR. N. ROSEWATER, Cleveland, said that the internist should take care of these cases from the time of the operation. The surgeon has his own work to do and is less able to take care of the questions of diet than the internist. Achylia gastrica, in his experience, is often accompanied by intense pain, simulating gallstones.

DR. H. T. SUTTON, Zanesville, said that no doubt the profession has been misled in the past by flattering reports of cases in which the patients that would have been better left unoperated on. He related a recent case of his own which he considered too far advanced for operation; he sent the patient, a man, home, expecting him to starve to death in a few weeks, but he entirely recovered without treatment. In Dr. Sutton's opinion, the patients who are overlooked by the surgeon are the fortunate ones.

DR. SAWYER, Cleveland, advocated the passage of the stomach tube, even in seemingly moribund conditions. He is sure these patients do not collapse from the passage of the tube, and commonly it is a great relief. To speak of the "greenish material" as bile is a confounding and counfounded mistake, he said, as it is rare to find bile pigment in these cases. Extreme thirst is a striking factor; it is relieved by washing the stomach with a strong alkaline solution, made from common baking soda. He has seen patients with pyloric stenosis and enormous dilatation greatly relieved and made comfortable by the use of oil. If after four weeks of careful test meals, rest in bed, etc., the patient is not better, he should have the benefit of an operation. The care of gastric ulcer is most important, because it is the most immediate predisposing cause of cancer of the stomach. Dr. Sawyer believes in excision and that operation should be more frequent.

DR. R. B. HALL, Cincinnati, said that Dr. Crile's paper is a compilation of cold, hard facts for which the association should feel grateful. The greatest benefit to the patient in postoperative work is careful attention to the diet. Much has been done in surgery, while nothing, he said, is gained by internal treatment in cancer of the stomach. The operation should be rather encouraged. He thinks that in the future we should be able to report better results.

DR. G. W. CRILE said that it is greatly to be desired that patients be seen earlier if the improvement in results is to be reached. He emphasized the great safety in which surgery of the stomach can be done, the mortality rate not exceeding from 0.5 to 2 per cent. in simple cases, the percentage of course rising with the morbidity of the given case.

DR. M. J. LICHTY laid emphasis on the value of olive oil, patients being willing to take it as food. He called attention to the frequency of ulcers in hypoacidity, which is contrary to the text-books and most authors. The low percentage of hypochlorhydrias given is contrary to his experience.

DR. J. D. DUNHAM said he has not had the fortunate results from oil spoken of by Dr. Sawyer. Most physicians regard the introduction of the stomach tube as a formidable procedure, but it really requires little skill, and in his experience the use of a local anesthetic is not necessary, rather increasing the discomfort of the patient than otherwise.

The Pathology of Drinking Water.

DR. R. C. LONGFELLOW, Toledo, said, in part, that potable water becomes pathologic from the living bacterial content, not the organic matter, decaying or dead. Combined chemic, microscopic and bacteriologic examinations are necessary to correct interpretation as to findings. Chemical analysis may show the water to be of high grade, yet bacteriologic investigation may reveal that same water to be alive with pathologic bacteria. Again, chemical examination may give on distillation free ammonia and nitrites, which indicates sewage contamination and decaying animal matter. The source of any water supply is an important factor in investigation, as analysis and biologic examination only disclose the present condition, but can give no information as to the liability of past or future contamination. Some non-pathologic bacteria so closely resemble others of known pathology that it requires a careful search and differentiation to identify one from the other. The pathologic group found in domestic water is the intestinal group, and these were separately considered by Dr. Longfellow. He uses ox bile combined with different carbohydrates, acid reducing agents, for the detection of *B. coli communis* in suspected water. In reply to a question, he stated that he has never found a filter for domestic purposes that does not allow all bacteria to go through, because what will admit the passage of water will admit the passage of bacteria, and becomes a vile collection of the latter.

Spinal Curvature Arising from Improper Seating of School Children, and Its Prevention.

DR. WALTER G. STERN, Cleveland, said that scoliosis is usually a static deformity due to faulty position and weakened muscles. Statistics show an alarming percentage of school children with this deformity. The most cursory survey of the position of the majority of school children has convinced most workers in this field that the habitual position forced on the pupils of our schools by faulty seats and by slant writing is the greatest cause of scoliosis. It should be the function of physicians as educational advisors to determine what are the proper seats for the pupils, what is the proper position in writing, and to instruct the teacher to correct these as far as possible. Pupils should be graded and seated according to size, eyesight and hearing, not by their standing in classes. The aim should be to have a desk in which the child will naturally assume the correct position. Vertical writing in a good seat is the ideal. Banking and business interests advocate the slant writing, as it conduces to more speed and individuality.

DISCUSSION.

DR. M. FRIEDRICH, Cleveland, said that the law compels parents to send their children to school, and the parents and the children have certain inalienable rights which they can claim, and it is certainly the right of the parents and the children that they be not placed in conditions in which they may receive physical harm. Boards of health in Ohio are forced by law to supervise school hygiene, but it is hard in any city to get sufficient men to do this work. The school teachers know absolutely nothing about hygiene. They allow children to strain the eyes in reading and writing and let them take any position they want. A course of school hygiene should be incorporated in the curriculum of normal schools. In Germany there is better regulation, for they need strong men for soldiers in the army. There the schools were found to be the sources of degeneration. The need for strong men is just as important in this country, and it is high time for medical men to interfere in the matters of hygiene of children in our schools.

DR. HELD took exception to the statement that teachers know nothing about school hygiene. Twenty years ago he attended a society of teachers, and hygiene was a frequent subject of discussion. The teachers, he declared, are an intelligent body, and do a great deal to improve conditions, and are often criticised when the conditions do not bear out the accusations.

Dr. J. A. Weitz, Montpelier, thinks that this disagreement is due simply to the change in fads—the change of ideas and attention from one decade to another. When he went to school the order to "sit straight" was constantly before the pupils. Writing has fallen somewhat into disuse, the stenographer and typewriter, the telegraph and telephone have interposed. Last winter he saw the conditions spoken of by Dr. Stern. Something else has crowded this out of their minds. The pendulum swings one way and the other.

Dr. Anders said that the fault in sitting might be remedied if the chair were placed to the left and the pupil were not directly back of the desk in the middle. In country schools there are often different-sized desks, but there will often be a small desk with a high seat behind it, increasing in size to the back of the room. The desk will be suited to the pupil, but the seat be too high. It would be better to have an entire row of small desks on either side.

Dr. W. G. Stern said these things could be better regulated if physicians would take part in politics. In country schools the different grades are all in one room. In city schools it has been presupposed in furnishing that the children in the fifth grade, for example, are all of one size, and therefore the desks are one size. The best desk is that in which the desk and seat can be adjusted separately. In a room of 12 rows 8 should be of the average size, with two smaller ones on either side.

A Statistical Consideration of Six Hundred General Anesthesias.

Dr. Robert Carothers, Cincinnati, conceived the idea a year ago of keeping a statistical record of all cases in the Good Samaritan Hospital, Cincinnati. A period of ten months and 600 cases were covered in his tables, which embraced

Chloroform	71
Gas ether	103
Closed cone	168
Drop ether	259

DISCUSSION.

Dr. M. T. Metzenbaum, Cleveland, said that ether by the drop method is the anesthetic of election in America. It takes but a short time for the patient to become anesthetized, the amount consumed is less, and he frequently will awaken before leaving the operating room. The postanesthetic vomiting is less than in the cone method and frequently no greater than with chloroform. Throughout the country a specialty is developing, and the anesthetist will come to be recognized as second only to the surgeon in importance. Contrary to the usual opinion, ether can be given with great safety to children. He operates on many, frequently on those but a few days old, for orthopedic measures, and unless the weather is bad, he uses ether by the drop method, and pneumonia is not more frequent with ether than with chloroform.

Dr. Howse asked if Dr. Carothers had tried the method of administering oxygen as soon as surgical anesthesia ensues, and with what result.

Dr. Harrison said that he had found vomiting much less and recovery quicker in the use of the drop method than with the cone, while ether pneumonia is rare.

Dr. Kramer, Cincinnati, called attention to the use of amyl nitrite in cases of cardiac paralysis or shock. Animal experimentation shows that when ether is drawn into the circulation death is always by cardiac failure, but by the use of amyl nitrite a dose often lethal to the animal proves not to be so. It has been said that it acts in the same way as ether in lessening the blood pressure, and for that reason it has been cast aside, but it is of benefit, Dr. Kramer asserted, in cases of ether heart poisoning.

Dr. J. J. Reynolds, Defiance, said that the use of the stomach tube at the close of an operation seems to do away with the postoperative vomiting.

(*To be continued.*)

MEDICAL SOCIETY OF THE MISSOURI VALLEY.

Annual Meeting, held in Council Bluffs, Iowa, Sept. 5-6, 1907.

The officers elected were given last week, page 950.

The society adopted a resolution endorsing the proposed reorganization of the medical department of the United States Army, and another advocating the establishment of a department of health under the direction of a medical man, a member of the President's cabinet.

Alkaloids vs. Galenical Preparations.

Dr. A. L. Muirhead, Omaha, said that while pure alkaloids or other active principles are necessary for the correct pharmacologic study of drugs, it does not necessarily follow that they are always the most useful form for obtaining therapeutic results, and to hold that active principles separated from their natural plant combinations are always preferable to galenical preparations, does not harmonize with pharmacologic facts. Dr. Muirhead claimed that some of the so-called active principles on the market are not definite chemical substances, but varying mixtures of a number of bodies, in reality, purified solid extracts, and that even when definite, stable active principles are obtainable, they are not always the most useful therapeutic agents.

Diagnosis of Presentation and Position in Obstetrics.

Dr. C. W. Pollard, Omaha, claimed that general practitioners pay too little attention to careful diagnosis of the position of the child either in the preliminary examination or in the examination made just prior to delivery.

Orthopedic Surgery in General Practice.

Dr. J. W. Cokenower, Des Moines, Iowa, discussed deformities in general, and especially those that shorten life and destroy the natural contour of the body. He claimed that all deformities of the spine can be relieved, if treatment is begun early, and that in the treatment of these deformities the medicinal and mechanical treatment should be augmented by hygiene, exercise, gymnastics and all other properly guarded means of developing the body and improving the general health.

Are We of Necessity Largely Symptomatologists?

Dr. C. B. Hardin, Kansas City, Mo., plead for more care in diagnosticating disease so that the treatment may be based on a full comprehension of the disease to be treated.

General Pruritus.

Dr. A. Schalek, Omaha, discussed the clinical history and treatment of this affection, which he said is never a trivial one, because it threatens to affect the patient's general health of mind and body, and as much care and study are required in its treatment as in the treatment of other apparently more serious diseases.

Sane Type of Insanity.

Dr. S. G. Burnett, Kansas City, Mo., called attention to that large class of cases in which the patient is first seen by the general practitioner, but because of the patient's clearness of mind and the accuracy of statements made, the diagnosis is frequently unsuspected and not made until much valuable time has been lost before the patient is placed under treatment.

Habitual Constipation.

Dr. J. C. Waterman, Council Bluffs, Iowa, described the treatment of habitual constipation in general, being that usually adopted in such cases. He urged that the cause of the constipation be sought for before treatment is begun, because in too many cases a routine treatment is employed and proves ineffectual when with proper attention a speedy cure might be effected.

Other Papers Read.

Many other interesting papers were read. Among these were the following: "Educational Hygiene," by Dr. S. R. Towne, Omaha; "Tonsillectomy vs. Tonsillotomy," by Dr. D. C. Hilton, Lincoln, Neb.; "When to Operate in Prostatic Hypertrophy," by Dr. Stokes; "Psychotherapy," by R. J. Midgeley, Omaha; "Heart Block," by Dr. A. D. Dunn, Omaha.

Medicolegal

Presumptions and Reasonable Requirements as to "Patent Medicines."

The United States Circuit Court in Rhode Island says, in Moxie Nerve Food Company of New England vs. Modox Company, that, in a former case it was queried whether it would not be reasonable for a court of equity to hold that a complainant seeking to protect his proprietary rights as the owner of a "patent medicine" should produce legal evidence that it is in fact what it purports to be. On a further consideration of this point, the court is of the opinion that the complainant, according to the ordinary principles of equity pleading and procedure, should be required, as a part of its affirmative case, to show that its preparation is what it purports to be.

If a complainant seeks protection in the sale of bottled goods, he should be willing to swear that his bottles contain what he represents to the public that they contain, and that his goods are in fact what they are sold for.

If a complainant in a bill of equity should allege, "I am selling to the public under a certain trade-mark an article which I represent to the public as fig syrup," such a bill, in the court's opinion, should be demurrable on the ground that the complainant has no right to protection in a mere business of making representations to the public, but only a bona fide business of selling an article for what it is in fact.

A court of equity should not extend protection to a business of selling medicine for paralysis or other serious diseases simply on proof that the preparation is a harmless beverage with some slight tonic properties. If the court should act on the presumption that the liquid in question is a preparation "from a simple sugar cane-like plant grown near the equator," of remarkable value as a food for the nervous system, and as a cure for paralysis and other serious diseases, it would, in the court's opinion, depart from the ordinary rules which require allegation and proof.

Courts of equity have frequently extended to the proprietors of "patent medicines" and like preparations privileges not extended to other litigants. They have assumed the truth of incredible or doubtful statements made by "patent medicine" vendors, without requiring them to make allegations to the court substantially similar to those made to the public, and have protected businesses which were neither presumptively nor in fact entitled to protection. Instances may be found where a complainant has received protection from a court of equity while making most incredible and preposterous statements to the public as the basis of his business.

Is there any reason why a court of equity should act on the presumption that a "patent medicine" vendor, or the vendor of a preparation offered to the public with statements as to wonderful ingredients and marvelous curative properties, states the truth on his bottles and labels? Eminent jurists have acted on the contrary presumption. In Williams vs. Williams, 3 Merivale, 157, 15 Jurist, 794, Lord Eldon said: "On general principles, I do not think the court ought to struggle to protect this sort of secrets in medicine." Other cases to the same general effect are referred to in the opinion in Worden vs. California Fig Syrup Co., 187 U. S. 527.

While this may be an extreme position, it is no more extreme than the cynical view that, despite extravagant and apparently unfounded statements, "patent medicines" should prima facie be regarded as properly entitled to protection.

Of the truth or untruth of certain representations or statements a court may take judicial notice. The ordinary rules as to judicial notice undoubtedly could be properly applied to preparations whose statements were on their face too preposterous or incredible. In many cases, however, the truth or untruth of representations can not be determined on the principles of judicial notice. A court should not, of course, take judicial notice that all "patent medicines" or secret preparations are fraudulent and lack merit, and refuse relief on this ground. It by no means follows, however, that it is required to presume that representations to the public are prima facie true. Ordinarily, those things of which a court does not take judicial notice must be proved.

To apply the rule that a complainant must allege fairly and fully what his business is, and produce proof substantially supporting his allegations, should not require of the complainant the allegation and proof of the minute particulars of his business; but it should, the court thinks, require a complainant who asserts that he has an article which is good as a beverage, and is also good as a cure or medicine because of certain ingredients, to make proof substantially to the extent of his general representations to the public.

The proprietor of a secret preparation may justly claim protection of a trade secret; but to the extent of his representations to the public secrecy is waived; and there is no hardship in requiring a complainant who has stated certain things to the public as truths in order to promote the sale of his goods to state the same things as truths to the court, and prove them as truths, in order to secure equitable relief. The right to preserve a trade secret does not carry with it a general right to have one's bare word or unsworn statement accepted in a court of equity, or excuse a failure to prove the truth of what is published to the public. To the extent that a manufacturer of goods chooses to reveal their character and composition to the public—to that extent he waives the right of secrecy in a court of equity.

If it is not incumbent on a complainant to prove something more than that he is representing his goods to the public in a certain way under a certain trade-mark, a court of equity, by ingeniously assuming the truth of what vendors tell the public about their goods, particularly goods of the "patent medicine" class, will indulge in a presumption not entertained by ordinary persons of intelligence, and which is contrary to that public experience which has resulted in the enactment by Congress of laws for the protection of the public against unscrupulous statements in relation to a very large number of articles in whose preparation there is an opportunity for adulteration, substitution or secret fraud.

The representation on the label of a package is a material part of the vendor's business, and no undue hardship or inconvenience will result to an honest vendor if he is required to prove the truth of his label as he is required to prove the truth of any other material fact. This rule may prove exceedingly embarrassing to many vendors of "patent medicines," but only to those who are guilty of misrepresentation and deceit. It need not prove embarrassing to one who wishes to keep a trade secret, for he need only forbear publishing what he does not care to prove.

Again, the court says that the defendant's evidence established affirmatively a very strong probability that the statement that Moxie is a preparation of a plant corresponding to the complainant's description of it is pure fiction, and that it contains no nerve food or curative agent other than a small amount of bitters, such as gentian or cinchona. The possibility that there are other ingredients which have escaped chemical analysis, and that there may be an ingredient which in any respect conforms to the descriptions of its origin and nature, is altogether too remote for consideration in the practical administration of equity.

A dealer in bottled goods who is unwilling to swear to the truth of the representations made to the public, or to swear that the bottles contain what the labels say they contain, and who has it in his power to produce convincing proof if his representations are true, can not expect a court of equity to come to his aid with artificial presumptions in his favor.

Harboring Pregnant Woman.

The United States Circuit Court, in Rhode Island, says that the case of Parkes vs. Seasongood was brought by a keeper of a summer hotel to recover damages caused by a nurse for the defendant's wife giving birth to a stillborn, illegitimate child in the room occupied by the defendant's wife and such nurse, etc. But, the court says, no authority was presented to show that, in permitting the use of a room for the delivery of a child, the defendant was guilty of violation of duty to the plaintiff. The delivery of a child in itself, whether it be legitimate or illegitimate in its parentage, is not an unlawful act; and such scandal as may have resulted from the delivery could hardly be attributable to the delivery itself. Nor was any authority produced which in any degree tended to show that the defendant was liable for harboring a pregnant woman in apartments hired by him. While it is not improbable that an occurrence of this kind may have been regarded by guests as a sufficient cause for leaving the hotel, and while it may have deterred persons from going to the hotel, yet it can not be said that this was such a proximate result of the delivery of an illegitimate child that the defendant was under any obligation to guard against such scandal. The allegations that the defendant knowingly allowed the body to be hidden and to create odors presented a case of nuisance for which the defendant might be responsible if he knowingly suffered it to continue in rooms hired by him and under his control. But if the defendant were merely passive in suffering a person to conceal the body outside of the rooms under his control, it is doubtful if he would be guilty of an actionable wrong in neglecting the requirement of ordinary decency to inform the plaintiff. Furthermore, the court holds that, while it was alleged that the trained nurse was a servant of the defendant to take care of and wait on his wife, ordinarily a trained nurse, performing her usual duties with the skill which is the result of training in that profession, does not come within the definition of a servant, but rather is one who renders personal service to an employer in the pursuit of an independent calling. Any liability of the defendant in this case could not rest on the responsibility of a master for the acts of a servant.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

September 7.

1 *Attitude of Public Health Authorities Regarding Preservation of Milk by Heat. R. W. Raudnitz, Prague, Austria.
2 *Tuberculin and Other Tubercle Bacillus Products in Pulmonary Tuberculosis. K. von Ruck, Asheville, N. C.
3. Congenital Occlusion of Choanæ. J. E. Mackenty, New York.
4 *Misuse of the Voice and Its Cure. N. J. P. van Baggen, The Hague, Holland.
5 Impaction of Feces. L. H. Adler, Jr., Philadelphia.
6 Instruction to Those Having Syphilis. V. C. Pedersen, New York.
7 *Determination of Sex. A. H. Jackson, Los Angeles, Cal.
8 Phthisis Tent for Outdoor Life. N. B. Jenkins, New York.

1. **Preservation of Milk by Heat.**—Raudnitz considers that by heating milk the beneficent bacteria are destroyed, while noxious bacteria may be preserved, to proliferate later; and, moreover, that chemical changes of an undesirable character are produced in milk by heat. Commercially pasteurized milk should be prohibited by boards of health, he asserts, unless the process is under uninterrupted control.

2. **Sixteen Years' Experience with Tuberculin.**—Von Ruck tabulates the entire clinical material of himself and over 100 other physicians, making a total of 4,076 cases in all, with the following showing on discharge of the patients: Apparently cured, 2,002, or 49.1 per cent.; disease arrested, greatly improved or improved, 1,357, or 33.3 per cent.; failures, 717, or 17.6 per cent. For many years von Ruck has observed nothing of an adverse influence in tuberculin and has had no occasion to regret the administration of even a single dose, although these results were obtained long before the introduction of Wright's opsonic index, which is, nevertheless, an important introduction for the elucidation and improvement of the practical side of the subject.

4. **Misuse of the Voice.**—Van Baggen describes the method that has been used now for 20 years in Holland, of teaching speakers and singers to use the voice properly. It is possible, however, to explain only a part of the detail, for the teacher relies for a great part, even often entirely, on the ear, to distinguish faulty voice production. The method is especially serviceable in various morbid conditions, adenoids, enlarged tonsils, and paralysis of the vocal cords. Diaphragmatic breathing is the first point of importance. Then the patient has to learn to combine inhaling and exhaling through the nostrils with the preceding, and finally, the direction of the breath, not against the soft palate, but against the front of the mouth, has to be mastered.

7. **Determination of Sex.**—Jackson's view is that the ovum contains both male and female elements, which separate in it before fertilization. Therefore, the spermatozoon can not be the factor that causes division. Inasmuch as the mother's known will as to the sex of her future offspring can not be gratified, he thinks her nervous influence is excluded. He suggests that the struggle for existence possibly begins in the individual cell, the weaker of the polar bodies falling before the stronger.

Boston Medical and Surgical Journal.

September 5.

9 *General Considerations Regarding Tumors. W. T. Councilman, Boston.
10 *Stenosis of Pylorus in Infancy. C. L. Scudder, Boston.
11 *Lead Poisoning in a Rural Community. W. N. Cowles, Ayer, Mass.

9. **Tumors.**—Councilman says that the subject of tumors is of perennial interest for the clinician, the pathologist, the embryologist and the medical statistician. He describes the tumor as (a) a new formation of tissue, which (b) is without function, and (c) has the power of independent and unlimited growth. He discusses each of these points in detail. With regard to the causation of tumors, he discusses the three principal theories of their origin: 1, The traumatic theory; 2, the parasitic theory, attributing tumors to (a) bacterial, (b) blastomycetic, (c) protozoal, and (d) spirochetal parasites; 3, the embryonic or germinal theory. With regard to these theories, he says of the first that it must be remembered that tumors of various sorts are rather common pathologic conditions; that traumas are also common, and that combinations of the two incidents might be frequent and striking. The theory lacks all experimental confirmation, and, as it stands at present, has much the same footing as the theory of maternal impressions as a cause of malformations. In both, there are many striking coincidences. With regard to the second theory no specific bacterium has been detected, such bacteria as have been cultivated from tumor tissue having been ordinarily common invading wound bacteria. With regard to the blastomycetes, although their injection in animals to which they are infectious results in the formation of nodules, analogous to tubercle formations, histologic examination demonstrates that the nodule is composed of actively multiplying organisms and cells coming from the tissue. Nothing approaching a protozoal cycle has been made out, and the inclusions are best explained as cell and nuclear degeneration, or products resulting from inclusion of other cells, or products of cell secretion. The occasional appearance of spirochetes is explainable, he states, in the same manner as the occasional presence of bacteria. The argument in favor of a parasitic origin, based on the evidence that the tumors of certain animals are inoculable, would apply only to tumors of the carcinoma type, whereas all kinds of tumors have so much in common that any general cause must be applicable to all. Yet a parasitic causation would imply a different cause for every tumor, for our knowledge of infectious diseases forbids us to believe that the same parasite can produce in different cases respectively a carcinoma, a fibroma and a teratoma. In short, every theoretical consideration is against the theory and not one proven fact has been shown as a substantiation of it. The embryonic theory holds its ground better than either the traumatic or the infectious one. This theory brings tumors into close accord with malformations, in thus referring them to an embryonic condition. It accords best with what is known of these growths, and Councilman knows of nothing incompatible with it. He refers to the subject of separations of tissue and the development of tumor therein, e. g., fully developed adrenal tissue in the kidney. Many examples might be cited as evidence that tumors frequently originate in such misplaced tissues, but the theory does not explain the growth, why these misplaced tissues develop into tumors, why the development is associated with certain periods of life, why it is not possible to produce tumors by the artificial inclusion of embryonic tissue, why the inoculation of tumors succeeds only in certain animals There must be added another hypothesis to this one:

that at a certain period these germinal remains gain a power that enables unrestricted growth to take place, or, what amounts to the same thing, the other tissues lose their power of restraining and regulating growth.

10. **Stenosis of Pylorus in Infancy.**—Stenosis of pylorus in babies presents a unique pathology—benign in anatomic character, malignant in fatality. In complete or even partial obstruction, if the child is not doing well, but is losing weight, operation is indicated. The operation of choice, Scudder states, is a posterior gastroenterostomy, done with clamp and suture. There exist cases, however, simulating pyloric stenosis with tumor, in which improvement and apparent recovery occur under stomach-rest, lavage with weak alkalies, warm abdominal poultices, nasal tube feeding, opium 1/80 grain before feeding, atropin, alkalies, experimentation with food changes, and rectal feeding. Scudder reports five cases, in the last three of which posterior gastroenterostomy was done, each child being now well and robust. In one case the operation was performed at the age of fourteen days. He describes the method of operation at length.

11. **Lead Poisoning.**—Cowles describes eighteen cases illustrating the many forms in which lead poisoning makes its appearance and the various kinds of damage done by it. Acute cases are few; chronic, painful and disabling affections and arteriosclerosis are in the majority. The use of lead pipe for carrying water is condemned.

New York Medical Journal.

September 7.

12 *Medicolegal Aspects of Imbecility. L. P. Clark, New York.
13 School Training of Backward Children. C. E. Atwood, New York.
14 *Normal Ovariotomy, Female Circumcision, Clitoridectomy and Infibulation. J. Knott, Dublin.
15 *Prevention of Deafness. W. Scheppegrell, New Orleans, La.
16 *Neurasthenic Neuralgias. F. K. Hallock, Cromwell, Conn.
17 First Five Years of the Graduate. W. G. Elmer, Philadelphia.
18 Police Methods for Sanitary Control of Prostitution. (Concluded.) F. Bierhoff, New York.

12. **Imbecility.**—Clark says that the difference between the medical and legal definitions adds artificial to inherent difficulties in regard to imbecility as well as to insanity. In law, imbecility implies not only arrested development, but the breaking down of intellect. Imbecility differs from lunacy in that it has neither delusions nor lucid intervals. The legal test is the inability to transact ordinary affairs of life, to understand their nature and effect, and to exercise will in relation to them. There is no general or single test for imbecility in law, the circumstances and capacity vary within extreme limits and each case must be judged on its merits. From a sociologic point of view the medicolegal distinction between idiocy and imbecility lies in the fact that the imbecile is more dangerous to society than the idiot, the latter being incapable of voluntary attention or of forming any idea of injury to his fellow, while many imbeciles are unreliable, mischievous and indolent. "On this basis, one may say that the idiot is extra-social, while the imbecile is anti-social." A legal condition of imbecility once established, the individual's status is clear. He can execute no contract or conveyance and is under the legal restrictions of a minor. An epileptic under a condition of continued epilepsy, however, is not subject to the same disability, because the law regards his condition only at the time of his fit. The author comments on the impropriety of allowing imbeciles to vote on public questions, and on the curious fact that the law demands less mental power for the execution of a will than for the making of a contract; the extension to the criminal code, of the just position of the civil code regarding limited responsibility, the marriage of imbeciles and epileptics, etc., and considers what may be expected through the establishment of the juvenile courts in regard to the outlook for feeble-minded children.

14. **Normal Ovariotomy.**—Knott presents an interesting historic and archeologic article.

15. **Deafness.**—Scheppegrell considers particularly deafness as applied to the partial inability to distinguish sound, which is the most frequent form. It is more frequent, probably, than is supposed, for there are no legal statistics, such as those of deaf mutism; but an examination of 11.855 cases of diseases of the nose, throat and ear showed 2.284 individuals (about 20 per cent.) with defective hearing. In children, dulness and inattention are often charged when a slight defect of hearing is at fault; inasmuch as by the effort of listening, the normal power of hearing is increased when the child's attention is attracted, he seems to hear perfectly and, consequently, the real disability passes unnoticed. The author next considers the usual sources of early acquired deafness—pathologic conditions in the nose and throat, injuries in the auricular canal, particularly infection conveyed by persons putting hairpins, toothpicks, etc., in the ear, suppurative inflammation of the ear, nasal obstruction, and one of the most insidious yet most prevalent forms, non-suppurative inflammation of the middle ear. In this form the Eustachian obstruction is frequently so slight as not to warn the patient. The author takes occasion to urge a systematic testing of the hearing of school children, so that defective hearing may be discovered and remedied while there is time, instead of the child being branded as dull and inattentive.

16. **Neurasthenic Neuralgias.**—Abstracted in The Journal, June 29, 1907, page 2203.

Lancet-Clinic, Cincinnati.

September 7.

19 *Fatal Case of Cryptogenic Staphylococcus Bacteriemia. C. R. Holmes, Cincinnati.
20 Professional Secrecy—Venereal Disease. E. S. McKee, Cincinnati.
21 *Extirpation of Transitional Fold in Cases of Trachoma. J. S. Wyler, Cincinnati.

19. **Cryptogenic Staphylococcus Bacteriemia.**—Not only the rarity of this condition, but many notable features in the case, led Holmes to report it. A physician's daughter, 9½ years old, after apparent recovery from an attack of diphtheria, developed mouth breathing, which led to a diagnosis of adenoids and hypertrophied middle turbinate. Profuse discharge set in, and patches appeared on the soft palate. Thinking it a recurrence of the diphtheria, the child was given 4.000 units of antitoxin. Instead of improving she became profoundly ill, with temperature 103.6 F., pulse 140, respiration 74. The tongue was badly coated, breath was offensive, constipation and tympanites were present, and the nasal discharge disappeared. There was no headache or tenderness over any sinus. Pending cultures, another dose of 4,000 units of antitoxin was administered. Cultures showed a pure growth of staphylococcus. From this time on a condition partly resembling typhoid, partly profound sepsis, set in, but the Widal test was negative, as was a second test on the third day, while cultures from the patches were of almost pure staphylococcus. With the resumption of the nasal discharge, on the third day, there was a temporary improvement, but the condition continued to make progress on the fourth day, and on the fifth the blood examination showed staphylococcus infection. Endocarditis developed. On the sixth day a lobar pneumonia appeared, and from that day until death, on the eighth day, the clinical picture was that of pneumonia and a damaged heart with progressive exhaustion. The patient's father is inclined to attribute this condition to an infected diphtheria antitoxin, carrying a pure staphylococcus culture. The author then refers to previously reported cases of staphylococcus infection by Libman (The Journal, May 2, 1903, page 1260), Manton (The Journal, Oct. 31, 1903), and others. The fatality of the disease is very great, and there is little promise in the treatment. Antistreptococcus serum has frequently been used ineffectively. One case cited enforces the lesson of supporting treatment. Every focus accessible to surgical measures should be extirpated as soon as possible, and every abscess that can be reached by knife or aspirator should be opened and washed out. The treatment can be only symptomatic until some effective serum can be produced. An excellent bibliography closes the article.

21. **Trachoma.**—Wyler describes the operation for extirpation of the transitional fold in cases of trachoma and considers the ideal period for surgical intervention to be when the sharp demarcation line limits the granules of the transitional folds from the healthy bulbar conjunctiva. The operation may be performed on all four lids at the same sitting. The after-

treatment is described. The author closes with the remark that in cases of pannus, both trachomatous and eczematous, he has seen most praiseworthy results obtained from the use of a 20 per cent. very carefully prepared ointment of the yellow oxid of mercury.

American Journal of Medical Sciences, Philadelphia.

September.

22 *Dispensary Ideals. S. S. Goldwater, New York.
23 *Benign Stenosis of Pylorus. S. W. Lambert and N. B. Foster, New York.
24 *Heart Clot in Pneumonia. B. Robinson, New York.
25 Interpretation of Roentgen Ray Pictures as an Aid to the Early Diagnosis of Thoracic Aneurism. H. Sewall and S. B. Childs, Denver.
26 *Relative Value of High and of Low Altitude in Treatment of Tuberculosis. F. M. Pottenger, Los Angeles.
27 *Relations Between Diabetes and Pregnancy. A. A. Eshner, Philadelphia.
28 Hyperthyroidism. A. R. Elliott, Chicago.
29 Pyelonephrosis of Supernumerary Kidney. J. C. Munro and S. W. Goddard, Boston.
30 *Tendon Transplantation and Nerve Anastomosis. F. H. Richards, Philadelphia.
31 Pleural Pressure After Death from Tuberculosis. W. B. Stanton, Philadelphia.
32 Study of Normal Living Anatomy in Early Life. T. M. Rotch and A. W. George, Boston.
33 Use of Ammonium Oxalate in Blood-Culture Technic. A. A. Epstein, New York.

22. **Dispensary Ideals.**—Goldwater suggests measures for the reform of the dispensary system in New York and elsewhere, with a view to obviating the principal defects of the modern dispensary system, which are: 1, Abuse of the system by persons not entitled to charitable relief; 2, ineffective work due to overcrowding; 3, the inefficiency of mere hasty prescribing in the vast majority of non-surgical patients, who require hygienic and other supervision, and the extension of supervision to the home. Goldwater's plan is as follows: 1. Limited dispensary licenses, in the place of unlimited licenses, that is, limitation of the work of each dispensary to a suitable number of patients, to be residents of an assigned district. 2. Registration of all families claiming dispensary relief, and the refusal of relief (except in emergency cases) to all families not regularly registered and known; thus applying to dispensary work the methods, and perhaps, also, the machinery, of the Charity Organization Society and of other philanthropic associations, and, while extending the scope and aim of the dispensary, at the same time restricting the aid given to those absolutely in need of it. 3. A system of home visiting, aiming at the effective treatment of functional and other disorders depending on environment. 4. The use of the power of the state to prevent the embarrassment of existing dispensaries. 5. Periodical readjustment of district lines to allow for the shifting of population and for the enlargement of facilities of established dispensaries. On account of the varied character of established dispensaries, assigned dispensary districts at the outset will necessarily overlap; thus special dispensaries like those now devoted to orthopedic or to eye and ear work, with relatively extensive facilities of a certain kind, would be permitted to accept patients from districts greater than those assigned to large general dispensaries in the same locality having only limited facilities for the class of work carried on in the more highly specialized institutions. This subject is also considered editorially in this issue of The Journal.

23. **Benign Stenosis of Pylorus.**—Lambert and Foster find the most brilliant application for gastric surgery in benign stenosis of the pylorus, and insist that surgical intervention should not be kept for a last resort, but should be used before such irrecoverable dilatation has ensued that the mucous membrane is powerless to return to normal function. They further emphasize the importance of postoperative treatment to overcome the muscular atony of the stomach wall, to control the hypersecretion of hydrochloric acid, or to excite the mucous membrane to resume its normal secretory function.

24. **Heart Clot in Pneumonia.**—Robinson concludes as follows: 1. Heart clot as an immediate cause of death in pneumonia is more frequent than postmortem investigations, as now made, apparently sustain. 2. Clinical experience seems to justify the statement that the carbonate of ammonium has probably considerable efficacy, when properly given, in preventing heart clot.

26. **Altitude in Tuberculosis.**—Pottenger is led to the conclusion that tuberculosis is a disease that is best treated at low elevations.

27. **Diabetes in Pregnancy.**—Eshner concludes his researches into the relations between diabetes and pregnancy with the following summary: There is evidence to show that the power of assimilating carbohydrates is diminished in conjunction with pregnancy, and this deficiency may be manifested by the presence of sugar in the urine. Transitory glycosuria toward the end of pregnancy or during the puerperium may be considered physiologic and related to the activity of the mammary glands in the secretion of milk; it is, therefore, a resorption phenomenon. Diabetes is an uncommon complication of pregnancy, partly because the disease is, in general, less common in women than in men, but principally because diabetes occurs, as a rule, at a later period of life than that at which pregnancy usually takes place. Occasionally diabetes has been noted in two or more successive pregnancies. Pregnancy occurs even more rarely in diabetic women, partly because, in addition to the reasons already given, of the depraved condition of the diabetic patient and of the disordered function and structure of the internal generative organs. The complication of the one condition with the other usually increases the gravity of both. Often the fetus dies *in utero*, and miscarriage or premature labor takes place, or the child may die during birth or shortly afterward. The child also may be diabetic. The liquor amnii has been found increased, and in some instances also to contain sugar. The mother often dies of the disease, some time during pregnancy or childbirth, or shortly afterward. Accordingly, a diabetic woman should not marry, or if married, she should not become pregnant. In the event of a diabetic woman becoming pregnant, or of a pregnant woman becoming diabetic, pregnancy need not be interrupted artificially unless some special indication arises. If the woman is safely delivered, she should not nurse her child.

30. **Tendon Transplantation and Nerve Anastomosis.**—Richards states that tendon transplantation is not a cure-all in orthopedic surgery; much of its success depends on after-treatment. The limb should be mobilized and left in a plaster cast for from four to six weeks, and should be enclosed in splints for six months subsequently, during which time massage, electricity, gymnastic exercises and baths should be made use of. The longer and more careful the after-treatment, the better the results. It is the combination of procedures taken in connection with transplantation that gives the best result.

This author states that nerve anastomosis, when successful, will have decided advantages over tendon transplantation, since it restores the functions of the paralyzed muscle, and leaves all other muscles intact, instead of entirely throwing out of action diseased muscles and using others to perform a function which heretofore they have not been called on to do. The future of the operation is speculative, but results already obtained lead to the hope of gratifying success, particularly in the treatment of anterior poliomyelitis.

Texas State Journal of Medicine, Fort Worth.

August.

34 *Federal Meat Inspection and Its Limitations. A. H. Wallace, Fort Worth.
35 Summary of Medicolegal Questions Arising In Case of Albert T. Patrick. J. S. Turner, Fort Worth.
36 Treatment of Crushed, Lacerated and Infected Wounds. R. W. Knox, Houston.
37 Case of Parinaud's Conjunctivitis. R. E. Moss, San Antonio.
38 Sympathetic Ophthalmia. E. L. Burton, McKinney.

34. **Meat Inspection.**—Wallace says that the preponderating proportion of condemnations for tuberculosis calls attention to the increasing importance of this disease from the standpoint of meat and milk inspection, and emphasizes the need of the most careful supervision of the sources of supply of these foods. The old theory of the inhalation of dried tuberculous matter as the most important, if not practically the only, source of infection, is gradually giving way to the more modern idea that ingestion plays a leading part, and that in most cases infection arises from food containing tubercle bacilli either from its origin or from being contaminated by tuberculous subjects during the course of preparation. The discovery

that the feces are the principal means of spreading infection in the case of bovine tuberculosis, and the constant resulting contamination of the milk in all dairies where the disease is present, also emphasizes the need for efficient inspection of dairy cattle.

New York State Journal of Medicine, Brooklyn.

August.

39 *The Irritable Non-Inflammatory Appendix. J. F. Black, White Plains.
40 Routine Examination of Urine for Indican. J. D. Olin, Watertown.
41 *Status and Disposition of the Criminal Lunatic. R. B. Lamb, Matteawan.
42 *Surgery of Foreign Bodies in Respiratory Tract. W. G. Macdonald, Albany.
43 Foreign Bodies in the Uterus. B. S. Talmey, New York.
44 Cyst of the Mesentery. E. A. Vander Veer, Albany.
45 History of the Medical Society of the State of New York. (Continued.) J. J. Walsh, New York.

39. **Irritable Non-Inflammatory Appendix.**—Black considers at length that form of irritable appendix, without past or present inflammatory influences, which has no direct relation to appendicitis, and is often a purely mechanical condition, yet which gives rise to continuous symptoms that may undermine the patient's health and warrant surgical intervention. The causation is threefold: 1. Mechanical abnormalities of the appendix or its mesentery, or involving the organ as a whole. 2. Hyperplasia of lymphoid tissue. 3. Changes in nerve supply. Black describes 10 types: 1, Residuary concretions; 2, appendicular colic types; 3, foreign body type; 4, angulation type; 5, incarcerated type; 6, adenoid type; 7, involution type; 8, passive hyperemic type; 9, interstitial neuritis type; 10, combination type; describes their clinical features, differential diagnosis and treatment, which is removal. He recommends in these cases the following incisions: A transverse incision, starting half an inch to the right of the rectus, on a line drawn between the superior iliac spines, and continued toward the right one an inch or more as required. The incision includes all tissues down to the external oblique. He claims the following advantages for this incision: 1. The fibers of the internal oblique and transversalis muscles can be separated with greater ease, both from a manual and a visual standpoint, the skin opening being almost in the same direction as the opening to be made in these muscles. 2. As the incision crosses the external oblique at almost right angles, it makes a slightly stronger abdominal wall. 3. In cases of abscesses forming in the skin the chances of infecting the external oblique incision are greatly lessened, as the two incisions only come in contact at one point. 4. This incision is probably more directly over the base of the appendix than any other.

41 and 42.—Abstracted in The Journal, March 2, 1907, page 823.

Chicago Medical Recorder.

August.

46 Case of Suppurative Wounds Following Abdominal Section. T. J. Watkins, Chicago.
47 *Relation of Teaching of Clinical Obstetrics to Problem of Medical Charities. C. S. Bacon, Chicago.
48 Infant Feedings with Special Reference to the Use of Citrate of Soda. J. W. Van Derslice, Chicago.
49 Method for Functional Examination of Ear, as Used in the Politzer Clinic, Vienna. H. Kahn, Chicago.
50 *Tuberculosis in Children. C. W. Bridge, Elgin, Ill.
51 Surgical Cases. C. O. Young, Chicago.

47. **Clinical Teaching of Obstetrics.**—Bacon says that it is coming to be recognized that there is a pauperizing tendency in the bestowal of medical aid without requiring any equivalent. If patients in emergency cases, like surgical accidents, were the only ones thus helped, the temptation would not be so great, but when a pregnant woman learns that she can be confined free in a hospital and have the best of professional care and skill, she will make no effort to accumulate means to pay properly for the services of a private physician. Bacon urges, therefore, that wherever possible all medical aid should be given in teaching clinics, as by acting as material for clinical teaching the patient renders a return service for the services freely granted her. In regard to the idea that in obstetrical institutions, where alone this principle of teaching clinics is commonly forbidden, such teaching would offend the sense of modesty of the patient, Bacon points out that the sentiment of the community depends largely on the way in which patients are educated by physicians. Not so long ago "catheterizing under the sheet" was insisted on, and Bacon asks whether American women of the better classes are less womanly or civilized nowadays because they appreciate the importance of disinfection and inspection of the process of labor. Such knowledge must be extended to the poorer women. A competent and responsible teacher, limitation of the number of students, and an adequate supply of cases would be necessary for successful obstetrical clinical teaching. As the result of a consideration of the standard required by the Association of American Medical Colleges, Bacon suggests that the obstetrical clinic should have at least 100 hours, or five hours a day for twenty days. One labor a day, with daily visits to the puerperæ and the babies, would insure the profitable use of this time by the student, whose time should be divided between the maternity hospital and the out-patient dispensary. Six students should constitute a class, subdivided into three squads of two each; one squad in dispensary work while the other two are on hospital service. Seven classes could thus work each year, providing for 102 students, which would require 365 dispensary cases, and the same number of hospital cases. The benefits of such a plan would be not only to the patient and the children, but particularly to the community, in the reduction of puerperal infection and other accidents of pregnancy and the puerperium.

50. **Tuberculosis in Children.**—Bridge summarizes his paper practically as follows: 1. If possible, children should be well born. 2. Equally important it is that they be removed from tuberculous parents, nurses or relatives. 3. Next in importance is a sanitary dwelling, with abundant air and sunshine. 4. Sufficient nutritious food by day and sound sleep by night are essentials. 5. In milk, the principal food of infancy, there lurks danger; but not so great for tuberculosis as some enthusiasts would have us believe. 6. Infection through the respiratory system constitutes, as it always has, the greatest danger. 7. Tuberculosis of children is very prevalent, and extremely dangerous to life. 8. It often runs a rapidly fatal course; and the generalized forms of the disease are relatively more frequent than in adults. 9. It is impossible to overestimate the importance of the lymphatic system; and that a glandular focus is the starting point of acute generalized processes in the majority of cases. 10. Many cases of tuberculosis in children are extremely difficult of recognition, specific reaction apart. 11. In estimating the relative importance of etiologic factors, the danger is not in overestimating the predisposition so much as in underestimating the dangers of infection.

American Practitioner and News, Louisville.

August.

52 Cholelithiasis. H. A. Davidson, Louisville, Ky.
53 Tuberculosis of the Bladder. J. M. Sleicher, Seattle, Wash.
54 Serum Treatment of Exophthalmic Goiter. H. C. B. Alexander, Chicago.

The Postgraduate, New York.

August.

55 Pathology of the Conjunctiva. H. T. Brooks and E. L. Oatman, New York.
56 Etiology, Pathology and Treatment of Pneumonia. W. H. Porter, New York.
57 *Massage of Inferior Turbinates in Atrophic Rhinitis. W. A. Weightman, New York.
58 Congenital Stenosis of the Pylorus. H. B. Sheffield, New York.
59 Eclampsia with Unusual Features. W. H. W. Knipe, New York.

57. **Massage of Inferior Turbinates.**—Weightman reports four cases in which he resorted to massage of the inferior turbinates in atrophic rhinitis. The patients were instructed to keep their nostrils clear of crusts by the free use of diluted Dobell's solution, at least three times a day, and to remain in the house for at least half an hour after using it. The inferior turbinates were massaged twice a week by gentle stroking with an applicator carrying a pledget of cotton soaked in the solution. Considerable improvement resulted in a month. The mucous membrane became more nearly normal in appearance, the dryness disappeared, and there was considerable return of the power of smell. In treating these cases, the administration of small doses of potassium iodid seems to aid materially by increasing the nasal and pharyngeal mucus.

Indiana Medical Journal, Indianapolis.

August.

60 Use and Abuse of Obstetric Forceps. G. T. McCoy, Columbus.
61 A Year's Clinical Experience at French Lick Springs. G. D. Kahlo, French Lick Springs.
62 Hypertrophied Prostate. F. R. Charlton, Indianapolis.
63 Infantile Hypertrophic Stenosis of the Pylorus. O. N. Torian, Indianapolis.
64 Calorimetric Principle in Infants. G. B. Jackson, Indianapolis.

Buffalo Medical Journal.

August.

65 How Often Are Vesical Calculi Overlooked? J. A. Gardner, Buffalo.
66 Mental Stigmata of Degeneration. A. MacDonald, Washington, D. C.
67 The Modern Standard Business Honor. J. W. Jenks, Ithaca, N. Y.
68 Transmissibility and Curability of Cancer. W. S. Bainbridge, N. Y.
69 *Therapy of Sciatica. E. S. McKee, Cincinnati.

69. **Therapy of Sciatica.**—This is a résumé of the recent literature on this subject.

St. Paul Medical Journal.

August.

70 Renal Pathology or Effects of Disease and Drugs on the Urine. H. D. Valin, St. Peter, Minn.
71 Gastric Ulcer. T. W. Stumm, St. Paul.
72 Pruritus Ani. B. Foster, St. Paul.
73 Rectal Ulcer. O. C. Strickler, New Ulm, Minn.
74 Hemorrhoids. W. H. Valentine, Tracy, Minn.

Journal of Nervous and Mental Diseases, New York.

August.

75 Classification of Psychoneurotics and the Obsessional Element in Their Symptoms. G. L. Walton, Boston.
76 Use of Social Intercourse as a Therapeutic Agent in Psychoneuroses. S. I. Schwab, St. Louis.
77 Myoclonus Epilepsy. W. T. Shanahan, Sonyea, N. Y.

Archives of Otology, New York.

August.

78 Herpetic Inflammation of the Geniculate Ganglion. J. R. Hunt, New York.
79 Demonstration of Disturbances of Equilibrium in One sided Disease of the Labyrinth. Dr. Krotoschiner, Breslau, Prussia.
80 Hypertrophic Nasal Catarrh and Complications. C. A. Bucklin, New York.
81 Case of Diphtheria with Otitic Complications. P. D. Kerrison, New York.
82 Otitic Meningitis. A. Knapp, New York.
83 Three Cases of Infective Sinus Thrombosis. J. D. Richards, New York.
84 Case of Serous Meningoencephalitis. A. Blau, Görlitz, Prussia.
85 Otitic Purulent Sinus Thrombosis Without Fever. H. Schroeder, Erlangen, Germany.

American Journal of Urology, New York.

August.

86 Dawn and Development of Urology. B. Lewis, New York.
87 Pathogenic Significance of Cheyne-Stokes' Respiration in Nephritides. C. G. Cumston, Boston.
88 Etiology and Pathogenesis of Infectious Arthritides of Urinary Origin. G. Bodin, Lyons, France.
89 Study of Gonorrheal Pus in Staining Sera. M. Favre, Lyons, France.

The Ophthalmic Record, Chicago.

August.

90 Position of the Ophthalmologist in Treatment of Diseases of the Accessory Sinuses of the Nose. W. C. Posey, Philadelphia.
91 Color Sense and Visual Adaptation of Birds. C. Hess, Würzburg, Germany.
92 The Astigmic Lens to Determine the Amount and Principal Meridians of Astigmia. E. Jackson, Denver.
93 Case of Gummatous Iritis. R. W. Rutherford, Chatham, Canada.
94 Local Application of Chlorate of Potash in Epithelioma of the Lid. W. Zentmayer, Philadelphia.

Illinois Medical Journal, Springfield.

August.

95 *Early Diagnosis of Pulmonary Tuberculosis. R. H. Babcock, Chicago.
96 *Social Aspects of Tuberculosis. H. B. Favill, Chicago.
97 *Management of Tuberculosis. C. L. Wheaton, Chicago.
98 *Sanatorium Treatment of Tuberculosis. E. H. Butterfield, Ottawa.
99 Nervous and Mental Phases of Tuberculosis. F. P. Norbury, Jacksonville.
100 *Tuberculosis of the Ocular Structures. C. A. Wood, Chicago.
101 *Diagnosis and Treatment of Laryngeal Tuberculosis. W. E. Casselberry, Chicago.
102 Blood Plates and Their Clinical Significance. O. O. Stanley, Champaign.

95, 96, 97, 98, 100, 101.—Abstracted in THE JOURNAL, June 8, 1907, page 1980.

Mississippi Medical Monthly, Vicksburg.

August.

103 Quinin in Pneumonia. D. W. Jones, Fernwood.
104 Gastroenterostomy. J. Darrington, Yazoo City.
105 Forceps. W. H. Rowan, Wiggins.
106 Electrical Treatment of Dysmenorrhea. A. Granger, New Orleans, La.

Maryland Medical Journal, Baltimore.

August.

107 The War on Tuberculosis. J. S. Fulton, Baltimore.

Monthly Cyclopedia of Practical Medicine, Philadelphia.

August.

108 Nature of the Opsonins, and the Limit of Bacterial Inoculations in Treatment of Infections. D. H. Bergey, Philadelphia.

Medical Sentinel, Portland, Ore.

July.

109 Impediments to Medical Legislation. T. J. Sullivan, Butte, Mont.
110 Therapeutics of Radium. L. P. McCalla, Boise, Idaho.
111 Uterus Didelphys or Double Uterus. A. L. Monzingo, Tacoma, Wash.

West Virginia Medical Journal, Wheeling.

August.

112 The Medical Society as a Moral Force. C. A. Wingerter, Wheeling.
113 Epilepsy. J. R. Bloss, Huntington.
114 Alcoholic Paranoia. T. Diller, Pittsburgh.
115 The Division of Fees. J. E. Cannaday, Hansford.
116 Recumbency in the Treatment of Infantile Paralysis. A. B. Judson, New York.

Washington Medical Annals, Washington, D. C.

July.

117 Control of Epidemic Uncinariasis in Porto Rico. B. K. Ashford, U. S. Army.
118 Aneurism of Arch of Aorta, Ruptured Externally Through an Abscess. D. S. Lamb, Washington.
119 Hydrocephalus. I. W. Blackburn, Washington.
120 Floating Spleen. A. L. Stavely, Washington.
121 Cases Treated with Radium. T. Abbe, Washington.
122 Case of Papillo-Adenoma of the Sigmoid Flexure. A. L. Stavely, Washington.
123 Case of Thyroiditis. D. S. Lamb, Washington.
124 Case of Coal-Miner's Lung with Cancer Nodules. D. S. Lamb, Washington.

Interstate Medical Journal, St. Louis.

July.

125 Significance of Vertigo Occurring in Connection with Diseases of the Ear. W. A. Wells, Washington, D. C.
126 Combating Plague in Japan. S. Kitasato, Tokyo, Japan.
127 An Unusual Transmission of Measles. A. S. Bleyer, St. Louis.

International Clinics.

June.

128 Vaccine Treatment of Infectious Diseases. R. I. Cole, Baltimore.
129 Treatment of Rheumatism. B. Abrahams, London, England.
130 Thermal Treatment of Aix-les-Bains. J. Dardel, Aix-les-Bains, France.
131 Management of Exhaustion States in Men. J. M. Taylor, Philadelphia.
132 Plea for Laparotomy Rather than Paracentesis in Ascites. G. Dock, Ann Arbor.
133 Paralysis of Oculomotor Nerves in Diabetes. Dieulafoy, Paris.
134 Detection of Ova of Intestinal Parasites in Feces. M. Letulle, Paris.
135 Clinical Examination of Cerebrospinal Fluid. F. P. Rous, Ann Arbor.
136 Perforated Duodenal Ulcer. H. S. Clogg, London.
137 Surgical Syphilis. C. G. Cumston, Boston, Mass.
138 General Anesthesia Unjustifiable in Radical Cure of Inguinal Hernia. J. A. Bodine, New York.
139 Asepsis and Antisepsis. J. W. Wainwright, New York.
140 Treatment of Postpartum Hemorrhage. J. B. DeLee, Chicago.
141 Appendicitis in Pregnancy. C. Lockyer, Plaistow, London.
142 Comparative Physiology of Menstruation. F. H. A. Marshall, Edinburgh, Scotland.
143 Treatment of Dysmenorrhea. C. D. Palmer, Cincinnati, Ohio.
144 Gonorrhea and Syphilis in Childhood. T. M. Rotch, Boston, Mass.
145 Essentials of Scientific Infant Feeding. G. R. Pisek, New York.
146 Insanity in the Aged. C. W. Burr, Philadelphia.
147 Facial Diplegia with Labio-Glosso-Laryngeal Paralysis. A. Gordon, Philadelphia, Pa.
148 Inebriety. T. D. Crothers, Hartford, Conn.
149 Pathology and Etiology of Tabes Dorsalis. S. E. Jelliffe, New York.
150 Experimental Cerebrospinal Meningitis. S. Flexner, New York.
151 Pathologic Anatomy of General Infection with Gonococcus. J. E. Tyrce, Chicago.
152 Bone Marrow. W. E. C. Dickson, Edinburgh, Scotland.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

August 24.

1 *The Unborn Child: Its Care and Rights. T. A. Helme.
2 *Puerperal Morbidity. E. H. Tweedy.
3 *Artificial Dilatation of Cervix. R. Jardine.
4 *Measures to Secure Earlier Recognition of Uterine Cancer. H. R. Spencer.
5 *Chorioepithelioma. W. C. Swayne.
6 *Operative Treatment of Carcinoma of the Cervix. C. Lockyer.
7 Complete Rupture of Uterus with Escape of Fetus into the Peritoneal Cavity. J. M. M. Kerr.

8 *Indications for Operations on Uterine Fibroids and Methods of Performing Them. P. Strassmann.
9 Technic of Abdominal Hysterectomy for Fibroids. F. Edge.
10 Fibroids of Fibromyomatous Tumors in Unusual Sites. S. J. Cameron.
11 Series of 100 Consecutive Laparotomies in Hospital Practice. J. I. Parsons.
12 Ticks Infesting Rats Suffering from Plague. B. Skinner.

1. **The Unborn Child.**—Helme summarizes a most thoughtful article as follows: We must recognize the rights of the unborn child: 1, to life; 2, to protection from the hereditary taint of degeneracy; 3, to health—that is, to conditions conducive to the safeguarding of its health; 4, to Nature's food (when born)—that is, to its mother's milk; 5, to its natural protection (when born)—that is, to its mother's care.

The recognition of these rights demands the recognition of the following duties on the part of the parents, the profession and the state: 1. On the part of the parents: A clean and normal life before and after conception. 2. On the part of the mother by (a) the consistent regulation of her mode of life; (b) the abstention from alcohol; (c) the feeding of the child by the breast; (d) the care of the child after birth. 3. On the part of the medical profession by (a) the restriction of feticide; (b) the education of a healthy public opinion. 4. On the part of the state: (a) By restriction of procreation to the fit (i) by the regulation and restriction of marriage to the fit, either by education or legislation; (ii) by the prevention of procreation by the unfit—whether by segregation of the unfit, or sterilization of degenerates, or the evolution of a public healthy opinion. (b) By regulation of the life of the pregnant woman (i) by the state provision of food for the necessitous; (ii) by the provision of hospitals for the reception of women during pregnancy; (iii) by the state prohibition of woman's work and employment during pregnancy. (c) By immediate registration of (i) stillbirths; (ii) premature labors; (iii) abortions, and, if practicable, Helme adds, pregnancy. (d) By registration of births within twenty-four hours; (e) by regulation of the life of the woman who has given birth to a child (i) by state provision of food for the necessitous; (ii) by state prohibition of woman's work for at least six months after confinement.

2. **Puerperal Morbidity.**—Tweedy calls attention to the fact that while mortality in childbirth is tabulated and the deaths due to sepsis are differentiated, scant attention is given to the recording of cases in which acute or protracted illness is not followed by a fatal issue. He refers to the standard index of morbidity that has recently been determined by the British Medical Association, and urges its employment, for it insures with certainty that all cases of serious puerperal disease will be recorded and will show with a large degree of accuracy the amount of success obtained by diverse obstetrical methods.

3. **Artificial Dilatation of the Cervix.**—Jardine justifies artificial dilatation of the cervix to hasten delivery at full term, when demanded in the interests of the mother or child, or both, but condemns it when undertaken merely to save the time of the obstetrician. He describes the most appropriate methods of producing dilatation—by rubber bag, vaginal plug, manual and bimanual dilatation, expanding dilators, multiple incisions of the cervix, and vaginal Cesarean section. He lays stress on the fact that in deciding on the best operation to perform in any case, the obstetrician must be guided not only by the condition of the cervix, but also by the amount of his experience. In antepartum hemorrhage, especially when due to placenta prævia, the vaginal plug or Champetier de Ribes' bag should be used. He deprecates either abdominal or vaginal Cesarean section in placenta prævia. In cases other than antepartum hemorrhage, when the cervix is rigid and the os only admits the finger, manual dilatation will probably be impossible; Bossi's dilator may succeed, but it must be used with very great caution. If the cervix is taken up, the best method is that of multiple incisions; but if the cervix is uneffaced, Cesarean section is the operation of election. Dührssen's operation for vaginal Cesarean section by perineal vaginal incision is described.

4. **Early Recognition of Uterine Cancer.**—Spencer insists on the need of earlier recognition of uterine cancer. The patient's ignorance, the practitioner's delay in examining on the incidence of suspicious symptoms, the patient's disinclination to be examined, and the occasional difficulty of distinguishing between malignant and benign growths, are the chief causes of delay. He gives an instance of the service which the family physician may render by an early diagnosis. Eight years ago a widow, aged 63, under treatment for influenza, casually referred to a slight vaginal discharge. The physician at once suggested examination, overruled the patient's scruples, and found a malignant growth, which was removed by Spencer by high amputation of the cervix with a Paquelin cautery. The growth was a squamous carcinoma. The patient has had no trouble since, and now, eight years later, is in perfect health. This fact Spencer considers due to the general practitioner.

5. **Chorioepithelioma.**—Swayne reports two cases and insists on two points: First, the vital necessity of exploring the uterus in all cases in which, after pregnancy terminated by abortion or ordinary parturition and whether molar or not, hemorrhage of an intractable type occurs, even if this is not severe. Secondly, the incidence in both his cases of pulmonary symptoms, which disappeared, in the first case, after the removal of the uterus; in the second case they increased until death occurred. These symptoms were attributable, probably in both cases, to pulmonary metastases.

6. **Cancer of the Cervix.**—Lockyer gives later results in thirteen cases of cancer of the cervix, reported by him at the meeting of the British Medical Association in 1905. Of these only four patients were free from disease, the last having been operated on so recently as June, 1905. He has, therefore, adopted Wertheim's procedure, which he considers the operation of the future, and the only scientific operation for carcinoma cervicis at the present time. It enables the growth to be removed without its ever appearing in the operation area from first to last.

8. **Uterine Fibroids.**—Strassmann, while a pronounced advocate of vaginal operation, recognizes that the choice of route depends on the size, position and number of tumors; and he does not hesitate in the least to open the abdomen for colossal tumors, for subserous pedunculated growths, or for solitary interstitial growths larger than a child's head and beyond obstetric possibility. When the mass consists of numerous nodules, which can be determined only under narcosis immediately before the operation, one may begin boldly by the vagina. Enucleation is undoubtedly more difficult and has a mortality higher than total hysterectomy. Recurrence is possible but rare, and pregnancy after enucleation is also rare, though he has had one case in a patient aged 36. So long as the cavity of the uterus is not invaded, or not invaded to a serious extent, the chances of enucleation are good. For all patients over 40 he prefers total extirpation, unless the case is one of simple polypus or of tumors to be removed without opening the plica. In abdominal operations the choice of enucleation or total extirpation depends on the same conditions as in vaginal methods. Total hysterectomy avoids all trouble, cancerous or otherwise, with the cervical stump. The great drawback to Wertheim's operation lies in the primary risks. These over, the secondary risk from recurrence is reduced more than threefold. Lockyer keeps patients in the hospital for two weeks, giving them strychnin by the mouth, cauterizing the growth and cleansing the vagina by weak formalin solution a week before operation. This, he says, makes a great difference in results. He also lays stress on the abandonment of the gauze drain used by Wertheim.

The Lancet, London.

August 24.

13 *Principles of Vaccine Therapy. A. E. Wright.
14 *Stricture and Traumatism of the Appendix. W. H. Battle.
15 *Nature and Management of Hypertrophy of the Heart. A. Morison.
16 Pancreatitis Due to Direct Extension of Malignant Growth of Gall Bladder Along the Common Bile and Pancreatic Ducts. A. W. M. Robson and P. J. Cammidge.
17 *Calculi in the Appendix. D. T. Barry.
18 Case of Appendicitis Excited by a Clove. W. H. Barnett and J. W. S. Macfie.
19 Record of the Physical Examination of 1,000 Boys at Their Entrance on Public School Life. C. Dukes.
20 Bacteriologic Examination of Blood in Case of Typhoid. W. Muirhead.

13.—This article appeared in full in The Journal, August 10, page 479, and August 17, page 567.

14. **Stricture and Traumatism of Appendix.**—Battle notes that narrowing of the lumen of the appendix is commonly met with on opening it after removal. These strictures he divides into organic, that is, with gross changes in the appendix, and functional, when the appendix is not grossly diseased. The first class is the result of inflammatory processes, the second of kinking or external pressure. There is no distinguishing clinical sign of difference between appendicitis due to stricture and one due to other causes. After several recurrences of increasing severity, however, it is right to suspect that the appendix is strictured. Battle discusses traumatism as the cause of this stricture. It is not usual to find foreign bodies forming part of a concretion in the appendix. Concretions consist mainly of fecal matter which has hardened and excited the secretion of mucus. They are mostly due to the action of micro-organisms as in the case of gallstones. The number that may be found is uncertain, though Battle has seen as many as five. Their presence may have marked influence in determining an attack of appendicitis after injury. Considering the increase in disease of the appendix in recent years, which Battle gives good reasons for declining to regard as due to its having been overlooked, he points out that appendicitis is a disease caused by the action of germs that would normally be confined to the interior of the intestinal tract, but which gain admission through some superficial lesion to the tissues outside the epithelial lining, where alone they become dangerous, He investigates the question as to what will produce such a superficial lesion and yet give but little evidence of its action, and passes under review solder from food cans, enameling from culinary vessels, and the siliceous particles of wheat, and concludes that such a causative factor may be found in all probability in metallic particles from the rollers used nowadays in milling wheat. As a remedy, he suggests the use of magnets to withdraw such particles from the flour on its way from the rollers to the bags, as well as before passing it over the rollers to extract those that may have found their way in on the road to the mill. He then discusses larger foreign bodies and ends with report of cases.

15. **Hypertrophy of Heart.**—Morison considers the pathology of hypertrophy of the heart, and in reference to treatment, insists on the importance of the neural factor in the maintenance of an undisturbed cardiac action. He insists that no more injudicious course can be taken than to render the patient nervous about the condition of his heart, or so to hedge him about with restrictions as to suggest that little lies between him and dissolution. While the avoidance of strenuous exertion, especially in aortic cases, is desirable, and carefulness imperative, during intercurrent disease or great emotional distress, given reasonable observance of precautions for such contingencies the more rapidly the patient forgets he has a heart, the better. As time advances and hypertrophy and subsequent dilatation ensue, resulting in ineffective pulsations and the crowding of neighboring organs, the question arises of what can be done for relief, with reference to the orthopnea and dysphagia. The author reports a case in which two inches of the second and third rib cartilages were resected, with the result that the patient now reclines comfortably and breathes and swallows easily. He asserts that the operation was not difficult, and that the general effect in improving the action of the heart and promoting an easier circulation was obtained. He thinks that we shall soon be justified in following Hunter's advice to Jenner: "Why think? Do it."

17. **Calculi in the Appendix.**—Barry thinks that excluding parasites, foreign bodies in the lumen of the appendix may be classified in the order of their frequency: 1, Fecal molds; 2, enteroliths, with or without a foreign body in the nucleus; 3, gallstones; 4, true foreign bodies.

Medical Press and Circular, London.

August 14.

21 Recent Treatment of the Insane. G. H. Savage.
22 Rheumatoid Arthritis. A. P. Luff.
23 Auto-deformities of the Foot. P. Gallois.
24 Medical Aspect of Dental Caries in Childhood. G. F. Still.

Clinical Journal, London.

August 14.

25 Diagnosis and Indications for Operation in Gallstones. H. White and M. Robson and others.
26 Special Feature of Appendicitis in Children. P. L. Mummery.
27 Treatment of Whooping Cough. D. M. McDonald.

Australasian Medical Gazette, Sydney.

July 20.

28 The Profession and the Public. E. W. Morris.
29 Some Clinical Cases: An Essay on Rational Therapeutics. A. J. Turner.
30 Case of Bilharzia Hematobia. B. J. Newmarch.
31 Etiology of Intussusception. P. L. Hipsley.
32 *Relation of Urticaria to Gynecology. W. T. Chenhall.
33 Two Cases of Typhoid with Symptoms of Cholecystitis. H. G. Tymms.
34 Two of Typhoid with Purpuric Hemorrhages. H. G. Tymms.

32. **Urticaria in Relation to Gynecology.**—Chenhall refers to two cases of severe urticaria, occurring concurrently with amenorrhea and with combined menorrhagia and dysmenorrhea due to fibroids, respectively. From a thorough survey of the disease, he finds it difficult to accept the view that all or even any cases are reflex in origin. He analyzes the pathology of urticaria and concludes that all cases of urticaria except those due to local animal, vegetable or mineral irritation, are due to a form of poisoning by toxins in the circulation, acting directly on the peripheral vasomotor nerve mechanism or on the endothelial cells of the capillaries, thus producing wheals. He states that we must look forward to the time when we shall be able to neutralize these toxins and antitoxins and that, meanwhile, the elimination of the virus is the therapeutic indication. There is no warrant for affirming a direct causal relationship between lesions of the reproductive organs and urticaria.

Annales de l'Institut Pasteur, Paris.

June, XXI, No. 6.

35 *Tuberculous Infection of the Guinea-pig and Vaccination by the Digestive Tract. (Tub. exp. du cobaye.) A. Calmette, C. Guérin and M. Breton.
36 Rôle of Helminths and the Larvæ of Helminths and of Insects in Transmission of Pathogenic Microbes. Weinberg.
37 Action of Piperidin and of Other Amins on Bacteria, Especially on the Glanders Bacillus. (Action des amines sur les bact.) M. Nicolle and A. Frouin.
38 Comparative Cytology of Spirochetes and Spirilla. N. H. Swellengrebel.
39 Colloidal Properties of Starch. (Propriétés de l'amidon.) E. Fouard.
40 Transmission of the Trypanosoma dimorphon by the Glossina palpalis. R. Desv. E. Roubaud.
41 Animal Trypanosomiases of the Lower Ivory Coast. G. Brouet.

35. **Experimental Tuberculosis and Vaccination.**—Calmette states that guinea-pigs invariably contracted tuberculosis when fed with tubercle bacilli in a very fine and stable emulsion as, for instance, in milk or saliva. The resulting lesions were usually in the glands and lungs, very seldom affecting the spleen or other viscera, but they were sometimes accompanied by tuberculous orchitis or arthritis and almost invariably by a tracheobronchial adenopathy. If the animals were fed small doses of dead tubercle bacilli they resisted tuberculous infection later. A small dose of tubercle bacilli heated to boiling point for ten minutes, followed 45 days later with a similar dose heated only to 65 C., vaccinated the animals so effectually that two months later they were able to bear with impunity a dose of live tubercle bacilli positively fatal for the controls.

Berliner klinische Wochenschrift.

July 1, XLIV, No. 26.

42 Differentiation of Species of Monkeys and Races of Men by Biologic Tests. (Biol. Differenzierung.) C. Bruck.
43 Microscopic Study of Pernicious Anemia. M. Mosse.
44 Further Applications of Complement Deviation Test. (Komplementfixation.) A. Schütze.
45 *Value of Vibratory Massage of Heart. (Herzvibration.) A. Selig.
46 *Morphin in Asthma. Goldschmidt.
47 *Heat Stroke. (Hitzschlag.) Seuftleben.
48 *Diagnostic Importance of Electrocardiogram. F. Kraus and G. F. Nicolai.

July 8, No. 27.

49 Present Status of Pulmonary Tuberculosis. (Lungenschwindsuchtsfrage.) Aufrecht.
50 Mechanical Factors in Origin of Apical Tuberculosis. (Mech. Disposition der Lungenspitzen zur tub. Phthise.) D. Rothschild. Id. (Manubriumcorpusverbindung des Sternum.) C. Hart. Id. D. v. Hansemann. Id. M. Lissauer.
51 Experimental Research on Renal Dropsy. (Nierenwassersucht.) J. Bence.
52 *Operative Treatment of Alveolar Emphysema of Lung. L. Mohr.

45. Vibratory Massage of the Heart.—Selig found that pathologic dilatation of the heart was favorably influenced by vibratory massage applied to the front and back. Muscle fibers contract under the influence of mechanical stimuli, and the heart muscle is no exception to this rule. The vibration of the thorax walls causes the fibrils of the heart muscle to contract, and the myocardium as a whole then gradually contracts. The subjective benefit was particularly striking in cases of arteriosclerotic angina pectoris or conditions approaching it. Little if any influence could be detected on the normal heart. Selig adds in conclusion that von Jaksch has observed exceptionally the development of lung infarcts after vibration, but that this does not alter the fact that vibration is able to reduce the size of the morbidly dilated heart.

46. Morphin in Asthma.—Goldschmidt believes that fully 50 per cent. of the persons addicted to morphin have been victims of asthma. Notwithstanding this, he advises treatment of asthma with morphin, remarking that it is astonishing what small doses will give relief. From 3 to 5 mg. at most will generally cut the attack short and ensure a night's sleep. He has had patients who took these small doses for months at a time, without symptoms of morphin poisoning or addiction to the drug, and it was discontinued without the slightest trouble when the asthmatic condition subsided.

47. Heat Stroke.—Senftleben has demonstrated by personal and other experiences and much research that the effects of heat prostration are the result of concentration of the blood, entailing destruction of red corpuscles with consequent escape of hemoglobin into the blood. The excess of hemoglobin leads, he says, to sudden intense destruction of white corpuscles—accompanied by high temperature—and consequent accumulation of fibrin ferment in the blood. This leads to coagulation at points in the capillary system, especially in the lungs and brain. Excessive loss of water in sweat is the main factor in the development of heat stroke, and copious drinking is important in its prevention. When after profuse perspiration the skin begins to dry off, heat stroke, that is, general arterial anemia, is impending. If relief is not soon obtained the victim becomes unconscious and hovers on the brink of the grave. In treatment, besides combating the high temperature and defective respiration and heart action, it is important to supply more fluid to the organism. This, he says, will protect the red corpuscles and prevent further escape of hemoglobin into the blood. That already in the blood should be removed by venesection. He advises removal of from 150 to 200 gm. of blood from a vein, followed at once by infusion of salt solution through the same hollow needle. The lumen of the needle should be large enough to allow the escape of the morbidly thick venous blood.

48. Electrocardiograms.—Nicolai and Kraus give an illustrated description of a simple but very sensitive string galvanometer with which it is possible to oversee the action of the heart and register its finest details. A number of the tracings are given as obtained from man and animals. They show characteristic types for various heart affections. The instrument is recommended as valuable for diagnostic purposes in daily practice.

52. Alveolar Emphysema of the Lungs.—Mohr refers to the emphysema due to injury of the lungs from some primary changes in the bony frame of the thorax, such as sclerosis of the ribs and cartilages. The rigidity of the wall of the thorax interferes with the functioning of the diaphragm and lung. Emphysema from this cause is most frequent in the elderly, but it occurs also in the young. In 1906 Freund reported a case in which he had cured emphysema from this cause by resection of the rigid thorax wall, restoring elasticity to the parts. Mohr has also operated in a similar case, with unexpectedly good results to date. He resected 1.5 cm. of the second and third right costal cartilages and ribs. The improvement was marked; six weeks later a still larger part of the thorax wall was resected on the other side. Both cartilages and ribs were found degenerated. Since these operations the wall of the thorax rises and falls with the respiration and the patient, a man of 46, has been entirely relieved of the respiratory disturbances which had compelled him to change his occupation five years before.

Centralblatt f. Chirurgie, Leipsic.

July 6, XXXIV, No. 27.

53 *Technic of Cardiolysis. König.
54 *Treatment of Leg Ulcers Uncomplicated with Varices. (Unterschenkelgeschwüre.) A. Weischer.

July 13, No. 28.

55 Operative Treatment of Muscular Torticollis. (Musk. Schiefhals.) v. Aberle. Id. König.

July 20, No. 29.

56 Retrocolic Cholecystenteroanastomosis. F. Pendl.
57 Combined Needle and Syringe for Spinal Anesthesia. (Rückenmarksanästhesie.) W. Tomaschewski.

July 27, No. 30.

58 *Rovsing's Technic of Lumbar Ureterostomy. Wilms.
59 *Transverse Incision for Kidney Stone. (Nierensteinschnitt.) G. Marwedel.

53. Technic of Cardiolysis.—König gives a skiagraph of the thorax of a patient who had succumbed to an intercurrent affection two and a half years after resection of the wall of the thorax over the heart. The heart had adhered to the wall of the thorax in the course of chronic inflammation of the pleura. The heart disturbances had been effectually combated by the operation which had left a free and elastic wall over the heart region. König did not attempt to remove the periosteum and there was no evidence of regeneration of bone. In future he would remove the anterior periosteum, but would leave the posterior, if necessary covering the cut ends of the bones with muscle.

54. Leg Ulcers.—Weischer believes that some anomaly in the saphena is the cause of leg ulcers, even when no varicose enlargement can be detected.

58. Bilateral Ureterostomy.—Rovsing's technic after total extirpation of the bladder was described in The Journal, Aug. 31, 1907, page 809. Wilms states that pyelitis does not inevitably follow implantation of the ureters in the rectum, as he has a patient still in good health two years after such an operation. He noticed once in performing Trendelenburg's operation for puerperal pyemia—extraperitoneal ligature of the ovarian vein—that the incision gave ready access to the ureter, and he decided to do ureterostomy by this route when occasion offered. He gives an illustrated description of his technic, which he thinks has several advantages over Rovsing's. He does not shorten the ureters, and they are brought out in front, instead of in the lumbar region. He runs the ureter along under the skin, according to von Hacker's technic for colostomy. The end of the ureter can be supported with an envelope of skin and allowed to project above the skin, if desired later. His patient was a child operated on after failure of a previous operation in which the ureters had been implanted in the rectum, leaving a fistula which refused to heal.

59. Transverse Incision for Kidney Stone.—Marwedel has performed this operation more than five times and extols its advantages for all cases of kidney stone without complications, with acid urine, or only slight pyelitis.

Dermatologische Zeitschrift, Berlin.

June, XIV, No. 6.

60 Protective Action of Skin Pigment. (Hautfarbstoff als Schutzmittel). F. B. Solger.
61 Bacillus of Soft Chancre. (Ulcus Molle.) A. Serra.

July, No. 7.

62 Etiology of Soft Chancre. (Ulcus molle.) A. Serra.
63 Toxic Skin Eruption Following Roentgenization. (Toxikodermie.) Fricke.
64 Two Cases of Scleroedema. (Sklerodem.) F. Pinkus.

August, No. 8.

65 Action of Ultraviolet Light. (Quarzlampenlicht.) C. Stern and E. Hesse.
66 Molluscum Contagiosum. B. Lipschutz.
67 Primary Tuberculous Infection from Earrings. (Impftuberkulose.) P. Grosser.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

July 4, XXXIII, No. 27.

68 *Treatment of Tuberculosis of Larynx. A. Jurasz.
69 Treatment of Syphilis. (Syphilisbeh.) E. Lesser.
70 *Pupillary Phenomenon During Catatonic Stupor. (Pupillenphänomen.) A. Westphal.
71 *Pathology and Treatment of Addison's Disease. (Morbus Addisonii.) E. Grawitz.

72 Herpes in Affections of Central Nervous System. (Blaseneruptionen.) H. Schlesinger.
73 *Benzidin Test for Occult Blood. (Neue Blutprobe.) M. Einhorn.
74 Leukemic Blood Changes in Congenital Syphilis and Sepsis. (Leukämische Blutveränderung.) H. Flesch and A. Schossberger.
75 Spinal Anesthesia. (Lumbalanästhesie.) B. Bosse.
76 Mechanical Treatment of Torticollis. (Apparat gegen Schiefhals.) M. Wunsch.

July 11, No. 28.

77 *Threshold Percussion of Heart. (Schwellenwertsperkussion.) Goldscheider.
78 Rose's Head Tetanus. (Kopftetanus.) J. Friedländer and E. v. Meyer.
79 *Treatment of Rupture of Quadriceps Femoris. F. Karewski.
80 Paralytic Luxation of Hip. (Paralytische Luxationen d. Hüfte.) W. Böcker.
81 *Acute Osteomyelitis of Cranium. (Schädelknochen.) Keimer.
82 *Hemorrhage Following Nephrolithotomy. (Blutungen nach Nephrolithotomie.) H. Neuhäuser.
83 Necrotic Stomatitis. G. Scherber.
84 Spinal Anesthesia. B. Bosse.

July 18, No. 29.

85 *Injection of Heterologous Blood in Maliguant Tumors. (Beeinflussung bösartiger Geschwülste durch Einspritzung v. artfremden Blute.) A. Bier.
87 Complement Deviation Test in Infectious and Postinfectious Diseases. (Komplementbindungsversuche.) J. Citrou.
88 *Test of Motility of Stomach. (Motilitätsprüfung.) H. Strauss and J. Leva.
89 *Gout. (Gicht.) Marcus.
90 *Splenectomy in Banti's Disease. (Milzextirpation.) L. Caro.
91 *Factitious Edema of Skin. (Edema cutis factitium.) H. Vörner.
92 Paralytic Luxation of Hip. W. Böcker.

July 25, No. 30.

93 *Pathology and Treatment of Hyperchlorhydria. (Hyperchlorhydrie.) A. Bickel.
94 Obtaining Protective Substances from Pathogenic Bacteria. (Schutzstoffe.) R. Bassenge and M. Krause.
95 *Experimental Syphilis of Cornea. (Hornhaut-syphilis.) P. Mühlens.
96 Unity of Malarial Parasite. (Arteinheit der Malariaparasiten.) A. Plehn.
98 Automobile Injuries. (Verletzungen.) Kettner.
99 Skin Changes in Addison's Disease. (Diabète broncé.) J. Heller.
100 Ultraviolet Rays in Lupus. (Uviollampe bei Lupus.) H. Axmann.
101 A New Saccharometer. H. Citron.

August 1, No. 31.

102 Diagnosis and Therapy of Psychic and Nervous Diseases. Sommer.
103 *Arteriosclerosis of Pulmonary Artery. (Lungenarterie.) G. Mönckeberg.
104 Etiology and Therapy of Chorioepithelioma. P. Kroemer.
105 *Bier's Hyperemia in Otology. (Biersche Stauung.) Leutert.
106 Hyperleucocytosis in Severe Infections. (Abnorm hohe Leucocytose.) H. Hirschfeld and R. Kothe.
107 Fatal Hemorrhage from Duodenal Ulcer Following Appendectomy. (Blutung aus einem Duodenalgeschwür). R. Mühsam.

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109 Suppurative Labyrinthitis. (Labyrintheiterungen.) B. Heine.
110 *Etiology of Trachoma. (Halberstädter and Prowazek.
111 Serum Diagnosis of Syphilis. M. Wassermann and G. Meyer.
112 Indications for Use of High-Frequency Current in Treatment. (Hochfrequenzströmen.) F. Nagelschmidt.
113 Diagnosis and Treatment of Chronic Arthritis. F. Franke. (Commenced in No. 29.)
114 Etiology and Treatment of Chorioepithelioma. P. Kroemer.
115 Modification of Neisser's Suspensory. C. Schindler.

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116 Progress in Diagnosis of Nervous Diseases. (Nervenkrankheiten.) L. W. Weber.
117 Bilateral Nephrolithiasis. P. Krause.
118 Sequestrated Abscess of Spleen. (Milzabszess). Doebbelin.
119 Status of Actinotherapy. G. J. Mueller.
120 *Tsutsugamushi Disease. (Ueberschwemmungsfieber von Baelz.) M. Ogata and K. Ishiwara.
121 *Tuberculin Suppositories. A. Lissauer.

68. **Treatment of Laryngeal Tuberculosis.**—Jurasz claims that while tuberculosis of the larynx is a serious affection, it is by no means a fatal one. Prophylaxis is of great importance inasmuch as the laryngeal affection invariably is secondary to a pulmonary one. It is essential to place the larynx at rest, to avoid conditions which excite the patient to cough or which irritate the mucous membrane of the larynx, and to place him on a diet which is regulated with reference to its bulk and consistency because swallowing hard, rough, solid foods may irritate the affected part. In the early stages of the disease inhalations and insufflations are indicated; astringents are to be avoided, and manual treatment, such as applications of silver nitrate or any other remedy, is contraindicated. If the disease is widespread the parts are to be curetted and lactic acid applied until cicatrization has taken place; other less irritating antiseptics may be used, if necessary. Recurrences are treated with the galvanocautery. The author recommends Bier's hyperemia, applying constriction around the neck, as an excellent means for controlling the pain. Local anesthesia may be resorted to in cases in which the hyperemia fails to relieve. Actinotherapy and stasis therapy, it is said, have yielded some remarkable results in the treatment of laryngeal tuberculosis, but these methods must be investigated further before any definite statements as to their value can be made.

70. **Pupillary Phenomenon.**—Westphal narrates the case of a girl, aged 20, who suddenly manifested symptoms of insanity, with marked suicidal tendencies. Catatonia was very marked. Examination of the nervous system failed to reveal any deviation from the normal, except the condition of the pupils. As a rule, the pupils were normal, but at times, apparently for no reason, the pupils became oval or elliptical in shape, and the greater this departure from the normal in shape, the less did the pupils react to light. Often there was no apparent reaction to light. The author concludes that this phenomenon depended entirely for its occurrence on the fact that the patient was in a catatonic stupor.

71. **Addison's Disease.**—Grawitz reports a case of Addison's disease which exhibited all the typical symptoms of this affection. When the patient was first seen the adynamia was so marked that an unfavorable prognosis was made. Owing to the secretory and motor insufficiency of the stomach, gastric lavage with salt solution was practiced. Nutrient enemas were given and hydrochloric acid, but nothing else in the way of remedial agents. The patient slowly gained in strength and weight and eventually was dismissed in a very much improved condition. The skin pigmentation also lessened, but not so much but that a military surgeon was able to diagnose Addison's disease when the applicant was examined for the service. Since 1903 the patient has improved steadily and the author believes that the man may be considered as cured. In another instance, to which reference is made, this treatment produced similar good results. Grawitz emphasizes the importance of gastric lavage in these and other cases for the purpose of removing from the gastrointestinal canal toxins which it may contain.

73.—See The Journal for June 22, 1907, page 2161.

77. **Threshold Percussion.**—Further experience has convinced Goldscheider of the fact that the very lightest percussion stroke is sufficient to outline the borders of the heart. He believes that he has improved the technic of his threshold percussion. The rubber cap of a medicine dropper is fitted over the end of a glass rod, which is either straight or slightly bent, as preferred. The covered end of the rod is placed against the chest wall, the end resting in the intercostal spaces, the rod at an angle with the chest wall but parallel with the boundary that is to be percussed. The rod is tapped lightly with the finger at some distance from the proximal end. The advantages of this procedure are said to be many, but notable is the one that a very small area can be percussed at one time, and that the instrument can be placed in the intercostal spaces. The percussion note is clear and distinct, and the boundaries of an organ, especially the heart or liver, can be outlined readily. The percussion is done in the mid-respiratory position, and then the patient is told to inspire slowly. The dorsal position of the patient is preferred.

79. **Rupture of Quadriceps Femoris.**—Karewski reports a case of complete rupture of the quadriceps femoris muscle in which firm union was effected by the application of strips of adhesive plaster above and below the knee, the ends of these strips being brought together, as desired, by means of strong rubber bands. The article is illustrated.

81. **Acute Osteomyelitis of Cranium.**—Keimer reports a case of acute osteomyelitis which followed a furuncle over the right temple and involved the frontal, right temporal and the occipital bones. The process became very extensive and an operation was necessitated. A number of pus pockets were found and emptied. The patient recovered.

82. **Hemorrhage After Nephrolithotomy.**—Neuhäuser reviews briefly the etiology of hemorrhage after nephrectomy, but offers nothing new in the way of treatment. He favors

tamponade, considering it the most effective method of checking the hemorrhage.

85. **Heterologous Blood Injections in Malignant Tumors.**—Bier claims that following the injection of from 10 to 20 c.c. of defibrinated pig's blood into the subcutaneous tissues there is noted the gradual onset of a local inflammation, which reaches its height on the third day, and then declines gradually. There is also slight fever and chilly sensations. Continued injections finally produce the same reaction with lesser quantities of blood. No permanent disability is caused by these injections, and he found that only pathologic tissues are affected by them. In the case of ulcerating carcinomas all degenerative processes cease almost immediately, but the pain, which is usually severe, is not lessened, although in other affections, not carcinomas, the injection of this blood usually relieves the patient of pain. Bier injected the blood, as a rule, directly into the growth. In some cases the growth of the tumor was checked; in others the tumor became necrotic, while in still others there was every appearance of a cure having been effected, until the tissue was examined microscopically, when tumor cells were discovered. In only one case, a lupus carcinoma, was Bier able to announce that a cure had been effected after four injections of defibrinated pig's blood. But the Roentgen ray had previously been used in this case, so that he is not prepared to ascribe the cure entirely or with any degree of positiveness to the injection of the blood. He says that he can not, therefore, report a single, uncontrovertible, defensible case of cure having been effected by this method. In fact, he seems to be rather in doubt that the injection of heterologous blood ever will be a specific treatment for malignant tumors, although further researches will be made and the results reported later. The method has also been tried in three cases of prostatic hypertrophy with urinary retention, and with some success, so far as the urinary symptoms were concerned.

88. **Gastric Motility.**—Strauss and Leva describe a new test of the motility of the stomach, which consists in the use of a prepared test meal with constant and known fat content, and refractometric fat determination of all of the ingested food, obtained by lavage. Butter is the fat used; the food consists of zwieback and tea.

89. **Gout.**—In two cases of gout Marcus studied the diuretic effect of distilled water, in one case, and mineral water (Salzbrunnen), in the other. Diuresis was increased in both cases, but it was most marked in the patient who drank only distilled water. The nitrogen output was greatest after the use of the mineral water. The concentration of the blood was not affected in either case.

90. **Splenectomy in Banti's Disease.**—One year after the operation Caro's patient, a man, had gained in weight and was feeling well in every way. Before the operation the blood findings were as follows: Hemoglobin, 35; red cells, 1,400,000; leucocytes, 2,600. One year after the operation the blood findings were: Hemoglobin, 80; red cells, 4,000,000; leucocytes, 14,800. Another notable feature in the case was an elevation of body temperature after the operation, although there had also been a slight elevation—38.4 C.—before operation. This temperature rise, the author concludes, was caused by the toxemia incident to the disease.

91. **Factitious Edema of Skin.**—Vörner reports the case of a man who would develop severe edema of the skin when any portion of the skin was subjected to a constant and continuous pressure, such as sitting on a hard bench for some time, swinging a heavy hammer, or leaning the head against a wall. No cause for the affection is given, although the author believes that the condition is allied to Quincke's disease. Treatment was expectant in character and afforded relief for the time being only.

93. **Treatment of Hyperchlorhydria.**—Bickel believes in the dietetic treatment of this condition, giving vegetables and fats a considerable place in the diet, although he emphasizes what was said by Boas, that a mixed diet is the best.

95. **Experimental Syphilis of Cornea.**—Mühlens succeeded in producing a specific lesion on the cornea by inoculating it with fresh extract of the organs of a case of congenital syphilis.

103. **Arteriosclerosis of Pulmonary Artery.**—Mönckeberg reports two cases of arteriosclerosis of the pulmonary artery, with hypertrophy of a high grade of the right heart, without any valvular affection in one of the cases. In this case a large thrombus extended from the artery into the heart, but without occluding the vessel. The author regards the thrombus in this case as autochthonous.

110. **Etiology of Trachoma.**—Halberstädter and Prowazek describe further the cell inclusions which they have seen in the cells taken from the conjunctiva of cases of trachoma. These inclusions the authors believe to be micro-organisms because they have a distinct, characteristic and constant appearance, and they have been able to produce the disease experimentally in orang-outangs. In the case of other animals, such as guinea-pigs, rabbits and other apes, the experiments were negative.

120. **Tsutsugamushi Disease.**—This affection is also known as the inundation fever of Baelz. The authors isolated a protozoan organism from the ulcers which are so frequently met in this disease, and describe it fully. The organism has been cultivated and the disease transmitted to animals by inoculation.

121. **Tuberculin Suppositories.**—Since early in 1906 Lissauer has made use of tuberculin, in suppositories, in the treatment of 40 cases of tuberculosis in all stages of the disease, the prognosis for a cure being unfavorable in most of the cases. The tuberculin was placed inside of hollow suppositories, in doses varying from 0.5 mg. to 25 cg., sometimes daily and sometimes at intervals of one or more days. The results obtained were equal to those following the use of tuberculin by mouth, but he is not prepared as yet to make any positive statements. No local reaction was caused by the suppositories, except occasionally a little itching which was controlled with a glycerin suppository. The author administered tuberculin by mouth (in gelatin capsules) in two cases of advanced pththisis, but no result was noted.

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122 Role of Celiac and Mesenteric Plexuses in Abdominal Shock. L. Buerger and J. W. Churchman.
123 Fistula Between Biliary Passages and Bronchus. (Leber-Bronchusfisteln.) F. Eichler.
124 Roentgen Treatment of Symmetrical Enlargement of Lachrymal and Salivary Glands. (Mikuliczsche Krankheit.) E. Ranzi.
125 Congenital Defects in Thorax. (Thoraxdefekte.) Id.
126 Chronic Appendicitis without Attacks. (Anfallsfreie App.) P. Klemm.
127 Pathogenesis of Colic Pains. (Kolikschmerzen.) Wilms.
128 Typhoid Cystitis. (Cystitis typhosa.) H. Schaedel.
129 Tetany After Removal of Parathyroids. (Tetania parathyreopriva.) J. Erdheim.
130 Cysts in the Cerebellum. (Kleinhirncysten.) H. Scholz.
131 Importance of Pathologic Appendix for the Female Organism. (Bedeutung des kranken App.) R. Römer.
132 Behavior of Pupils in Affections of the Appendix. (Verhalten der Pupillen bei Erkr. des Wurmfortsatzes.) P. V. Jezierski.
133 Two Cases of Acute Dilatation of Stomach in Typhoid. (Magenerweiterung bei Typh. abd.) H. Wichern.
134 Experimental Treatment of Tetanus with Curarin. A. Läwen.

XVII, No. 5, pp. 533-764.

135 *Acute Dilatation of Stomach. (Magenerweiterung.) W. Braun and H. Seidel.
136 Albumin Stones and Elimination of Membranous Masses by Urine-Producing Apparatus. (Eiweisssteine der Niere, etc.) P. Morawitz and C. Adrian.
137 *Fistula Between Stomach and Colon. (Fistula gastrocolica.) Port and Reizenstein.
138 Action of Subcutaneous Injection of Eserin on Peristalsis. (Physostigmin zur Anregung der Peristaltik.) K. Vogel.
139 *Diagnosis of Operability of Tumors of Brain and Spinal Cord and Results of Operations. (Hirn- u. Rückenmarkstumoren.) F. Schultze.
140 *Phlegmonous Gastritis During Pregnancy. (Phlegmone des Magens in d. Schwangerschaft.) F. Kermauner.
141 Hysteric Scoliosis. (Hysterische Skoliose.) M. Strauss.
142 Study of Fever After Operations for Goiter. (Kropfoperationen.) K. Schultze.
143 Physiologic Bases and Practical Value of the Over-pressure Technic in Excluding the Consequences of Pneumothorax. (Ueberdruckverfahren.) H. Seidel.
144 *Atropin in Ileus. C. Schulz.

135. **Acute Dilatation of the Stomach.**—The conclusions of considerable experimental research and clinical experience by Braun and Seidel are summarized in the statement that acute dilatation of the stomach is the expression and consequence of acute insufficiency of the stomach. As a rule the trouble is the result of some disturbance in the innervation, especially in

the surgical forms of acute dilatation, but it may occur in a healthy stomach, with intact innervation, in consequence of some sudden error in diet or abnormal decomposition of the stomach contents. Even in this case toxic and reflex factors may cooperate in the dilatation of the organ. They found no evidence of a valvular closure at the cardia. The course of acute dilatation varies in different cases. It should be suspected after a laparotomy when convalescence does not proceed smoothly, especially if the patient complains of a vague sense of oppression in the upper abdomen. The stomach should be siphoned out at once. This will clear up the diagnosis between peritonitis, ileus and pancreatitis on one hand and acute dilatation on the other, and pave the way for prompt recovery. The prognosis of severe dilatation is grave. Of 64 cases reported in the literature 47 were fatal. The main point is to prevent severe acute dilatation. This can be accomplished by recognizing it in its incipiency and treating motor insufficiency whenever encountered. Occlusion of arteries and kinking of the duodenum are liable to occur secondary to the dilatation, but should not be regarded as primary factors. A number of cases are described. In one, a boy of 12, of a nervous disposition, requiring general anesthesia several times for hernia and repair of a perineal injury, with retention catheter, developed severe acute dilatation of the stomach. It was probably the result of reflex action from the bladder and urethra, as the stomach returned to normal size the day following the removal of the catheter. Recurring tetany further testified to the extreme excitability of the nervous system in this case.

137. **Fistula Between Stomach and Colon.**—In this communication the fourth case of a fistulous opening between stomach and colon cured by operative treatment is described in detail. The diagnosis was based on the identical composition of the stools and stomach content, and the fact that it was possible to distend the stomach by inflation through the intestines, and that a stain and bismuth introduced into the intestines were refound in the stomach. The diagnosis was confirmed by Roentgen examination. There were no symptoms to indicate ileus except the presence of fecal masses in the stomach, while the general appearance and good appetite spoke against cancer. Large doses of bismuth improved the patient's condition very much, the stomach at times being quite empty. The bismuth probably made the fecal masses more solid and checked the development of gas. A retrocolic jejunostomy had previously been performed and the colon had grown to the stomach close to the point of junction. It was detached, the opening sutured, and omentum drawn over the wound to protect against recurrence. The patient has since been free from disturbances.

138. **Action of Eserin.**—Vogel reviews the history of the use of eserin or physotigmin as a peristaltic, and relates further experiences with it in subcutaneous injection. Later operations on some of his patients treated in this way showed that the drug had done its work and effectually prevented the reformation of adhesions. He found it particularly useful in cases of abdominal or general contusion with more or less injury of bones, kidneys and nervous system. These patients frequently suffer more from the almost invariable and tormenting meteorism than from their injury. They shrink from taking medicines or enemas, but are generally relieved at once by a subcutaneous injection of physiostigmin. He gives at least 0.0005 gm. (0.0075 grain) and generally 0.001 gm. (0.015 grain), repeating the dose after several hours. The action of the drug can be promoted by giving a small enema of glycerin which alone has no effect except on the lower bowel. He does not believe in purging the patient too energetically before a laparotomy, but sees that the bowels are emptied of all old fecal masses, before undertaking any operation. He gives castor oil two days before an operation on the small intestine, thus giving the intestines time to recovery from the exhaustion of the effort. A purge is not necessary before other operations unless there is reason to assume the presence of old fecal masses.

139. **Operability of Brain and Spinal Cord Tumors.**—Schultze reports six cases of spinal cord tumors in which the patients were cured by operative treatment out of a total of 13 operated on. Another patient in the group has been very much improved. In 19 cases of brain tumors, good results were obtained only in 3 instances, the best result being in a case in which the diagnosis wavered between chronic hydrocephalus and a tumor. The lateral ventricle was entered according to Neisser's technic and the fluid evacuated; this procedure was followed by great and lasting improvement for nearly a year, when the patient died outside the clinic. Almost all the other patients died during or soon after the operation, but two were very much relieved by removal of part of the tumor, and the improvement persisted for months. A glioma weighing 18 gm. (270 grains), was shelled out from the cerebellum of an adult with complete recovery for a year and a half, and possibly longer. Children do not bear such operations so well as adults.

140. **Phlegmonous Gastritis in Pregnancy.**—Kermauner describes a case in which a tuberculous pregnant woman presented symptoms accepted as the aggravation of the tuberculous infection under the influence of the pregnancy. After an insidious course for three weeks, with considerable prostration but no rise of temperature, moderate meteorism, general abdominal tenderness and sporadic vomiting, the general condition grew worse and the fetus was spontaneously delivered. The patient died in less than a month after the first symptoms. Autopsy revealed a phlegmonous gastritis with old, retrogressing tuberculous lesions in the lungs. In some of the 55 cases of phlegmonous gastritis collected by Jacoby, the course was fulminating, suggesting poisoning. The prognosis is absolutely bad.

144. **Atropin in Ileus.**—Schulz states that atropin has been successful to date in inducing a movement of the bowels in 100 per cent. of 56 cases of spastic ileus, and 95 per cent. of 20 cases of paralytic ileus, and in 68 per cent. of 54 cases of mechanical ileus. He claims for the drugs that it regulates the circulation of blood through the region and abolishes pain, spasm and vomiting, while it promotes the absorption of the local inflammatory process. In every case of acute occlusion of the intestines the physician should give atropin as his first measure. He advises giving large doses which, he states, are especially useful in neutralizing the injurious action of the ptomains which are being produced in the occluded intestine, and are practically harmless, even when the symptoms of atropin intoxication occur. As soon as acute ileus is diagnosed or even surmised, he injects 0.002 gm. for an adult and 0.0005 gm. for a child, without resorting to preparations of opium. He generally injects, before the atropin, 0.0012 gm. of morphin, to protect the brain, but does not regard this as indispensable. If the first injection shows no appreciable results or merely improvement of the general condition, without passage of flatus or stools, he repeats the injections systematically, as soon as the patient has recovered sufficiently from the preceding injection. He applies at the same time certain physical measures, oil emenas, hot water bottles and lavage of the stomach. As an operation may become necessary, he has the patient taken to a hospital, but he advises against operating too early, as the effect of the atropin may be felt even in long neglected cases, while the proportion of recoveries after operative treatment, he says, is the same whether the operation is done the third day or in the second week after the first symptoms. The earlier the atropin is injected, the better the results, as a rule. If there is no stool within from 24 to 36 hours the patient should be prepared for an operation. Even in desperate conditions he states that the atropin should be injected to improve the heart action and circulation and to arrest vomiting while stimulating peristalsis. If symptoms of severe intoxication develop, morphin should be given as an antidote to the atropin. The long disturbance in the intestine may lead to perforation later. He gives the particulars of 9 cases of spastic, 5 of paralytic and 17 of mechanical ileus, from his own experience. The interval between the passage of the first flatus and of stool was never over an hour, and generally only a few minutes in the cases of dynamic ileus, while there was an interval of 12 or 14 hours in the mechanical variety.

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145 The Laws of Physics the Basis for the Behavior of the Sexual Organs During Pregnancy and Delivery. A. Czyzewicz.
146 *Manual Removal of Placenta. (Man. Placentalösung.) L. Adler and E. Kraus.
147 *Treatment of Inoperable Genital Prolapse. M. Stolz.
148 *Carcinomatous Degeneration of Stump of Uterus After Supravaginal Amputation. G. Burckhard.
149 *Enchondroma of the Pelvis, Especially as an Obstacle to Childbirth. (Becken-Enchondrom.) S. Schoppig.

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150 Histogenesis of Erosions of Cervix. (Portio-Erosionen.) J. Schottlaender.
151 *Cesarean Section in Infection of Uterine Cavity. (Kaiserschnitt bei Inf. der Eihöhle.) J. Veit.
152 Connection Between the So-called Papillary Uterine Glands and the Various Phases of Menstruation. (Papilläre Uterindrüsen u. Menstruationsphasen.) A. Hartje.
153 *Epilepsy and Pregnancy. (Ep. u. Gravidität.) M. Neu.

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154 *Vaginal Ovariotomies in Pregnancy. I. Democh.
155 *Appendicitis in Pregnancy and the Puerperium. (App. in graviditate et in puerperio.) F. Stähler.
156 *Treatment of Peritoneal Wound. (Perit. Wundbehandlung.) O. Pankow.
157 *Osteomalacia in Westphalia. C. Everke.
158 *Chemical and Histologic Study of Pubiotomy. Offergeld.
159 Prospects for Active and Passive Immunization of Man Against Streptococci. (Aussichten der Immunisierung gegen Strept.) W. Zangemeister.

146. **Manual Removal of the Placenta.**—Adler and Kraus review their experiences in 161 cases in which the placenta was removed by hand. Three of the patients died from other causes and they believe that manual removal of the placenta might have prevented the fatal outcome in one case if done earlier. After the placenta is removed the uterine cavity is rinsed out with a hot disinfectant to stimulate the uterus to contract better. Gloves are used only in contaminated cases, as they are liable to carry germs into the uterus while the gloved hand is more apt to leave scraps of placenta behind.

147. **Treatment of Inoperable Genital Prolapse.**—Stolz refers only to inoperable prolapse in women past the menopause, and describes with illustrations a pessary which is able to reduce the prolapse and to keep it under control without injury or annoyance to the wearer. He has used it in four cases with great satisfaction. It consists of a thick ring with a projecting crossbar, as wide and rounding as the rest of the ring. The principle is the same as in the Menge and Loehlein pessaries, but the pressure is more evenly distributed.

148. **Carcinomatous Degeneration of Stump of Uterus After Supravaginal Amputation.**—Burckhard reviews 17 cases he has found in the literature and reports another case. His patient was a woman of 54, who had been in good health for a year and a half after supravaginal amputation of the uterus on account of a large myoma. There was nothing to suggest cancer at the time of the operation, but in several of the other cases the cancer must have been present at the time of the amputation. This reduces to a dozen the number of known cases of cancerous degeneration of the stump of the uterus—a comparatively insignificant number in view of the hundreds of supravaginal amputations done every year.

149. **Enchondroma in the Pelvis as Obstacle to Delivery.**—Schoppig reports a case in which Cesarean section was required owing to the rapid growth of an enchondroma in the pelvis. The patient succumbed to sepsis. He has found reports of 93 cases of such growths in the literature, and tabulates the details of 22 cases in women which did not interfere with delivery and of 32 others in which they proved an obstacle. The enchondroma seems to develop with especial rapidity under the influence of pregnancy, as was noticed particularly in 10 cases. The growth should be removed, even during pregnancy, but the difficulty of access and the adhesions are liable to stay the surgeon's hand. In a number of cases the growth filled the entire half of the pelvis or the entire small pelvis and vagina. The majority of the patients were women between 20 and 40. The growth was successfully removed in 7 cases in non-pregnant women, but extirpation was not attempted in any of the obstetric cases.

151. **Cesarean Section in Infection of the Uterine Cavity.**—Veit describes his experience with Frank's method of "extraperitoneal" Cesarean section, mentioned in The Journal, June 22, 1907, page 2132. He found the technic simple and easy. The transverse incision, a few finger breadths above the symphysis, is carried down through the peritoneum; the reflection of the peritoneum over the uterus then presents in the wound if the bladder has been previously evacuated. This uterine reflection of the peritoneum is not firmly attached, and after a transverse incision through it, its edge above and below is sutured to the margin of the parietal sheet of the peritoneum. Buttonhole sutures are preferable, as a continuous suture might draw up the opening too small. The lower segment of the uterus is then incised across, avoiding the side veins, and the child and afterbirth are delivered, after which the lower segment of the uterus is sutured, then the fascia and the skin. The operation requires a little more time than ordinary Cesarean section, but this is immaterial. The main question is whether or not the suture of the lower segment of the uterus is going to hold. He made no attempt to drain in either of his two cases, although one patient had been repeatedly examined before delivery and there was prolapse of the pulsating umbilical cord, with a flat pelvis and conjugate vera diameter of only 6.25 cm. This technic, Veit declares, not only prevents entrance of putrefaction germs into the abdominal cavity, but the cavity is kept dry and there is no production of a medium favorable to the growth of germs. The abdominal wound offers a favorable soil, but if local inflammation results not much harm is done if the wound is promptly reopened. If the germs in the uterine cavity are extremely virulent streptococci, then all measures are futile, except, possibly, the use of a serum. Streptococci that are only mildly virulent or that have become attenuated, behave in respect to the abdominal cavity like the putrefaction germs; they prove harmless or are soon conquered when they find no favorable culture medium in dying material. The Frank technic, he states, allows good oversight of the influence of various germs on the course of the wound. It protects the patient against saprophytes and only slightly virulent germs, but, of course, it is unable to render harmless extremely virulent germs.

153. **Epilepsy in Pregnancy.**—Neu's patient was a primipara in the seventh month of pregnancy who suddenly developed fatal fulminating status epilepticus. Her history showed a mild tendency to epilepsy in previous years, but she had been in supposedly good health for a long time. He discusses the question whether or not pregnancy alone is able to develop epilepsy, and decides in the negative, adding that severe status epilepticus in a pregnant woman should always suggest the advisability of emptying the uterus.

154. **Vaginal Ovariotomy in Pregnancy.**—Democh summarizes 20 cases, reports of which have been published in German literature, and adds one from personal experience. In 17 cases the pregnancy was in the first to the fifth months; posterior colpotomy was the rule in all but 2. Omitting 2 cases in which abortion had already occurred, the mortality was zero for the children and the results were excellent for the patients in every way. The mortality with anterior colpotomy was 50 per cent. for the children, but the results for the mother were equally good with both technics.

155. **Appendicitis in Pregnancy and the Puerperium.**—Stähler cites 12 cases in which appendicitis was diagnosed during the course of pregnancy, once at autopsy and 11 times by an operation, and adds a thirteenth case. This, he says, brings to 111 the cases on record. The histories of these cases suggest that the pregnant condition should turn the scale in favor of an early operation, in the interests of the child. In 38 per cent. of 104 cases the pregnancy continued undisturbed to normal delivery both with and without an operation.

156. **Treatment of Wound in Peritoneum.**—Pankow gives the results of a long series of experiments on animals in which a wound in the peritoneum was treated in different ways. Adhesions invariably formed in case of infection of the abdominal cavity; the conditions were most unfavorable when the peritoneum was injured and left untreated. When the parietal peritoneum was injured until there was diffuse, punctate hemorrhage, adhesions were the rule, but when the peritoneum was cauterized, without hemorrhage into the abdominal cavity, adhesions only rarely formed. The conclusions of the research are in favor of the use of the actual cautery or cauterization

with absolute alcohol or other means, to reduce the danger of infection and formation of adhesions when there is diffuse bleeding over a wounded surface.

157. **Osteomalacia in Westphalia.**—Everke has encountered forty-one cases of osteomalacia in the older part of the city of Bochum during the last 14 years. The affection is extremely rare elsewhere in the district. Insufficient nourishment and damp houses were excluded in all his cases. The patients were almost all multiparæ. The first pregnancies had occurred without trouble, but the osteomalacia developed in the course of the later pregnancies. Total extirpation and castration had a remarkably favorable effect, the pains in bones and muscles vanishing soon after the operation. The pains in the sacrum generally persisted to a slight extent, probably being the result of exhaustion of the muscle and ligament apparatus as the center of gravity of the body was forced forward by the stooping position imposed by the affection. The operation arrested the softening of the bones and they grew hard again and were able to support the body properly. By excluding ovulation and the possibility of a new pregnancy, he asserts, danger of the flaring up anew of the osteomalacia is entirely averted.

158. **Chemical and Histologic Study of Pubiotomy.**—Offergeld performed pubiotomy on large numbers of cats, dogs and rabbits. The defect left healed over with connective tissue; there was no bone formation, although mineral salts became deposited in the cartilage-connective tissue consolidation. Long feeding with phosphorus and lime salts had no effect in increasing the amount of mineral salts deposited in the consolidation, but administration of lactic acid prevented their being deposited at the point. He remarks that it is remarkable that there is no regeneration of bone after pubiotomy. Probably the gap left is too great for stimulation of bone regeneration, especially as the flat bones lack the faculty for regeneration displayed by the long bones. The pubis has exceptionally few nourishing blood vessels. Those it possesses are in the ascending and descending ramus, not at the point where the bone is severed. His experiments show that it is possible to exert a direct influence on the consolidation by increasing the precipitation of lime in the connective tissue at the point. This can be accomplished by rubbing the sawed stumps together and by long applied venous hyperemia, while reducing the intake of water and of organic salts. Under these conditions, the inorganic salts, especially the lime salts, increase in proportion, and the connective tissue consolidation becomes very firm.

Münchener medizinische Wochenschrift.

July 2. LIV, No. 27, pp. 1313-1360.

160 *Colon Bacillus Infection. (Koliinfektion.) H. Fehling.
161 Blood Supply of Rectum in Relation to Operative Gangrene. (Gefässversorgung des Masttdarmes.) P. Sudeck.
162 *Gastric Ulcer, Especially with Reference to Pylorospasm and Hypersecretion. (Klinik des Magengeschwüres.) F. Best.
163 Tuberculin Test in Early Diagnosis of Pulmonary Tuberculosis. (Früh-Diagnose, etc. in der ärztlichen Praxis.) O. Ziegler.
164 Diagnostic Importance of Tests of Association. (Assoziationsversuche.) M. Isserliu.
165 Infant Feeding with Human Milk Heated to 140 F. (Ernährungsversuche.) K. Potpeschnig.
166 Spinous Process Torn Off by Muscular Traction. (Absprengung von Wirbeldornfortsätzen.) F. Sauer.
167 *Autoinjection of Cerebrospinal Fluid in Meningitis. (Ein therap. Versuch bei epid. Genickstarre.) Radmann.

160. **Colon Bacillus Infection.**—Fehling has observed a case in which a pregnant woman was unable to change her linen for some hours after it had become wet with urine. The conditions favored the growth of colon bacilli from the anus, with the result that cystitis developed, followed by pyelonephritis. In another similar case the woman washed the parts so energetically that cystitis and pyelonephritis followed. In these cases the cystitis was the first to develop, and colon bacilli were found in pure cultures in the bladder urine, which during the acute stage was sometimes as white as milk. In postoperative infection staphylococci and streptococci always appear first in the urine, and colon bacilli not until much later. Pure coli infection is generally a local process, the blood being almost invariably sterile. If both kidneys become affected, abortion is liable to occur spontaneously or may have to be induced to save the mother. In a recent case a surgeon advised removal of the affected kidney, but after artificial premature delivery the process in the kidney subsided spontaneously. A year later the patient passed through a normal pregnancy. Fehling reports further two cases of colon bacillus infection of the pregnant uterus. The bacilli had evidently found their way into the uterus and had been swallowed by the fetus in the amniotic fluid. The result was severe infection of the fetus and inflammation of the uterus, but the women soon recovered after induced delivery. In both these cases the mother's blood was sterile while the fetal heart contained colon bacilli and cocci. There was no other process in the mother in one case, but in the other there were evidences of cystitis and pyelonephritis. All the symptoms subsided after delivery. He also describes a case of pure colon bacillus sepsis, the eighth in the literature. The woman succumbed on the sixty-eighth day after pubiotomy. Forceps had been required later and manual removal of the placenta. This experience converted him to the subcutaneous technic for pubiotomy.

162. **Gastric Ulcer.**—Best cites a number of examples to show that the prospects of healing of a gastric ulcer depend largely on its location. Those in the pyloric region have to stand much more strain and traction, and pylorospasm and hypersecretion, with motor insufficiency and dilatation of the stomach, are liable to be the result of the vicious circle caused by the ulcer. Best agrees with Krönlein that every case of evident stenosis of the pylorus indicates operative treatment. He has found that the swallowing of air is a comparatively frequent accompaniment of stomach affections, and aggravates them by dilating the stomach and causing salivation. When encountered, it is an additional argument in favor of operative treatment, as he knows of no cure for the habit.

167. **Subcutaneous Autoinjection of Cerebrospinal Fluid in Meningitis.**—Radmann had only two opportunities to try this treatment, but thinks that it has a future as a form of serotherapy. His experience has convinced him of its harmlessness and of its apparently good results. After withdrawal of 25 c.c. of cerebrospinal fluid by lumbar puncture to relieve the patients, at about the ninth day of epidemic cerebrospinal meningits, he reinjected 8 c.c. of the patient's own fluid under the skin of the forearm. He thinks that no harm would be done by injecting the patient's own fluid in large amounts from the first, in case the diagnosis is assured. There was no local reaction in his cases, but it might follow injection of the fluid in case of ordinary suppurative meningitis or mixed infection.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

ANATOMY OF THE BRAIN AND SPINAL CORD, with Special Reference to Mechanism and Function. By Harris E. Santee, M.D., Ph.D., Professor of Anatomy in the College of Physicians and Surgeons, Medical Department, University of Illinois. Fourth Edition, Revised and Enlarged. Illustrated. Cloth. Pp. 454. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

TEXT-BOOK OF CLINICAL ANATOMY for Students and Practitioners. By Daniel N. Eisendrath, A.B., M.D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois. Second Edition. Thoroughly Revised. Cloth. Pp. 535. Price, $5.00. Philadelphia and London: W. B. Saunders Co., 1907.

PHARMACOLOGY AND THERAPEUTICS. By Reynold Webb Wilcox, M.D., LL.D., Professor of Medicine at the New York Post-Graduate Medical School and Hospital, etc. Seventh Edition, Revised, with Index of Symptoms and Diseases. Cloth. Pp. 885. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co., 1907.

POINTS IN SURGICAL ANATOMY OF THE TEMPORAL BONE from Birth to Adult Life. By Arthur H. Cheatle, F.R.C.S., Aural Surgeon to King's College Hospital and to King Edward VII's Hospital for Officers. Cloth. Pp. 129. Price, $1.25. London: J. & A Churchill, 1907

THIRD ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE for the Study, Treatment and Prevention of Tuberculosis. Feb. 1, 1905, to Feb. 1, 1906. Edited by Joseph Walsh, A.M., M.D. Paper. Pp. 410. Philadelphia: Henry Phipps Institute, 1907.

INTERNATIONAL MILITARY-MEDICAL STATISTICS FOR THE YEAR 1906. Supplement to the Annual Report of the Surgeon General of the Army for the Year 1907. Paper. Pp. 14. Washington: Government Printing Office, 1907.

FIRST ANNUAL REPORT OF THE MOUNT SINAI HOSPITAL SOCIETY, 17 Staniford St., Boston. Together with a List of the Officers and Members. Paper. Boston: Ashland Press, 1907.

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Original Articles

HEMOPTYSIS DUE TO TUBERCULOSIS.

A PRELIMINARY STUDY.*

J. M. ANDERS, M.D., LL.D.

Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College, Consulting Physician to the Jewish Hospital and Widener Home.

PHILADELPHIA.

The pathologic etiology should naturally engage our attention first and foremost in a discussion of the subject of hemoptysis dependent on tuberculosis. Broadly speaking, we may subdivide the cases in (a) those occasioned by congestion of the bronchial mucosa and lung texture and (b) those due to ulceration or erosion of vessels, or rupture of miliary aneurisms.

BLEEDING DUE TO PULMONARY CONGESTION.

When hemorrhage takes place before gross lesions are detectable by means of the physical signs or the *x*-ray in tuberculosis, we ascribe them offhand to congestion of the bronchial mucous membrane and of the lung texture. The earliest pathologic changes in this disease are not directly connected with blood vessels, although the adjacent tissues are the seat of inflammatory processes which may manifest a hemorrhagic tendency. The query is pertinent: Can we ascribe the principal hemorrhages of the earlier stages to congestion?

It may be reasonably questioned, as pointed out by Garland,[1] whether in point of intensity the hyperemia of early pulmonary tuberculosis is equal to that of many other acute and chronic diseases of the lungs in which the tendency to free bleeding is decidedly less marked. It is probable that minute areas of necrosis are already in evidence and responsible for these early hemorrhages. At all events, in cases in which hemoptysis appears before the occurrence of any other initial symptoms of pulmonary tuberculosis, the *x*-ray shows the presence of the characteristic opacities, and tubercle bacilli can often be isolated from the sputa during and after the hemorrhage. That a high grade of congestion is a factor, however, is seen from the significant influence exerted by violent or prolonged physical exercise in the production of hemoptysis, both in tuberculous and non-tuberculous subjects.

This brings us at once to a realization of the fact that the heart can not be omitted from consideration in the pathogenesis of hemoptysis due to tuberculosis. As elsewhere remarked,[1] the cases of lung tuberculosis that are associated with chronic valvulitis affecting the mitral segments manifest symptomatic hemoptysis more commonly than the ordinary uncombined type of the disease, thus showing apparently the effects of marked hyperemia. In the congestive bronchitis that attends chronic valvulitis and also that of the collateral septic processes in phthisis, the lumen of the vessels and capillaries is enlarged and this may lead to small hemorrhages, but the usual course is undoubtedly the pulmonary vessels (*vide infra*). The current opinion that the earlier bleedings in the course of pulmonary tuberculosis are dependent on congestion of the bronchial mucous membrane does not rest on secure pathologic grounds. It is to be recollected, however, that high tension in the pulmonary circuit leads inevitably to vascular sclerosis of the pulmonary vessels so that deficient nutrition at length favors leakage and consequent hemoptysis. Now, it is known that the walls of blood vessels are early affected, i. e., weakened by endarteritis in pulmonary tuberculosis; and, "while there are as yet few proteins and the living bacillus plays the chief rôle, the healthy wall of the smaller pulmonary vessels is apt to become invaded and eroded, giving rise to a hemorrhage" (G. Cornet). It is not improbable that hemorrhage may at times proceed from poorly supported capillaries or a want of outside pressure.

HEMOPTYSIS DUE TO ULCERATION OR EROSION OF VESSELS AND RUPTURE OF MILIARY ANEURISMS.

Rasmussen[2] first showed that fatal pulmonary hemorrhage is probably always caused by rupture of an aneurism in a lung vessel. Brown[3] has also emphasized that few, if any, "well authenticated cases of fatal hemoptysis have occurred from rupture of the pulmonary vein or bronchial artery."

The method of growth of the tuberculous granulomata into the caliber of vessels explains satisfactorily how rupture of their walls, with ensuing hemorrhage, may occur, even at a comparatively early stage of the disease. The less frequent occurrence of pulmonary hemorrhage during the advanced stage of tuberculosis is ascribable to endarteritis which is slowly developed, with resulting thickening of the vascular walls, hence offering increased resistance to the invading forces.

R. E. Thompson[4] has long since pointed out that no case of profuse hemorrhage proceeds solely from the bronchial artery. It must be remembered, however, that where there is a general tendency to hemorrhage a portion of the blood may come from the bronchial mucous membrane.

It is especially true in cases that pursue a rapid course or those in which the processes of softening and liquefaction progress rather acutely that bleeding from eroded vessels is most apt to arise. In these instances the vascular walls are not the seat of endarteritis owing to the short duration of the tuberculous process. In the more serious and fatal hemorrhages we may infer the existence of rupture of vessels due to pathologic changes in their walls leading, as a rule, to aneurismal dilatation before the accident occurs. The development of the latter condition is favored by the removal of the tissues which serve as an external support to the vascular walls.

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* Read before the American Climatological Association, May 7, 1907.

[1] Edinburgh Med. Jour., 1868.

[2] Anders: American Jour. Med. Sciences, Jan., 1902.

[3] Ibid., Aug., 1906.

[4] Causes and Results of Pulmonary Hemorrhage, Smith, Elder & Co., 1879.

Finally, the dislodgment from quiescent or healed cavities of calcareous masses may be followed by slight hemorrhage, most probably occasioned by the rupture of capillaries.

EXCITING FACTORS.

It is undoubted that in a considerable percentage of cases of pulmonary tuberculosis there is a hemorrhagic tendency, and in such a veritable hemoptysis may be induced by increased pressure in the pulmonary circuit. That hemoptysis may manifest dependence on an hereditary taint is a matter of personal observation; this is especially true of families that show hemorrhagic proclivities. In several cases under my observation, early pulmonary bleedings (i. e., before the physical signs and the *x*-ray gave indications of pathologic changes) were associated with hemorrhage from other mucous outlets as the stomach and nose. Hemoptysis may have, as its exciting factor, an aggravation of the cough. Dobell found that not less than 76 out of a total of 90 cases of hemoptysis were excited by this symptom.

In my cases, muscular exertion, more especially if long continued or combined with fits of passion or mental excitement, has preceded the occurrence of symptomatic hemoptysis in a considerable percentage of cases and it deserves to rank higher as an exciting factor than is generally believed. In these instances we may attribute the leakage to congestion with rupture of diseased vascular walls provoked by exertion. Indeed, in one of my cases a fatal hemorrhage occurred in a female patient, aged 25 years, after a hurried walk to church about a mile distant. Although no postmortem examination was permitted to furnish positive proof, the existence of a small cavity in the apical region of the right lung explained the pathologic cause of the accident.

Franz Stricker made a statistical study of this symptom in relation to tuberculosis covering a period of five years (1890-95) in the Prussian army. The total number of cases admitted to the hospital was 900. In 480 cases the hemorrhage developed without recognizable cause, and, of these, 417 cases (86 per cent.) were certainly or probably tuberculous. Stricker draws the following, among other, conclusions, namely: "That soldiers attacked with hemoptysis without special cause are in at least 86.8 per cent. tuberculous. In the cases in which the hemoptysis follows the special exercises, etc., of military service at least 74.4 per cent. are tuberculous. In the cases which come on during swimming or as a consequence of direct injury to the thorax, about one-half are not associated with tuberculosis."[5] As pointed out by Frick, "so long as a tuberculous subject has not spat blood he is able to persuade himself that he has not consumption, but after he has spat blood he takes it for granted that he has the disease." He continues: "There is really more reason for this popular verdict than we would at first sight think. Blood spitting is undoubtedly, in some cases at least, due to mixed infection and frequently occurs with the breaking down of tissue." Flick, Ravenal and others hold that hemoptysis is generally caused by a secondary infection with the pneumococcus. In many cases, however, exciting factors, if any be at work, are not obvious.

INCIDENCE.

Hemoptysis is universally held to be a frequent symptom in tuberculosis. According to a table given in the Second Annual Report of the Henry Phipps Institute, it was present at one time or another in 1.130 out of 2.344 cases. In proof of the extreme frequency of the occurrence of hemoptysis, I desire to present certain statistics which include 214 cases from my private case records, 300 from the out-patient department of the Medico-Chirurgical Hospital (covering a period of six years) and 78 from the practice of Dr. A. H. Lowenburg, who is in charge of the dispensary service, making a totality of 589 cases; of these, 169 of the patients, or 28.7 per cent., manifested blood spitting. These cases, however, were not all followed until the death or recovery of the patient; hence the percentage in which hemoptysis occurs at some period throughout the entire course of the disease must be much higher. For example, if we consider only the cases from private practice, numbering 289, the percentage rises immediately from 28.7 to 41.8, but it is to be recollected that even these patients were under observation less than half of their duration; hence, I feel strongly that Osler is probably not far wrong in stating that it is a feature in from 60 to 80 per cent. of all cases of tuberculosis.

AGE AND SEX.

Of 1,084 cases of tuberculosis studied by Thompson, the female sex was found to show greater liability to hemoptysis than the male "in the relation of 65 to 62 per cent." Of the total number in which the sex was given (589 cases), my figures show the following: 1. That the liability to tuberculosis is shown at an earlier period of life in the female than in the male, in the proportion of 10 to 6 before the twentieth year and 7 to 1 prior to the tenth year (Table 1 and Fig. 1). 2. That hemoptysis is manifested earlier in life, probably dependent on increased incidence in the female sex during the first two decades as compared with the male (Table 2 and Fig. 2).

TABLE 1.—AGES BY DECADES AT WHICH TUBERCULOSIS OCCURRED.

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Males	1	32	154	106	45	12	6	0
Females	4	32	87	61	25	9	2	0
Total	5	64	241	167	70	21	8	0

TABLE 2.—AGES BY DECADES AT WHICH HEMOPTYSIS OCCURRED.

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Males	0	7	53	40	15	3	2	0
Females	0	11	30	22	10	4	0	0
Total	0	18	83	62	25	7	2	0

My observation and statistical studies go to show that profuse and fatal hemorrhages are somewhat less common in the female than the male sex, although the sexual differences in this respect are less pronounced than certain writers would lead us to believe.

SEASONAL INFLUENCE.

The occurrence of hemoptysis considered in relation to the seasons has been the subject of statistical study. My own figures (Table 3 and Fig. 3) give a summary of 157 cases for each month of the year.

TABLE 3.—SHOWING SEASONAL INFLUENCE ON HEMOPTYSIS.

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	9	14	19	13	16	14	16	16	8	11	10

A glance at the above figures can not fail to show a seasonal influence on the prevalence of pulmonary hemorrhage. It will be observed that the spring and summer months give the highest coincidence and this is in consonance with accepted opinion regarding the relaxing and enervating effects of heat as well as the influence of the marked oscillations of temperature and humidity during the spring months as causative factors. Sudden, extreme changes of weather bring about intercurrent acute bronchitis and an aggravation of the cough which tends to excite bleeding.

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[5] Osler, Text-book of Medicine, p. 326.

Conversely, the months exhibiting a steady, stimulating cold—December, January and February—have a preventive influence, as shown by their smaller numbers. I should add that the above figures concerning the influence of the seasons on pulmonary hemorrhage strongly corroborate the points brought out by Thompson in his statistical inquiry in England, although the latter was not confined to hemoptysis in the course of tuberculosis.

The strong tendency to recurrences of the hemorrhage is shown by my statistical inquiries. Thus of the totality of cases 589, a second outburst occurred in 292, or about 50 per cent. Considered with regard to the stage of the tuberculous process, my figures indicate that in 75 per cent. of the instances hemoptysis appeared in the first and early part of the second stage, or that of softening. In this respect, our collective investigations support the views expressed above on the subject of the pathogenesis of the condition.

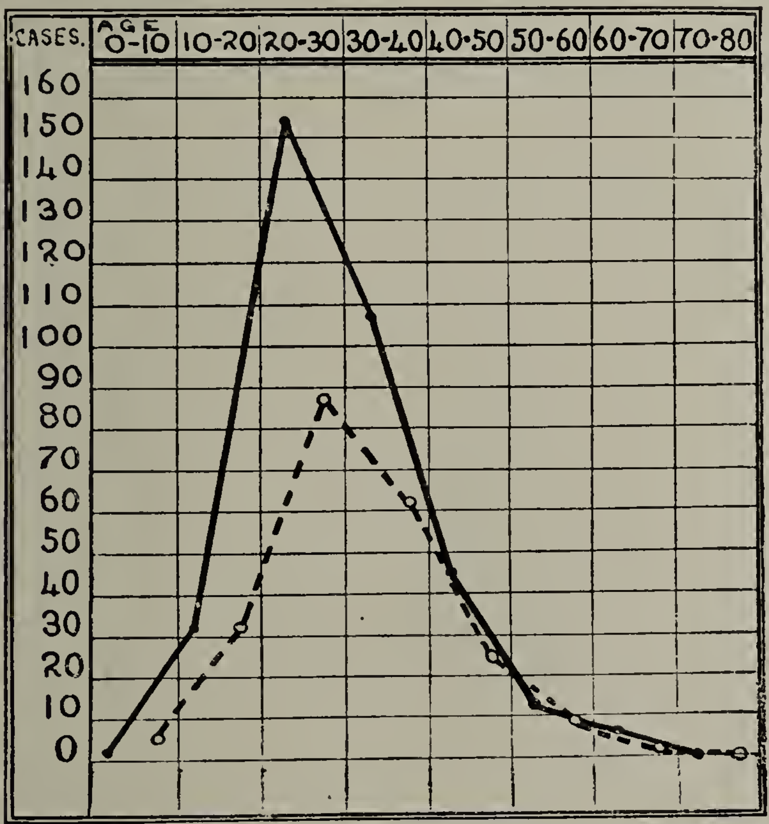

Fig. 1.—Chart based on Table 1 showing sex-ages by decades at which tuberculosis occurred. Solid line indicates males; broken line, females.

CLINICAL PECULIARITIES.

We must look on hemoptysis as being the resultant of existing tuberculosis, although neither symptoms nor physical signs may betray the presence of the latter disease prior to the occurrence of the blood spitting. This dictum was originally advanced by Laennec and Louis and later by Traube. Many of these patients have no recurrence and subsequent symptoms of tuberculosis do not develop; such may be regarded as instances of spontaneous arrest or even cure of the affection. Again, hemoptysis is commonly followed by the characteristic evidences of chronic phthisis or it may be after the lapse of months and even years that the rational symptoms and physical signs of lung disease first appear.

Wilson Fox[6] made the interesting observation, which I and others have since confirmed, that hemoptysis, even when considerable in amount, does not seem to exert any influence on the reduction of temperature in the majority of cases at least. Advanced cases sometimes show a fall of some extent, which may last for a period of several days. Now, while in some instances no variations of temperature occur and in a few a slight lowering, it is a well-known thermometric observation that fever and often decided pyrexia develops during and immediately after the blood spitting. Moreover, a moderate depression of temperature may be promptly followed by a notable rise, lasting a number of days.

The explanation of these elevations of temperature offers notable difficulties. When of brief duration they may be occasioned by alarm and demoralization of the patient, as shown by cardiac palpitation, mental agitation and other nervous concomitants. In the case of large hemorrhages which induce marked symptomatic anemia, the ensuing restlessness and febrile disturbance have as an added causative factor the anemia. These traditional explanations for the occurrence of fever, however, need to be further investigated. But the query arises, What new theory can be advanced on rational, clinical and pathologic grounds? May not fever, when a sequel of hemoptysis, be symptomatic of a fresh area of tuberculous inflammation occasioned by the liberation of infective material which is conveyed partly by gravity, but chiefly by aspiration to the surrounding bronchioles and air cells? The daily exacerbations of temperature, sometimes observed for days or even weeks after a hemorrhage, may also, it seems to me, be attributable to localized strictural alterations, which permit the absorption of toxic substances at the seat of the ulceration or erosion. As before stated, the majority of the bleedings occur after secondary infection with the streptococcus has occurred.

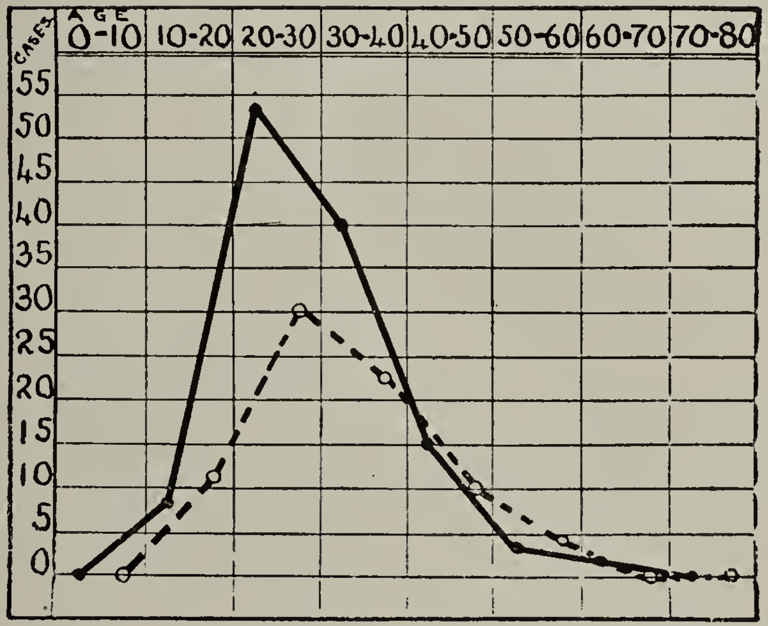

Fig. 2.—Chart based on Table 2 showing sex-ages by decades at which hemoptysis occurred. Solid line indicates males; broken line, females.

I hold it to be exceedingly difficult to determine the source of the blood in a minority of the cases of pulmonary hemorrhage, and in a case seen recently the blood was thought for a time to come from the stomach. The points of detection to be found in text-book literature are: A tickling about the fauces, a saline taste, blood brought into the mouth by the act of coughing, a bright red color appearance, frothy and mixed with mucus. The character of the blood expectorated may not give unfailing proof of its origin, however, and this is especially true of a sudden, copious, pulmonary hemorrhage. In these cases, the color of the blood may be dark, not having been exposed to the air in the lungs long enough to be changed to arterial brightness. In dubious cases of bleeding of moderate grade, rigid search is to be made for bits of mucus, from which either bacilli or elastic tissue may be isolated. A blood-tinged sputum during the subsequent few days—a common sequel—is a point of great support in hemoptysis and the same is equally true of evidence of pre-existing lung disease.

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[6] Temperature of Phthisis, Medico-Chir., Trans. lvi, 399.

According to personal observation, it is beyond doubt that there is a form of hemoptysis, which recurs at long and regular intervals of time; this might appropriately be termed recurrent or, since all cases tend to recur, periodic hemoptysis. Although far from common, brief reference should be made to it for prophylactic and therapeutic reasons. It is clear that unusual watchfulness at the time of the expected hemorrhage would be effectual in preventing recurrences. Whether this clinical variety is separated from the usual type either etiologically or pathologically, I am unprepared to state. In the cases observed, the intervals between attacks have been one year, as a rule, and the most favored season, spring. The physical signs of adhesive pleuritis at the base were found in association in two of these cases and the pulmonary lesions slight and practically non-progressive. Indeed, the rather free bleedings were invariably followed by decided improvement which lasted for months together.

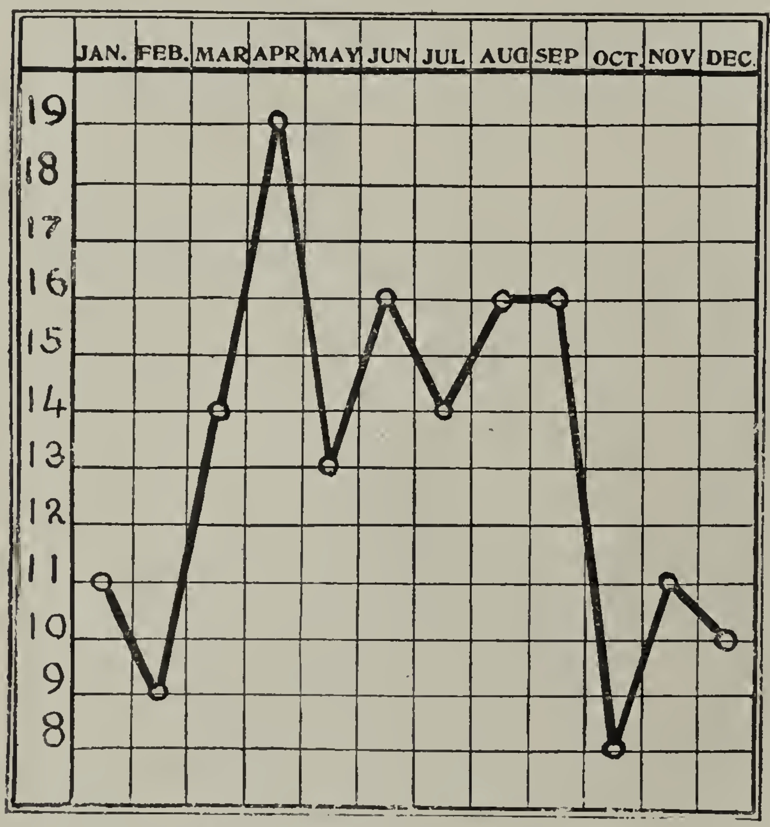

Fig. 3.—Chart based on Table 3 showing seasonal influence on hemoptysis in a total of 157 cases.

SUMMARY OF TREATMENT.

A retrospective view of the various methods of treatment employed during a comparatively brief period of time indicate clearly a notable diversity of opinion on the subject. It must be admitted also that certain well-founded principles and facts are but dimly recognized by the present generation of physicians. For example, the bleeding from the hyperemic lung texture affords decided relief to the local pathologic condition, but more than this symptomatic improvement lasting weeks and months may be a secondary result. Again, the profession has, it seems to me, an imperfect notion of the therapeutic value of absolute rest in this condition, as well as of appropriately restricted feeding, with light, unwarmed articles of diet.

Prophylactic measures of signal importance to the sufferer from hemoptysis are, I fear, systematically and inexcusably neglected by the mass of the profession. The avoidance of undue muscular exertion, of the free use of stimulants and strong mental excitement is to be strenuously enjoined. Certain climatic elements exercise a favoring influence and these are to be adversely considered in making a selection of a suitable habitat for the individual patient. Curtin long since pointed out that a residence far removed from the sea coast is best for patients suffering from hemoptysis, and, further, "that a rarified, but also a cold, dry, aseptic air would be most useful."

The remedial treatment is unsatisfactory and unpromising in view of the fact that, while numerous medicinal agents have been recommended, but few have given reliable evidence of their efficacy. It is in order that we put into force the few whose curative virtues have been proven. Unless there be obvious danger of inundation of the uninvolved lung tissue, as in cases of profuse hemorrhage, the cough should be arrested by the use of codein or, if troublesome, by morphin administered hypodermatically. It is necessary to stop disturbance of the bleeding point by coughing in order to give opportunity for the formation of a clot—Nature's own method of arresting hemorrhage. Hot drinks and alcoholic stimulants, if previously taken, must be intermitted.

My own best results during the early active stage of hemoptysis have been obtained from the strict enforcement of absolute recumbency and quiet, the patient not being allowed to speak aloud nor to put forth any muscular exertion, and an arrest of the cough by codein in the milder forms and morphin hypodermatically in the severer cases. The single contraindication to the use of opium has been pointed out, and if we accept the small class of cases in which it obtains, morphin or opium in some form, rightly administered, is the most serviceable single remedy at our command; its signal virtue, I repeat, being ascribable to the remarkable enhancement of a coagulum at the seat of bleeding. I feel confident that the perils, near and remote, incident to copious or otherwise protracted bleedings can be most successfully obviated by its judicious employment. My earnest plea is for a wider use and closer attention to the practical application of this sovereign agent. The importance of controlling the cough receives striking confirmation from the investigation of Dobell, previously mentioned. J. B. Walker[7] also emphasized the value of opium in the treatment of hemoptysis in a paper read in 1889.

During the first twenty-four or forty-eight hours, according to the size of the hemorrhage, the patient should be kept well under its influence, the object being to stop the cough. Meanwhile the thorax must be carefully and frequently auscultated, and should abundant, moist or bubbling râles be audible over the previously uninvolved portions of the lung—a rare event except in case of rupture of a miliary aneurism—it is to be regarded as a signal for the withdrawal of the opiate.

While the arterial pressure in the lesser circulation is less than in the greater or the arterial system, it is subject to decided variations. The hypertrophy of the right ventricle which develops in the course of pulmonary tuberculosis it is fair to assume maintains an abnormally high degree of pressure in the cardiopulmonary arc. This increased pressure may be also brought about by remedies that produce vaso-constriction in the peripheral vessels, such as ergot, and it is most probably accentuated by the forcible action of the heart in consequence of nervous excitation occasionad by hemorrhage. It is clear that a pure cardiac sedative, e. g., aconite, by lowering the tension in the lung vessels, must meet an important indication, and it may be prescribed with much confidence in its efficacy. I have found aconite to be highly serviceable in one-drop doses every third hour; it is especially useful in cases presenting fever. Lawrason Brown[8] suggests "that the blood pressure be frequently observed, that morphin be used when necessary to quiet the patient and so equalize the blood pressure, that sodium nitrite be exhibited to reduce when necessary the blood pressure, and that in case of a sudden hemoptysis amyl nitrite be administered at once when possible, to produce a marked fall in the blood pressure and so aid in a temporary cessation at least of the hemoptysis."

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[7] Treatment, Other Than Climatic, of Hemoptysis in Chronic Pulmonary Disease, Trans. of the Amer. Climatological Assn., 1889.

N. A. Johanson[9] states that, in his experience, atropin in doses of gr. 1/50, repeated every twelve hours, has stopped hemorrhage when all other remedies have been of no avail. R. H. Babcock gives an immediate injection of atropin sulphate (gr. 1/50 to 1/25) when hemorrhage occurs from a cavity.

Successful treatment of the case in question must always be preceded by its reference to one of two categories previously mentioned, to-wit: (1) in which the hemoptysis is due to congestion or erosion of the smaller pulmonary vessels (most common); (2) in which there is profuse hemorrhage due to erosion of the larger pulmonary vessels or rupture of a small aneurism (comparatively rare).

The differentiation is greatly aided by remembering that the first class is composed principally of the early-appearing cases, while the second class represents the cases which, in addition to showing profuse hemorrhage, occur at an advanced stage of this disease, as a rule. As stated in other connections in this article, the point of highest importance in the treatment of hemoptysis according to the nature of the lesion producing it is that in profuse hemorrhage proceeding from one of the larger vessels or a ruptured aneurism, the cough is to be encouraged rather than stopped. Opiates are contraindicated.

SYSTEMIC BLASTOMYCOSIS AND COCCIDIOIDAL GRANULOMA.

LUDVIG HEKTOEN, M.D.
CHICAGO.

INTRODUCTION.

Since the description by Gilchrist in 1894 of blastomycetic dermatitis numerous instances of this infection have been recorded by American observers. The clinical course, the characteristic double-contoured, budding organisms, and the distinctive gross and microscopic anatomy—especially the marked epithelial hyperplasia, the minute epidermal abscesses, and the peculiar granulomatous infiltration of the corium—early established the entity of blastomycetic dermatitis so firmly that denial of its existence, especially by certain German writers, never has received serious notice. H. G. Wells discovered the first case in Chicago, and the large number of cases observed in this city, especially by Professor Hyde and his associates, is noteworthy. Whether this apparent relative frequency of the disease here is in any way due to accidental conditions or to our being in the midst of an especially heavily infested territory remains to be seen.

The interest in blastomycetic infection enlarged when it became known that this infection may be systemic. Since 1902, when J. W. Walker and F. H. Montgomery reported the first case, nine cases of systemic blastomycosis have been reported from Chicago and its vicinity, and it is my purpose in this short communication to present in summary form the essential facts concerning these and certain other cases and to make certain comparisons with the so-called coccidioidal granuloma of California. Busse's well-known case of "saccharomycosis hominis," reported in 1894, and studied also by Buschke, clearly resembles, in many important details the cases reported from Chicago under the general name of systemic or generalized blastomycosis, and it is therefore placed first in the tabular summary. Curtis' case of human saccharomycosis also appears to belong to this group, and is therefore included in the list.

SUMMARY OF RECORDED CASES OF SYSTEMIC BLASTOMYCOSIS.

1. Busse-Buschke (Busse, *Virchow's Archiv*, 1896, cxliv, 360; Die Hefen als Krankheitserregen, 1897; Buschke, Die Hefemykosen bei Menschen und Tieren, *Volkmann's Sammlung klin. Vorträge*, No. 218, 1898; Buschke, Die Blastomykose, 1902.): Woman, aged 31, housewife, born and lived in Germany.

Onset and Course of Disease.—Soft tumor below the knee containing glairy, reddish fluid; later disease extended to knee joint; abscess near elbow, also in left sixth rib; according to Buschke, ulcers, sometimes healing spontaneously, would appear on neck and forehead previously to development of tibial abscess. Busse describes ulcers on face as small and round with raised borders; coalescence formed larger sensitive ulcers; subcutaneous foci would form ulcers. Death.

External Lesions.—Borders of cutaneous ulcers sharp, irregular, undermined and infiltrated, surrounded by livid zone; bases composed of soft granulation tissue; numerous double-contoured parasites, often budding,, in sections which on surface showed fibrin, polymorphonuclear leucocytes and red corpuscles, and a little deeper, giant cells, leucocytes, and small abscesses; epithelium either destroyed or proliferating.

Internal Lesions.—Abscesses in the right ulna, tibia, left sixth rib; abscesses and minute nodules in lungs, left kidney and spleen. No tubercle bacilli.

Microbiology.—Beginning cutaneous ulcers covered by crust, always gave pure culture of fungus. Pure cultures from abscesses in ulna and rib and from certain skin lesions, the organism proliferating chiefly by budding; Buschke, however, speaks of mycelium with cornidia; no endospores. Fungus not found in urine during life, but eight weeks before death a pure culture was obtained from the left median vein (Buschke). Organism virulent for dogs, rabbits, guinea-pigs, cats, white mice, causing inflammatory changes, the multiplication being by budding. Alcohol and carbon dioxid produced in grape sugar solution. Typical ulcers produced experimentally on skin of patient by rubbing in pure cultures (Buschke).

2. Curtis (*Ann. de l'Inst. Pasteur*, 1896, x, 448): Male, aged 20.

Onset and Course.—Tumors in various parts of trunk, neck and extremities arising in the course of a few months. Death presumably from internal growths or meningitis after one and one-fourth years. No autopsy.

External Lesions.—Skin in places intact, in places ulcerated over tumors or abscesses, some of which were soft, others firm. Tumors composed almost wholly of organisms, intracellular and extracellular, the latter often double-contoured.

Microbiology.—Cultures obtained with which could be produced in white rats growths resembling those in the patient as well as disseminated internal nodules. No sporulating forms.

3. J. W. Walker and F. H. Montgomery (F. H. Montgomery, *Jour. Cut. Dis.*, 1901, xix, 26; J. W. Walker and F. H. Montgomery, The Journal A. M. A., 1902, xxxviii, 867): Man, 33 years old, resident of Chicago, carpenter.

Onset and Course.—Seven years before coming under observation pimple developed in skin of right shoulder following irritation and scratching; crusting and slow increase in size up to about silver dollar when stationary for years, then growth again particularly between scapulas. Recurring attacks of chills and fever lasting a few days, with signs of pulmonary involvement began 43 days before death, soon after curetting of original lesion. During this period lesions occurred under the right eye, in left temple, and in back. Lesions at first subepidermal, elevated, red, semiglobular, later epidermis fell off, leaving deep red surfaces soon assuming verrucous appearance. Emaciation, dyspnea, death. Diagnosis: Miliary tuberculosis.

External Lesions.—Original lesion raised, firm, well-defined, surfaces in places smooth, cicatricial, in others warty. Microscopically cellular infiltration in the corium with minute focal accumulations, epithelial proliferation, giant cells, and double-contoured, large organisms.

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8. Amer. Jour. Med. Sci., August, 1906.
9. Denver Med. Times and Utah Med. Jour., June, 1906.

Internal Lesions.—Lungs, liver, spleen and kidney studded with numerous small nodules at first regarded as tubercles, but further study showed numerous typical blastomycetes.

Microbiology.—No cultures. Blastomycetes in lesions. No tubercle bacilli in sputum. Montgomery after long search found a few bacilli like tubercle bacilli in small abscess in skin near surface. Guinea-pig survived many inoculations

4. Gilchrist (*Brit. Med. Jour.*, 1902, ii, 1321): Man, 28 years old, negro.

Onset and Course.—In July, 1897, a small pimple appeared on abdomen which became "raw and red" and grew; a month later a second pimple appeared in right loin and followed same course. No attempt at healing. About 4 years later swellings appeared in right breast and right groin, both rupturing in a short time with discharge of mucoid pus; also fluctuating swelling at right of lower end of spine and swelling in axilla. Temperature 99-101.5 F. "Practically cured" in 6 weeks by 30 grains of potassium iodid three times a day. Gilchrist regards this case as one in which the disease just began to become generalized.

External Lesions.—Over right half of abdomen superficial ulcer, 9x16 cm.; second ulcer, 8x14 cm., extending over back from near right margin of the first; edges raised, smooth, with miliary abscesses, base papillary. Typical features of blastomycetic dermatitis in sections of ulcers.

Microbiology.—Pure cultures of blastomycetes (white mycelial growth with aërial hyphæ) obtained from unbroken abscess in back, from swellings at right nipple and in right axilla. Smears from different lesions showed blastomycetes, but cultures were contaminated. Blood sterile. In sections organisms about 1 micron in diameter. Tuberculoid nodules in lungs of dog injected intravenously with pus from unbroken abscess.

5. Ormsby and Miller (*Jour. Cut. Dis.*, 1903, xxi, 121); Otis and Evans (The Journal A. M. A., 1903, xli, 1075): Man, 56, Swedish by birth, machinist, living in Chicago (?).

Onset and Course.—"Cold in chest" in April, 1902, followed by cough and bloody sputum. In June swelling of skin of thigh leading to discharge and ulcer. In July lesion of nose. Emaciation and weakness. October 8 nodules on arms and legs; 7 days later new crop. Lesions at onset painless nodules in which softening, often rapid, took place, with necrosis of skin and bloody purulent discharge. At one time 93 external lesions were counted. Fever. Lungs solid in places, but no tubercle bacilli in sputum. Laryngitis, purulent conjunctivitis. Death Dec. 4, 1902, body then practically covered with sores and swellings.

External Lesions.—Lesions situated mostly on posterior and internal aspects of legs; also on feet, thighs, upper extremities, scalp, face, chest, buttocks. Ulcers have irregular edges and necrotic floors with black crust. On dorsum of hand the only typical chronic blastomycetic ulcer. Microscopically, a deep nodule consists of enormous numbers of blastomycetes, often in groups, with leucocytes, red corpuscles, plasma, mast and connective tissue cells, as well as giant cells, commonly filled with organisms.

Internal Lesions.—Fibrous and fibrinous pleuritis with whitish nodules; four circular ulcers with smooth borders on epiglottis and larynx. Grayish or yellowish white nodules of varying size, liver, kidneys, pancreas, trachea, larynx—all containing character-liver, kidneys, pancreas, trachea, larynx—all containing characteristic organisms "in immense numbers." Center of nodules sometimes necrotic. Elastic tissue absent. Numerous and large giant cells with organisms. Parasites seen in blood vessel in kidney and in peribronchial lymph node. Lymph nodes otherwise free. Brain not examined.

Microbiology.—Remarkably large numbers of blastomycetes in lesions, especially pulmonary. Pure cultures obtained readily from various places during life and after death. Organism virulent for guinea-pigs and rabbits: in guinea-pigs local ulcers with pin head gray foci; in internal organs infarcts and small foci containing organism in pure growth. In this case thorough search for tuberculosis with negative result (tuberculin reaction absent, no bacilli demonstrated, no tuberculosis in inoculated animals): During necropsy an accidental inoculation of the skin of a participant took place followed by typical local blastomycetic ulcer.

6. Cleary (*Trans. Chic. Path. Soc.*, 1904, v, 105; *Medicine*, 1904, x, 818): Man, 23 years old, Italian by birth, resident in Chicago.

Onset and Course.—Cough, mucopurulent expectoration, diarrhea, loss in weight during winter of 1903. Discharging sinus at right sterno-clavicular junction; albumin and casts in urine; no fever while under observation; edema of legs; signs suspicious of disease of apex of right lung; spleen palpable. Death June 4, 1903.

External Lesions.—None.

Internal Lesions.—Numerous gray and yellow areas, 2-4 mm. in diameter, with soft centers in both lungs, more in left; also, though smaller and less numerous, in kidneys, liver and adrenals, and microscopic foci in spleen and myocardium. Blastomycetes either free or within the giant cells, in all such nodules examined and surrounded by leucocytes and other cells. The center of the nodules commonly necrotic. Sinus in neck connected with small abscess. Amyloid in spleen, kidneys and adrenals. Chronic nephritis; bronchitis; edema of legs. Brain not examined.

Microbiology.—Typical blastomycetes, often within giant cells, but rarely seen in necrotic areas; blastomycetes in bronchioles. No cultures. Nothing said as to tubercle bacilli.

7. Eisendrath and Ormsby (*Ill. Med. Jour.*, 1905, viii, 454; and The Journal A. M. A., 1905, xlv, 1045); final report by Le Count and Myers (*Jour. Infect. Dis.*, 1907, iv, 187): Man, 33, Polish by birth, resident in Chicago, laborer.

Onset and Course.—Preceded by some discomfort in chest (February, 1904); external lesions began to appear in quick succession in June, 1904. When seen on Feb. 5, 1905, he was thin, pale, weak and feverish, with edema of the extremities, albumin and casts in urine, clubbed nails, dulness and bronchial breathing over right upper lobe. Blastomycetes in sputum. Under iodid of potassium internally and dressings local improvement took place, followed by relapse on abandonment of treatment. In September, 1905, symptoms of dorsal spondylitis developed, and in March, 1906, pus began to escape from the gibbus. Involuntary passages, anchylosis, eventually bloody and mucopurulent diarrhea became constant, budding organisms occurring in feces. Death in convulsions Aug. 23, 1906.

External Lesions.—Superficial, partly encrusted ulcerations with elevated edges, containing a few minute abscesses, on the legs; on the face similar lesions but more papillomatous; subcutaneous nodules on forearms and infiltrations with pus. Lesions characterized by epidermal hyperplasia, minute abscesses and numerous giant cells enclosing blastomycetes.

Internal Lesions.—Blastomycotic bronchopneumonia; blastomycosis of the peribronchial lymph nodes, of the pleura, retropharyngeal tissue, liver, kidneys, colon (no organisms found in peculiar nodules in colon), dorsal vertebræ, external spinal dura (with compression of cord), cerebellum, left elbow, both knee and ankle joints, of the skin and subcutaneous tissue with ulcerations, fistulæ and scars; fibrous induration at root of right lung. Area in cerebellum resembled large "solitary tubercle," but with more softening than usual in tuberculous brain foci and with abundant blastomycetes. Nodules in peribronchial lymph nodes and elsewhere possessed minute abscesses and necrotic areas, numerous giant cells and organisms.

Microbiology.—Blastomycetes present in pure cultures in pus; present also in sputum and in ulcers. Cultures of blood and urine sterile. No tuberculosis in guinea-pigs injected with purulent matter. Numerous blastomycetes in sections of lesions and in mass in cerebellum sporulating forms.

8. Bassoe (*Jour. Infect. Dis.*, 1906, iii, 91): Male, 17 years, born and living in Chicago.

Onset and Course.—Swelling in right scapular region since injury from fall in March, 1904. For some time previous pain in lumbar region and gnawing sensations in right upper lung with cough, night sweats and loss of weight. In July, 1904, abscess over right scapula emptied; again, in August when 500 c.c. of pus were evacuated from right lumbar region. Daily fever. Leucocytosis. Blastomycetes in sputum and in pus. Diarrhea. Albumin and casts in urine. Edema. Death June 27, 1905.

No typical cutaneous lesions.

Internal Lesions.—Chronic subcutaneous blastomycetic abscesses in right scapular region and loin; abscess and sinus walls made up of vascular granulation tissue rich in polymorphonuclear leucocytes, mast cells and blastomycetes. Blastomycotic caries of fourth and fifth lumbar vertebræ, with bilateral psoas abscesses, with blastomycetes in giant cells. Disseminated blastomycotic bronchopneumonic foci in both lungs. Areas of necrosis with Langerhans giant cells in the mediastinal glands, but no tubercle bacilli demonstrable. Amyloid degeneration of spleen, liver, adrenals retroperitoneal, mesenteric and mediastinal lymph nodes, kidneys and colon. Bilateral fibrinous pleuritis and mild serofibrinous peritonitis. Chronic parenchymatous nephritis. Atrophy of the heart. Pulmonary edema. Edema of feet and thighs. Trigolysis of ganglion cells of cerebral cortex and ventral horns of the cord (only upper cervical portions of latter examined). Only few giant cells in lungs.

Microbiology.—Pure cultures of blastomycetes from pus during life. After death cultures failed to yield blastomycetes, though organisms were present numerously in bronchial pus, pus from vertebræ and sinus. Colon bacillus and staphylococcus obtained from various organs after death as well as other bacteria. No tubercle bacilli found in sections from lung after careful search.[1]

9. Irons and Graham (*Jour. Infect. Dis.*, 1906, iii, 666): Male, 47 years, German by birth, resident in Chicago, lumberman.

Onset and Course.—In March, 1905, nodule on right thigh, which "broke" and healed slowly with ulceration. Soon other similar lesions on forehead and extremities. Weakness, slight fever, swelling of ankles. When first seen (September, 1905) numerous healed and partially healed superficial lesions, resembling blastomycetic dermatitis, as well as subcutaneous abscesses. Soon cough set in with dulness and râles over lungs and appearance of blastomycetes, but no tubercle bacilli in mucopurulent, occasionally blood stained sputum. New external lesions with sloughing, extensive dissection, even denudation of bone, increasing anemia, leucocytosis, fever. Death Jan. 18, 1906.

External Lesions.—Multiple subcutaneous abscesses and sinuses involving the face, scalp and extremities; erosion of left parietal bone; deep sloughing ulcer of right thigh; numerous superficial ulcers and scars.

Internal Lesions.—Miliary blastomycosis of lungs and spleen; ulcerative blastomycotic bronchopneumonia; retroesophageal abscess with erosion of vertebræ; abscess of thyroid cartilage, fibrous pleuritis; atrophy of heart and liver; enlargement of the spleen and mesenteric lymph nodes. Microscopically nodules in lungs show necrotic centers surrounded by zone of giant cells and new tissue cells; giant cells all contain blastomycetes which also occur free; occasional bronchiole is found in center of area; blastomycetes in large blood vessel in lung near focus; blastomycetes in retroesophageal abscess; blastomycetes in cellular foci in spleen; no giant cells here. No amyloid.

Microbiology.—Cultures from the blood during life sterile; cultures from sputum and pus gave blastomycetes. Streptococci isolated after death from cerebrospinal fluid, liver, spleen, kidney and staphylococcus pyogenes aureus from liver, spleen, retropharyngeal and knee abscesses. Blastomycetes present in lesions, but after death isolated only from kidney. Virulent for guinea-pigs and rabbits causing local abscess and general miliary blastomycosis. Tubercle excluded thoroughly—no bacilli found in sputum, urine of pus, no tuberculosis in inoculated guinea-pig.

10. Christensen and Hektoen (The Journal A. M. A., 1906, xlvii, 247): Male, 28 years, born in Norway, resident in Iowa, farmer and milk-peddler.

Onset and Course.—In November, 1904, acute fever lasting one week; at end of second week numerous red spots and lumps formed on face, neck, head, back and extremities; some subsided, others (especially in scalp) "broke and healed," and others grew into ulcers and abscesses. Loss of weight. In June, 1905, lesions on legs and foot extended; abscesses formed, first submaxillary, then subclavian, and on arms. In fall marked improvement, but in December all healing ulcers broke out again simultaneously; in January, 1906, 60 lesions of skin and subcutaneous tissue, most of them being ulcers and scars. Slight cough with bronchial râles. No tubercle bacilli or blastomycetes in sputum. Urine normal. Local and general treatment, including injections of blastomycetic vaccine, was followed by improvement. After leaving hospital in April, 1906, new foci appeared about right elbow. (For subsequent history I am indebted to Dr. C. Hoegh, Decorah, Iowa.) Cough subsided. Following abandonment of vaccine cutaneous lesions appeared to increase. Early in August pain between shoulder blades, especially on motion, with muscular tenderness, and pain in neck and upper spine on pressure on head. At noon August 15 sudden paralysis with anesthesia below neck. No cerebral symptoms. Some pain in neck, dyspnea, slowly increasing. Death August 16. No necropsy.

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[1] The organism isolated from this case and those from Cases 9, 10 and 11 have been subjected to detailed study by Hamburger, Jour. Infect. Dis., 1907, iv, 291.

External Lesions.—Healed lesions often marked by brown depression. In addition to abscesses nodules with reddish blue skin discharging pus through many minute openings; when a little older red, granular, easily bleeding and tender ulcers would form; older ulcers may have elevated margins with papillomatous, crusted surface in which minute abscesses occur. Microscopically, cellular infiltration, minute abscesses, giant cells, blastomycetes and epithelial proliferation. No tubercles. No caseation.

Microbiology.—Numerous blastomycetes—no tubercle bacilli—in pus which yielded pure cultures of organisms of Ricketts' hyphomycetoid type.

11. Christensen and Hektoen (The Journal A. M. A., 1906, xlvii, 247): Man, 58 years, born in Norway, farmer in Wisconsin.

Onset and Course.—Became acutely ill Jan. 23, 1905; three weeks later large abscess in left lumbo-sacral region, incision; somewhat later another similar attack with chills and weakness and development of swelling in left forearm; then on outside of right thigh, right forearm, and over left trochanter, red spots 2 cm. in diameter, increasing rapidly, forming crusts with offensive odor and assuming appearance of elevated ulcers which would heal partially and reopen. In October painful abscess of right arm, incision, sinus. Cough. Fluctuating swellings of left arm. No enlarged lymph nodes. Bronchial râles, some temperature. In April tubercle bacilli, but no blastomycetes in the sputum. Died in March, 1907.

External Lesions.—Abscesses large as hen's eggs on arms. Ulcer 10x5 cm. on right thigh with undulating, elevated margins, the surface granular or papillomatous, covered with light crust. Warty area over left hip. Ulcer 13x7 cm. on right forearm, healing in center. Microscopically, no tubercles, no caseation, but typical blastomycetic infiltration with giant cells, epithelial hyperplasia and organisms.

Microbiology.—Blastomycetes, but no tubercle bacilli, in pus which yielded pure growths of organisms of hyphomycetoid type. Tubercle bacilli in sputum.

12. Coley and Tracy (*Jour. Med. Research*, 1907,): Male, 24, resident of New York City.

Onset and Course.—Several months after injury to left foot by clam shell, pain in back, and pain and swelling of back of left foot; in a few days fluctuation and a small sinus appeared, also two small swellings on outer aspect of right foot, which became encrusted, with pus underneath; about a week later like lesions appeared on the face and also numerous subcutaneous swellings in various parts, particularly thigh and arms, varying from hazelnut to small hen's egg in size, and usually breaking open spontaneously. Cough appeared and rapid emaciation. Patient still living at time of report.

External Lesions.—Lesions consisted of granulation tissue, infiltrated with leucocytes, and containing giant cells, spherical and budding blastomycetes.

Microbiology.—Blastomycetes in pus; pure cultures obtained; blood cultures sterile.

13. Herrick, J. B. (The Journal A. M. A., 1907, xlix, 328): White, 24, resident of Chicago, wife.

Onset and Course.—April 24, 1904, illness began with "spots like bruises and pains like rheumatism;" first lesions over left gluteal region; during next two years 79 distinct lesions, from 1 to 5 cm. in width, starting as reddish or purplish spots in skin and subcutaneous tissue, and as a rule breaking open spontaneously; largest abscess over left gluteal region opened and drained; in some cases lesions destroyed bone; granulated ulcers with undermined edges would develop, leaving on healing a comparatively slight scar; lesions often highly painful. Usually some fever with exacerbations; no definite pulmonary lesions; anemia, leucocytosis, nervousness and insomnia; iodid of potassium only temporary benefit; while in California February to August, 1906, spontaneous *perfect recovery*.

COMMENTS ON SOME OF THE FEATURES PRESENTED BY THESE CASES.

Age, Nationality, Occupation of Patients.—The ages of the patients in these cases vary from 17 to 58 years. All save two (Cases 1 and 13) were men. The occupations given for the men all involve manual labor. While most of the Chicago cases occurred in so-called foreigners, yet the infection in every case unquestionably developed here either in Chicago itself or in its vicinity. So far there is no definite intimation in any of the published records of systemic blastomycosis that heredity or contagion have been found to play any rôle in the natural spread of the disease.

Eastman and Keene[2] describe an incised wound that became infected with blastomycetes and later with bacillus pyocyaneus; in this case the mother of the patient had been "troubled with boils," and when examined she was found to have in the axilla a hard mass as large as a hen's egg, and at the point of the elbow, where a swelling had existed, there was still some discharge in which were blastomycetes in large numbers. At the same time a son, 19 years old, had a swelling on the hip, which broke spontaneously, but was still discharging. The author regards these as cases of blastomycotic family infection. Albers[3] mentions the fact that the children of a man, who suffered from pain in the chest, cough and loss of strength, and whose sputum contained blastomycetes, had small pustules over the entire body, and the question is raised whether or not the disease of the children was blastomycosis.

Recovery from systemic blastomycosis has occurred in two cases, namely, in Case 4 in which Gilchrist thinks the disease was just beginning to be systemic, and in the interesting case (Case 13) reported by Herrick. In the fatal cases the duration has varied but in all months intervened between the evident systemic outbreak and death.

Onset and General Symptoms.—In some of the cases the onset seems to have been sudden (Cases 10, 11 and 13), and not unlike that of an acute febrile illness, manifestations of systemic invasion appearing shortly in the form of cutaneous, subcutaneous and deeper lesions. In these cases there is no definite indication of any early involvement of the lungs. In other cases (Cases 5, 6, 7, 8) pulmonary symptoms, such as cough, expectoration, discomfort in chest, were among the first to appear, to be followed in most cases before long by localization in various places, weakness, emaciation and fever. In Case 9 the early constitutional symptoms were slight, subcutaneous or subepidermal nodules appearing in various parts without any apparent cause. In Case 3 the systemic outbreak was marked by recurrent attacks of chills and fever, signs of pulmonary involvement and subepidermal lesions.

The lesions of systemic blastomycosis do not appear to be always painful. Some of the ulcers that form are spoken of as tender to the touch; others as highly painful.

The general course and symptoms of the established disease are in the main those of a more or less chronic, essentially pyogenic, infection, with a special tendency to superficial localizations. In the cases with subcutaneous and cutaneous lesions—nodules, abscesses, ulcers—and these cases are the more numerous, demonstration of blastomycetes in the pus or tissues is not difficult. In cases with pulmonary lesions blastomycetes may appear in the sputum, which may be blood stained. Hence there is no special difficulty in the way of a correct diagnosis in most of the cases.

Infection Atrium.—In two of the thirteen cases, namely, Case 3 (Montgomery-Walker) and Case 4 (Gilchrist), is there a history of a typical, chronic blastomycetic dermatitis existing for some time before the outbreak of the systemic infection. In Case 1 (Busse-Buschke) the facts as to this point do not seem to be quite clear. In the other cases, except Case 6, Case 8 and possibly Case 2, there occurred more or less explosive outbreaks, generally associated with well-marked febrile reactions, of subepidermal and subcutaneous lesions, some of which in time developed into typical superficial blastomycetic ulcers with raised borders, warty surface, miliary abscesses and efforts at central healing. In many of these cases the history points quite directly to the respiratory tract as the place of entrance of the infection and the bronchopneumonic character of some at least of the pulmonary lesions (Cases 7, 8, 9) may be taken to indicate their air-borne nature. In one of the cases (9) in which tuberculosis was excluded with especial care, there was some cavity formation in the lungs. The occurrence of blastomycetes in the sputum in some of the cases is of interest first from the point of view of diagnosis and secondly as a means whereby the disease may be communicated to new hosts either by way of droplet or dust infection. The cutaneous lesions also would seem to afford ready avenues for escape perhaps to new hosts.

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[2] Annals of Surgery, 1907, 40, 613.

[3] Trans. Chicago Path. Soc., 1907, vii, 21.

Distribution of the Lesions, etc.—In all the cases the distribution of the lesions as well as the evolution of the visible, external foci show that the dissemination of the organisms takes place in the blood. Indeed, the complete absence in the reports, except in Cases 4 and 7, of any mention of involvement of the lymph nodes, is noteworthy. The actual occurrence of the organisms in the blood has been demonstrated: Buschke obtained pure cultures from the blood in Case 1 and Otis and Evans (Case 5), as well as Irons and Graham (Case 9) found blastomycetes in the blood vessels in microscopic sections. In two cases, namely 6 and 8, were there no gross external lesions, and that in spite of localizations in the lungs, liver, kidneys, adrenals, spleen and myocardium in one, and the subcutaneous tissue, the vertebræ and lungs in the other. In nearly all the other cases the skin and subcutaneous tissue appear to have attracted the most extensive localization, which in some cases, but especially in Case 5, probably the most virulent instance in the series, continued quite steadily, or in more or less definite crops, up to the time of death.

There are several other interesting points worthy of emphasis. Thus the development of blastomycotic spondylitis in Bassoe's case (8) and also in Cases 7 and 10 (in the latter case the clinical course indicates such involvement), is noteworthy; other cases illustrate osseous involvement elsewhere. Here may be mentioned a case recently reported briefly by Brewer[4] of blastomycotic abscesses of the back with involvement of the vertebræ, but without any evidence as to the primary point of infection; the final outcome is not yet reported.

The facts that there has been involvement of the mucous membranes, the larynx and trachea presenting ulcers, in Case 5, and the colon peculiar nodules in Case 7, and that the central nervous system as well as the lymph nodes have been invaded (Case 7), are of great interest, but it is clear that many new cases must be studied carefully, both clinically and anatomically, before the full range of pathogenic possibilities can be defined accurately. Further observations are needed also in regard to the blood in systemic blastomycosis; especially indicated are more extended determinations of the number of leucocytes with differential counts.

In Case 11 there seems no reason to doubt the coexistence of systemic blastomycosis with pulmonary tuberculosis. In such cases it would be especially interesting to study the anatomic changes, gross as well as microscopic, in order to observe the mutual influence the two infections may have on the lesions peculiar to each.

The occurrence of amyloid in Cases 6 and 8 shows that blastomycosis must be included with those infections that may induce this change.

General Character of the Lesions.—Study of human material as well as material from inoculated animals shows that the micro-organisms in question may induce the formation of an inflammatory granulation tissue with numerous giant cells of the Langhans type associciated with more or less extensive suppuration. The relative predominance of proliferative or suppurative processes appears to vary under various conditions. In loose connective tissues, such as the subcutaneous, there seems to be a distinct tendency to abscess. And as shown in Cases 10 and 11 the pus of such abscess may contain pure cultures of blastomycetes. Microscopically, the more or less nodular lesions in which the proliferative changes are well marked, present certain general resemblances to those of tuberculosis. Real caseation and wholly typical tubercles, however, do not seem to occur. The smaller nodular lesions in the internal organs consist essentially of cellular accumulations around blastomycetes which frequently occur within giant cells commonly present in large numbers. When within giant cells and other cells the organisms may lose their adventitious capsules and evidences of disintegration of the organisms are not uncommon. In the older lesions there may be some necrosis in the center. The walls of abscesses contain phagocytic giant cells. In certain cases, e. g., Case 5, nodules or areas may form which consist largely of blastomycetes, which are rapidly proliferating by budding. The typical blastomycetic cutaneous ulcer has been described and figured so often that it is not necessary to go into details. Commonly it seems to begin as a papule or nodule, which softens, yielding a glairy, somewhat tenacious pus; a granulating surface forms which assumes a more or less verrucose appearance, and in the reddened, raised margin may be many minute abscesses. Larger subcutaneous nodules may cause pin-hole perforations of the overlying skin and even necrosis of larger areas. As the superficial lesion advances there is often cicatricial healing in the older parts. Cross-sections show in the active districts, first a papillary zone, and second a deeper, vascular, grayish-red zone, in which may be minute abscesses resting on subcutaneous fat. Microscopically, there are marked epithelial hyperplasia, sometimes spoken of as carcinomatoid, and a granulomatous infiltration of the corium with minute, often intraepithelial, abscesses and giant cells, as well as spherical, double-contoured, frequently budding organisms, generally from 10 to 30 microns in diameter. The number of blastomycetes present in such ulcers may vary, and in some cases prolonged search may be required. In sections from the ulcers in Cases 10 and 11 they were quite numerous. In the pus of larger abscesses the organisms as a rule are numerous and readily demonstrable in unstained smears of the pus diluted with 1 per cent. KOH solution or with the usual salt solution.

General Characteristics of the Micro-Organisms Concerned.—I do not wish to dwell any further on the morphologic details and staining peculiarities of the organisms in tissues. They are brought out quite distinctly by the usual stains, and according to Wolbach,[5] Mallory's anilin-blue stain for connective tissue fibrils[6] colors the capsule bright blue and the protoplasm red. Special stress must be laid on the fact that endogenous sporulation has not been demonstrated definitely in the organisms as they occur in the lesions of blastomycetic dermatitis and systemic blastomycosis, except that Le Count and Myers (Case 7) describe and figure endosporulation in the cerebellar lesion.

In his monograph on blastomycetic dermatitis, Ricketts[7] points out that the organisms cultivated by various observers from the lesions of this disease up to 1902 fall into three groups: 1, Blastomycetoid; 2, oidium-like; 3, hyphomycetoid. All the organisms, however, exist in tissues in the blastomycetoid form and multiply there by budding principally. And such is the fact in all the cases I have tabulated as systemic blastomycosis, except in the forementioned Case 7 (Le Count and Myers), in which sporulating forms were found in the cerebellar mass only. In view of this fact the application to such cases of the term blastomycosis, which has secured a firm footing in the literature, seems not inappropriate, at least for the present. On culture media the blastomycetoid form exists chiefly as spherical or budding cells, but under suitable conditions it may produce abundant mycelium. The Busse-Buschke and the Curtis organisms appear to belong in this group. In culture the oidium-like group forms submerged mycelium which breaks up into chains of "spores," while proliferation by budding is not a prominent feature. The hyphomycetoid group produces fruit-bearing — terminal and lateral spheres — aerial hyphæ, submerged hyphæ, similar to those of the first two groups, and is also capable of multiplying by gemmation. Hence from the first to the third group there is a gradual transit. Ricketts places all the organisms in the genus oidium. The organisms should be studied exhaustively by botanical methods in order to obtain better understanding of the life processes.[8]

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[4] Proceedings New York Path. Soc., 1907, vii, 54.

[5] Jour. Med. Research, 1906, xv, 167.

[6] Ibid., 1905, xiii, 113.

[7] Oidiomycosis (Blastomycosis) of the Skin and Its Fungi, Jour. Med. Research, 1902, vi, No. 3.

THE "PROTOZOIC SKIN DISEASE" OF WERNICKE, RIXFORD AND GILCHRIST—OPHÜLS' COCCIDIOIDAL GRANULOMA.

In 1891 Wernicke described an instance of a nodular and ulcerating skin disease with glandular and visceral involvement, in all the lesions of which were numerous spherical, often sporulating, double-contoured bodies, which he regarded as sporozoa. Posadas reproduced the disease in monkeys. In 1896 Rixford and Gilchrist recorded two similar cases from California which they also regarded as protozoic in nature. In 1900 two further cases were reported, also from California, one by D. W. Montgomery and one by Ophüls and Moffit. Since then several other cases have been observed (see summary). From the Ophüls-Moffit case pure cultures were secured for the first time, and Ophüls, tracing the growth in hanging drops, showed definitely that protozoan-like bodies, in every way similar to those seen in the lesions of the various human cases, give rise to a septate mycelium, which in its further growth forms spore-bearing, aerial and submerged hyphæ. Further, that on inoculation of animals (dogs, rabbits, especially guinea-pigs) with this mould fungus there develop lesions that are similar to the human structure and in that the organisms they contain are spherical, double-contoured, multiplying by sporulation and not by budding. The size of the adult spherical organisms varies from 5 up to 30 microns or so. The sporulating forms which commonly show prickles or bristles on the outside membrane, may contain 100 or more minute spores; burst capsules from which the spores have escaped, or are doing so, may be seen. The protozoan-like bodies consequently belong to the life cycle of a mould which in the animal body multiplies by endogenous sporulation in media by mycelium and chlamydospores. Ophüls seconds the proposition of Ricketts to enlarge the genus oidium so as to include not only the organisms of blastomycosis proper, but also the sporulating variety just outlined, which Ophüls proposes to call *Oidium coccidioides*, and the disease it causes he would name coccidioidal granuloma. The principal facts concerning this disease are given in the summary.

TABULATED SUMMARY OF THE RECORDED CASES OF COCCIDIOIDAL GRANULOMA ("PROTOZOIC SKIN DISEASE").

1. Wernicke (*Jour. de Microg.*, 1891, xv, 14; *Centralbl. f. Bakt.*, 1892, xli, 861); Posadas (*Rev. de Chir.*, 1900, xxi, 277): Man, born and living in Buenos Ayres.

Onset and Course of Disease.—Several years before death nodules began to form on face, trunk and lower extremities; nodules at first small, movable with skin, later often confluent and even ulcerating. Diagnosis: Mycosis fungoides. Left inguinal glands much enlarged. At time of death nearly whole body was involved.

External Lesions.—The cutaneous lesions showed a granulomatous growth in corium, often with central softening and generally with numerous giant cells, all containing coccidioidal bodies 3 to 30 microns in size.

Internal Lesions.—Numerous nodules in lymph nodes and viscera consisting of central giant cell with parasites surrounded by epithelial and embryonal cells. Numerous organisms in inguinal lymph nodes,, as many as 60 being counted in one field.

Microbiology.—Cultures not obtained. Organisms observed regarded as sporulating sporozoa. No budding forms noted. Adult or vegetative form a sphere of granular protoplasm 25 microns in diameter, without nuclei, surrounded by birefractive sac, segmenting or invasive form beginning as small spherule in protoplasm. Organisms virulent for warm-blooded animals, especially monkey, causing same lesions as above, with same parasitic forms, which were constantly present in all inoculated animals.

2. Rixford and Gilchrist (*Johns Hopkins Hosp. Reports*, 1896, i, 209: Man, 40, born in Azores, resident in California, laborer.

Onset and Course.—Disease first appeared on back of neck, extending slowly, remaining localized for 5 or 6 years, when like lesions appeared on eyebrows, nose, cheek, ear, back of right hand. Eventually, after eight years or so, regional lymph glands became involved, intermittent temperature, cough râles in lungs. Both eyes destroyed. Death in January, 1895.

External Lesions.—Destruction of eyes; partial of nose, left ear; extensive scars on face, neck, hand and active lesions about mouth and on scalp; sinus leading to dead bone on tibia and finger. Ulcer on neck 15 x 12 cm. (5 x 4 inches). Hyperplasia of epidermis, inflammatory infiltration with new growth of tissue and minute abscesses, giant cells and numerous "protozoa."

Internal Lesions.—Grayish nodules, 1 mm. in diameter with caseous areas, small cavities and scars in lungs; nodules on pleura, parietal peritoneum (diaphragm and pelvis), and in liver, spleen and adrenals. Purulent foci in bronchial and retroperitoneal lymph glands, in testicles, prostate and seminal vesicles. Mucous membranes normal. Nodules almost identical in microscopic structure with miliary tubercles; caseation. No tubercle bacilli found.

Microbiology.—"Protozoa" (*Coccidioides immitis*) in pus from testes, prostate, seminal vesicles, tibial sinus, sinus in hand and cutaneous lesions (during life), in lung cavities and nodules in adrenals, and infected lymph glands. "Protozoa" spherical, enveloped in double-contoured capsule, 15 to 27 microns in diameter, granular protoplasm; reproduce by sporulation, "sporozoites" escape through rupture in capsule, gradually enlarge and acquire capsule. Cultures failed. Some positive results from inoculations into animals. Infection regarded as coming from without because organisms were found embedded in stratum corneum near hair follicles.

3. Rixford and Thorne (*Occidental Medical Times*, 1894, viii, 704); Rixford and Gilchrist (*Johns Hopkins Hospital Reports*, 1896, i, 209): Male, 33 years, Azores, laborer in California.

Onset and Course.—In June, 1894, hematemesis. In July two small pimples on forehead (left side), which became capped with vesicle and underwent purulent softening; gradual increase to patches 3 cm. in diameter. Shortly after, other spots, rather tender, appeared on face, scalp, trunk and upper extremities. In September glands of neck enlarged; rapid enlargement of epitrochlear gland after appearance of lesion on forearm; there was sore throat and cough; one inguinal node was enlarged; weakness; night sweats; fever. Death Sept. 21, 1894.

External Lesions.—Edges of ulcers red, elevated, ragged, indurated; surface papillary, bright red, covered by pus; 1 to 4 cm. in diameter; sections show numerous minute abscesses, epithelial hyperplasia, inflammatory infiltration, especially with leucocytes, and "enormous numbers of protozoa." No autopsy. Myriads of protozoa in cheesy material from bubo in left groin.

Microbiology.—"Protozoa" similar to those in Case 2, but generally larger and sporulation forms more numerous, sporozoites about 2 microns in diameter. Name of *Coccidioides pyogenes* proposed because of abundant pus production.

4. Ophüls and Moffit (*Phila. Med. Jour.*, 1900, v, 1471); Ophüls (*Jour. of Exp. Med.*, 1905, vi, 443): Man, 19 years, born in Azores, resident in California.

Onset and Course.—Chill followed by pleuritis, irregular fever, dulness over left apex and elsewhere; multiple acute arthritis; osteomyelitis of frontal bone; expectoration mucopurulent and blood streaked; night sweats; no tubercle bacilli in sputum. Leucocytosis 17,000. Death in three months.

External Lesions.—None.

Internal Lesions.—Irregular nodular consolidations, up to 1 cm in diameter, with necrotic centers and abscesses in lungs in which were also distinct bronchopneumonic areas. Abscess in left lung extending through diaphragm into retroperitoneal glands. Left pleural empyema. Miliary foci in spleen, liver and both kidneys. Purulent osteomyelitis of frontal bone and both tibias with abscesses and perforation of skin; suppurative arthritis of both knee joints, right shoulder, both elbows and wrists. Lesions tuberculous in character with transitions to abscesses as well as formations of masses of fibrous tissue with occasional giant cells containing parasites.

Microbiology.—Parasites in all organs affected; adult forms in the less acute lesions and sporulating forms, especially in abscesses. First case to yield cultures of parasite (see text). No tubercle bacilli demonstrable.

5. Montgomery, (D. W.) (*Brit. Jour. Dermatology*, 1900, xii, 343): Man, 21, born in Germany, telegrapher in California.

Onset and Course.—In July, 1898, first symptoms, namely, cough, night sweats, weakness, râles and dulness over lungs; no tubercle bacilli in sputum. Some 7 to 8 months later red, round, circumscribed nodules, up to one-half dollar size, with pus at top replaced eventually by an ulcer, appeared on scalp, face, neck shoulder, forearm, wrist, upper arm, buttocks and thighs. Death June 7, 1899.

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[8] Hamburger, Jour. Infect. Dis., 1907, iv, 201.

External Lesions.—Ulcers ragged, overhanging edges, granular floor, covered with scab; sections show giant cells and numerous parasites, many sporulating.

Internal Lesions.—Large fluctuating abscess over frontal eminence; abscess in mandibular fossa, supraclavicular fossa, and in subcutaneous tissue over chest, the latter connecting with one in clavicular fossa, and with pleura and lung; small abscess in lung, large in liver. Parasites in pus.

Microbiology.—Parasites spherical, with granular protoplasm, double-contoured capsule, and endogenous spores. Culture on glycerin agar gave a filamentous growth, discarded as contamination.

6. Montgomery, (D. W.), Ryfkogel and Morrow (*Jour. Cut. Dis.*, 1903, xxi, 1): Man, 54 years old, born in Switzerland, resident in California.

Onset and Course.—Gradual enlargement of left hand and forearm since 1893 and of left leg and ankle since 1894; in 1897 eruption on chest, in 1900 on left forearm and hand and soon after on neck and ears. In August, 1901, thick skin and subcutaneous tissue over left hand and forearm over both legs and left foot with separation of lower end of radius. Pigmentation of chest and abdomen. Discrete, closely placed papules and pustules over left forearm and hand. Right ear swollen and red. General health good. Some leucocytosis with eosinophilia. In December weakness, anorexia, fever; in January, 1902, superficial ulcers on chest. Death January, 1902.

External Lesions.—Diffuse infiltration of corium with groups of double-contoured, often sporulating organisms in old cicatricial tissue, each organism lying by itself.

Internal Lesions.—Left lung and upper right lobe infiltrated with bodies like miliary tubercles composed of granulomatous tissue with giant cells and parasites. Suprarenals yellowish-white, friable, microscopically same as lungs.

Microbiology.—In October, 1901, cultures obtained from a macerated nodule in skin, mycelial threads arising from capsule of organisms and branching like mould fungus. Intraperitoneal inoculations of guinea-pig gave nodules on peritoneum and elsewhere, inflammation of scrotum, and caseous foci in lymph nodes. Nothing said as to tubercle bacilli in lesions of patient.

7. Ophüls (*Jour. Exp. Med.*, 1905, vi, 443): Male, born in Japan, resident in California.

Onset and Course.—Chronic ulcer of right foot below ankle on inner surface; inguinal lymph nodes large; later large abscess in anterior abdominal wall extending into pelvis. Large lymph nodes in neck. Patient passed out of sight. Ulcer red, elevated, 3 to 4 cm. in diameter, covered with brown scab. Inguinal lymph nodes large, dry, diffusely caseous. *Oidium coccidioides* in sections of ulcer and inguinal nodes. "Cultures in hanging-drops with usual results."

8. Gardner and Halton (*California State Jour. of Med.*, 1904, ii, 386): Male, 32, born in Minnesota, of Swedish parents, living in California.

Onset and Course.—Jump from an engine sprained right foot which swelled up and became painful; abscess formed; able to return to work, but use caused swelling and pain. When seen four years later internal organs normal; no enlarged glands; right foot swollen, painful, no fluctuation; eventually small abscess opened and dead bone and granulation tissue removed; lymph nodes in right groin enlarged; no other external lesions; foot amputated and nodes removed; recovery.

Lesions.—All bones in foot except phalanges the seat of a rarifying osteitis and tibia and fibula carious. Sections showed nodules with giant cells and sporulating parasites; no tubercle bacilli present.

Microbiology.—*Oidium coccidioides* in lesions of foot and recovered in culture; no tubercle bacilli or oidia in lymph nodes; injection of cultures in abdomen of guinea-pigs caused caseous inflammation of tunica vaginalis and scrotal swelling.

9. Ophüls (The Journal A. M. A., 1905, xlv, 1291): Male, 62 years, born in Germany, baker in San Francisco.

Onset and Course.—Toward end of 1903 "cold abscess" developed in left side of chest and two ribs were resected; wound remained open. Large, soft, fluctuating swellings in neck. "Apparently cured." Granulation tissue from sinus in chest showed minute abscesses with giant cells containing parasites, many of which were sporulating. No skin lesions proper. Cultures obtained. (Nothing stated as to tubercle bacilli.)

10. Ophüls (ibid, see Case 9): Man, Chinese, San Francisco.

Resection of humerus on account of caries involving elbow joint. Patient died with symptoms of chronic pulmonary disease with purulent expectoration; no tubercle bacilli in sputum. Paraplegia. No autopsy. No external lesions. Extensive disintegration of bone with tubercle-like nodules with giant cells, areas of caseation and many organisms. Sporulating form in abscess. No cultures. (Nothing said as to search for tubercle bacilli.)

11. Ophüls (Ibid., see Case 9): Old man, German, living in San Francisco.

Unconscious when seen. Death. No external lesions. Scar at apex of lungs; pleural and pericardial adhesions with miliary abscesses and nodules; basilar meningitis with nodules; nodules in kidneys and in spleen. Sporulating parasites in lesions; no tubercle bacilli.

12. Ophüls (Ibid., see Case 9): Man, 19, canner in San Francisco.

Fever and chills for four weeks developing into symptoms of severe chronic meningitis. Death in three months. No external lesions. Old caseo-calcareous spot in peribronchial lymph node; irregular caseous process in adrenals; one nodule in kidney; basilar meningitis with nodules and extensive chronic spinal leptomeningitis with nodules and miliary abscesses. Cord soft under thick pia. Terminal bronchopneumonia and urinary infection. Case regarded as one of tuberculosis until sporulating parasites were found in meninges without presence of tubercle bacilli; the latter present in adrenals.

13. Wolbach (*Jour. Med. Research*, 1904, 13, 53).

The clinical side of this case is not discussed. The patient is still living, has traveled extensively and has been in California and New Mexico. The disease is connected with a history of chronic furunculosis for ten or more years, some of the boils having been very slow in development. Over both sides of the forehead and behind the left ear an ulcerative process had extended through the bone, stopping at the dura. All the lesions began subcutaneously and were removed by surgical means without recurrences up to the time that the report is made. The organism was isolated in pure culture and caused in guinea-pigs tuberculoid lesions containing pus in which occurred capsulated bodies 5 to 35 microns in diameter, many with spores, but without budding forms.

14. Burrows (unpublished case, cited by King, The Journal A. M. A., 1907, xlviii, 743).

Disease lasted 14 months; there were warty nodules at end of nose; multiple abscesses of lung, erosion of sternum, pleurisy with effusion, abscesses of sacrum, wrist, kidneys.

15. King (Ibid., see Case 14): Man, Japanese, 25, laborer in California.

Onset and Course.—Nov. 5, 1905, fever, vomiting followed by cough and pain in joints, especially right ankle and left sterno-clavicular, later right wrist and left claviculo-scapular. Four weeks later swelling over right internal malleolus followed by similar swellings, all fluctuating successively: dorsum of right hand, right supraclavicular fossa, left supraspinous fossa; left sterno-clavicular articulation, all of which developed rapidly. Cutaneous lesions appeared. Emaciation. Jan. 23, 1906. Cutaneous lesions. Papillary lesions with tendency to progression appeared in various parts (chin, forearm, thigh, etc.).

Internal Lesions.—Abscesses with caries of the adjacent bone in the right supraclavicular region and apex of right lung, left sterno-clavicular articulation, left supraspinous fossa, dorsum of right hand, right ankle, mediastinal glands, peribronchial glands, general fibrinous peritonitis with enlarged mesenteric glands; no lesion of internal surface of digestive tract described.

Microbiology.—Pure culture from pus in supraclavicular fossa and in peritoneal exudate.

16. King (Ibid., see Case 14): Man, 28, laborer in California.

Disease began with ulcer, punched-out, red, with jagged edges, on left wrist which healed and formed again several times; ovoid tumor under left clavicle, and seventh, eighth and ninth left ribs, pus from which showed double-contoured, sporulating bodies. Three years later fatal illness diagnosed as acute miliary tuberculosis.

"Autopsy showed the lungs to be studded with what appeared to be miliary tubercles, and no further examination was made."

17. King (Ibid., see Case 14): Male, 28, Japanese, railroad laborer in California.

Pain, swelling and redness in neighborhood of ankle joint and in cervical lymph nodes with suppuration, healing under surgical measures, further lesions again appearing near the old and on the face. Successful cultures from first abscess.

King also reports a case of multiple cutaneous pustules and irregular pulmonary consolidations, which he regards as probably coccidioidal granuloma, although the diagnosis is not confirmed by culture or microscopic demonstration.

FEATURES PECULIAR TO COCCIDIOIDAL GRANULOMA.

It is remarkable that all the cases so far reported have occurred in men. The occupation and nationality seem not to have any influence on the causation of the disease, all the instances of which save one (Case 1, possibly 2) appear to have originated in California. The clinical course is variable and has lasted from three months to nine years. When the disease is well established there may be intermittent fever, night sweats, increasing weakness. As in systemic blastomycosis, so also in coccidioidal granuloma we may distinguish between cases that appear to be primarily cutaneous (Cases 1, 2, 3, 16) and primarily respiratory (Cases 4, 5, 15); this leaves a larger number in which the atrium remains doubtful. Taking these cases of coccidioidal granuloma as a group we notice that while the lesions are distributed more irregularly than in systemic blastomycosis they are also distributed more widely, e. g., to the cerebrospinal membranes, to serous membranes, the joints, and, as especially noteworthy, commonly to the lymph nodes, regional as well as otherwise. In coccidioidal granuloma dissemination consequently occurs by way of the lymphatics as well as by way of the blood vessels, and it has been suggested that it is especially the minute forms—spores—that are carried by the lymphatics. As regards the cutaneous lesions in coccidioidal granuloma, suffice it to say that they vary somewhat; usually they begin as a papule or nodule and follow very much the same course as the cutaneous lesions of blastomycosis; at times, however, they may be more ulcerative. It is noteworthy that all the observers emphasize that the nodular lesions of coccidioidal granuloma may be indistinguishable from those of tuberculosis except for the fact that they contain sporulating parasites in place of the tubercle bacillus, which is absent. In fact, it has been observed that this disease presents the best mimicry of tuberculosis ever seen and the lesions can not be distinguished from tubercles by the microscopic anatomy. Even typical caseation appears to occur. It has been noted that the adult forms of the *Oidium coccidioides* occur mostly in the less acute lesions, while the abscesses contain numerous sporulating and occasional budding forms. The spores appear to attract leucocytes which have been seen to enter the capsules (Ophüls).

On injection into the abdominal cavity of guineapigs the organisms from Cases 6 and 8 gave rise to caseous inflammation of the tunica vaginalis with scrotal swelling—a point worthy of consideration in working with material suspected of containing *B. mallei.*

SUMMARY.

Systemic blastomycosis and coccidioidal granuloma are caused by closely related varieties of organisms that Ricketts and Ophüls would place with the oidia. Culturally, these organisms may resemble one another very closely. In the tissues of the infected animal or human being in which both exist as spherical bodies, they present this striking difference: that the organisms of blastomycosis multiply almost wholly by budding, while those of coccidioidal granuloma multiply essentially by endogenous sporulation. Neither forms mycelium in the animal body.

Systemic blastomycosis and coccidioidal granuloma resemble each other in many respects, both clinically and anatomically, but at the same time there are certain well-marked differences of which the following appear to be constant and distinctive: 1. The nodular lesions of coccidioidal granuloma bear a closer resemblance to the typical, specific tubercle than the nodules of blastomycosis. 2. In coccidioidal granuloma there is marked tendency to involvement of the lymph nodes, in blastomycosis slight. 3. As already stated in coccidioidal granuloma the organisms multiply by endogenous sporulation in blastomycosis by budding.

Nothing is yet known concerning the conditions that lead to natural infection with either of these diseases, but human beings once infected appear susceptible and the apparent infrequency of the diseases may be explainable by assuming that as yet the occasion necessary for infection is infrequent.

MUNICIPAL REGULATION OF THE MILK SUPPLY.*

GEORGE W. GOLER, M.D.
ROCHESTER, N. Y.

> "We can't do too much to help them. The future of this country depends on its poor children. If they are to do right, they must be saved from ill health, and ignorance and vice; and the first step is to give them good food and air so that they shall have strong little bodies."—Paul Leicester Ford, in "The Honorable Peter Stirling."

If we take this statement at its worth, it means that the food of a child determines the future of the citizen and the physical strength of the potential fathers and mothers of the state. In guarding the milk supply we are not then confronted solely with the question of infantile sickness and death, with possible outbreaks of infectious disease through milk, but with a far larger problem, one of the greatest of social problems, that of the future of the race.

The first duty of man is to be a good animal. To be a good animal he must be well housed, well clothed and well nourished. In his duty to the state can he do less than to house, clothe and feed his children? Ought not the state do all in its power to aid the man in selecting shelter, clothing and food for his family, so that the wants of the many may not be exploited for the benefit of the few?

We are here to consider the ways and means by which the municipality, a political division of the state, may best protect the food of the infant. Milk is, of necessity, the sole food of the infant during the first and most important months of life, and it is to secure the municipal regulation of this food supply, by surrounding it with every possible safeguard, that we must address ourselves, both for the baby and for the state, both now and for the future.

This milk that the baby must have is the article of food that requires more care in its production and handling, and consequently more care in its supervision, than any other food. All through the many steps of production and handling this food supply of the baby must be protected. Not until the baby's milk has entered the baby's stomach must our vigilance be relaxed. For milk is unlike other foods; if once it is dirty it can not be cleansed. Most other foods may be heated without impairing their digestibility. Milk can not be so treated. Preservatives may be added to other foods without great harm to the adult. Who would permit the addition of preservatives to milk for the baby? Milk may be contaminated by the organisms of infectious diseases, diphtheria, scarlet fever, typhoid fever, tuberculosis, by any of the colon group and other allied organisms. Shall we by heat or by mechanical means chance the removal of part of the contaminating material, or shall we for the sake of the baby prevent these poisons from gaining access to milk? Other foods than milk may be kept at room temperature for long periods of time without change, cooked without change, subjected to mechanical operations without change, but it is not so with milk that is to be used as food for the baby.

We establish children's hospitals, we employ physicians to cure children affected by the diarrheal diseases of dirty milk, and at great expense we build and equip sanatoria for the treatment of men, women and children affected by the great white plague, and we permit the sale of dirty warm milk from filthy tubercular cattle, while the boards of managers of the children's hospitals and tubercular sanatoria cry out for more beds. Has not the time arrived when we may spend some more of our funds in preventing diseases, in educating the dairyman to produce clean milk, the public to demand and to pay for clean milk, and to insist that the tubercular cow be weeded out and its place taken by the clean, well-kept, disease-free cow?

If milk is so important as a food for the baby, are we not justified in protecting it from contamination? Is not the state warranted in adopting the most stringent rules and enforcing them to the extent of the law? In its extremity is there anything the state ought not to do, even to owning and thus controlling the milk supply, should such a measure be necessary to protect the food of the babies? Unless we do protect our children's food, we may some time find that, instead of strong men, we have a race of Hooligans.

I think it is unnecessary to say more about the need of protecting the municipal milk supply, but before taking up the question of its protection let us try to get the milkman's view.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Of the several millions of milch cows kept in this country, 50 per cent. are said to be kept at a loss, 25 per cent. return no profit, and only 25 per cent. are profitable to their owners. The business of milk production and distribution is not generally, save by the large concerns, conducted in a systematic manner. However practical the men engaged in the work may be, they are not scientifically trained in the different steps of tillage, planting, storing, feeding, nor in properly housing and caring for cattle, nor in handling and transporting milk. These men are all engaged in handling the most perishable of foods; the only one that does not rise and fall in price with the demand for it and with the cost of its production.' Already most of the producers and retailers have done more than they have been paid for by the public in improving the conditions of their premises, their cattle and their utensils.

Then, men in the milk business work every day in the year, in the heat and in the cold, on Sundays and holidays. The demands of the public compel work and delivery at early and unusual hours, so that fresh (?) milk may be delivered for breakfast. We should consider these things in our discussion.

How can the municipality regulate the milk supply? It can pass and *enforce* milk ordinances. These municipal ordinances should provide that: Milk must be drawn from healthy, tuberculin-tested cows, well fed, watered and housed, having at least 600 feet of space and ample ventilation in well-lighted, airy barns. They must be cared for by daily grooming. They must have daily exercise in protected enclosures. The long hairs on the bellies, tails and udders must be kept clipped short. Before milking the udders must be cleansed with clean cloths by men whose hands are clean and who are unaffected by communicable disease. Feeding must take place after milking. In handling the milk it must be put into well-constructed, well-tinned, clean cans that have been sterilized by the retailer by exposing them to steam for at least one hour and afterward kept closed. The milking utensils, pails, strainers, coolers, must, after each milking, be washed by the producer and boiled in the milk room; never in the dwelling house. They must be covered and protected from dust until ready to receive the milk. Milking must be done in visored pails or by machine, and the milk carried directly from the barn to a clean, cement-floored milkhouse and poured into cans over a cooler protected from exposure to dust. The cans must be covered and cooled until ready for shipment in refrigerator cars, and must there be maintained at 45 degrees F., and must not be over 50 degrees F. on delivery to the consumer. Bottles used for milk must be sterilized in the same manner as the cans, filled in no other place but the milkhouse or city dairy, and used for no other purpose than milk containers under penalty of imprisonment. On bottled milk the cap must be secured by a paster covering it on which the kind of milk, "certified" or "inspected," must be printed in Gothic type not less than an inch high.

The whole milk must have the state standard of fat and solids, must not be watered nor have any of the cream removed unless distinctly labeled "skim milk" in Gothic letters, for cans, three inches high, and for bottles, one inch high. Milk must not be submitted to any mechanical or heating process and must contain no more than 100,000 bacteria per c.c. for inspected milk. Provision must be made for its sale from clean wagons. When kept in shops it must be stored in clean refrigerators, and must be sold by people having clean persons and clean clothes. Provision must be made for infants' milk depots in charge of trained nurses at least during the summer months, and such depots must be established in connection with stores where the cleanliness of place and person shall approach those of a model milk shop.

Then the municipality must provide for the inspection and enforcement of its milk ordinances by the following rules:

1. There must be a sufficient number of inspectors really to inspect, and through such inspections to determine that the applicant for the holder of a license is qualified to produce and distribute milk. To such an one only should a milk license be issued.

That adequate inspection may be made, a sufficient number of inspectors must be employed to collect:

a. From each wagon at least one monthly sample for bacteriologic and chemical examination.

b. At least once in two months a sample from each store offering milk for sale.

Every city dairy and every store to be scored at least quarterly by the inspector on a score card after the plan of those used by the U. S. Department of Agriculture and the Dairy Department at Cornell University.

2. There must be daily inspection of the incoming milk at each railroad station for:

a. Condition of and housing of cans and bottles of milk in shipment.

b. Condition of empty cans reshipped.

c. Temperature of milk.

d. Inspection of railroad samples to guard the retailers against fraud on the part of the wholesalers.

The written reports on score cards must be returned to the chief milk inspector, who reports directly to the head of the department.

Thus the city provides for the bacteriologic and chemical examination of the milk supply, wagon and store inspection and daily inspections at the railroad stations.

From such reports could be obtained sufficient data to enable the chief milk inspector to determine rapidly those who are violating the milk ordinances, and to enable the head of the department to promptly lay information against those dealers in milk who are violating the milk ordinance. For the first offense a fine should be imposed; for the second offense, the law should make imprisonment the punishment without alternative, and the man convicted the second time should not be permitted to enter or engage in the milk business again.

So much for the city end of milk inspection. The country end of the work is of equal, if not greater, importance.

3. The territory from which the city draws its milk supply must be mapped, the dairies plotted, the roads examined, the railroad facilities noted, and routes laid so that every farm shipping milk to the city may in the beginning be subjected to a systematic inspection once in two months. No milk must be permitted to enter the city until the seal of inspection has been placed on it by the inspector.

For larger cities drawing milk from a district too extensive to be inspected from a single center within the city, one or more places are to be determined as substations of inspection, each substation so designated to be placed in charge of an assistant chief inspector, with a sufficient force to cover the ground within his territory by monthly inspections. Each substation must have a laboratory equipment for both chemical and bacteriologic examinations, and to it the inspectors for the district must bring samples of milk for chemical and bacteriologic examinations. To the officer in charge of the laboratory they must furnish reports on score cards of all the dairies within their jurisdiction. These reports must be furnished in quadruplicate, one to be left with the dairyman, one to be mailed to the retailer, one for filing at the substation, and one to be filed at the central office.

When such a laboratory is established, the inspectors must be given to understand that they are not altogether a police force, though having certain police powers. While their duty is that of protecting the milk supply of the city, they can best serve the interests of the city by teaching cleanliness in the production and handling of milk, the necessity for and rigid enforcement of an annual tuberculin test, for reporting and demanding the isolating of cases of infectious disease in the family of the dairyman and among his cattle, and also to guard against the introduction into the herd of animals untested by the tuberculin test. To every milk producer they must furnish illustrated booklets, where in the simplest language all the essentials of milk production and handling must be clearly set forth.

Near every small city, and in connection with the substations of every large city, there should ultimately be provision for a small experimental farm cultivated on the most intensive plan. At such a farm all the operations of dairy farming should be carried out for the benefit of the dairyman. These should include the preparation of the soil, drainage, tillage, preparation and selection of seed, planting, cultivation, harvesting, storing of grasses and grains, silos and silage, housing and care of cattle, milking, care of utensils, storage and shipment of milk, etc., all carried out on a small scale after the latest and most approved methods.. This work ought to be done on a small old place, a somewhat run-down place being good for the beginning experiment, so that the farmer might actually see or learn by the records how the drainage and fertility of land had been increased. On such an old place, partly rebuilt, the farmer might learn how he could readapt his own premises to the needs of modern dairying if the state would but point the way.

If the municipality desires to exhibit a fine plant, let it establish such a plant in one of the city parks. Dr. Joseph Roby, of the Rochester Health Bureau, has suggested in a former paper that such a dairy plant might be established in connection with the park system of a city. In such a plant not only all advanced dairy operations might be carried out, but a day nursery with trained nurses in attendance could be established for babies, who on visiting the parks might be able to secure clean milk at cost, and where the mothers or nurses might see all the operations of advanced dairying, and so learn to demand cleaner milk for house delivery. We believe, however, that the plant in the country on a small farm, with old buildings that may be adapted by a small expenditure of money to the work of milk production, is most important. An expensive plant with new buildings would not appeal to the great army of small producers, and at present the small producer is the man on whom the city must depend for its milk supply. The problem for us is to show the small producer, the large producer and the dairyman, as well, how to produce clean milk at a profit without an expensive plant.

If the state will only establish an experimental dairy, a fund might be furnished through private philanthropy to assist a few dairymen in starting the work of producing clean milk. Not only men, but women, especially trained nurses with a desire for country life, might find here an occupation for which their work and training in the hospitals would help to fit them. This plan is, of course, largely tentative, but it is so important to the infant, the parent and to the state that the old unscientific way of producing market milk must give place to the newer and more scientific way of doing the work. Men endow chairs in universities, build and equip libraries, endow expeditions for astronomical, geological and geographical researches into remote regions and do many other things for the benefit of their fellows that involve the expenditure of thousands, even millions, of dollars. All this expenditure of vast sums of money is for teaching or for research. A few thousand dollars spent in aiding the establishment of demonstration dairies in public parks and on the outskirts of cities would do more for people than libraries or north pole research. It would help the work of the agricultural experiment station, help the farmer and the dairyman, and, with the assistance of the work of municipal milk stations, help to furnish clean milk for the babies that are to become the citizens of the future.

THE METHODS OF DEALING WITH THE MILK SUPPLY OF NEW YORK CITY.*

THOMAS DARLINGTON, M.D.
Commissioner of Health.
NEW YORK CITY.

Among the questions dealt with by sanitary authorities there is no other of greater importance than the one concerning the production and distribution of a supply of pure, clean milk. Many of the features of the vast question of food adulteration are being met by our national government in its regulation of interstate commerce. Of necessity, however, these laws can control the transportation only of the less perishable articles of food, and the responsibility of the milk supply of a community must be left almost entirely to the local authorities. From the time when each family kept its own cow or depended for its supply of milk on a local farmer, to the present situation, when the big cities depend on a supply drawn from thousands of dairies scattered over wide areas, is a far cry.

This change has come about so insiduously and cities have grown with such astonishing rapidity that it is only recently that the public has awakened to the importance of this vital problem.

It is not my intention to discuss the question of the comparative merits of raw or pasteurized milk, but to present to you a brief outline of the methods used in New York City by its Board of Health in safeguarding the milk consumed in the city.

The milk used in New York comes from between 30,000 and 40,000 dairies or farms in an area covering some portion of six states—New York, New Jersey, Pennsylvania, Massachusetts, Connecticut and Vermont. The milk is collected at the shipping points or creameries, about 600 in number, and thence transported directly to the city. The longest distance from which it is transported is about 400 miles, while the shortest haul from a creamery is about forty miles. All of the milk is at least twenty-four hours old when it reaches the consumer and the greater part is from thirty-six to forty-eight hours old.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

It is recognized that there are two factors which influence and control very materially the keeping qualities of milk. The first is absolute cleanliness from the moment the milk is drawn from a healthy cow until such time as it is delivered into the hands of the consumer, and the second is the temperature at which the milk is kept during this period. If these conditions can be controlled and maintained it is perfectly possible to assure a perfect milk supply.

It has been the endeavor of the department of health to maintain these conditions as regards the milk supply of New York City, first, by systematic and constant inspection, and second, by preventing the sale of any milk which may be found to be unwholesome or adulterated.

In order to accomplish this purpose the inspection of the milk supply is necessarily divided into seven steps: First, the farm or dairy where the milk is produced; second, the transportation from the dairy to the creamery; third, the creamery; fourth, transportation from the creamery to the city; fifth, transportation from the railroad station to the retail store; sixth, the retail store, and seventh, the household in which the milk is kept prior to its use.

It is, of course, understood that the department of health has no authority outside of the geographical limits of the city, but the sanitary code provides that "No milk shall be received, held, kept, offered for sale or delivered in the City of New York without a permit from the Board of Health," and the board can withhold or rescind this permit if insanitary conditions exist at the dairy or creamery where the milk is produced or handled.

It is also provided by the sanitary code that "No milk which is watered, adulterated, reduced or changed in any respect by the addition of water or other substance, or by the removal of cream, shall be brought into the City of New York or held, kept, sold or offered for sale at any place in said city." The term "adulterated milk" as used in this section of the code means:

First.—Milk containing more than 88 per cent. of water or fluids.

Second.—Milk containing less than 12 per cent. of milk solids.

Third.—Milk containing less than 3 per cent. of fats.

Fourth.—Milk drawn from animals within fifteen days before or five days after parturition.

Fifth.—Milk drawn from animals fed on distillery waste, or any substance in a state of fermentation or putrefaction, or on any unwholesome food.

Sixth.—Milk drawn from cows kept in a crowded or unhealthy condition.

Seventh.—Milk from which any part of the cream has been removed.

Eighth.—Milk which has been diluted with water or any other fluid, or to which has been added, or into which has been introduced any foreign substance whatever.

Ninth.—Milk the temperature of which is higher than 50 F.

At the present time New York City employs thirty milk inspectors. Fifteen are assigned to duty within the city and fifteen to the inspection of the dairies and creameries.

The area from which milk is supplied is divided into districts, and the men who are assigned to country work live in their districts and devote all of their time to the department's work, reporting once each month at the office of the department of health in New York City for any instructions which it may be deemed necessary to issue to them.

This country inspection is conducted in a systematic manner, the men going from creamery to creamery, remaining at each one until all of the farms supplying that particular place have been investigated and reported on. These reports are mailed to the department, where letters to the operators of the farms are prepared, embracing all of the necessary recommendations to make the farms sanitary and to safeguard the production of milk at that particular place. These letters of instruction are forwarded to the creamery operator for distribution among his dairymen.

In addition to the letter of instruction the department sends to each creamery operator and dairyman rules and regulations to be observed in the care of cows and handling of milk. These rules are printed on a large sheet of linen and are to be posted in each barn or creamery building.

During 1906 14,085 inspections were made outside of the city. The creameries have all been inspected, many of them several times. The dairies are being rapidly covered.

In making these inspections certain fundamental conditions are always inquired into, namely, that an ample and uncontaminated water supply be furnished to the creamery; that an ample and satisfactory method of disposing of the drainage from the creamery be installed; that all milk while being handled for bottling or canning and while being stored in the creamery be kept at such a temperature as to prevent the undue growth of bacteria, and that the milk be protected from the liability of contamination by flying particles of dust and dirt.

At the dairies the main points inquired into are cleanliness of barns and cows, proper drainage, sanitation of the barns and yards, disposal of refuse, health of cows, conditions of milking and transportation of milk to the creameries, care of utensils, health of members of the dairymen's families and condition of water supply. All of this information is tabulated on cards and mailed to the office in New York.

During the early part of this work many extremely insanitary conditions were found. The situation in many instances was beyond hope of correction. A number of dairies were closed, as the improvements and alterations recommended amounted practically to entirely rebuilding and reestablishing the dairy. No amount of pasteurization could ever make milk produced in such surroundings fit for human consumption. In fact, pasteurization can not atone for filth. Preventive measures are better than corrective ones, and whatever opinion may be held as to the relative necessity of pasteurization, the essential feature of a pure milk supply is that the milk be produced under clean conditions and that it be kept clean.

The fact that the farmers are without a market for their milk unless they comply with the rules of the department has been a potent influence in causing them to comply with our orders. The creameries are practically all conforming to our regulations and the dairies and farms are being rapidly put into a sanitary condition.

The next step in guarding the milk is the securing of proper conditions on the railroads for its care in transit from the creameries to the city. Conferences have been held with the officials of the railroads directly concerned in this transportation. In practically every instance these gentlemen have met the suggestions of the department most cordially. Large and well-planned refrigerator cars have been added to the service. All of the railroads are erecting or have erected icehouses of great capacity in order that they may supply their shippers with a sufficient quantity of ice to carry them through the warm and critical months of the year. As a result milk is now transported under excellent conditions and the required maximum temperature of 50 F. is almost universally maintained. As it is a well-known fact that in milk kept at or below this temperature bacteria multiply slowly, if at all, particular stress is laid on this point. At the depots or receiving stations in the city inspectors are at hand to watch the milk as it arrives. If there is any question as to the proper icing of the cans a thermometer is used and all milk found to be above 50 degrees F. is promptly condemned and destroyed.

In New York City there are 14,107 dealers holding permits for the sale of milk. When an application for a permit is made a copy of rules and regulations is handed to the applicant and he is instructed that unless the conditions under which he proposes to sell milk conform to these regulations his permit to sell milk will be denied. After the application has been received an inspection is made of the premises by an inspector of the department. If the premises and conditions are found to be suitable the permit is granted.

The city is divided into districts, each in charge of an inspector. The latter makes frequent reinspections of all places where milk is sold and he is held responsible for the conditions in his district. At each inspection sanitary conditions are noted, the milk is inspected and tested for temperature and possible adulteration. In case the latter is suspected samples are taken and sent to the laboratories of the department for analysis. Doubtful specimens are subjected to bacterial count. If the milk is above the proper temperature it is promptly confiscated. If it proves to be adulterated a warrant is obtained for the arrest of the dealer. The usual procedure in such cases is for the magistrate to hold the defendant for trial in the court of special sessions. Conviction usually results in a fine, and at the second offense the deparment revokes the dealer's permit.

During 1906 130,871 inspections and reinspections were made in the city, 138,505 specimens of milk were examined, 41,395 quarts of milk were destroyed, 678 arrests were made and fines were imposed amounting to $13,045. In this connection it is interesting to note that during 1905 $16,435 was collected from fines. As the inspections are equally rigorous, and the judgments even more severe than formerly, it shows a marked improvement in the character of the milk sold.

The question of the control of the milk supply after it reaches the consumer and before it is used is the most intricate one with which we have to deal. The proper care of milk in the household can only be consummated by properly educating the public as to its importance.

As a large proportion of the diarrheal diseases of infancy are due to the ingestion of impure milk the matter must be dealt with by the health authorities. This evil is at its height during the summer months, and for many years the department of health of New York City has endeavored to cope with it by means of its "summer corps." The physicians and nurses constituting this corps canvass the tenement district and by means of oral and written instructions demonstrate to the mothers the necessity of the proper care and preparation of milk for the baby. Pasteurization is urged, tickets for ice from the *Herald* free ice stations are issued, and every effort is made to see that the people are educated as to the prime importance of this subject.

The milk supply of New York City at the present time is better than it has ever been. It is constantly improving and the solution of the whole problem is simply one of expansion. Following out the present system, our need is for more inspectors, so that the inspections of the farms, creameries and stores can be made more frequently. It is perfectly possible to insure a perfectly pure milk supply to any city if systematic inspection is maintained and the dictum of "clean up and keep clean" is enforced.

Early in this year an important addition was made to the sanitary code of the Board of Health. It provides:

> It shall be the duty of all persons having in their possession bottles, cans or other receptacles containing milk or cream, which are used in the transportation and delivery of milk or cream, to clean or cause them to be cleaned immediately on emptying: and no person shall use or cause or allow to be used any such receptacle for any purpose whatsoever other than the holding of milk or cream, or receive or have in his possession any such receptacle so used or which is unclean, or in which milk or cream has been allowed to stand until offensive.

This section is simply in line with our constant efforts toward ultimate perfection.

As a special branch of the work the investigation of the milk supply in all instances of typhoid fever should be mentioned. In each case the attending physician is supplied with a card requesting information as to the disease and all possible sources of infection. The name of the dealer supplying milk to the family is obtained. The dealer is visited by an inspector from the department and a rigid investigation concerning the milk is carried on, the milk being traced back through the creamery to the dairy and all possible avenues of infection carefully traced.

In order to obtain a consensus of opinion as to ways of bettering our methods of milk inspection the mayor of New York, the Hon. George B. McClellan, early this spring appointed an advisory milk commission composed of the following eminent physicians: Drs. L. Emmett Holt, A. Jacobi, Joseph D. Bryant, T. Mitchell Prudden and Rowland D. Freeman. This commission reported to the mayor on May 22 of this year, and I will briefly state some of their findings and conclusions.

The report states that the scope of investigation covered every stage through which the milk sold in this city passed from the cow to the consumer; that milk obtained from a healthy cow, in a proper manner, is always wholesome, and never a source of danger if it is kept cool and uncontaminated and consumed within a limited time, but at the same time is a substance in which germs multiply rapidly under conditions favorable for their growth; that these contaminations arise from dirty surroundings, from milking a sick or dirty cow, from milking with dirty or wet hands, by the use of dirty utensils or contact with impure water or by keeping milk at a warm temperature favorable to the propagation of germs.

In regard to tuberculosis, the report states:

> The risk of transmitting tuberculosis through milk from cows to man is very slight unless the disease in the cow is in an advanced form, or is present in the udder. Even this slight

> risk is considerably lessened when such milk is mixed, as it generally is, with that of healthy cows before it is sold. We believe that this danger has been greatly overestimated in the public mind and that it can best be met by systematic inspection and condemnation of cows revealing tuberculosis on physical examination.
>
> To secure a good milk supply it is of the first importance to educate the farmers regarding the measures which alone make this result possible, and afterwards to see that the rules relating thereto are carried out. Since for the most part the contaminating agents which render milk dangerous are introduced at the farms, the production of good milk demands that the farmers be educated to as to secure this result, and also that proper surveillance be exercised.
>
> To have efficient inspection of the milk business of New York City at least 100 inspectors for the country districts from which the supply is drawn, in addition to the fifteen now available, should be employed.
>
> The work of the corps of inspectors should be two-fold; first, to point out to the producers of milk the conditions under which safe milk can be furnished; and, second, to determine that these conditions are secured before the milk is permitted to be sold in this city. These inspectors should possess such kind of education and experience as will qualify them to work intelligently. They should be familiar with farming by experience, and in their selection, preference should be given to men educated at good agricultural schools. They should be honest and possessed of good judgment and discretion. A certain proportion of them should be veterinarians, and a certain proportion physicians, so that both the diseases of the cattle and those of persons concerned in the production of milk can be promptly and effectively recognized and isolated.

Various recommendations are made as to labeling of bottles and cans with the name of the farm or creamery from which the milk was shipped, and concerning the control of the sale of milk at retail stores.

The report also states:

> Notwithstanding, after all safeguards that may be imposed by education or otherwise, there will be cases in which unsafe milk will be produced or offered for sale, and all such milk must be judged on its merits. The commission, therefore, recommends that the Board of Health should, according to circumstances, require efficient sterilization or pasteurization of all milk which it finds unsafe for consumption as raw milk, on account of a suspicion of the presence of tuberculosis or other disease in the cows or insanitary conditions at the dairy, or a persistent high bacterial content. But in every instance milk so heated should be rapidly cooled to at least 40 F., and be put, after sterilization or pasteurization, into sterilized containers under aseptic precautions.

BOSTON'S CAMPAIGN FOR CLEAN MILK.*

JAMES O. JORDAN, Ph.G.

BOSTON.

After a persistent and successful contest against adulterated skimmed and preserved milk, covering a period of over twenty years, the city of Boston, in 1904, through its Board of Health, laid the foundation for further improvement by inaugurating a campaign having for its ultimate aim the application of cleanly conditions and refrigeration of its milk supply. An account of this movement, as well as that of its influence on the inception of new methods governing the production and traffic in milk, is the province of this paper.

The initiatory step was the adoption of a standard limiting the number of bacteria in milk to 500,000 per cubic centimeter, and prohibiting the sale of milk having a temperature higher than 50 F. Other regulations looking to a betterment of the milk supply were adopted at the same time, and these, together with such changes as seemed advisable from observation and progress, are now in operation.

A summary of a portion of the other regulations follow: Milk is required to be the product of healthy animals and to be strained and cooled in clean rooms separate from those in which animals are kept. All utensils used in its production and sale are to be properly washed and sterilized. Prompt notification of the occurrence of contagious diseases in those engaged in the sale or distribution of milk or in their immediate associates must be made to the board. Milk on sale in shops is not allowed to remain uncovered outside the cooler, box or refrigerator in which it is kept and sold, and the use of separate and properly drained ice chests or coolers for milk is recommended and encouraged; and the sale of milk in a room used wholly or in part for domestic purposes is prohibited.

The adoption of a bacteriologic standard by the Boston Board of Health has been decried and the subject of scoffing, but the example of that city has since been followed by other municipalities, until now nearly twenty cities are conducting bacteriologic investigations of milk supplies. This outcome is fortunate, for from multiplication of work of this character great progress may be expected.

The examination of samples procured from the cars on arrival showed that 87.6 of samples taken in 1905 conformed to the regulations of the Board of Health, while in 1906 89.98 per cent. of samples reached this standard. These results appear in Table 1.

Table 1.—Bacteriologic Examination of Milk Samples from Contractors. Taken from the Cars on Arrival.

Year.	Under 500,000 Bacteria per c.c. Per cent.	Above 500,000 Bacteria per c.c. Per cent.	Under 50,000 Bacteria per c.c. Per cent.	Under 100,000 Bacteria per c.c. Per cent.
1905	87.60	12.40	59.80	74.90
1906	89.98	10.02	62.33	72.67

In connection with the examination of milk from contracting firms, the results obtained from the supplies of the different concerns are of value.

Figure 1 presents graphically the comparative bacteriologic standing of the firms for 1905 and 1906, and in addition shows the percentage of infected milk (to which subject reference will be made later) for the same years. With one exception (contractor B), each supply denotes an increased percentage during 1906 over 1905 of samples complying with the bacteriologic standard, and at the same time a marked diminution in the quality of infected specimens.

Bostonians are in a sense slaves to custom in the matter of delivery of milk. They expect their milk to be left at their doors in time for breakfast surmounted with a layer of cream, and in order to satisfy this demand the milk delivered in the morning is that of the bottling of the day before. Thus the milk is a day older than when it reached the city; and even when it is kept under conditions unfavorable to bacterial growth, the latter continue to develop—the extent, of course, depending on the surrounding conditions. It is of interest to trace this milk bacteriologically as it is being delivered from wagons, or is offered for sale from shops. These results appear in Table 2.

These results, by comparison with those obtained by the examination of samples from the cars, show the detrimental influence of age and handling—changing from one vessel to another—on milk. But pronounced as is this development of bacteria in the wagon samples, there is no such wealth of bacterial content as exists in the shop milk which is older than that obtained from teams. The shop milk is subjected to further handling and mixing while on sale, to contamination from dust, and from non-sterile containers in the shops, as well as from drippings from pitchers or other vessels brought to the stores by customers.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Table 2.—Bacteriologic Examination of Milk Samples from Wagons.

Year.	Under 500,000 Bacteria per c.c. Per cent.	Above 500,000 Bacteria per c.c. Per cent.	Under 50,000 Bacteria per c.c. Per cent.
1905........	54 40	45.60	18.00
1906......	52.21	47.99	16.75

Of these store supplies containing over 500,000 bacteria to the cubic centimeter in 1906, 84.29 per cent. contained over 1,000,000 bacteria to the cubic centimeter, which affords ample proof of the poor quality of milk from this source.

Table 3.—Bacteriologic Examination of Milk Samples from Stores.

Year.	Under 500,000 Bacteria per c.c. Per cent.	Above 500,000 Bacteria per c.c. Per cent.	Under 50,000 Bacteria per c.c. Per cent.
1905.......	28 50	71.50	4 90
1905........	18.99	87.01	3.14

Too much can not be said against the use of shop milk as a food for infants. It is a dangerous expedient to resort to milk of this type as sustenance for the young, and while the danger is great at all times, it is especially pronounced during the warm months of the year. Convenient as shop milk may be as a source of supply to purchasers, the employment of such milk as a food for infants is both wrong and inexcusable. Often the action of this milk with infants is not that of milk, but of a poison, and its use should be universally disapproved The stamp of condemnation can not be too quickly placed on the employment of shop milk for this special purpose.

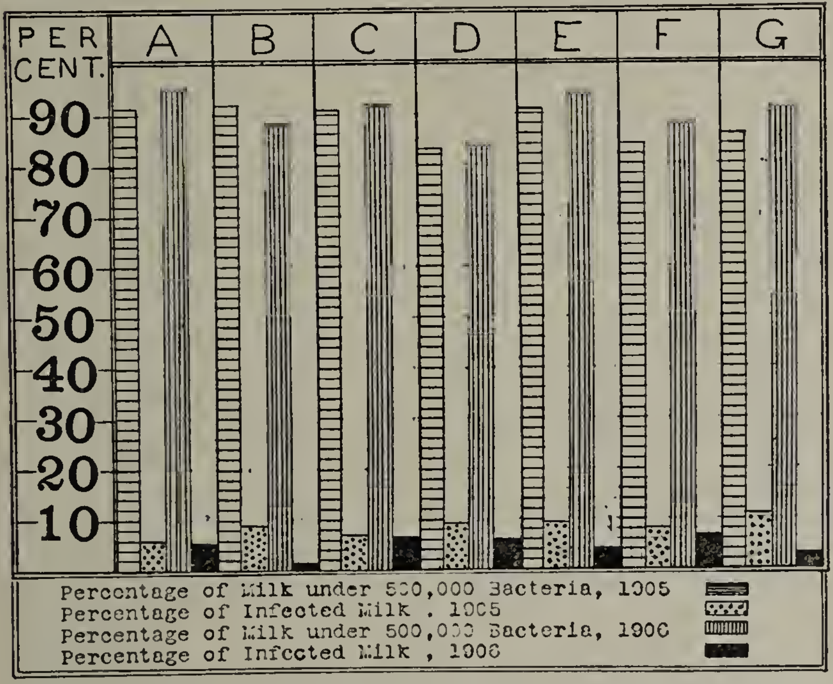

Fig. 1.—Record of Individual Contractors' Samples, 1905 and 1906.

Despite the fact that the number of shops engaged in the sale of milk is constantly increasing, unless a change is made which results in improving the quality of milk sold, it is believed the time is not far distant when there will be a significant lessening of the number of these dealers. The eradication of shops where only a few quarts are sold daily is a certainty, for they are a menance to the community. By temperament many of the owners and employés of these small stores are unfitted for the proper conduct of the milk business, even where the surroundings and equipment are adequate.

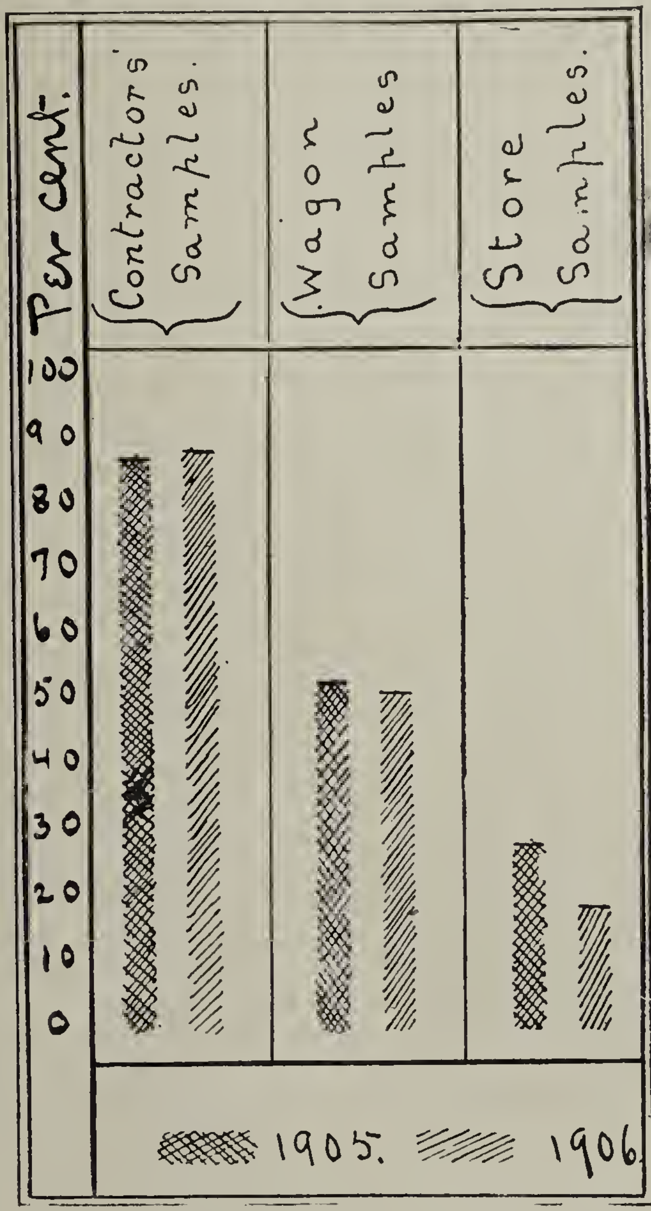

Fig. 2.—Record of Individual Contractors' Samples, 1905 and 1906.

In time the right to deal in milk may be considered as much of a privilege as that for the sale of spiritous liquors. On the ground of public utility there is ample justification for stringent regulation of the traffic, and a reduction in the number—if not the classes—of middlemen, can not fail to result advantageously. One experiment in the sale of shop milk is already being made in Boston, namely, that of the sale of bottled milk just as bottled and received from the milkman. If, as it is planned, this milk is sold to consumers in unopened bottles, the opportunities for impairment are decreased, and for this reason the test is beneficial and worthy of encouragement.

The continuous decrease in the percentage of samples for the two years which complied with the bacteriologic standard of 500,000 bacteria to the cubic centimeter, from the time of receipt of the milk by the contractors and its subsequent delivery from wagons or sale from stores, is illustrated by Figure 2.

This affords conclusive proof of the influence of repeated handling and age on this product, as well as the urgency for increased care by dealers and rapid and direct delivery to consumers, even though such change may eliminate the shopkeeper as a factor in the sale of milk. Partially from prevailing custom—and for this both dealers and consumers are blamable—much of Boston's milk supply is allowed to become stale and acquire bacterial affluence between the time of its arrival in the city and receipt by householders. The remedy for this impairment rests largely with consumers, on whom responsibility for the present condition of the milk situation largely devolves.

For practical and commercial purposes, the Boston Board of Health prohibits the sale of milk having a temperature above 50 F., but a lower temperature is more advantageous. A liberal interpretation of a temperature standard as applied to this fluid means cold milk and the colder the better.

Naturally, the most work in maintaining a cold milk standard is done during periods of high temperature. At such times many temperature tests are made. These include taking the temperature of the milk as it arrives from the country, also as it is being delivered from wagons or sold from shops. Throughout the year the temperature of all samples for bacteriologic examination is taken. Where high temperatures are found warning notices are sent the offenders. Whenever the notices relate to milk found at the cars on arrival from the country, the warning cards are sent to the contractors, and by the latter remailed to the producers in the country. If the warm milk is found on a wagon or in a store, the notice is sent to the owner. In most instances this method brings good results, but in exceptional cases more stringent measures are required to attain the desired end. This means prosecution in court, and fines of from $5 to $25 have been imposed in these actions. As ice costs less than the payment of fines, the imposition of a penalty results in bringing about the condition wanted, namely, that of keeping the milk cold.

A feature not to be overlooked in connection with the temperature problem is that of the influence of summer heat on milk after delivery by the milkman. In summer, milk is usually left on the door steps of houses and there allowed to remain until breakfast time, and occasionally, if the location is right, the milk bottle becomes a target for the sun's rays. During the interval from leaving the milk until the serving of breakfast, many hours may have elapsed, and in warm weather—even if the milk was cold when delivered—the conditions are favorable to a marked increase in temperature, consequently it is important that milk should be iced as soon after delivery as possible. Similar conditions govern the delivery of milk at shops, and the same precautions against exposure to high temperatures should prevail. The constant maintenance of a low temperature at every stage of handling is essential for the checking of bacterial development in milk.

Another advantage accruing from bacteriologic control of milk is that it affords an opportunity for the detection and exclusion of specimens which are the product of diseased animals. In connection with this subject, Harrington[1] asserts that "there is still another group of bacteria commonly present of vastly more importance than the peptonizing species, namely, the pyogenic species, which are associated with the most common of all bovine diseases, garget or mammitis." Milk from these diseased animals is characterized as infected and is distinguished by the presence of streptococci, or by streptococci and an excess of pus, or by excess of pus alone. Evidence is not lacking that these noxious products when present in milk used as a food, may produce disturbances in the human economy; but regardless of this danger, esthetic considerations alone are sufficient to render this type of milk repugnant.

Although attention is being gradually directed to milk of this character, the subject demands the fullest consideration from those responsible for the quality of public milk supplies. Not enough attention is given to the condition of the animals used in milk production, and there is abundant evidence that reliance solely on the integrity of dairymen to withhold the milk of unhealthy animals from the supply sent to the market, results frequently in insufficient protection to the public. To the majority of dairymen, the cow is a milk machine, valued solely for quantity of product, and whether that product be normal milk, or milk plus streptococci or other objectionable contaminations, if it has the appearance of milk the public gets it in instances all too frequent. Even where the circumstances are such that the abnormal conditions in animals are apparent from obvious external indications, the evidence is not utilized for the public good excepting in rare instances, because it would entail the loss of a few quarts of milk.

Beginning in January, 1905, and since that date, the Bureau of Milk Inspection has insisted on the exclusion of these infected specimens, and a persistent search has been made for their presence. The majority of this work has been done on milk obtained at the cars just as it arrives from the country, and so a large proportion of these samples denoting infection are from this source. Where contaminated milks are found, contractors are immediately notified to stop bringing the milk from the dairies at fault into the city until the source of the trouble is located and eliminated. Where infected milk was found in the possession of a dealer other than a contractor, warning notice was sent the offender, and when possible the milk was traced to its source and the supply stopped. There has been an encouraging diminution in the number of these samples, as will be observed from the following data:

In 1905, of the 5,559 samples from all sources examined bacteriologically, 583, or 10.48 per cent., showed the presence of streptococci, pus, or pus and streptococci. Of the 5,007 specimens examined in 1906, only 246, or 4.9 per cent., indicated a streptococci, pus, or pus and streptococci content. These results are summarized in Table 4.

Table 4.—Infected Milk Samples.

Year.	Number of Samples Examined.	Per cent of Infected Samples.
1905	5,559	10.48
1906	5,007	4.90

This improvement is gratifying and no doubt attributable to the persistent exclusion of milk of this character from that permitted to enter the city. It has been brought about only by continuous and untiring effort, and not without grumbling and protest, but as none of the objectors have been willing to admit that they would knowingly consume milk thus infected, but little value could be attached to the protestations.

How the producer is to know that milk is contaminated is a query often propounded. He can at least be more observant of the health of his cows and not sell milk from animals whose condition is questionable; he should also exclude from the public supply the milk from cows just prior to and after the calving period. The regulation of the Boston Board of Health on this subject is specific. It provides that "no milk shall be sold, offered for sale, or distributed in the city of Boston which was drawn from cows within fifteen days before, or five days after parturition." Before and after the calving period milk is subject to pus contamination, and many of the specimens so polluted, it was later ascertained, were obtained from cows approaching or following parturition. Greater care should be exercised by producers with milk of this character.

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[1] Bulletin State Board of Health of Massachusetts, December, 1906.

An attempt has been made to procure information concerning each case of infection, as to the actual condition of the animals at the faulty dairies. To a certain extent the bureau has been handicapped in these investigations for the reason that contracting firms have to be depended on as channels for information. In many instances a praiseworthy effort was made to ascertain and supply the facts. This knowledge, where obtainable, not only demonstrated the value of and necessity for this work, but disclosed conditions which, although of scientific interest, did not accelerate desire for this kind of food. It also demonstrates, in instances much too frequent, the utter lack of care in keeping the milk of animals of apparent abnormal condition from the market supply. More attention to quality and less to quantity is a desirable determination for milk producers.

Prior to the adoption of these regulations by the Board of Health, very little had been attempted or accomplished by the contracting or wholesale milk firms in improving the condition of the dairies or the methods under which milk was produced. So long as the product arrived in the city not faulty from the standpoint of taste or odor and was sweet enough when delivered to satisfy customers, or, in other words, was a salable commodity, it was acceptable to contractors. But these regulations brought a radical change for the reason that under the former prevailing methods, which were too often shiftless and faulty to a degree, milk was being produced impregnanted with cow dung, hair and other filth, and overloaded with bacteria, both from this cause and from insufficient cooling. This milk in many instances largely exceeded from the bacteriologic standpoint the requirement of the board.

To improve the product was the end in view, and while this desire may have been at first largely founded on necessity, it has developed an earnest effort on the part of some of the contracting firms not only to comply with the requirements of the board, but to have the product of as good quality as care, observation and experience can make it.

The methods pursued by the individual firms for improving the milk supply, while varying in details, all tended toward the same objective point. Printed matter was used to a large extent in this campaign for clean and cold milk. In this manner valuable information was given the producer as to the best method of stabling cattle, the proper lighting and ventilating of stables, the necessity of having the cows clean and kept in a part of the stable from which other animals are excluded, the undesirability of having a person of untidy habits about a dairy, the proneness of milk to absorb odors from surrounding objects, and the best manner of protecting it from such contaminations; directions for the proper cleansing of all utensils used in the handling of milk, necessity and methods for its rapid cooling and being maintained at a low temperature, urging generous supplies of ice with plans for its storage, also reasons for providing a separate room for handling milk.

Inspections of dairies are also made, either by paid agents or by members of the different firms; one concern employs an inspector who devotes his whole time to this work; another has a veterinarian who gives one-half day of each week to visiting the farms supplying his firm with milk, and others have men in their employ who are required to give a portion of their time to the inspection of dairies. In this manner faulty methods are brought to the dairyman's notice, and suggestions for improvement made. In addition, these inspection trips serve a good purpose, as they stimulate the farmer to constantly maintain better methods, as he is unaware when the next inspection trip will be made. Four firms resort to the method of personal inspection and find the results satisfactory. Some of the contractors take the temperature of the milk as it is delivered at the receiving stations and issue warnings to those producers who send milk insufficiently cooled. Several of these firms have inserted in their contract with the farmer a clause requiring the milk to conform to the Board of Health standard, and to be cooled to a temperature of 50 F., or lower, within an hour of milking. During 1906, three of the contracting firms notified their producers that in future no milk would be received from farms not supplied with ice. Many meetings were arranged throughout the country at which the subject of a better milk supply was discussed with the farmers. An effort has been made by all of these concerns to lessen the dirt content, and one of the firms makes frequent tests of the milk as received in the city to ascertain whether or not the quantity of dirt is excessive. The test is a rough one, but it has the advantage of ready application and serves as an object lesson, filthy but effective. A filter of absorbent cotton is utilized. This is held in position by a wire support at the bottom of a funnel of special construction, and through this the milk from the suspected can is passed, the dirt collecting on the cotton. The filter and dirt are then dried, and if the filth is in large quantity, the filter and dirt are mailed to the farmer to emphasize the necessity for greater cleanliness. It is true that a test of this description is not, strictly speaking, scientific, but results are the true indications of value, and that this method is a success has been demonstrated conclusively to this firm's belief by bacteriologic investigation. From the fertilizer standpoint, if from no other, the farmer has an opportunity to see that he is wasting valuable material.

In addition to the course of action of these firms previously outlined, the establishment of laboratories, solely for the bacteriologic examination of milk, by six of the contracting firms, must not be overlooked. It is an indication that this work is considered of value from a purely commercial basis; the fitting up of these laboratories was voluntary in every instance, and the cost of equipment, together with the salaries of the bacteriologists employed, add a considerable amount to the expense account of each concern. The work of these private laboratories has been of much assistance in improving the quality of Boston's supply, for in the two years of their operation between 40,000 and 50,000 examinations of milk have been made, and in instances in which large numbers of bacteria were found producers were notified of the quality of their supply and cautioned to use more care. These notifications were followed by repeated examinations of the product of the dairy at fault, until the quality showed improvement.

The consensus of opinion with contractors is that the bacteriologic examination of milk has already proved beneficial. One firm states that this is evidenced by the fact that 75 per cent. of the samples received contain less than 50,000 bacteria to the cubic centimeter, and over 40 per cent. contain not more than 10,000 bacteria to the cubic centimeter. The same firm is convinced that under bacteriologic supervision the number of samples containing less than 50,000 bacteria to the cubic centimeter has greatly increased. Other concerns state that the dairies investigated on a bacteriologic basis have shown improvement. These opinions are practical endorsements of this method of oversight of milk supplies. Not all of the firms have pursued the methods outlined, but they have all done something in the way of improvement. Thus it is seen that those engaged in the milk business may be important factors in bettering conditions surrounding the milk supply. The cooperation of dealers is an adjunct not to be despised; on the contrary, their support is to be enlisted and encouraged. Without their aid adequate protection to the consumer is made more difficult.

That the wholesale firms in Boston have rendered valuable aid is beyond dispute, and in so far as they have assisted the movement their efforts should be given the fullest recognition. Their example is worthy of emulation by large concerns in other cities.

While bacteriology is an important factor in the control of milk supplies, namely, in ferreting out dirty dairies, in locating insanitary conditions like that of the use of unclean vessels or lax methods of handling while the milk is on its journey from the producer to the customer, as well as ascertaining its condition as to fitness for use as food by the young, sole reliance on this method of control would be a mistake. It must go hand in hand with what may be designated as field work, which as milk is now produced is necessary to efficient progress. Bacteriologic results may be utilized as a guide to the efficacy of this field inspection, the index of success or failure, the silent detective for bringing imperfections to light.

Field work involves supervision of the production of milk, and from the dairy watchfulness over the product until it reaches the consumer. Vital as is this work at every stage of the journey from producer to user, the point of greatest vantage for the attack on the common enemy, dirt, is at the place of production—the fountain head; faults here are lasting, the errors of commission and omission being eradicable.

The supervision of the dairies supplying Boston with milk is at present in charge of the Massachusetts State Board of Health and under the immediate direction of its secretary, Dr. Charles Harrington. This work includes not only the inspection of dairies located in the state but those in adjoining states as well, and, although in its infancy, has already been productive of much good. The inspection involves in brief consideration of the health of the stock, the condition of the cows and their surroundings as to cleanliness, the adequacy of the supplies of light and air, and methods of handling the milk. The board reinforces its actual field work by the publication in its monthly bulletins of a white list, which includes the names of the farms where the conditions are satisfactory. This salutary proceeding is an effective spur to those whose names are omitted from the list.

In connection with this inspection in dairies the proposition has been advanced that local boards of health could not control milk produced outside their jurisdictions. This idea is erroneous; local boards of health possess the right to exclude all milk not produced under proper conditions, and an efficient manner of exercising control is by a proper application of its authority over its licensees, those who hold permits to sell milk from wagons within the city limits. In Massachusetts it is illegal to sell milk without these licenses, and the regulations of the Boston Board of Health provide for a revocation of these permits for non-compliance with the provisions of the regulations. Recent cases serve to illustrate the value of this method of control. Inspection of dairies by the Massachusetts State Board of Health in towns in the immediate vicinity of Boston brought to light several swill farms where an immediate change of conditions was imperative. The milk from these farms was sold to milkmen who were licensed to do business in Boston. These facts were reported by the State Board of Health to the Boston Board of Health and the details of adjustment were by the latter board entrusted to the Bureau of Milk Inspection. The milkmen using this milk were promptly notified of the conditions and warned, that unless the necessary changes were immediately made at the farms new sources of supply would have to be procured by each milkman or recommendations for revocation of licenses would be made to the Boston Board of Health. In other words, the sources of supply in question were unsatisfactory and the burden of adjustment was properly placed, namely, on the purchasers and distributors of the milk. The results were highly satisfactory, all of the farmers but one either complying with the requirements of the State Board of Health or disposing of their stock. The farmer in question showed no inclination to make the desired changes and, as his product was to be excluded from Boston, began selling his milk to a milkman in a town adjoining Boston. This state of affairs was communicated to the State Board of Health, which board promptly notified the milk inspector of the town in question concerning the details. This latter official warned the milkman that a continuance of the use of the product of this farm would cause the withholding of his license for the ensuing year, which resulted in the producer being again without an outlet for his supply. To the producer it means loss of market unless he makes the suggested sanitary changes. By such methods the local authorities, working in conjunction with state boards of health, can control sources of milk supply beyond their own borders and insist on and maintain the desired conditions.

In Boston, within a year and a half, there has been a marked change in the method of handling milk cans sent into the country for milk by the contractors. Formerly no attempt was made to clean these cans, and they were returned to the farmer often putrid from decomposition of milk drainings, or after having been employed as containers for swill, broken eggs, coffee or kerosene oil in shops or restaurants from which they were collected. Not all of the cans were of this latter type, but the cans in the best condition contained milk drainings of different degrees of sourness. The unfairness and hardship to the farmer of cleaning such cans is apparent, and after such an object lesson it is not so much a source of wonder that some producers are skeptical over the demand for cleanliness in connection with this milk question.

As an outcome of agitation over this subject the matter of can washing in Boston has been revolutionized, and at present fully 87.5 per cent. of the cans are being washed by the contractors before they are returned to the producer. Four of the contracting firms wash all of the cans returned to the country; one firm washes one-half of its cans; another all but 200 cans, and one firm washes cans for only those producers who desire cans cleaned. This washing, however, does not relieve the producer of responsibility as to the condition of the cans. Before filling each can should be examined and if found to need further cleansing this should be done before the can is employed for milk.

To further aid the movement for clean milk vessels an effort has been made to prevent the use of cans and jars, which had become much too common, as containers for other substances. Allusion has previously been made to their employment for swill and other objectionable products. Fortunately, general utilization for such purposes has lessened to a noticeable extent, but the impression is not fully eradicated that milk cans are public property and available for use for any desired purpose. To eliminate this idea copies of the state law and of the regulations of the Boston Board of Health relating to the misuse of cans have been extensively circulated, and this step has been reinforced by an office exhibit of misused cans as an object lesson. A lessening of the evil followed, but the subject is one demanding constant attention. Within a few months milk cans were found in different sections of Boston in use as containers of broken eggs, coffee, olive oil, chocolate, blood, molasses, kerosene oil, and for heating water in lunch carts and bake shops. One specimen taken from a bake shop, and at the time of discovery used for the latter purpose, had on the outside an accumulation of baked and carbonized dough of unsightly appearance. Milk cans are more frequently employed as holders for kerosene oil than for any other substances. Such use, however, can only be considered objectionable because of the difficulty of removing the odor of this fluid. Warning notices to offenders and prosecution have also been employed in this campaign for clean milk cans, and in time it is hoped that the impression will prevail that milk cans are to be used for milk and milk alone.

A part of the blame for the misuse of milk cans rests on milkmen, for despite the fact that the cans represent much money to the dealer, the latter either from negligence or fear of displeasing customers does not collect the empty cans promptly and they remain around shops, restaurants and hotels, affording a temptation for use for other substances or becoming offensive in warm weather from putrefying milk drainings. All cans or jars used in the delivery of milk should be promptly collected by the dealer and cleaned for subsequent use.

A possible outcome of the agitation of this milk question may result in the production of milk on gigantic milk farms in localities not too remote from the population to be supplied, to be conducted and governed by modern methods and on as strict a commercial basis as that surrounding the present day successful business. While this suggestion may not form a part of the future solution of this problem, from a contemplative basis solely the idea has advantages.

The present day trend is toward the handling of milk in cities by large concerns, and it must be admitted that the equipment of these large firms in caring for and delivering milk is superior to that of the small dealer. This means the complete elimination of the latter class, excepting those who are engaged in the production of milk and who from advantage of location are enabled to supply consumers directly with fresh milk. These latter should be given the fullest encouragement.

With the present knowledge of this mooted subject, one immediate remedy is the utilization of the product of only clean dairies. Milk from filthy farms or from those not using ice should be under the ban of exclusion.

These are necessary but minor details beside the one of greatest importance, namely that of education of the public. No effort should be spared to arouse consumers to the danger from dirty milk. They must be made to realize the necessity for cleanliness, that the responsibility for a dirty and stale milk supply rests on them, and that they form the pivotal point for solving the problem. But the first essential is for the public to realize and be reconciled to the fact that cleanliness is next to their pocket-books, and that if they want clean milk they must pay for it, for milk plus dirt is more cheaply produced than milk minus that contamination. Consumers must pay for cleanliness. Cow dung as an addition to beefsteak would be abhorred, as a condiment in dressing a salad its use would not be countenanced, in beer or champagne it would be an efficient aid to temperance, yet its presence in milk is daily countenanced, provided the insoluble portion is removed by the dairyman or milkman by some straining device. But the straining does not remove the harmful portion, namely, that which has gone into solution and which once in the milk can never be taken out. It is not visible to the consumer, however, and so no complaint is made, provided the baby is not made sick or does not die as a result of using such milk for food. The absence of a deposit in milk does not signify cleanliness; it is simply a tribute to the straining device adopted for the removal of insoluble excrement. The best method of dealing with the milk and dirt problem is to keep them separate from the beginning; let the divorce proceedings between the two be final and complete, for the damage of union once made is beyond repair.

This then is the text for presentation to the public; they should be made to see that the same dirt to which objection would be made in other forms of food is doubly obnoxious as a milk contamination, because of the adaptability of milk for the propagation of bacteria. But dirty milk is not cheap; on the contrary, it is the most expensive milk which can be purchased, and the appalling infant mortality, with the attendant expense of sickness and death, which has followed its use is ample proof of this contention. The cleanest milk, even though its first cost is more than that of the dirty brand, is in the end the least expensive. Let the economies be with other necessities or with luxuries, but eradicate the false idea of economy by purchasing filthy milk. Cultivate abhorrence for the unclean article.

That the best is the cheapest should be firmly grafted into this milk-situation, even if to bring conviction it is necessary to point to the attendant expense of sickness or death of the young. Constant repetition of the danger from unclean milk is at present necessary to arouse the public from inertia and fancied security. Public determination and sentiment are the all essentials to the rapid clearing up of this milk problem. Let the day of its coming be not long delayed!

Fatty Applications to Scalp.—Fatty applications, as a rule, are not well borne by the scalp or any hairy part of the body. When such a selection, however, has been made, the hair must be clipped short, or else, especially in girls, who absolutely refuse to cut the hair, we must have recourse to lotions, preferably aqueous or alcoholic, which invariably act more favorably than unctuous preparations.—N. E. Aronstam, in *Medical Fortnightly*.

THE MILK SUPPLY OF WASHINGTON, D. C.*

G. LLOYD MAGRUDER, M.D.
WASHINGTON, D. C.

During the summer of 1906, notwithstanding the completion of, and the satisfactory results obtained from, the Washington filtration works, it was found, contrary to the general expectation, that there was no diminution in the prevalence of typhoid fever. Owing to the limited force of inspectors under the health officers and the entire absence of a bacteriologic laboratory under his control, no extended investigation into the causation of this condition could be conducted. Consequently, in June, 1906, the District Commissioners requested the aid of the Bureau of Public Health and Marine-Hospital Service toward solving this problem. The work of the bureau covered the conditions that existed within the limits of the District. Very early in the course of the investigations attention was forcibly drawn to the milk supply. A summary of work done was submitted to the District Commissioners in March last. Ten per cent. of the cases of typhoid fever examined were directly traced to milk infection. The study of the methods of receiving, handling, caring for and distributing milk showed a most deplorable state of affairs. This will be shown in great detail in the full report which is to be issued shortly.

On June 6, 1894, I, as chairman of a committee, presented a report on typhoid fever in the District of Columbia to the medical society of the district. This report was afterward presented to the district committees of both houses of Congress and was printed as a public document. While preparing this report the many insanitary conditions connected with the milk supply were noticed. "Contaminated milk" was mentioned as a prominent cause of the disease. Among the recommendations of this committee which were unanimously adopted by the society were: "The construction of works for the filtration of the Potomac water, the only proper method of purification; the abandonment of all wells as rapidly as possible within the city limits. Careful purification and inspection of all dairies in the District from which the milk supply is drawn; and the enactment of a law whereby no milk shall be sold in the District without a permit from the health office. The inspection should cover an examination at the dairies of all possible sources of infection, including the water supply."

Early in September, 1906, I had a conference with the Hon. James Wilson, the Secretary of Agriculture, and discussed with him the insanitary conditions that had been observed on dairy farms, as well as the numerous reports of contaminated waters, as shown by repeated chemical analyses. The advisability was urged of carrying out the recommendation as to dairy farms made by the committee of the medical society in 1894. Repeated examinations of the milk supply in a number of states and the general conditions surrounding the same have been made by the Department of Agriculture. The Secretary immediately took great interest in the subject. Fully appreciating that a study of the sources of supply would be of great value, he directed that careful and thorough inspection should be made of every source of supply of milk to the city from the District of Columbia, Maryland and Virginia.

The results as obtained were from time to time reported. Most astounding conditions were found to exist. Especially interesting were the bacteriologic investigations of the water supply of sixty dairy farms, which were made by the Department of Agriculture in November and December, taken without selection in Maryland, Virginia and the District of Columbia. These showed that but 25 per cent. were under the danger line, considering that 500 bacteria to the cubic centimeter, when uncontaminated with sewage bacteria, is the limit of perfect safety; twenty-seven showed the presence of bacillus coli—45 per cent. A number of wells or springs examined contained over 20,000 bacteria to the cubic centimeter; one contained 27,200.

Two cases of fever were in actual existence on two farms at the time of the examination of the water supply, one in Maryland and one in Virginia.

This knowledge, in the light of the recent reports of Dr. Schroeder showing the presence of the tubercle bacillus in the feces of cows and those of Dr. Soper as to the presence of the typhoid bacillus in the feces of a patient, demands that greater attention should be paid to water supplies showing the colon bacillus. The bacteriologic investigation of the water supply of farms has been continued and additional reports are now available. These show increased contamination, probably the result of spring rains and the warmer weather.

These studies have been found so interesting that the Secretary of Agriculture has ordered a repetition of the inspection of the 1,000 farms supplying Washington. This inspection will include a bacteriologic examination of the water supply of each farm. The Bureau of Public Health and Marine-Hospital Service examined bacteriologically 172 samples of milk during August and September, with an average of 22,134,259 bacteria. The Department of Agriculture supplemented this work by examining 372 samples from October 27 to December 3, 1906, comparatively cool weather, and found an average of 977,315. Recently the same department has examined 130 samples of ice cream. Five of these samples contained less than 500,000 bacteria to the cubic centimeter, the remainder ranged from over 1,000,000 to 364,000,000 per cubic centimeter. These figures draw attention to a most dangerous factor as a probable cause of disease.

The information obtained from these investigations conducted by these two great departments of the government, the Department of Agriculture and the Bureau of Public Health and Marine-Hospital Service, so impressed the District Commissioners that they, on March 30, 1907, addressed a letter to a number of prominent government officials and leading citizens inviting them "to confer with respect to the milk supply in the District of Columbia, and to advise them what further steps should be taken to improve it, especially with reference to the question of employing either certification of milk of standard excellence or the pasteurization of the District milk supply, or both, and what amendments should be made to the commissioners' bill for the better regulation of the milk business introduced in the last session of Congress."

On April 10 the men invited to this conference met and organized the Milk Commission with the following officers:

Chairman.—Gen. Geo. M. Sternberg, Surgeon General, U. S. Army, retired.

Vice Chairmen.—Dr. Harvey W. Wiley, Department of Agriculture, and Dr. Geo. M. Kober, Professor of Hygiene, School of Medicine, Georgetown University.

Secretary.—Dr. W. C. Woodward, District Health Officer.

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*Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

Several subcommittees were appointed.

Subcommittee on Infant Feeding: *Chairman*, Dr. Harvey W. Wiley, Chief of Bureau of Chemistry, U. S. Department of Agriculture; Gen. Geo. M. Sternberg, Dr. Stitt, U. S. Navy; Dr. J. W. Kerr, Asst. Surgeon General, Bureau of Public Health and Marine-Hospital Service; Drs. D. P. Hickling, Wm. M. Sprigg, and W. C. Woodward.

Subcommittee on the Sanitary Condition of the Milk Supply: *Chairman*: Dr. Geo. M. Kober, Professor of Hygiene, School of Medicine, Georgetown University. His associates were Drs. A. D. Melvin, Chief of Bureau of Animal Industry, U. S. Dept. of Agriculture; M. J. Rosenau, Director of Hygienic Laboratory, U. S. P. and M.-H. S.; John R. Mohler, Chief Pathologist, Bureau of Animal Industry, Department of Agriculture; Chas. T. Mason, Asst. Surgeon General, U. S. Army; G. Lloyd Magruder, Emeritus Professor of Materia Medica and Therapeutics, School of Hygiene, Georgetown University, together with Messrs. E. H. Webster, Chief of Dairy Division, Bureau of Animal Industry, Dept. of Agriculture, Col. Robert G. Smith, milk producer, and E. Berliner.

The matter assigned to these committees was divided into several subheads and was so carefully and exhaustively considered by men well versed on the subject that copious excerpts from the reports which were submitted to the full commission on April 17 and May 1 and unanimously adopted, are presented in abstract with the feeling that much of value will be given:

Extracts from the recommendations unanimously adopted by the committee to consider milk in relation to the food of infants:

1. The milk which is supplied to infants under the age of 3 years in the District of Columbia should be certified by the health officer, and should contain not more than 10,000 bacteria per cubic centimeter, should be not more than twelve hours old, and should be delivered in artificially cooled packages.

2. The health officer of the district should be authorized to advertise for dairies which will be willing to so modify their barns, stables, etc., if necessary, as to secure a license from him for the production of certified milk under the most modern improved sanitary conditions.

3. Each cow furnishing the milk in the dairy should be tested, under the supervision of the health officer, for tuberculosis or other contagious or infectious diseases, and that any animal so suffering be excluded from the herd.

4. A daily sample, or samples, drawn from the supply of each certified milk furnished to the city should be secured for the purpose of making the bacterial count and determining the chemical composition, etc.

5. Parents and guardians should be urged to use only certified milk, at least for infants' food in the District of Columbia for all infants under the age of 3 years.

6. If private dairies can not be induced to furnish certified milk, the commissioners of the District of Columbia, as a health measure affecting in the highest degree the welfare of the District of Columbia, should be asked, if it can legally be done, to establish a municipal dairy for the purpose of furnishing certified milk for the use of infants under 3 years of age in the District of Columbia.

7. For the purpose of securing modified milk for infants in ill health, according to the prescription of physicians the Milk Commission of the District Medical Society should be requested to secure the establishment of a laboratory under its supervision in which only certified milk shall be used, and in which, by the use of a separator, or otherwise, milk of a definite chemical composition, may be prepared from certified milk, in harmony with the physicians' prescriptions relating thereto.

10. The term "certified milk" as used herein is to be applied to milk secured at dairies subject to a periodic inspection, and the products of which are subjected to constant analysis. The cows providing the milk are to be properly fed, free of tuberculosis or other contagious diseases, and housed in clean stables, properly ventilated, and they are to be supplied with wholesome water and food, and kept clean. The milk is to be drawn under precautions to avoid infection, is to be immediately strained and cooled, and packed in sterilized bottles which are to be kept at a temperature of about 40 degrees F. until delivered to the consumer.

VARIOUS DISEASES AND CONDITIONS OF CATTLE THAT MAY AFFECT THE QUALITY OF THE MILK SUPPLY.

BY JOHN R. MOHLER.

The importance of obtaining a hygienic and wholesome milk supply for the residents of this city is recognized by all intelligent people and should require no argument. Public health demands the purity of all milk and milk products. Next to bread, milk is more extensively used as an article of diet than any other foodstuff. It forms a portion of the food of almost every person practically every day of the year. Moreover, unlike many other articles of diet, milk is consumed in most cases in an uncooked state, making it a very dangerous food should it perchance contain any deleterious organisms. The reasons for securing a supply of pure and wholesome milk are so numerous and so important that the consumer should become acquainted with some of the more essential of them in order that he may render assistance in bringing about a satisfactory improvement. Not only is milk a very suitable medium for almost every description of germ life which may gain access to it in its journey from the cow to the consumer, but it may also become contaminated while still in the udder through infectious or poisonous material present in the cow herself. Consideration in this report will be given only to the latter aspect of the question of a wholesome milk supply. In this connection it will be necessary to keep in mind the requirements of an awakened public for a clean and wholesome milk as well as the effect of any unreasonable or irrational demand on the producer which may cause him heavy losses, or even to discontinue his business.

It will also be apparent from the report of the Committee on Sanitation that in order to produce milk in compliance with the requirements hereinafter to be described, certain precautions must be taken which will necessarily entail additional expense on the producer of this higher grade of milk. The customer must therefore expect to pay his portion of any legitimate advance in the cost of production, and such increase in the price of milk due to its improved quality should be considered as money well expended. Furthermore, we can not have good milk of safe quality without a realization on the part of the farmer, transportation agent, dairyman and housewife of the danger in utilizing old, warm or dirty milk. Education is an important factor, therefore, in the improvement of the milk supply which can not be accomplished through laws and regulations alone. In view of these facts it is recommended that the subject be taught in the schools, that popular articles be frequently prepared for the press, that lectures and demonstrations be given in towns and townships, that pamphlets in plain language be prepared by the Health Officers for general distribution, and especially that rules and suggestions, with reasons therefor, be placed in the homes of dairymen and dairy attendants.

MILK FROM UNHEALTHY COWS AS A FACTOR IN THE SPREAD OF DISEASE.

Tuberculosis.—Probably the most important disease of cows from the standpoint of public health is tuberculosis, and it is also the most prevalent. Notwithstanding the announcement of Koch that, in his opinion, tuberculosis in man and cattle is a different disease, it is now the generally accepted opinion among scientists that people, especially children, may become infected with tuberculosis from cattle. It is not known to what extent such infection occurs, nor is it possible to obtain any definite percentage by the method formerly adopted of looking for the primary lesions in the intestinal canal, although much statistical evidence is recorded, showing that even by these figures primary intestinal tuberculosis of children has been observed in as high as 45.5 per cent. of the tuberculous cases examined. (Heller.)

Evidence which must be considered conclusive has been obtained by the Bureau of Animal Industry as well as by Ravenel and a number of French investigators, showing that tuberculous infection may take place through the intestinal tract without leaving any lesion in the abdominal cavity, the first alteration being found in the lungs or thoracic glands. Therefore the presence of pulmonary tuberculosis in infants without intestinal lesions is no indication that the disease was not transmitted by the food, and the statistics above referred to are thus shown to be below the true percentage of cases of tuberculosis of intestinal origin. These figures, however, do not give any satisfactory idea as to whether the bacilli entering the intestines originated from human or bovine sources. Owing to this fact, it follows that the only way of determining the infection of people by bacilli of the bovine type will be to study the lesions in the body of as many cases of human tuberculosis as is possible.

The finding of the bovine type of tubercle bacillus in human lesions is the most direct and positive proof that tuberculosis of cattle is responsible for a certain amount of tuberculosis in the human family. Numerous experiments with this object in view have already proven this fact. Thus the German commission on tuberculosis examined 16 different cultures obtained from tubercular lesions in children and found four which were more virulent than is usual for human tubercle bacilli, causing tuberculosis in the cattle inoculated with them, and making 25 per cent. of the cases tested, affected with a form of tuberculosis which, by Koch's own method, must be classified as of bovine origin. In a similar series of tests conducted by the British royal commission on tuberculosis, 60 cases of the disease in the human were tested, with the result that 14 cases were claimed by this commission to have been infected from bovine sources. Ravenel reports that of 5 cases of tuberculosis in children, 2 received their infection from cattle.

Theobald Smith has also reported on one culture of the bovine tubercle bacillus obtained from the mesenteric glands of a child, out of 5 cases examined, and according to a recent paper by Goodale, Smith has recently been at work on 7 other cultures from different children, 4 of which conformed to his idea of tubercle bacilli emanating from cattle. Of 4 cases of generalized tuberculosis in children examined in the Biochemic Division of the Bureau of Animal Industry, 2 were found to be affected with very virulent organisms, which warranted the conclusion that such children had been infected from bovine source. The Pathological Division of the same bureau has likewise, out of the 9 cases of infantile tuberculosis examined, obtained two cultures of tubercle bacilli that could not be differentiated from bovine culture. In Europe so many similar instances of bovine tubercle bacilli having been recovered from human tissues are on record that it appears to your committee entirely proven that man is susceptible to tuberculosis caused by animal infections, and while the proportion of such cases can not be decided with even approximate accuracy, it is nevertheless incumbent on us to recommend such measures as will guard against these sources of danger, when enforced.

The two principal sources of infection from cattle and the only ones necessary to be considered are the meat and milk of tuberculous animals. The fact that most of the cases of bovine tuberculosis above enumerated which occurred in the human were cases of infantile tuberculosis points with grave suspicion to the milk rather than the meat supply. This naturally leads to the question of how and under what condition does the milk become infectious. That milk coming from a tuberculous udder is capable of transmitting the infectious principle is conceded by all who have given the subject any consideration. It has been equally established that in advanced generalized tuberculosis the udder may secrete tubercle bacilli without showing any indication of being affected.

Careful experiments performed by trained and eminently responsible investigators have also demonstrated beyond reasonable doubt that tubercle bacilli at certain times may be present in the milk of cows affected with tuberculosis to a degree that can be detected only by the tuberculin test, so that in a herd of cows in the various stages of tuberculosis it is to be expected that some of them will secrete tuberculous milk, which, when mixed with other cows' milk, makes the entire product dangerous. Even when the tubercle bacilli are not being excreted by the udder, it has been shown by Eber in Germany and Schroeder in this country, that the dust and manure of the stable where the diseased animals are kept are in many cases contaminated with tubercle bacilli.

In a recent examination of the manure passed by twelve cows just purchased from dairy farms in this city and affected with tuberculosis to an extent only demonstrable by the tuberculin test, tubercle bacilli were found in over 41 per cent. of the cases both by microscopic examination and animal inoculations. The danger from this method of infecting milk is impressed on us as consumers when we realize that on an average probably 25 per cent. of all the cows which supply milk to the district are tuberculous, and this is considered to be a conservative estimate, judging from the results of recent tuberculin tests. Vital statistics show that 14 out of every 100 people that die succumb to tuberculosis, while of the remaining 86 more than one-half show lesions of tuberculosis on postmortem examination, although dying from some other cause.

The statement of von Behring above mentioned is particularly pertinent in regard to the relationship of human tuberculosis to the milk supply, and especially in connection with the results of those investigators who have studied market milk and found from 5.2 to 55 per cent. of the samples examined to contain tubercle bacilli. LeBlanc considers the milk of tuberculous cows dangerous even when bacilli are not present, on account of the toxin it contains. Michellazzi has injected such milk into tuberculous animals and obtained a reaction. To eliminate all tuberculous cattle from the herd, or to pasteurize all milk coming from untested cattle, should therefore be the object of all producers of milk and the sanitarians will be remiss in their whole duty should they neglect to guard against the products of tuberculous animals in their attempts to eradicate tuberculosis from man.

Other Diseases.—Foot-and-mouth disease, anthrax, cow-pox, and rabies may be transmitted by the milk, and while no case of actinomycosis in man has been traced to the use of milk it is desirable that the use of milk of cows so affected should be prohibited, especially when the disease affects the udder. Such conditions as gastroenteritis and septic and febrile conditions may render the milk injurious to the consumer. Local diseases of the udder like Botryomycosis, mammitis, mastitis, etc., may render the milk unwholesome, especially when pus organisms are present. The color, taste and odor of milk may be altered so as to make it unpalatable if not unwholesome; these changes may be due to the food of the cow or to bacterial changes in the milk after it is drawn from the udder. Milk may acquire poisonous properties from the food eaten by the cow. The milk produced shortly before or during the first five days after parturition should not be used.

Recommendations.—In view of the facts above enumerated, your committee desires to make the following recommendations:

1. All cows on dairy farms producing milk for the District of Columbia shall be tagged, tattooed or otherwise marked, for purpose of identification.

2. All milk produced on such dairy farms shall come either from tuberculin tested cattle, which shall be retested at least once a year, or be subjected to pasteurization under the supervision of the health department in case the herd is not tuberculin tested.

3. No additions to any herd, whether tested or not tested, shall be made in the future without subjecting such cattle to the tuberculin test.

4. No license shall in future be granted except to applicants having herds free from tuberculosis.

5. The milk of cattle showing any of the udder affections above mentioned, anthrax, rabies, gastroenteritis, septic conditions or clinical symptoms of tuberculosis, shall not be utilized as human food, even though the milk be pasteurized. Milk from cows 15 days before and 5 days after parturition, and

that from animals receiving any of the deleterious medicaments of foodstuffs previously mentioned shall likewise be excluded.

6. That the veterinary inspectors of the health department make frequent visits to dairies having untested herds, in order that they may discover all advanced cases of tuberculosis, or udder tuberculosis, as early as possible.

MILK SEDIMENTS OR DIRTY MILK IN RELATION TO DISEASE.

BY GEORGE M. KOBER, M.D.
Professor of Hygiene, School of Medicine, Georgetown University.

Every consumer of milk has doubtless observed the presence of more or less foreign matter at the bottom of the bottle in which it is kept; indeed, it is a matter of such common occurrence that it hardly excites our attention, and many are disposed to look on it as a matter of course. Professor Soxhlet of Munich was perhaps the first to point out that these deposits are largely made up of the excrementitious matter from the cow, which adhering to the udder of the animal, gained access to the bucket during the act of milking.

If these sediments are subjected to microscopical examination we will find that they are composed of epithelial débris, hairs of the cow, organic and inorganic dust particles, excrementitious matter, vegetable fibers, bacteria, fungi and spores of every description; fully 90 per cent. of the germs are fecal bacilli—all of which is not only disgusting but extremely suggestive of danger. The number of micro-organisms is largely increased and we know that under a suitable temperature bacterial development and consequent decomposition are materially hastened in such a medium. The greatest danger from milk of this class is the possible presence of ptomains or toxins produced by certain saprophytic germs from the albuminoids of the milk.

The views of Vaughan, Booker, Escherich, Harrington, Kober and others on the relation of saprophytic germs and toxins to cholera infantum and the summer diarrheas in bottle-fed children are gaining ground and will doubtless lead to great reform in the management of dairies. It may be urged that all such modern innovations involve unnecessary hardship, but it should be remembered that by attacking all the various factors concerned in the causation of the disease we may hope for the best results. The reduction in the general mortality in the registration area of the United States from 19.6 in 1890 to 16.2 per 1,000 shows what may be accomplished by preventive medicine and sanitation.

Milk in Relation to Infectious Diseases.—Milk may acquire infective properties after it leaves the udder of the animal. Numerous instances have been observed in which outbreaks of typhoid fever, scarlet fever and diphtheria, by their sudden and explosive character, affecting families living in streets and localities supplied by the same milkman, naturally pointed to the milk supply as a common cause. Dr. Michael Taylor, however, was the first physician (in 1857) to point out definitely that cow's milk might serve as the medium of spreading typhoid fever from a dairy where the disease prevailed. In 1867 he also showed that scarlet fever might be distributed in the same way. In 1877 Mr. Jacob traced a diphtheria epidemic at Sutton to the milk supply, and in 1872 MacNamara traced an outbreak of cholera at Calcutta to an infected dairy. These facts could not fail to sharpen the powers of observation in others, so that in consequence similar outbreaks were more frequently reported. I was enabled to present to the International Medical Congress held in Paris in 1900 the history of 195 outbreaks of typhoid fever, ninety-nine of scarlet fever and six of diphtheria, all traceable to milk supply.

It has been demonstrated that disease germs may not only survive, but in many instances actually proliferate, in the milk, and it is not a difficult matter to point out the many ways by which these germs gain access, especially when some of the employes are also engaged in nursing the sick, or are suffering themselves from some mild infection while continuing their duties, or are convalescent from the disease, and thus infect the milk in handling it.

After the recital of numerous epidemics and milk-borne diseases, I need hardly insist on the necessity of compulsory notification of all infectious diseases, and that milk should not be permitted to leave a farm, dairy or milk-shop during the existence of any of these diseases among the inmates or employés, nor should the latter be permitted to reside in or visit infected houses while engaged in the milk traffic without permission from the health department. The farmer or retailer should, in fact, be prepared by previous instructions to guard the milk supply from these sources of danger and call on the authorities for an immediate inspection. To prevent great loss incident to those restrictions, they may be modified so as to use the milk after proper sterilization under the direction of the health department. There is nothing strained in the requirements of the proposed legislation and by their enforcement we may hope to obtain such a standard of milk as will not only effect a decided reduction in infantile mortality, but will render the dissemination of infectious diseases through the milk supply a matter of history only. Until this is accomplished, we should patronize only such dealers as sell "certified milk," or subject the milk to pasteurization, or simply bring the milk to the boiling point in the household, and, after cooling, keep it on ice; this will not make bad milk good, but it will at least destroy its infectiousness.

SANITARY INSPECTION OF DAIRIES AND DISTRIBUTING DEPOTS.

BY E. H. WEBSTER.
Chief of Dairy Division, Bureau of Animal Industry.

A systematic sanitary inspection of dairy farms and milk-distributing depots are anything but ideal; they are, in fact, about as bad as it is possible to conceive. Stables are poorly lighted, many having no windows whatever, and ventilation is left to care for itself. Little attention is paid to floors, ceilings, walks, or stable yards. Swine, horses and poultry are often found in the same barn with the cows. Manure is not removed, or, when removed, is thrown through an opening in the wall or just outside the door, frequently near the milk room.

The necessary appliances for sterilizing and cooling in milk room are often lacking, making it impossible properly to wash and sterilize pails, cans, bottles and other appliances, or, to properly cool and hold at a low temperature the milk before delivery. Milk dealers, as a rule, have more respect for sanitation and have better appliances than the average farm, but some common practices are deplorable. Very few have appliances for sterilizing bottles.

The situation in Washington is not different from that confronting the health departments of most of the cities of any size throughout the country. The public is gradually awakening to the fact that these conditions must be changed. In order to bring about these changes within the district, it is recommended that:

1. A sufficient number of inspectors shall be employed so that each inspector shall have not over 100 farm dairies.

2. These men shall have technical training in the production and handling of milk.

3. The health officers shall have full authority to make rules and regulations, and to enforce the same, so as to safeguard the milk supply of the district from contamination through carelessness, ignorance or malicious intent.

4. The health officer, or any authorized inspector, shall have authority to revoke instantly the license or right to sell milk in the city if the provisions in these regulations are not complied with, where, in his judgment, such violation endangers the health of the consumer.

WATER SUPPLY OF DAIRY FARMS.

BY G. LLOYD MAGRUDER, M.D.
Emeritus Professor, Materia Medica and Therapeutics, School of Medicine, Georgetown University.

The influence of a polluted water supply has long been recognized as a most potent cause of disease. Many virulent epidemics have been directly traced to this origin. The literature on this subject is so full of instances that it is needless to cite additional examples. Immediate closure of such water supplies in cities, when sewage bacteria have been detected, has been universally recommended. The recent report to the District Commissioners by the Bureau of Public Health and Marine-Hospital Service lays special stress on this point.

How much more is this danger augmented when such bacteria are found in the water supply of the dairy farms. It is well known that few farms have the proper facilities for boiling the water that is used for washing the hands of the employés, the dairy utensils and the udders of cows. Such water readily contaminates the milk, which contamination is rapidly increased by the multiplication of the bacteria when the temperature is above 50 F.

In view of the possible presence of the bacilli of typhoid fever and tuberculosis, the question of sewage bacteria in the water supplies of the dairy farms is a much more serious matter than was formerly considered. The knowledge that typhoid fever was 2½ times more prevalent in 1906 in the counties of Maryland than in the city of Baltimore, and the evidence, as stated elsewhere in this report that 148 out of 195 epidemics of typhoid fever attributed to milk were directly traced to the dairy farm, adds to the seriousness of these conditions.

It has been observed that many wells, springs and cisterns are loosely or not at all covered, poorly protected from surface drainage, and, in numerous cases, are located in close proximity to the barnyard or to the household privy, at times even in places that catch the drainage from the same.

The examinations made by officials of the Department of Agriculture during November and December, 1906, in comparatively cool weather, showed that, of the 60 water supplies of dairy farms taken at random in Maryland, Virginia and the District of Columbia, 16 contained less than 500 bacteria per cubic centimeter and were free from *Bacillus coli*—6 below this number contained the colon bacillus. The remaining 44 water suplies contained bacteria up to 27,200. Of these 44, 21 contained the colon bacillus.

These tests warranted the classification of these water supplies as follows: 16 good, 15 fair, 17 suspicious, and 12 unfit for use. From Professor Sedgwick's classification 44 would have been considered polluted. In a recent letter he says: "I should say that all of the wells under consideration which had more than 100 bacteria per cubic centimeter were to be classed as suspicious, and that those having 500 or over were, in all probability, polluted."

The results of those examinations confirm the wisdom of the recommendation made in 1894 by the committee of the Medical Society of the District of Columbia on the prevalence of typhoid fever, for the careful inspection of all dairy farms for all possible sources of infection, including the water supply, and prove that repeated chemical and bacterial tests should be made of the water supplies of every dairy farm supplying milk to the City of Washington. They afford another proof of the imperative need of a well-equipped chemical and bacteriological laboratory for the Health Officer.

Fortunately, many of these insanitary conditions on the farm can be readily and easily remedied by the farmer himself, by the exercise of a little care and at a very trifling cost.

All water, except that above suspicion, used for dairy purposes should be boiled. Those engaged in the handling of dairy products should be required to observe the greatest care as to the cleanliness of their clothes and person. Frequent washing of their hands should be practiced. The source of the water supply should be at least fifty feet from any possible infection, and a greater distance if in line of drainage from any infection.

The wells, springs and cisterns should be carefully walled and covered to protect them from seepage, drippings and dust. A well-built coping, extending a foot or more above the ground would be very effectual. Preferably deep driven wells should be used when possible. Owing to the inclination of the rock formation in this vicinity, these are not always absolutely reliable. When a water supply is found to be polluted, it should be thoroughly cleaned and properly disinfected.

All fecal discharges should be deposited in a safe place, and those from fever cases in addition should be intelligently disinfected. Since freezing does not immediately kill bacteria, careful supervision shoud also be observed over the supply of water for and the location of ice ponds from which ice is obtained for household and dairy purposes. By observing these simple precautions, which would in no way be a hardship to the producers, much would be accomplished toward securing a better milk supppply.

The series of check experiments conducted during September, October and November, 1906, by the Department of Agriculture and those in charge of the filtration plant, demonstrated its efficiency as a safeguard against typhoid infection from the Potomac River. The report of the examinations of the Potomac Water Supply for March confirms the deduction heretofore made.

COMMERCIAL CLASSES OF MILK.

BY A. D. MELVIN, M.D.
Chief of the Bureau of Animal Industry.

In view of the elaborate manner in which the necessity for a pure milk supply has been pointed out, and of the many obstacles in the way of obtaining such a supply except through vigorous official supervision, it is believed that if the milk supply is divided into three classes as hereinafter described, and an efficient supervision provided, the consumer will be amply protected in securing clean and uncontaminated milk, therefore the following recommendations are respectfully submitted:

That the milk supply of the city be divided into three classes, to be known as Classes 1, 2 and 3. The specifications for certified milk for infants to be the same as recommended by the Milk Commission, and to be known as Class 1.

Class 2 to be clean, raw milk from healthy cows as determined by the tuberculin test and veterinary physical examination. The cows to be housed, fed and milked under good conditions, but not necessarily equal to the conditions provided for Class 1. Pure water as determined by chemical and bacteriologic examination, to be provided and the bacteriologic count of the milk not to exceed 100,000 bacteria per c.c., at the time the milk reaches the city, at any season of the year, and determined by the health department at frequent intervals. Milk to be delivered to the consumer in sterilized containers to be filled on the dairy farm and the temperature of the milk not to exceed 50 F. until delivered to the consumer.

Class 3 to be milk from all other dairies not able to comply with the requirements for Classes 1 and 2. This milk to be clarified and pasteurized at central pasteurizing plants which shall be under the personal supervision of an officer of the health department. These pasteurizing plants may be provided by either private enterprise or by District government, and shall be located within the city of Washington. Class 3 milk shall not be permitted to exceed 60 F. in delivery from the dairy to the pasteurizing plants. The milk from these pasteurizing plants, placed in sterilized containers, shall be delivered to the consumer at a temperature not exceeding 50 F. All milk of unknown origin shall be placed under Class 3 and subjected to clarification and pasteurization. It is also provided that no cows suffering from any communicable disease, or any unfit condition to be determined on physical examination by an authorized veterinarian, shall be permitted in any dairies. It is further provided that cows which do not show any physical signs of tuberculosis on veterinary examination, but which may have reacted to the tuberculin test, may be included in dairies supplying milk of this class.

No dairy farm shall be permitted to supply milk of a higher class than the class for which the permit has been issued and each dairy farm supplying milk of a specified class shall be separate and distinct from any dairy farm of a different class; the same owner, however, may supply different classes of milk, providing the dairy farms are separate and distinct, as above indicated. All milk to be of good composition, free of adulterants and artificial coloring matter. The term "milk" to include both milk and cream.

PASTEURIZATION.

BY M. J. ROSENAU, M.D.

Director Hygiene Laboratory, U. S. P. H. and M.-H. S.

Advantages.—The advantage of pasteurization is that it is a cheap and effective means of preventing the transmission of infectious diseases such as tuberculosis, typhoid fever, diphtheria, scarlet fever, etc., commonly spread by milk.

Disadvantages.—1. Pasteurization promotes carelessness on the farm and dairy, etc. (This may be controlled by proper regulations, inspections and laboratory examinations.)

2. Pasteurization renders milk less digestible. (While it is generally conceded that boiled milk commonly induces constipation, the majority of the evidence plainly indicates that pasteurization has little, if any, effect on the digestibility of the milk.)

3. Pasteurized milk favors the production of rickets and scurvy. (There is no proof to this effect and authorities agree that the danger is slight; and, further, that it may readily be obviated.)

4. By destroying the non-spore-bearing bacteria, pasteurization sometimes allows toxic organisms to grow and produce serious poisons in the milk. (On the other hand, these same poisons are more frequently produced in milk that has not been pasteurized, and this danger may be obviated in pasteurized milk by cooling it quickly, keeping it cold and shortening the time for distribution.)

5. Pasteurization is inefficient as a preservative; the milk keeps only 12 to 24 hours longer than otherwise. (This is really no disadvantage, for the quicker bad milk sours, the better.)

6. Pasteurization injures the taste of the milk. (This is not so, if properly done.)

7. Pasteurization increases the cost of the milk. (True, but it is the cheapest safeguard, and the expense of pasteurization is offset by the keeping quality of the milk.)

Methods.—The milk must be heated to a temperature of 65 C. (149 F.) for 20 minutes, or 70 C. (158 F.) for 10 minutes, as soon as practicable after the milking, in enclosed vessels, preferably the final containers. After pasteurization, the milk must be promptly cooled, kept cold and distributed with promptness.

The advantages so far outweigh the disadvantages that I unhesitatingly recommend compulsory pasteurization of all milk not certified under Class 1 and Class 2 of Dr. Melvin's classification.

DISCUSSION

ON PAPERS BY DRS. COLER, DARLINGTON, JORDAN AND MAGRUDER.

Dr. G. Lloyd Magruder, Washington, D. C., said that Washington holds a unique position in regard to government and is somewhat backward in some points in which it should be forward. It is governed by a board of commissioners, but the laws are enacted by Congress and it is necessary to go to Congress for almost everything. The commissioners have power over certain police regulations, but they can not control without legislation from Congress. The District of Columbia is very close to Maryland and Virginia, and the congressional committees on District of Columbia affairs frequently have members from these states who are influenced by their constituents. For some time, Dr. Magruder said, a senator, who had a dairy farm in Virginia, was on one of these committees. Almost all the legislation which it was attempted to secure for stricter regulations of the milk supply of the District was opposed by this man, because he had trouble in carrying out the requirements on his farm while he lived in Washington. Health officers and commissioners, year after year since 1895, have begged for additional legislation; in 1895 legislation was secured which improved conditions immensely, but it was not sufficiently strong to enable the health officers to do what they should. They are now working for additional legislation.

Dr. C. H. Jones, Baltimore, said that the papers on this subject have given him an idea as to what can be accomplished under bad conditions. He stated that at the Scientific Exhibit Hall he had presented some pictures that were taken for the milk exhibit gotten up by Dr. Fulton, secretary of the State Board of Health of Maryland, in the spring of 1906. There are about 108 photographs presenting the conditions within the city, in the suburban district and in the rural district. So far as he has been able to learn, the greatest difficulty is found in the suburban district. Within the city there is a fairly strict supervision—so far as one man can carry it out. The improvement in the milk has been very great; practically no disease except that introduced in the milk in houses, could be traced to these particular dairies. The rural district is far better than what one would expect, as there is no supervision; but Dr. Jones thinks that is accounted for in the following way: The distance that the milk has to come from the stables to the point of distribution within the city, and the fact that the railroads do not provide any means of conveying the milk at the proper temperature compel the farmers to exercise a certain amount of care, as otherwise they know that they can not get the milk to the city and have it remain sweet. On the other hand, the suburban section is a district close to the city where the milk is brought twice daily to the consumers in wagons, not by the railroads. Here is found the greatest amount of filth. The short haul permits the milk to be consumed within three or four hours after milking. Dr. Jones thinks that he can demonstrate a typhoid epidemic, due entirely to milk infection, in the suburban district—not the urban district nor the rural.

Dr. W. F. Snow, Leland Stanford University, Cal., said that California is carrying out three experiments which seem pertinent to the subject. All the speakers have emphasized four things: First, the education of the public through the press; second, the necessity for the establishment of demonstration dairies and experimental farms within public parks, or in similar ways; third, the emphasizing before the public of pure production of milk rather than pasteurization; and fourth, the necessity for field inspection work. In Alameda County, California, the supervisors have established a model dairy in conjunction with their county infirmary. They are spending considerable money in making it what a dairy should be, with the object of bringing the people from the surrounding cities (those near the Bay of San Francisco) to see the place. They are experimenting with a milking machine for the benefit of the public, and are using the milk also in an experimental way (so far as good milk may be an experiment) with the patients in this infirmary, to see whether good milk will show good results in the dietetics of this hospital. Further, in regard to the question of education itself, Dr. Snow has experimented somewhat with some of the high schools in putting before the teachers of biology such blanks and instructions as have been shown in the Section, asking these teachers to go with him, and later with their students to the dairies supplying their communities with milk. The high school students are then asked to write, in their course on biology, papers on their impressions with regard to how fully these rules and regulations are complied with. The effect has been rather amusing, and very encouraging from the point of view of throwing a lot of amateur inspectors into the field; amusing in its influence on the dairymen, encouraging in the public sentiment which it has created in the homes of these school children. Within the last year and a half four high schools (those of Los Angeles, Stockton and some other communities), representing probably 5,000 homes, have decided to put education in public health into the regular school curriculum. Just what they are going to accomplish, or how persistently they will carry it out, no one knows, but at any rate the scheme of instruction in these four high schools includes some sort of simple field-inspection training in examining the sanitary conditions of dairies and other food-production centers. The third experiment of which Dr. Snow spoke is one which seems valuable to those who are in states which have had very little money to draw on for this public work as yet. The United States Government utilizes the best students in the zoologic, biologic and geologic departments of the universities for all sorts of valuable experimental field work. The health departments of the various states could use the students in biology and physiology fully as well for very careful volunteer inspection work in the field of public health. Merely as an experiment, the State Department of Health in California has been trying such a plan with the students from one of the universities, with a very great deal of value from two points: First, that of supplying the overburdened officers of the health department with accurate, trustworthy facts; second, that of educating many of the young men who will soon be physicians, and, more important still, Dr. Snow said, our voters and trustees or lawyers in incorporated communities, both large and small.

Dr. Seneca Egbert, Philadelphia, said that one important point would be the requirement that milk cans and containers in transit on railroads should be sealed. Under the auspices of the State Commissioner of Health in Pennsylvania, it was found that often the train employés made free with milk in transit; and to get it they used anything convenient, such as a tin cup or glass or the tumbler from the cooler in the caboose, or sometimes the lid of the milk can itself. Another thing that the cities can do, he said, is to insist on far better sanitary conditions in the milk shops and at the distribution points. He also thinks that it would be wise for each city to have one or more model sanitary milk shops so that the public might have a practical example of what such shops should be, and thus might learn to patronize only those of that character. Another idea which has occurred to him as feasible, is that the milk should be delivered to the consumer in an absolutely frozen condition. It could be frozen at the dairy and delivered to the consumer as is ice cream, either in bulk or in blocks, enclosed in paper cartons. Investigations have shown slight changes in the composition and digestibility of frozen milk, but it is doubtful, he said, if these changes are any greater than those which occur when milk is pasteurized. It seems to Dr. Egbert that at very slight additional expense such milk could be supplied and people could be educated to look for milk in the solid form. This would prevent the bacterial growth that undoubtedly occurs if milk is kept at any temperature above 32 F. Newman and others positively state, he said, that 32 F. is the maximum temperature at which the bacteria will not increase in milk, and the plan suggested would prevent any increase from the time the milk leaves the refrigerating plant until it reaches the consumer. Dr. Egbert is inclined to feel that in the ordinary dairy pasteurization it is not a safe thing for the consumer. Pasteurization does not kill all the bacteria; after that process and after the milk regains a temperature of say 60 F., the bacteria may grow and be just as numerous as ever before and the harm done may be just as great as if the milk had not been pasteurized. The ordinary layman, if he gets pasteurized milk, thinks it is free from germs, which is not the case. Milk refrigerated (as it should be) immediately after the milking and kept cooled down to at least 30 F., will be a much safer article to supply to the ordinary consumer than the pasteurized milk.

Dr. H. M. Bracken, Minneapolis, said that in small communities it is discouraging to try to get people interested in such matters. In Minnesota there are no very large cities where the problem of securing a safe milk supply is a difficult one. He declared that a city with a population of 300,000 or less, and a good farming community around it, should have no difficulty in securing a good milk supply, and that cities with populations of 50,000 or less should have no difficulty in keeping the milk standard near that of certified milk. He referred to the papers and illustrations showing the variations in the quality of milk. The standard of Boston for commercial milk—500,000 bacteria per c.c.—seems liberal enough, yet it appears to be difficult for Boston and New York City to keep up to that standard. The inspected milk of New York (100,000) is rather a high grade milk. In Minnesota an effort was made through the State Board of Health to encourage smaller cities to insist on a better milk supply; and the board, while it is not in the position to give mandatory directions on such matters, did recommend that all the smaller cities should fix a standard equivalent to that of Boston, viz., 500,000 bacteria per c.c. Some of the smaller cities are now taking the matter up and by ordinance are adopting this as a standard. When this standard becomes somewhat general, it will then be possible to move for a still higher standard. He said that if the milk is properly handled it should not be necessary to freeze it to keep it. Certified milk can be kept for some time, and Dr. Bracken thinks that certified milk is certainly superior to milk reduced to a frozen state.

Dr. G. Lloyd Magruder, Washington, D. C., said that as a result of this agitation in Washington, one dealer has tried hard to comply with the requirements for inspected milk. He voluntarily offered the producers an additional 3 or 4 cents a gallon for the purpose of getting clean tuberculin tested milk. He has spent $500 in advertising. Before Dr. Magruder left Washington, these advertisings had been going on for ten days, and the dealer said that he had had ten applications for this higher grade of milk—tuberculin-tested and low in bacteria—for which he wanted to charge 10 cents a quart. Dr. Magruder saw Mr. Gordon, the representative of the Walker-Gordon establishment in Washington, the day before he left Washington. He has a depot directly opposite Dr. Magruder's office, where he puts out 1,600 quarts a day. Mr. Gordon says that most of his customers are people coming to Washington on the recommendation of the plants elsewhere, and he can not get over 10 cents a quart for his milk in Washington; and that if he raises his price to 12 cents in September he is sure that he will lose more than one-third of his customers. People want milk at 6 and 8 cents a quart.

SOME ADVANCES IN RENAL AND URETERAL DIAGNOSIS.*

CHARLES LESTER LEONARD, A.M., M.D.

PHILADELPHIA.

The uncertainties that frequently surrounded the diagnosis of lesions in the deeper urinary tract have been materially lessened by recent advances in the physical methods of diagnosis. This is particularly true of the intrarenal and intraureteral disorders, where improvements in diagnosis have resulted in a clearer differentiation between the symptoms of conditions that had been grouped as identical; in a more exact determination of the character and location of the lesion; and hence in a more accurate analysis of the indications for treatment, resulting in valuable modifications, more precise operative intervention, and, finally, a marked betterment in results.

The facts that have led to a differentiation in the symptomatology and a more accurate localizing of intrarenal and intraureteral lesions have been derived from the study of the symptoms after an accurate localization of a calculus has been made by the Roentgen method of diagnosis. Thus the localizing symptoms observed as grouped about calculi at different points in the urinary tract have been utilized to locate other than calculous lesions.

These symptoms are not of themselves sufficient on which to base a diagnosis, nor is any method of diagnosis so accurate as to be self-sufficient. The complete study and diagnosis of any renal or ureteral condition can not be made by any one method, and all advance is the composite of advances made in all methods combined. The cystoscope, the ureteral catheter, the wax-tipped bougie, the divided and centrifugalized urines, the clinical history and symptomatology are all important factors in increasing the accuracy of diagnosis. Unfortunately the technic and clinical experience to obtain valuable results by any of these expert methods is as difficult to attain as that demanded of the Roentgen diagnostician, so that expertness in all can not be readily acquired by one person. It should not, therefore, be thought that a diagnostician is limited in his vision because he writes from the viewpoint of the particular method of diagnosis in which through special study and experience he has acquired the right to speak with authority. Nor because he confines himself to what he knows should he be thought incapable of recognizing the merit and progress made in other methods of diagnosis. The specialist or diagnostician so self-centered as to be blind to the worth of other methods and so egotistic as to admit no chance for faults in his own is the slave of an optimism that robs him of any authority to speak in his own department.

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As has been noted above, the subdivisions in the symptomatology that aid in locating lesions other than calculus in different portions of the urinary tract have been derived from a comparative study of the symptoms in cases where calculi had been definitely located by the Roentgen method. It is not necessary to study in detail the symptoms of these cases, but only to review those particularly indicative symptoms that by comparison materially assist in localizing the lesions.

The grouping of symptoms is not exact, as there is often an overlapping of symptoms. The differential characteristics in certain cases are, however, sufficiently prominent to assist materially in localizing a lesion.

The variation between the groups of symptoms is rather in the character, location and distribution, as of pain, than in any actual dissimilarity. The severity of the symptoms is frequently as marked in all the groups and depends on the extent of the injury produced by the calculus, the presence or absence of infection and the degree of interference with normal function. The ache, the pain or the colic with tenderness on palpation are present in varying degrees in each case, but differ in their mode of onset, the fulminating point of the acute pain, the direction of radiation and the parts involved. These symptoms vary in prominence, the difference in severity depending on whether the calculus is fixed, partly or entirely movable or obstructive.

The groups of symptoms are naturally subdivided by the points of most common quiescence, impaction or irritation of the calculi. They are, therefore, those of renal origin and those of ureteral. The ureteral are subdivided into those at or above the iliac artery and those in the juxtavesical portion of the ureter.

In the renal group there may be only a dull, persistent ache in the lumbar region with a trace of albumin variable in amount, or to this may be added occasionally a microscopic trace of blood. These symptoms may be aggravated or obscured by the presence of infection and the consequent suppuration. They are intensified and become violent with attacks of typical colic, when a movable calculus becomes impacted in the infundibulum of the ureter and produces obstruction. The onset of the colic attack is sudden, the lumbar ache is constant in intensity, and gradually increasing in severity prior to the attack; the attack subsides suddenly, though the ache may persist. The pain of renal colic is most intense over the kidney. It radiates downward and not upward over the genitocrural nerve. It may pass to the stomach and around the body, but it does not start below the kidney in the line of the ureter and shoot upward. Tenderness on palpation is confined to the kidney, although its area may be increased by the enlargement of the kidney. The psoas reflex is never present.

The symptoms of ureteral calculus vary as widely as those of renal. A small quiescent calculus may produce no symptoms except those of chronic irritation, or in migrating may pass without producing a microscopic trace of blood. On the other hand, calculi no larger than grape seeds produce intense pain and severe hemorrhage, without producing complete obstruction or true ureteral colic. In a patient from whom three small calculi, that had been diagnosed and located by the Roentgen method, were removed by Dr. Endicott of Plainfield, N. J., complete obstruction was produced, though the calculi were no larger than grape seeds. A concurrent infection and hyperpyrexia rendered immediate operation imperative. Calculi are most frequently impacted in the ureter at the ureteroiliac junction and give rise to symptoms that simulate appendicitis. Since their greater frequency has been recognized and attention has been called to this similarity in symptomatology, many more cases have been reported where this error in diagnosis has been made.

The symptoms characteristic of calculus obstruction at or above the iliac artery, especially in cases where repeated attacks have taken place, are a prodromal period of aches, gradually extending up into the renal and lumbar regions and culminating, after increasing in intensity, in the acute paroxysms of ureteral colic. Unless the calculus is expelled, partial occlusion persists, the ache gradually decreasing in intensity but persisting between attacks, and by its gradual increase giving warning of another attack. This gradual increase and subsidence of the lumbar ache is characteristic of ureteral rather than of renal obstruction. In the crisis of acute ureteral colic the pain starts low down in the line of the ureter and radiates upward as well as downward, and is more frequently accompanied by nausea. Tenderness on palpation is found not only over the pelvis of the kidney, but down the line of the ureter.

A calculus impacted at the uretero-iliac junction can often be felt as an exquisitely tender point in the ureter, while the distended ureter above it has often been mistaken for an inflamed appendix. The psoas reflex is characteristic of involvement of this portion of the ureter when it is present. This is exhibited by an inclination to keep the thigh flexed on the body and a disinclination to extend the limb. In the juxta-vesical portion of the ureter the symptoms are more characteristic, but approximate those of vesical calculus. They are generally differentiated because some of the symptoms of renal or ureteral involvement are also present. The lumbar ache is generally absent. Colic attacks are infrequent, unless the calculus has been migrating recently; then the symptoms combine those of vesical involvement. Only in complete obstruction of long standing is a marked hydronephrosis found. Infection is more common and hyperpyrexia usually accompanies an acute and complete obstruction. The psoas reflex is absent. The pain combines the characteristics of ureteral calculus with that of vesical calculus. It radiates upward into the region of the kidney and downward throughout the distribution of the genito-crural nerve. It is felt, as in calculus higher up, in the groin, the scrotum or the labium majus, in the inner side of the thigh and even down to the foot. It is felt, in addition, in the glans penis, or the meatus urinaris of the female, and also along the urethra. The pain is usually felt during, as well as at the end of, micturition. This close similarity to encysted and vesical calculi in symptomatology has led to exploratory cystotomy in two cases in which calculi were subsequently found in the juxta-vesical ureter by the Roentgen examination.

When calculus has been excluded by the Roentgen method, these localizing symptoms are valuable in suggesting the location of the lesion which produces them. Thus a constant lumbar ache without the prodromal increase in severity, with an acute incidence and subsidence of the colic attack, distinguishes renal from ureteral involvement. After a calculus has been excluded they would point to a renal involvement with temporary obstruction due to a displaced or movable kidney with twists and kinks of the ureter or clots, mucopurulent plugs and, masses of crystaline débris. Without the colic attacks they are suggestive of incipient tuberculosis, simple pyelitis and nephritis due to oxaluria or phosphaturia.

There are usually more evident signs of these conditions, but only those are mentioned that assist in localizing the disease. In many their location is self-evident as the result of palpation as in large hydro- and pyonephroses and to these these differential symptoms are not intended to apply.

In involvement of the ureter at or above the iliac artery, there is a gradually increasing lumbar ache if temporary obstruction is produced. The intermittent hydronephrosis it produces has often, because of the variation in the size of the kidney, been mistaken for a movable kidney, the lower lobe becoming readily palpable when the pelvis is distended. The differentiation can here be made if a palpable point of tenderness is found in the line of the ureter, or if pressure from the palpably distended kidney gives rise to pain low down in the ureter. The character and direction of radiation of the pain is important. The pain is most acute over the seat of the lesion, it radiates upward to the kidney as well as downward through the genitocrural nerve. The psoas reflex is often present, while palpation reveals a thickened and tender ureter. This has been noted particularly in cases of infection and tubercular nephritis and ureteritis.

The differential symptoms are probably of most value in suggesting the probability of disease in the juxtavesical portion of the ureter, after calculus has been excluded. They will there lead to examinations by the cystoscope and ureteral bougies and catheters that will detect many obscure but curable lesions. The comparative symptomatology localizing the lesion in the juxtavesical portion of the ureter rather than in the kidney or upper ureter. The practical value of these localizing symptoms is illustrated in the following case:

History.—Mrs. A. H. W. (No. 320), was referred for a calculus diagnosis. The Roentgen examination excluded calculus. She had, however, suffered for some years with symptoms resembling cystitis, accompanied by severe pain. Repeated cystoscopic examinations and vesical treatments had failed to reveal a sufficient cause or to correct the pathologic condition. Her symptoms suggested calculus impacted in the juxtavesical portion of the ureter. As this lesion had been excluded a stricture or chronic ureteritis was suggested as possibly the cause of her symptoms. A localized area of granulations was found in the right juxtavesical ureter accompanied by a spasmodic stricture. All of her symptoms disappeared under treatment for this lesion.

Before discussing the advances in renal diagnosis that have resulted from developments in Roentgen technic and increased experience in translating the detail thus furnished, the present status of calculus diagnosis by the Roentgen method should be defined. The greatest value of this method is dependent on the ability to exclude, as well as to detect, calculi, since a technic capable of excluding implies an ability to detect all calculi present. Such a complete diagnosis often relieves the situation of all its gravity and renders efficient medical treatment safe and rational.

In August, 1898, I claimed equal accuracy for the exclusion and the positive diagnosis or detection of calculi. This claim was based on the axiom, "that where tissues of less density than the least dense calculus are shown in the Roentgenogram no calculus should escape detection." This did not claim infallibility for the diagnosis, but only equal accuracy. It permitted also the acknowledgment that in certain cases no definite exclusion diagnosis could be made. The development of technic up to the present time reduces that class of cases to a minimum, and the chief sources of error at the present are mistakes in interpretation and in basing a diagnosis on an imperfect negative.

Pure cystin, xanthin and indigo calculi are rare and have not been among those found, and hence no claim to exclude them has been made. Present technic might detect them, but they are so seldom seen that they have little bearing on the clinical accuracy of this method of diagnosis. The accuracy claimed for this method is based on a series of cases beginning in 1898, when technic was imperfect. The results in the last one hundred cases are even better so far as they have been reported.

The result in this, as in all other methods of physical diagnosis, are valuable in proportion to the technic and clinical experience of the diagnostician. The Roentgenogram must be taken and interpreted correctly to be of value. A valuable diagnosis is based on special technic and clinical experience. Unless a surgeon has acquired this special knowledge he is not only incapable of translating the diagnosis, but also is incapable of appreciating refinement in diagnosis in cases that are obvious to the expert Roentgenologist.

It should be clearly understood that it is a diagnosis and not a picture that is wanted, and that a diagnosis is not always obvious to an inexperienced observer, while a beautiful picture often represents no diagnostic value.

The essential qualities in a Roentgenogram on which a calculus diagnosis ought to be based seem imperfectly defined. Their attributes vary with the author. A beautiful picture that would clearly define the transverse processes of the vertebræ and show their structure would never detect phosphatic or carbonate calculi. These calculi would be penetrated and their shadow destroyed, and yet this is the standard advanced by some authors.

Recent developments in technic have rendered possible diagnoses of more delicacy than that of calculus and have advanced the standards demanded for accuracy in diagnosis. These characteristics are essential to an accurate exclusion diagnosis and need to be well defined. The Roentgenogram must take in the whole urinary tract, that is include the last dorsal vertebra and the symphysis pubis. This can be done usually with plate 12x20 inches in size and affords a comprehensive view with a comparison of the healthy and suspected kidney, and also demonstrates the presence of a second kidney.

A diagnosis of calculus should never be made on a single plate. The finding of a calculus or other lesion should be confirmed by a second plate, not necessarily as large, but including the suspected area. Both these Roentgenograms must possess detail in the shadows of tissues less dense than the least dense calculus, especially for an exclusion or negative diagnosis. The outline or partial outline of the kidney shadow, in the superimposed shadows of the surrounding soft tissues, should be visible and often the bladder, sometimes the ureters themselves. Such minutiæ in detail are now secured with increasing frequency, but can be expected only in favorable cases. The partial kidney shadow and that of the psoas muscle are sufficient for the exclusion of the more common calculi. In such an exclusion diagnosis, however, microscopic crystals or urinary sand is not included, but only calculi capable of obstructing the urinary flow.

The advances in technic have led to the production of more detailed shadows of the soft structures on which it has been possible to base valuable suggestions as to other diagnoses than calculus conditions involving the kidney. These are in addition to the valuable localization of calculi in one or other calyx or in the ureter. They have shown small collections of pus held in the pelvis of the kidney, besides the more evident and palpable forms of pyo- and hydronephrosis found in connection with calculus obstruction. Such detail confirms the calculous character of the shadows in the ureter and differentiates it from a phlebolith. There are, however, certain characteristics of ureteral calculi in their relation to the line of the ureter, the bladder, the bony anatomic points, etc., which to the eye of the expert Roentgenologist differentiate them from other foreign bodies in the tissues. The detail seen in soft structures is often absolute evidence of their relation to the urinary tract, but can only be appreciated by the expert observer Various mechanical methods have been devised for rendering their relation to the urinary tract visible to the inexpert observer. The best among these is the ureteral catheter in which the walls are impregnated with bismuth, as suggested by Dr. Howard A. Kelly, but where they can be passed; the calculus must be very small and incapable of producing obstructive symptoms, or it would be detected by the catheter.

The status of the Roentgen method of diagnosis has been so firmly established that no renal diagnosis is complete or treatment rational where calculus is suspected without its employment by a competent and experienced Roentgenologist. As I have recently[1] said:

> It is essential to the integrity of the kidney to determine whether a calculus is present and has become quiescent or occlusive, or has passed into or out of the bladder without being detected. The symptoms subside in either case and yet, if the calculus remains quiescent it may form the locus about which irritation and infection take place; if it is occlusive, a hydronephrosis results and the functional life of the kidney is threatened, as the cessation of activity means final atrophy and degeneration. If, on the other hand, it is detected in the ureter the indications for treatment will depend on its size and the progress of the symptoms and signs, while if it is shown to have passed or to be absent from the urinary tract no treatment is required.

In addition to the perfecting of technic in calculus diagnosis, recent improvements and increased experience in reading have led to suggestions in diagnoses, other than calculus, that have an ever-increasing accuracy and value. As has been mentioned, in addition to showing hydro- and pyonephroses that are obvious on palpation, the increased detail has led to the detection of small purulent collections in the pelvis of the kidney. The value of negatives in which comparisons can be made between the normal and the suspected kidneys is here very evident.

In one of the earlier cases the shadow filling the pelvis and calices of the diseased kidney was in strong contrast to the normal. Its definition was not sharp enough for a calculus. The presence of a mild constant elevation of temperature, together with the history and other symptoms, suggested that this shadow was due to a collection of pus. Catheterization removed the purulent collection, subsequent irrigation resulting in complete recovery. In two other cases tubercular in origin the ureters were involved and the kidney so diseased that complete uretero-nephrectomy was performed.

Displaced and movable kidneys have been demonstrated, or the irregular outline of the shadow has suggested new growths, while in one case a cyst of the lower pole was clearly shown, all these tentative diagnoses being confirmed by the subsequent operations. The irregular and mottled character of the renal shadow has suggestd the multiple softenings of tubercular and surgical kidneys, while multiple minute calcifications have been shown in tubercular foci. In one patient operated on by Dr. Ramon Guiteras, a distinct but indefinitely defined shadow, in the line of the ureter, suggested an occlusion of the ureter with a collection of crystaline débris, as the shadow lacked the detail in definition characteristic of calculus. The diagnosis was confirmed by the operation, a uretero-nephrectomy.

Many other diagnoses of similar character have occurred in the work of other Roentgenologists. They are the result of expertness in technic and experience in the clinical interpretation of the detail secured. They are as yet only suggestion and lack the accuracy of valuable diagnoses, but they point to valuable developments that will come with increased experience.

The value of these suggestions will be felt more and more as their accuracy increases. This has been true of the calculus diagnosis, the increased accuracy in diagnosis has influenced the indications for treatment and has rendered rational courses of treatment that would otherwise have been dangerous. It has shown that many cases presenting marked symptoms of ureteral colic can be treated rationally and safely with the final passage and recovery of the calculus without operation. It has rendered such a course of expectant treatment rational by showing that the calculus is sufficiently small to be expelled by natural methods, and in addition that the majority of calculi are found in the ureter. Without the knowledge afforded by this method, expectant treatment is not only irrational, but also dangerous. In 31 of my cases in which calculi have been found in the ureter and expectant treatment has been suggested, the patient has passed the calculi. In only 11 cases of ureteral calculus has operation been considered advisable. Two patients passed ureteral calculi before the indications for expectant treatment had been determined. As the proportion of renal to ureteral calculi in my series of cases and the proportion of confirmed and unconfirmed diagnoses has been misstated by misquotation, I will give the following statement:

The total error in a series of 356 cases has been less than 3 per cent. In the last 100 cases only one case of error in diagnosis has been reported to me. In this case a calculus was found in the pelvis of the kidney as well as one diagnosed in the ureter. In this case the examination was made two years previous to the operation.

A positive diagnosis of calculus has been made in 106 cases. Of these, 36 were renal calculi; of them, 30 were confirmed by the removal of the calculus, 4 of the patients refused operation, and in 2 no calculus was found. Seventy cases were of ureteral calculi; of them, 43 have been confirmed by the passage or removal of the calculus, in 27 the patients have not been operated on or heard from.

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[1] Ann. of Surg., April, 1907.

In 46 cases in which an exclusion or negative diagnosis was rendered, the patients were operated on and the diagnosis confirmed. In 7 cases where a negative diagnosis was rendered, operation showed a calculus to be present, while in 2 cases a mass of crystaline débris was found filling the pelvis of the kidney. This makes a total error of 10 cases in a series extending from the formation period of this diagnosis. As has been said, in the last 100 cases the proportion of errors is materially decreased.

There were 28 ureteral and 9 renal cases. In 2 renal cases the patients refused operation and in 7 the diagnosis was confirmed. In 19 ureteral cases the diagnosis has been confirmed by the recovery of the calculus. Of the remaining 9 cases, some of the patients are too recently examined and others have not been heard from. Of the 63 cases in which a negative diagnosis was rendered, 42 have been confirmed by the subsequent history or operation. In 21 cases the subsequent history has not been learned.

THE SURGICAL TREATMENT OF URETERAL CALCULUS IN THE FEMALE.*

EDGAR GARCEAU, M.D.

Consulting Gynecologist to the Quincy City Hospital, Gynecologist to the Boston Dispensary, and to Out-Patients at St. Elizabeth's Hospital.

BOSTON.

The treatment of ureteral calculus in the female differs essentially from that in the male, owing to anatomic considerations. In the male, the comparatively straight course of the ureter from the kidney down to the bladder, and its position on the pelvic wall, make access to it comparatively easy through an extraperitoneal incision. In the female, however, the broad ligament, placed, as it is, directly above the most dependent portion of the ureter, renders access to the deep pelvic portion of the ureter a matter of some difficulty. Stones in either sex, impacted at any portion of the ureter from the kidney to the superior strait, are easy to remove. Stones in the female, impacted at any point between the base of the broad ligament and the bladder, are accessible through the vagina in the majority of instances; but stones in the female lying between the superior strait and the base of the broad ligament are sometimes very difficult to remove.

The object of this paper is to enumerate the different operations which have been devised for the removal of ureteral calculi in the female and to point out the advantages and disadvantages of each one.

The question when to operate in a given case may be difficult to decide. A stone may remain impacted for a considerable length of time, and yet may pass on to the bladder and be voided through the urethra, without having caused any permanent change in the kidney. All calculi do not entirely block the stream of urine, and if a certain amount of urine can pass by, the stone may remain impacted for some time and may not occasion irreparable damage. Incomplete impactions, however, may give rise to a condition of hydronephrosis; complete blocking causes prompt atrophy of the kidney. It is, therefore, best not to wait too long before operating. The expectant treatment of stone in the ureter is very dangerous. Cabot[1] has shown that the ultimate mortality with expectant treatment is between 72 and 89 per cent.

A secondary complication of impacted stone is ulceration of the ureteral wall, periureteritis, and possibly abscess in the tissues around the ureter; should this occur, the surgical condition is thereby rendered far worse.

In a condition of uremia, should an operation be undertaken, no extended search for stones should ever be made. The most that should be done is to open the kidney on one or both sides, according to indications, and drain through the loin, reserving a radical operation for a later period.

Operations for stone may be classified as follows:

1. Transperitoneal route.
2. Transperitoneal (for diagnosis) and extraperitoneal routes combined.
3. Extraperitoneal route.
    - (a) Israel's incision.
    - (b) Witherspoon's incision.
4. Hypogastric route.
5. Urethrovesical route.
    - (a) Slitting the ureter.
    - (b) Injection of sterile oil into the ureter.
    - (c) Dilatation of the ureter.
6. Rectal route.
7. Sacral route.
    - (a) Kraske's incision.
    - (b) Pararectal incision.
8. Vaginal route.
    - (a) Vaginal incision.
    - (b) Combined extraperitoneal and vaginal incision.
    - (c) Crushing the stone in the ureter through the vagina.
    - (d) Doyen's incision.
    - (e) Garceau's incision.

1. *Transperitoneal Route.*—No one would willingly select this route from choice. Nevertheless the operation has been done by this method, and with success. Bovée,[2] while operating on a woman, 30 years of age, for an undetermined mass behind the right broad ligament, found on incision that it was a stone embedded in inflammatory tissue. The stone, measuring 2¾x1¾x1½ inches and weighing 1,310 grains, was successfully removed, the ureter closed, and an incision made through the posterior cul-de-sac into the vagina for drainage. The patient recovered, notwithstanding that urine had escaped when the ureter was incised. Besides Bovée's case, there are several others in the literature on the subject, and cures are reported in a few instances. The dangers of infection of the peritoneal cavity by septic urine, which is not uncommon in these cases, are so great that the route is to be absolutely condemned.

2. *Transperitoneal (for Diagnosis) and Extraperitoneal Routes Combined.*—In a few instances the abdomen has been opened, the stone located and pushed up into the kidney, whence it has been removed through a loin incision. This operation should be condemned because the whole ureter can be easily palpated through a moderately large extraperitoneal incision, and the same purpose accomplished. In cases of doubtful diagnosis the stone will in most cases be discovered by the means of diagnosis at our present command, so that such an incision will rarely, if ever, be called for.

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

[1] Ann. of Surg., 1903, xxxviii, 506.
[2] Wash. Med. Ann., 1905, iv, 233.

3. *Extraperitoneal Route.*—This operation was first deliberately performed by Bardenhauer,[3] who removed a high stone extraperitoneally from an adult female. Twynam[4] later performed the operation on a child 8 years of age. In Twynam's case an incision was made as for ligature of the common iliac artery, the peritoneum was pushed back, and a stone removed. The wound in the ureter was stitched and the patient got well. Israel[5] was the first to demonstrate that stones below the pelvic brim could be attacked extraperitoneally.

Any one who has done total ureterectomy in the female will agree that exposure of the ureter is easy down to the broad ligament, and even below it. If the operation is properly performed, the bowels are not seen at any time during the course of the operation, and the whole procedure is extraperitoneal. The chief objection to this operation is that the incision may have to be a fairly large one, especially in those cases in which there is doubt as to the exact location of the stone.

Israel's[6] incision is the best for exposing the ureter extraperitoneally. It begins at a point at the anterior edge of the sacrolumbar mass of muscles, a finger's breadth below the twelfth rib. The incision is brought forward parallel to the rib as far as the anterior axillary line; it then turns downward to a point two fingers' breadths from the anterior superior spine of the ilium, and from this point bends downward toward the median line so as to run parallel to Poupart's ligament as far as the outer border of the rectus muscle, in extreme cases beyond this point. It is not necessary to make the whole incision in every case, and, according as the stone is opposite the upper, middle or lower third of this line, so will the line of the incision be determined. The tissues are divided down to the peritoneum. With finger dissection, the peritoneum is carefully pushed back toward the middle of the body, carrying with it the ascending or descending colon and adjoining intestines. The ureter can sometimes be easily identified by reason of the stone, which presents as a hard mass. With small stones, however, this may sometimes be difficult.

It is well to remember that the ureter strips with the peritoneum. Cabot[7] has shown that there are a number of fibrous bands which connect the ureter and peritoneum. Cabot has also shown that the part of the peritoneum which becomes adherent to the spine is, within a slight range of variation, pretty constant, and that the ureter lies just outside the line of adhesion; when the point has been reached at which the peritoneum strips with some difficulty the ureter will usually be found a short distance outside of this location. Occasionally there is some inflammatory tissue around the ureter in the vicinity of the stone, and this may occasion some difficulty, especially in those cases of stone below the superior strait. When possible, particularly in those cases in which the stone is low down in the ureter, it is well to push it up with the finger and thumb, get it out of the pelvic cavity, and remove it at a higher level. An additional reason for doing this is that the ureteral wall at the seat of impaction is apt to be much thinned, and it may be difficult on this account to insert sutures.

Stones situated near the renal pelvis should, if possible, be pushed up into the kidney and extracted through an incision into the organ. Should the stone not be easily found, it is well to seek the kidney, follow the ureter down with thumb and finger, and locate the stone in this way. The incision into the ureter should be as small as possible, but not so small that the stone will lacerate it while it is coming through. After removal, the ureter must be catheterized both ways with a wax-tipped bougie in order to determine the presence or absence of other stones. Most surgeons prefer to suture the ureteral cut, using for this purpose fine catgut with a small needle. Care should be taken not to include the mucous membrane for fear of subsequent stone formation. Many operators do not suture the ureter, and abandon it with drainage. A permanent fistula rarely results in these cases. Leaving a stone in the ureter is attended with some risk. I have in mind a woman, 30 years of age, on whom I did nephrotomy; persistent vomiting followed this operation, from which the patient died eighteen days after operation. At the autopsy a small stone was found impacted in the ureter, which had undoubtedly caused the reflex vomiting. Urine had passed both ways, through the lumbar wound and through the bladder, after the operation. The opposite kidney had been treated for tuberculosis and was known to be inactive.

Stricture below the seat of impaction is a possible complication that should be dealt with. Young[8] records a most interesting case of this kind, in which a stricture near the vesical ending of the ureter was detected by filling the ureter with fluid and noting that it could not be milked into the bladder.

Some operators trust to their sutures holding and close the wound without drainage, but this seems an unnecessary risk. Others have thought it necessary to pass a catheter into the ureter through the bladder and allow it to remain there for several days. The catheter is not to be recommended unless there is an inflammatory reaction around the ureter. Albarran[9] was the first to use this method in a case of calculus impacted at the pelvic brim. An abscess and fistula followed impaction of the stone, and the pus was discharged through the loin. The calculus was removed by incision, but the ureter could not be sutured on account of the inflammatory tissue. A catheter was, therefore, passed into the ureter through the bladder, and was allowed to remain ten days. At the end of this time, no urine having come out through the iliac opening, the catheter was removed and the patient got well.

It is astonishing what a large incision may be made into the ureter and still be followed by healing. Thus Fiori[10] records a case in which the extraperitoneal operation was performed, and the ureter split for a distance of 16 cm., 12 cm. above the superior strait and 4 below. Eleven or twelve calculi were extracted, the largest of which weighed 5 grams. The ureter was reconstructed by sutures passed over a sound as a guide. A fistula followed, which closed in a few days, and the patient got well.

In exceptional instances it may be necessary to remove the entire ureter. Israel[11] has performed this operation three times. Complete disorganization of the kidney with marked pathologic changes in the ureter demand ureterectomy. In one of Israel's[12] cases a very large ureteral stone, which measured 17 cm. long and 19 cm. in circumference, had so damaged the ureter as to make its removal imperative.

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[3] See Thelen, Central. für Chir., 1882, ix, 186.
[4] Brit. Med. Jour., 1890, i, 240.
[5] Berl. klin. Wochschr., 1896, xxxiii, 844.
[6] Chirurgische Klinik der Nierenkrankheiten, Berlin, 1901, p. 358.
[7] Am. Jour. Med. Sci., 1892, ciii, 44.
[8] Am. Medicine, 1902, iv, 216.
[9] Ann. des Mal. des Org. G. U., 1894, xii, 845.
[10] Policlinico, Rome, 1905, xii, Sez. Chir., 49.
[11] Chirurgische Klinik der Nierenkrankheiten, Berlin, 1901, p. 362.
[12] Loc. cit., p. 374.

Witherspoon's[13] incision for removal of stones in the ureter applies to those cases in which the stone is definitely located near the bladder. An incision four inches long is made over the lower end of the rectus muscle, beginning at a point over its insertion into the pubic bone and extending upward in a direction parallel to its fibers. The rectus is divided through its muscular fibers and the peritoneum is reached. Dissection is then done with the fingers, pushing back the peritoneum from the ilio-pectineal line. The vas deferens is isolated and followed onward from the point of crossing the obturator vessels, and the ureter is found just behind it. Witherspoon asserts that three or four inches of the ureter can be located and operated on through this incision. The objection to it is that, if there be other stones higher up, the incision is a very unfavorable one because it can not be prolonged upward except at great disadvantage.

4. *Hypogastric Route.*—This method of operating is particularly applicable to males, and consists simply in making an opening into the bladder above the pubis and extracting the stone if it happens to be in that part of the ureter within the vesical walls. It will seldom be found necessary to perform this operation on the female. Nevertheless, Noble[14] did it in an adult female who had undergone the menopause; the vagina was so small in consequence of postclimacteric changes that the stone was inaccessible by the vaginal route. Noble did a suprapubic cystotomy and extracted the stone with ease by incising the ureter.

5. *Urethrovesical Route.*—With the advent of the Kelly cystoscope, which makes the bladder so accessible, many stones situated in that part of the ureter which traverses the bladder walls can be removed. The urethra is first dilated and a large-sized cystoscope passed. If the stone is immediately underneath the mucous membrane of the ureteral eminence, it may be possible to remove it by forceps or hook or by slitting the ureter with a pair of bladder scissors. Kelly[15] advises passing a finger in the vagina behind the stone, pushing it forward, passing a hook into the ureter behind the stone and pulling it forward.

Injection of sterile oil through a ureteral catheter passed up behind the stone has been recommended by Schmidt.[16] He reports a successful case by using this method.

Stones situated at some distance from the vesical entrance of the ureter may sometimes be treated by dilatation of the ureteral opening. Crawford[17] dilated the lower end of the ureter with his finger, the dilatation taking an hour, and removed a stone 1⅜ inches in diameter, impacted in the vesical wall of the ureter. Kelly[18] cocainized the ureter through the vagina in a female 38 years old. After cocainizing the bladder and ureter as well, he passed dilators on the affected side, dilated a stricture which was present, passed a wax-tipped bougie and detected stone; nineteen hours later a small calculus was passed, with complete relief to the patient. This was the first time that a stone has been released in this way. Kelly recommends the procedure in subacute cases only.

6. *Rectal Route.*—A stone has been removed through the rectum once only. This was Ceci's[19] case, in which the stone had almost ulcerated into the rectum. A slight incision released the calculus, but the patient died, as the opposite kidney was likewise affected. The method is applicable only in similar cases, namely, when there has been periureteritis, with subsequent abscess formation and softening of the rectal wall.

7. *Sacral Route.*—When Cabot[20] first mentioned the feasibility of the Kraske incision for removal of stones well back in the ureter near the pelvic brim, it seemed that there was much to recommend this method, but since the advent of the extraperitoneal route this method is no longer though of. Cabot advised a long incision, as for the Kraske operation, removal of the coccyx and lower part of the sacrum on the affected side, with division of the sacroiliac ligament. He stated that it was difficult to find the ureter, and that the peritoneum in this situation was extremely thin and was in danger of being wounded. Ferria[21] did the operation and removed a stone successfully. Cabot[22] also did the operation, but he found that there was a great deal of hemorrhage from the hemorrhoidal vessels which was very difficult to control. He concluded in his article that the iliac incision was much to be preferred. Morris[23] has twice removed stones in the female by employing a straight incision parallel with the median line, an inch from it, and five inches in length, beginning two inches above the border of the gluteus maximus muscle and extending nearly to the transverse level of the anal aperture. The field was exposed by dividing the great sacrosciatic ligament, and the stone removed. Morris called this a pararectal incision.

8. *Vaginal Route.*—Many stones are found in front of the broad ligament, between it and the termination of the ureter. Operation for their removal through the vagina is a comparatively simple matter. The field is exposed with a retractor and a cut is made directly over the ureter where the calculus is impacted. The ureter is seized with blunt hooks, and an incision is made large enough to push the stone through without tearing. Care should be taken not to allow the stone to slip back in the ureter above the site of impaction; this portion of the canal is dilated in consequence of urinary pressure, and the stone may easily slip back and escape above. A finger in the vagina behind the stone will guard against this, and, if there should be difficulty about extracting the stone, a small blunt hook may be slipped past it and the calculus hooked out. A catheter is run up to the kidney to make sure that there are no further stones, and it is also well to catheterize the ureter through the bladder to make sure that there is no stricture. The ureteral wound is sewed, if possible, with fine catgut, and if there is no infection the vaginal wall may be closed over it; otherwise it is best to drain. If it is impossible to sew the edges of the incision in the ureter it will have to be left alone. Some operators have advised passing a catheter through the bladder into the ureter up beyond the incised portion and allowing it to remain for a time. This does not seem necessary if the urine is not infected and the incision is a clean one; if, however, there is periureteritis with dense inflammatory tissue around the ureter it may be well to pass the catheter as first advised

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13. N. Y. Med. Jour., 1904, lxxix, 973.
14. Am. Med., 1902, iv, 501.
15. Operative Gynecology, 2d ed., 1906, p. 541.
16. The Journal A. M. A., 1904, xlii, 708.
17. Am. Med., 1904, viii, 972.
18. The Journal A. M. A., 1900, xxxiv, 516.
19. La Riforma Medica, Sept. 5, 1867, p. 1214.
20. Trans. Med. Soc. State of New York, 1892, p. 102.
21. Ann. des Mal. des Org. G. U., 1894, xii, 652.
22. Boston Med. and Surg. Jour., 1905, iii, 655.
23. Surg. Dis. Kidney and Ureter, London, 1901, ii, 526.

by Albarran,[24] and later by Kelly.[25] If preferred, a stylet may first be run up into the ureter, over which a catheter tube is slipped; the open hole at the kidney end collects the urine better than a catheter with a hole in its side.

Kelly,[26] operating extraperitoneally on an adult female, with stone impacted just behind the broad ligament, was unable to safely remove it owing to dense adhesions. He, therefore, displaced it by thrusting it forward until it could be felt through the vault of the vagina. A small incision in the vaginal vault safely removed it.

If the stone is soft and can be easily crushed with the fingers, this may be tried, though without much hope of success. If it crushes easily it may pass *per vias naturales.* Young[27] refers to some of Rovsing's cases in which this method was used.

Stones impacted near the ureteral orifice in the bladder which can not be removed by incision of the ureter through a cystoscope may be approached, as shown by Kelly,[28] through a vesicovaginal incision. The patient is placed in the knee-chest position, the bladder distended with air, a rapid cut made through the septum, which exposes the field, and the stone is easily picked out of its bed.

Doyen's[29] operation consists in incising the anterior cul-de-sac of the vagina, using the same incision as for vaginal hysterectomy. The bladder is dissected away from the uterus as high up as the vesico-uterine cul-de-sac, using gauze sponge and finger dissection. If a catheter has previously been passed into the ureter, there will be no difficulty in identifying it and no danger of injuring it during the operation. The stone is extracted and the ureter immediately sutured. If fistula follows, operation for cure will be much more difficult than if the vaginal route had been selected. The method is not applicable for stones behind the broad ligament, on account of the difficulty of dissecting beneath the ligament, as well as on account of the great danger of wounding the uterine artery which lies in this vicinity. The distance between the cervix and the pelvic wall at the level of the cervix is very short, being only 4 cm., a rather narrow space for delicate operations on the ureter. It would seem that the operation must have a narrow application because stones in front of the broad ligament are best treated by simple vaginal incision.

Garceau's Incision.—I devised this operation a few years ago in an urgent case in which there was necessity for a rapid operation. At the time this operation was performed I did not know of Doyen's method. The patient,[30] 34 years of age, had been suffering excruciating agony for a whole week in an endeavor to pass a stone impacted in the left ureter. The stone was felt on vaginal examination at a point 3 cm. posterior to the transverse midline of the cervix and well behind the broad ligament. The patient's condition was serious, and a long operation was out of the question. She had just been delivered of a child, and an extensive operation involving considerable loss of blood, which seemed not unlikely to happen in view of the congested condition of the parts, was out of the question. A vaginal incision seemed impracticable in view of the distance of the stone from the vaginal outlet. It occurred to me that if the stone could be pushed down toward the vagina and kept there while the vagina was being incised the cut would be a small one and the stone would serve as a guide on which to make the cut. An endeavor to accomplish this was made by pressing down through the abdominal walls, but this was not satisfactory; the stone slipped. The thought then occurred to me to incise the anterior cul-de-sac, push back the peritoneum between the bladder and uterus as far as the broad ligament, then evert the broad ligament backward with the tip of the finger, catch the stone with the tip of the finger, crooked at the last joint, force it down toward the vaginal outlet, cut on it with a very small incision, and squeeze it out. If hemorrhage occurred, it could be easily controlled by pressure from above with the finger, and sutures could be passed without trouble. Hemorrhage from the anterior cul-de-sac was not feared, as it could be easily controlled.

The operation was performed as planned, without the least difficulty. The anterior cul-de-sac was quickly opened, the peritoneum pushed back and the broad ligament everted. The stone was plainly felt, was pushed down toward the vaginal vault and delivered through a vaginal incision 1½ cm. long and a ureteral incision a little shorter. It was like squeezing a cherry stone out of a ripe cherry. Immediately on delivery the vaginal incision was closed with silver wire sutures. Some hemorrhage occurred in the anterior cul-de-sac, and as it was not desired to take any more time, a few clamps were left on the vessels. The whole operation took ten minutes and the stone was delivered in five minutes. The convalescence was not remarkable and there was no fistula. Subsequent catheterization showed both ureters to be free. The stone in the dry state weighed 7 decigrams, was 1 cm. long and nearly 1 cm. wide.

The finger behind the stone prevents it from slipping back into the dilated ureter above when the ureter is incised. To avoid wounding the ureter while the cul-de-sac is being incised it is best to pass a catheter into it, tying it in by adhesive plaster strips so that it will not slip out. This should be done before the operation begins. When the stone is removed absence or presence of a stricture can be determined with ease by this catheter, which may likewise be run up into the kidney in search for other stones. It is not necessary to endeavor to find the walls of the ureter in order to sew them. The incision being so small when closed acts as a splint which holds the cut ureter together. Should leakage occur the urine will easily find its way into the vagina. If the urine is infected, however, it is best to leave the incision open.

The chief advantages of this method over the abdominal extraperitoneal are the extreme rapidity with which the operation can be performed and also the comparatively slight trauma. Patients suffering with impacted ureteral calculus may be desperately ill, and time is an element sometimes not sufficiently considered. There should be less danger from fistula with this operation than with Doyen's, because the healing of the vaginal incision tends toward closure. A fistula in the vagina is a less serious matter than one in the anterior cul-de-sac, with reference to subsequent operation for closure. Hemorrhage is always under perfect control. Comparatively high stones can be operated on by this method because the finger reaches behind the broad ligament and pulls the stone forward. Certainly stones impacted at the paraischial bend of the ureter can be reached, for this was

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24. Ann. des Mal. des Org. . U.,G 1894, xii, 845.
25. Schenk: The Journal A. M. A., 1901, xxxvi, 1303.
26. Am. Jour. of Obstetrics, 1902, xlvi, 67.
27. Am. Medicine, 1902, iv, 215.
28. The Journal A. M. A., 1902, xxxix, 291.
29. Morris: Surg. Dis. Kidney and Ureter, London, 1901, ii, 530.
30. Boston Med. and Surg. Jour., 1904, cl, 426.

the position of the stone in the case reported. Unless, however, the vagina is a roomy one considerable difficulty may be experienced. It is distinctly not applicable in patients in whom natural atrophy either has taken place or is taking place, for in these patients the vagina is narrow, there is little room for pelvic manipulation, and there is great danger from hemorrhage. In these cases the extraperitoneal abdominal operation must be done. The following case will illustrate this:

The patient was a nulliparous female, 38 years old, with beginning genital atrophy, and she had a stone impacted in the right ureter about 7 or 8 cm. from the vesical end. The stone was found on vaginal examination, and it could be just reached with the tip of the finger. An incision was made in the anterior cul-de-sac, and the bladder and peritoneum were dissected away from the uterus. The finger passed along this cavity could just reach the stone. An attempt was made to press the stone toward the vagina, but it was found impossible to do so, owing to the shortness of the vagina. After the greatest difficulty enough space was made by dissecting through the base of the broad ligament, so that with the aid of a pair of forceps grasping the lower end of the ureter the stone could be pulled down far enough to be cut on and extracted. A few hours after the operation there was a severe secondary hemorrhage. The patient had to be put on the table again, have ether administered, and have the broad ligament clamped. The stone was a very large one, irregular in shape, measured 2 cm. in length, and 1½ cm. in width. It had given little trouble.

This patient had never borne children, and she had an unusually small, narrow vagina which had undergone some atrophy. She recovered well from the operation, and the wound in the ureter, which was not sutured, it being altogether too high up, closed, and no fistula resulted.

The case illustrates very well the limitations of the Doyen operation; the broad ligament is apt to be seriously lacerated; hemorrhage is likely, and the ureter can not be sutured if the wound is too far up.

The choice of routes for the removal of stone below the pelvic brim will depend on the nature of the case. A stone in front of the broad ligament can be removed by vaginal incision or by some operation performed through the Kelly cystoscope. It will be rarely necessary to open the anterior cul-de-sac for any stone situated in front of the broad ligament. Stones situated between the pelvic brim and the base of the broad ligament are more difficult to remove than stones in any other part of the urinary tract. In the female, stones are very apt to become impacted in this situation, being arrested at a sharp turn in the ureter, called by Young[31] the para-ischial bend, because it is opposite the spine of the ischium. In both my cases this was the seat of impaction. It has been plainly shown that an extraperitoneal incision will reach stones situated in this portion of the ureter. This operation, however, necessitates a long incision through the abdominal wall, and it is not always successful in cases in which there are dense adhesions. In such cases Kelly's method of pushing on the stone toward the vagina through an extraperitoneal incision in the iliac region may make it accessible through the vaginal vault. But cases in which this can be done must be rare. A stone situated directly under the broad ligament and a little behind it may be reached in roomy vaginas by the operation I devised. The sacral route involves a mutilating operation and has become obsolete. The rectal route will seldom find favor, and then only in those cases in which the stone has practically ulcerated through.

Stones situated above the pelvic brim must be attacked through an extraperitoneal incision, and most surgeons will prefer to follow Deaver's[32] rule in these cases, which is to explore the kidney first through a loin incision, pass a ureteral sound down the ureter, locate the stone and enlarge the incision according to need.

DISCUSSION

ON PAPERS OF DRS. LEONARD AND GARCEAU.

Dr. G. L. Hunner, Baltimore, Md., emphasized the importance of the differentiation of the locality of the stone by careful examination. He thought that too often we are satisfied with the mere fact that the patient has signs or symptoms of stone, and go ahead with the operation, without proper differentiation. He agreed with Dr. Leonard that all methods of precision should be made use of in the diagnosis of stone. He is never satisfied with the Roentgen ray method alone, nor with the waxed catheter method of diagnosis, but uses both in every case. The Roentgen ray sometimes misses large stones when they are encysted in a kidney of fibrous degeneration. It misses small stones when they are very minute and encased in fibrous tissue in the lower end of the ureter. Unfortunately, too, the Roentgen ray finds stones in the ureteral tract when they are not present; in other words, it takes pictures of phleboliths of the broad ligament and of calcareous deposits in the ovary. In such cases the use of the waxed catheter is most valuable. In connection with Dr. Garceau's paper, Dr. Hunner mentioned Israel's incision which starts just below the rib and extends forward and downward into the groin. He thought that Dr. Kelly was the first to make two incisions out of the one long incision still unnecessarily used, leaving the broad bridge of muscle between. The usual lumbar incision made for the kidney and extended farther forward enables one to examine the ureter to the pelvic brim; and then turning the patient partially to the back, the Bardenhauer extraperitoneal incision is made in front. Dr. Hunner finds it advantageous to make the gridiron incision an inch and a half from Poupart's ligament. From this lower incision, even with the gridiron method, a perfectly satisfactory examination can be made and the operation done in any part from the pelvic brim to the bladder. Dr. Garceau, he said, is to be congratulated on his five-minute operation if those stones are up in the ureter, but he did not believe he will be as fortunate in the majority of his cases. The stripping back of the broad ligament from the incision, just as Dr. Garceau describes, is a simple matter if the stone has not been there a good many years and has not attached the ureter to the broad ligament by dense adhesions.

Dr. Percy Brown, Boston, Mass., emphasized the importance of a proper preparation of the patient, what might be called the ante-operative preparation of the patient in cases where the Roentgen ray method of diagnosis is to be pursued. That preparation, he said, can not be too thorough. Examinations of the ureteral tract can not be made on the spur of the moment. Preparations should be made twenty-four hours beforehand. The patient should be instructed to take cathartics, and the lower bowel should be thoroughly cleaned out, if possible. In this way the task set for the Roentgenologist will be rendered very much simpler, and the results will be very much more valuable. If this method be followed, the question of previous urinary findings in the sediment may be put to one side. The question of whether the stone is of pure uric acid constituency can be ruled out in this way; partly because there is a better field to operate in, and because of the fact that the pure uric acid stone is seldom found in the adult. If it is found in the child, the proposition is an easy one on account of the relative thickness of the child's abdominal wall. When phleboliths appear in one of the venous plexuses of the pelvis, they should be considered very seriously. An experienced observer will, however, be on his guard at a glance.

Dr. Bransford Lewis, St. Louis, Mo., was glad to see that Dr. Leonard, while claiming for the Roentgen ray the tremendous advantages it has given, allows room for mistakes that the ray may make, even in master hands. The interpretation of Roentgen ray plates, he said, is, of course, a very large feature in the work, and mistakes will arise. They may come, not only from the machine or operator, but also from anatomic deviations and pathologic sources. This was well illustrated in a case recently observed in the practice of a friend, Dr. Seelig, of St. Louis. There was shown a spherical body in the line of the right ureter in a female. Although catheterization was attempted, it was not carried out successfully. A diagnosis of ureteral calculus was made. Israel's incision was made and the ureter exposed, but no calculus was found in it, although the ureter was exposed for several inches. Dr. Seelig finally detected a little body that proved to be a concretion in the end of the appendix. He made an incision through the peritoneum, took out the appendix with the concretion, which had been taken to be a ureteral calculus. The Roentgen ray and ureteral catheterization, Dr. Lewis said, should be used together, not one to the exclusion of the other. If it is necessary to remove calculi by cutting operations, he thought Dr. Garceau's method an admirable one, but, he asked, what is the use of making an incision and subjecting the patient to two or three weeks' invalidism if the ureteral calculus can be removed without any cutting at all? Manipulation through the cystoscope does not reach all cases, but many stones in the lower end of the ureter may be removed by means of the operative cystoscopic outfit, which Dr. Lewis has been using with gratifying success for several years on operative work. By this means he has removed several ureteral calculi that would otherwise have required cutting operations.

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[31] Am. Medicine, 1902, iv, 213.

[32] Surgery, Gynecology and Obstetrics, 1906, ii, 270.

Dr. Charles P. Noble, Philadelphia, Pa., agrees with those who say to use both the Roentgen ray and the ureteral catheter. He considered Dr. Garceau's use of Deaver's suggestion to do an exploratory nephrotomy in order to look for the stone which is in the urethra like going back to the dark ages. The stone should be located with the Roentgen ray or catheter and exploratory and unnecessary nephrotomy avoided. Dr. Noble agreed with Dr. Hunner that it is an advance in surgery not to make an incision from the spinal column to the pubes, but to divide the operation into two incisions. He advises making the lower incision through the rectus muscle. The operation as done by Dr. Hunner has the disadvantage that if one wants more room, he can not get it without cutting through the transverse muscles.

Dr. L. G. Cole, New York City, after making about 1,500 radiographs for the diagnosis of renal calculus and a number of experiments with various kinds of calculi, felt justified in saying that any stone of sufficient size to justify an operation may be shown by a radiograph when the following detail is present: The spine; the transverse processes of the vertebræ all the way to their tips; the outer border of the psoas muscle and the outline of the kidney. This detail may be obtained in about 95 per cent. of the cases. A person having enough experience in reading radiographs to differentiate the shadows of renal calculi from flaws in the plates and other things which cause shadows similar to calculi, may make an absolutely positive or negative diagnosis of renal calculus.

Dr. Charles L. Leonard, Philadelphia, has seen many of the best operators operate for the stones that he found. The operations have usually been by different methods than those described; that is, it is very seldom that he found a stone in the parasacral portion of the ureter. Dr. Lewis, he said, asked what is the use of operating for stone in the ureter when one can get it through the urethra by dilating? Dr. Leonard asks, What is the use in operating at all, if the patient will pass the stone by Nature's methods. He has had 31 cases of ureteral stone in which he said the stones were small enough to pass, and all of these patients have passed the calculi. The wax-tipped bougie he considers one of the most accurate methods for detecting ureteral stone, but the Roentgen ray is better than the wax-tipped bougie. Is a case in which Dr. H. A. Kelly examined a patient he found a stone on one side, but on passing the waxed bougie he found none on the other. He asked Dr. Leonard to make a Roentgen ray picture, and a stone was found in the left kidney as well as the one in the right ureter which Dr. Kelly had found. Dr. Leonard agreed with Dr. Cole that the matter of finding phleboliths and calculi is a question of accurate interpretation. The finding of one phlebolith is very difficult. Multiple ones can readily be seen as to their position. In one case Dr. Kelly detected a single phlebolith in the left vaginal wall.

Dr. E. Garceau, Boston, Mass., agreed with Dr. Lewis that many stones can be removed through the bladder. This is particularly so, he said, in the case of the female, for with the Kelly cystoscope the field is practically before us, and the ureter can be dilated with the greatest ease. This method should be tried if there is time. Naturally, it is not applicable in very acute cases The ureter is capable of very great dilatation.

Regarding Deaver's method, Dr. Garceau said he did not mean to give the impression that Deaver's method is the best one, but merely mentioned it to illustrate the point which Deaver made, that there might be stones in the kidney. In these cases the Roentgen ray is of great help in diagnosis before operation.

THE EARLY DIAGNOSIS OF TUBAL PREGNANCY.*

PHILANDER A. HARRIS, M.D.
PATERSON, N. J.

Twenty-nine out of every thirty cases of ectopic gestation present symptoms by which a presumptive, if not a reasonably certain, diagnosis may be made prior to the patient's arrival at a condition which is alarming.

There are instances in which the first complaint and the first symptoms are of such a nature as to excite the greatest alarm in the minds of physician and friends, because the patient is, without previous warning, brought at once to the verge of death, yet such cases are very exceptional.

To simplify the detection of ectopic gestation and to aid in an early diagnosis of the condition, I wish first to direct your attention to what I consider two distinct stages of the disease: the non-tragic stage and the tragic stage.

THE NON-TRAGIC STAGE.

Since most cases present a group of symptoms preceding the tragic stage of the disease sufficiently distinctive to warrant a diagnosis, and since these symptoms are in no way alarming, I refer to them in this paper as the non-tragic symptoms of ectopic gestation.

In order better to illustrate the importance and value of such a division in the symptomatology of this affection, I wish to make the following assertions, based mainly on a study of more than one hundred and thirty patients operated on, and a few additional ones who died without operation and in whom diagnosis was confirmed at autopsy:

(a) More than 90 per cent. of the 130 patients consulted a physician on account of symptoms referable to the pelvis before the tragic stage was reached.

(b) Many of them received medical advice or attendance for a term of several weeks before tragic symptoms presented. Many of this 90 per cent. of all patients only consulted a physician once before the occurrence of tragic symptoms.

(c) In consequence of failure of the physician consulted to attach proper value to the symptoms, many such patients were wrongly assured, and, although the patients continued to exemplify the symptoms of the non-tragic stage of ectopic gestation, they relied for days or weeks on false hopes until the tragic symptoms occurred.

(d) Of the 90 per cent. of all patients who consulted a physician a very large proportion were told that an (ordinary) abortion was threatened, was occurring, or had occurred.

(e) Of the 90 per cent. of all patients who consulted a physician, about 20 per cent. were subjected to the operation of curettement for the cure of the metrorrhagia, the real cause of the metrorrhagia not having been suspected.

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

(f) Of the 90 per cent. of all patients who consulted a physician, some were unable to pursue their usual vocation, being confined to the bed or couch for days or even weeks before tragic symptoms occurred. Except for brief intervals as an hour, or a few hours or so, in a large proportion of the cases of ectopic gestation, the patients pursued their usual vocation during the non-tragic stage without material or prolonged interruptions.

(g) Only about 20 per cent. of the physicians consulted in the non-tragic stage arrived at a correct presumptive diagnosis. Far more often it happened that I was called to aid the physician because of the pains and metrorrhagia, the real nature of the condition being not even suspected by him.

(h) In three instances only, out of more than 130 cases, did it happen that I was the first physician consulted by the patient.

(i) Ninety-nine per cent. of all patients properly operated on in the non-tragic stage of the disease should promptly and completely recover.

(j) It is easy to arrive at a presumptive diagnosis of ectopic gestation.

If these assertions are correct the burden of responsibility is primarily on the obstetrician and the general practitioner. If they require an exhibition of the tragic symptoms of the disease to afford them the first presumption of the actual condition present, may they not be charged with the demise of such as die in consequence of their failure to diagnosticate the condition?

Still I would not place on the internist the full responsibility of the diagnosis, but, in view of the large mortality occurring from inaccurate or delayed diagnoses, and the fact that nearly all patients would recover if operated on soon after they first consult the general practitioner, I would impress on him the importance of acquiring a method whereby he may generally arrive at a presumptive diagnosis when a case is in hand.

Physicians for whom I work have often asked me to tell them how to diagnosticate ectopic gestation. I have generally first said to them:

> When any woman after puberty and before the menopause, who has menstruated regularly and painlessly, goes 4, 5, 6, 8, 10, 15 or 18 days over the time at which menstruation is due, sees blood from the vagina differing in quality, color, quantity or continuance from her usual menstrual flow, and has pains, generally severe in one side of the pelvis or the other or possibly in the hypogastric region, ectopic gestation may be presumed.

The two items of greatest value in arriving at a presumptive diagnosis of ectopic gestation in the non-tragic stage of the disease are: (a) Atypical menstruation or metrorrhagia; (b) pains.

Menstruation.—The expression "atypical menstruation of ectopic gestation," although a misnomer, is a useful one, for the reason that it directs attention to the appearance of blood generally out of rhythm with the normal menstrual cycle of the individual. The amount of blood lost may be very much greater or very much less than the usual menstrual flow of the patient. It may be continuous or appear with interruptions. It may be darker or may be lighter or more brownish than the usual menstruation.

The metrorrhagic blood of ectopic gestation very often has a sort of slippery character which I am unable to describe but which I have perceived so often that I at times have imagined that I could almost diagnosticate ectopic gestation by the effect of such discharge on the tactile sense of my fingers. Thus in one or more, or several ways, the blood which escapes from the vagina in ectopic gestation departs from the usual menstruation of the individual. The woman of moderately good perception and memory will describe wherein the atypical menstruation of her ectopic gestation differs from her usual menstruation.

As an aid in diagnosis careful history-taking is of the greatest importance. None of the items in the following schedule should be omitted when obtaining the patient's history:

1. If the patient's present or last menstruation was out of type, write the date of its beginning, its continuity, its interruptions; determine and note the quality, the quantity and the character of bleeding.

2. Note the date, duration, amount and character of the menstruation preceding the atypical menstruation.

3. Note the date, duration, amount and character of the second last menstruation preceding the atypical menstruation.

4. Note the date, duration, amount and character of the third last menstruation preceding the atypical menstruation.

5. Note the date of each colic, or series of colics, and the date or dates of any recurrences.

If the patient has been accustomed to painful menstruation, analyze the character of her dysmenorrhea and ask her particularly if the pains which appeared in connection with the blood at this time were the same as the usual pains of her dysmenorrhea. If you have in hand a case of tubal gestation and the patient is intelligent she will at once say that she never had pains like these, and she will at once tell you wherein the pains and the flow of her present attack differ from her previous and painful menstruations. Morning sickness and enlargement of the breasts, which are the ordinary symptoms of intrauterine pregnancy, do not belong to the symptomatology of the extrauterine pregnancy. If you are the second physician in the case, and the first one is reported to have said that the woman had a miscarriage and is still bleeding and has pains, be slow to accept such statement, unless a fetus has been seen by some one. If it has been seen by anyone, inquire particularly as to who saw it, and obtain if possible from that person a description of what he or she saw. I never allow the statement that "the patient has aborted" to be entered in my history and other note-books by those who work under my direction, without entering it as a quotation, except in instances where a fetus has been seen. In that case the name of the doctor or friend who saw the fetus is written in the note-book, together with a description of the fetus.

Pain.—If the colics are very severe with steady pain between them, the abdominal walls may be rigid. The colics in the beginning of tubal pregnancy are often mistaken for intestinal pains. They may not cause the patient to rest more than momentarily from her work or pleasure. In other cases the pains are so severe and agonizing that the doctor is at once sent for, whatever the time of day or night. Soreness of the abdomen may pass off in an hour or less after a severe ectopic gestation colic, or it may be so prolonged as to prevent the patient from walking for a day or two or longer. Occasionally jars of the body in walking, or being much on the feet, cause so much pain that the patient remains in bed for a while. In such cases the colics may return after shorter or longer intervals.

Sometimes colics and the atypical menstruation of ectopic gestation appear before the menstruation is due[1] or just at the time that it is due. Such a history is rather unusual, and in the absence of tragic symptoms such as a rapid and weak pulse, fainting, and pallor of the skin, may offer very little presumption of the true condition present until we have waited for a sufficient time to find whether the menstruation is out of the usual type for that individual.

Colics or the sharp pains of ectopic gestation are generally closely attended by the appearance of a bloody discharge from the vagina.

Pulse.—In the non-tragic stage of ectopic gestation the pulse usually remains about normal. If, however, within a few hours a sufficient quantity of blood is lost in the abdomen the pulse will be found quickened, the patient weakened and the temperature below normal, and the amount of blood thus lost to the circulation may be sufficient to at once cause alarm or imperil life. If so, the tragic stage has been reached.

Temperature.—The temperature of the patient in the non-tragic stage of the disease, like the pulse, is not materially affected, except a considerable amount of blood has escaped into the peritoneal cavity. In that event there sometimes occurs, a few days after extensive bleeding in the peritoneal cavity, some elevation in temperature, generally not more than a degree or so. It should be said that the symptoms of the non-tragic stage may present for days or weeks before any considerable amount of blood is found in the abdominal cavity. During all this time the temperature may not be materially altered from normal.

Respiration.—Respiration is not materially affected in the course of the non-tragic stage except in connection with elevation of temperature.

THE TRAGIC STAGE.

The tragic stage of the disease is exemplified by severe colics, pallor of the skin, weak and rapid pulse, a fall of temperature one, two or three degrees below normal, rapid breathing, fainting, generally vomiting and restlessness, and sometimes a lethargic condition from which the patient may be aroused. In this tragic stage the pulse may be anywhere from 120 to 180. It may not be possible to count it at the wrist, although its flickerings may be perceived until shortly before death.

Physical Examination.—No disease produces in the pelvis such a variety of conditions to be palpated and mensurated by examining fingers and hands as does ectopic gestation. Ectopic gestation always increases, in a slight degree at least, the size of the uterus, but I consider it exceptional for the womb to become very much enlarged, unless, as will happen in exceptional cases, a very considerable decidua forms within it. The cervix is generally not altered by tubal pregnancy, but this rule has some exceptions. It is sometimes a good deal softened. Most uteri of the ectopic gestation are not very materially altered in size, shape or consistency from the non-pregnant condition. Unless hematocele has formed the mobility of the uterus may not be particularly affected. If the uterus is lifted on the examining finger pain is almost always produced on the side of the pregnant tube.

In the non-tragic stage the pregnant tube is usually sufficiently large to be palpated, and possibly also approximately measured with bimanual palpation. I have seen cases of tubal pregnancy wherein diagnoses were made, and the patients operated on in the non-tragic stage of the disease and where the tube at its largest diameter did not exceed one-half of an inch. It is not impossible for the tube to so enlarge from the growth of the fetus within it, and from hemorrhage between the fetal membranes and the tube wall, as to increase its diameter to a size of two inches or more. In a few days I have known the tube to become distended from hemorrhage within it to this extent before any considerable amount of blood had reached the peritoneal cavity, and the patient had consequently not yet exemplified the symptoms which characterize the tragic stage of the disease.

Incidentally I might here mention that it is not likely that the simple growth of a fetus within the tube causes pain. Whenever pain is experienced it is probable that a little hemorrhage has occurred within the tube, and that the pain is caused by the sudden distension of its lumen. A pregnant tube is always tender when squeezed and may be extremely painful when so treated. The tube may be imbedded in blood clots, or so displaced, or partly or completely engulfed in hematocele, that its form and size are indistinguishable.

I do not believe that I have ever chanced to examine bimanually a pregnant tube before any of the symptoms of the non-tragic stage have manifested themselves.

If a large hematocele has formed the uterus may be carried far upward and almost out of the pelvis. When thus lifted it is generally pushed to the opposite side from that in which the tubal pregnancy exists. The hematocele may be so large and the uterus so far pushed up that the cervix will with difficulty be reached by the index finger per vaginam.

The corpus and fundus uteri resting on the outer and anterior surface of a large hematocele may be distinctly palpated through the abdominal wall. In one instance the uterus was visible as it rested on a large hematocele and lifted the abdominal wall.

Hematocele.—A hematocele is sometimes very hard, at other times soft and boggy; generally the latter. When hematocele forms and materially displaces the uterus, frequent, difficult or painful urination may be complained of. The formation of hematocele generally marks the presence of alarming symptoms and, consequently, the tragic stage.

The following are some of the conditions from which tubal pregnancy must be differentiated:

(a) Abortion.
(b) Salpingitis.
(c) Uterine polypus, papilloma uteri and submucous and interstitial fibroid of the uterus.
(d) Cancer of the uterus.
(e) Ovarian cyst with twisted pedicle.
(f) Progressive intrauterine pregnancy accompanied with metrorrhagia.

(a) The internist is so generally familiar with abortion in its various phases that I will not occupy time in describing any of its characteristics.

(b) A quite common result of salpingitis is shortening of the intermenstrual term, and a lengthening of the menstrual flow with increase in the quantity of blood lost at menstruation.

It is not at all unusual for a patient with acute salpingitis to have a lengthened term of menstruation and to have it followed for a number of days with a metrorrhagia. If by the time we first see such a case the initial fever of her infection has passed away, and we then find her temperature normal, we may wrongly conclude that her symptoms are those of the non-tragic stage of tubal pregnancy. If the salpingitis has existed for months or years we will generally find that the patient has often suffered from pelvic pains, and that she has sought relief from physicians, and such a history will, of course, place us on our guard. Furthermore, this may not only be evidence of a pre-existing, or more or less chronic salpingitis, but also the added symptoms of ectopic gestation.

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[1] In case No. 4 the atypical menstruation began twelve days before menstruation was due.

The patient with chronic salpingitis rarely goes over her time of menstruation. If there is any change in the length of time from beginning to beginning of menstruation it is more likely to be shortened, while the duration and amount of the flow is often increased.

The woman with tubal pregnancy almost always tells us that when her last menstruation occurred it was several days overdue, so that while salpingitis disposes many patients to menstruate ahead of time, ectopic gestation apparently delays the last or alleged menstruation, and when it appears it differs in one or several particulars from the previous menstruation of the individual.

All who are experienced in suprapubic sections for pelvic disease will surely join me in the assertion that a very considerable percentage of women who have tubal pregnancy are found when operated on to have diseased tubes; thus it must be apparent that in a certain percentage of the cases of ectopic gestation there are two symptom-producing factors, namely, salpingitis and pregnancy within a tube.

I do not wish here to refer particularly to the etiology of ectopic gestation further than to express the belief that certain, but usually not very gross, pathologic changes accruing from salpingitis, constitute the chief, if not the only cause of ectopic gestation. If this be true, it must be apparent to you that very often the diagnostician will be confronted by these two symptom-producing factors; consequently, it must happen that a certain small percentage of all cases of tubal pregnancy will exhibit to a certain extent the symptoms of salpingitis together with the symptoms of pregnancy within the tube.

The failure to always differentiate tubal pregnancy and salpingitis is of little consequence, for the reason that the operation is undertaken in the interest of the patient, and while the abdomen is opened, the pathology can be removed.

It is the existence of salpingitis, the great sterilizing disease of women, which accounts for the fact that terms of sterility varying from three to fifteen years or more, so commonly precede the occurrence of tubal gestation. A previous attack of salpingitis not only causes the sterility, but also renders the tube incapable of conveying the fecundated ovum to the uterus.

(c) Uterine polypus and papilloma uteri produce menorrhagia and metrorrhagia, but are not prone to produce colics. Intrauterine fibroids cause menorrhagia and metrorrhagia and, to a certain extent, pains which might be mistaken for the slighter colics of tubal gestation, but none of these conditions arising from neoplasm are very likely to produce the severer colics of ectopic gestation.

(d) Cancer of the uterus is not always productive of pain, but when it produces pain as well as metrorrhagia the history may be very like the history of the non-tragic stage of ectopic gestation. The physical examination may, by excluding a painful tube or tumor at either side of the uterus, together with inspection of the cervix, eliminate doubtful points in diagnosis.

(e) Those who have removed ovarian cysts with twisted pedicle must have observed the enormous size of the Fallopian tubes in such instances. The uterus also participates in these hypertrophic changes. The tissue engorgement incident to such enlargement often renders menstruation atypical and produces metrorrhagia. The excruciating colics, the steady pain, the soreness of the abdomen, and the fact that it springs from one side of the pelvis, together with the metrorrhagia which so often follows the twisting of a pedicle, afford one of the best counterfeits of ectopic gestation. Such cases are, of course, comparatively rare and are not difficult to diagnosticate unless the tumor which is twisted on its pedicle was not known to exist prior to the colics and the atypical menstruation. Again, in ovarian cyst with twisted pedicle the last menstruation is not usually belated.

(f) Every experienced general practitioner knows that now and then he has met with a woman who exhibited metrorrhagia for two, three, four or five weeks in the earlier course of a progressive intrauterine gestation. The absence of colics, and possibly the presence of morning sickness, the very soft condition of the cervix, a gradually enlarging uterus with no special pain at either side of it, are the particular items to be observed in differentiating this condition and ectopic gestation.

The following rather carefully taken histories of six cases are offered for whatever value they may possess:

Case 1.—Referred by Dr. D. T. Bowden.

Patient.—Mrs. H., aged 32; married thirteen years. Six children, youngest child 11 months old.

History.—Menstruation was re-established five months after the birth of her last child. It recurred every 21 days and was painless. Her last menstruation was due May 1, according to the habit since the last child was born. Blood was not seen until May 5. It was somewhat brighter in color, thus differing from her usual menstruation. Blood had appeared almost every day for eighteen days, or until May 23, when she consulted Dr. Bowden, and he at once sent her to my office with a diagnosis of ectopic gestation. The patient herself described the blood "as like that from a cut finger."

This patient had very severe colics in the hypogastric region and to the right of the uterus on May 6, or one day after the appearance of metrorrhagia. In the seventeen days following this colic she had three distinct colics, and went about but little, because being on the feet produced pain in the right iliac region.

Examination.—On physical examination the right tube was found very much enlarged and tender under pressure. Coinciding with the diagnosis of Dr. Bowden, she was referred to the hospital, where I did abdominal section on the day following. The abdomen contained a pint of fluid blood. There were some rather large clots in the pelvis and the tube still enveloped the fetal products. The blood found in the abdominal cavity had escaped through the ostium abdominale. Patient made a complete and perfect recovery. This patient of course consulted a physician, and was operated on in the non-tragic stage of the disease, but her symptoms were not sufficiently pronounced to lead her to Dr. Bowden until eighteen days after the primary symptoms.

Case 2.—Referred by Dr. Miller, Netcong, N. J.

Patient.—Aged 22; married three months. No previous pregnancies.

History.—Until the age of 18, her menstruation recurred every twenty-eight days and continued for about three days. After that age the flow lasted from five to seven days, and she occasionally had a little pain with menstruation. She menstruated regularly and normally on February 10, March 10 and April 5.

On May 23, following the menstruation of April 5, she was taken with severe pains in the hypogastric region and right iliac region. She had two or three very severe pains in quick succession. They occurred while she was at the grocer's near her home and for a time she could not move.

The next day, or May 24, she had another very severe pain in the lower abdomen. Blood then appeared from the vagina for the first time since April 5. The cramps "doubled her up," and the pains, although severe in her pelvis, extended to the upper abdomen. The pains passed off in an hour or so, but the soreness of the abdomen continued for thirty-six hours. She then felt better, got out of bed and went about some, the blood continuing from the vagina. Very little pain for the two or three days following, after which another attack of pain came even worse than the previous ones. This severe colic was also attended and followed with soreness over the abdomen, which did not entirely pass off for several days. After getting up from this attack she went about, although she had slight pains now and then and blood continued to appear from the vagina until June 7 or 8. Following one of the last severe colics, urination began to cause pain across the abdomen, and she had difficulty in emptying the bladder.

Her color was becoming sallow, and after the last attack, which was on June 8, she became very pale and her lips were colorless. After colic of June 8, she had quite severe pain almost every day, and especially toward evening, with more or less continued soreness across her.

This patient was seen by Dr. Miller in the very beginning of her colics, who afterward considered that she had tubal pregnancy. On Friday, June 7, a physician saw her who did not share in the diagnosis of tubal pregnancy. This physician saw her again on Sunday, June 18. The metrorrhagia had continued until that time. He then etherized her and curetted the uterus. I first saw her with Dr. Miller on June 24. She then had colics, her pulse was more than 100 per minute, and the temperature slightly above normal.

Examination.—Physical examination revealed a large mass in the pelvis. Uterus pushed upward and forward by the hematocele and was fixed in that position. Blood appeared on examining finger.

Diagnosis.—Pelvic hematocele resulting from tubal pregnancy.

Operation.—She was removed to the hospital and subjected to abdominal section on June 25. Pulse so rapid when operation was reached that I threw in median basilic vein of right arm four pints of normal salt solution before opening the abdomen. The abdominal cavity contained pints of blood and clots, a rather hard hematocele to left of uterus and the right tube had apparently ruptured through the ostium abdominale. Tube still distended with its blood clots, and was two inches in diameter. Tube amputated near the uterus. Patient made a reasonably quick and perfect recovery.

CASE 3.—*Patient.*—Mrs. Z. A. Z., aged 24; married three years. No intrauterine pregnancies.

History.—From the age of 14 patient menstruated regularly and painlessly every four weeks, flow always lasting one week.

On January 29 patient had severe pain in left iliac region, across the abdomen and in her back. Four days after the appearance of these colics blood appeared from the vagina. It should be said that when the pains and metrorrhagia appeared that menstruation was about due. Right after the severe colics she had some embarrassment in urination. A physician was called, but I am not able to say who he was. She felt so badly and so weak that she remained in bed for about two weeks, during all of which time the metrorrhagia continued. Soon after she began to go about she fainted.

The atypical menstruation with colics every few days continued for two months, or until March 29, when she began feeling rather better and stronger. At that time another physician was called, who sent her to my office for diagnosis. She then looked very pale, was very sick, had a pulse about 80, and her husband, who accompanied her, informed me that she had lost a good deal of flesh.

Examination.—Physical examination revealed a boggy mass in the pelvis, and a diagnosis was made of hematocele from tubal pregnancy. The day following I made a median line suprapubic incision, removing therefrom a quart or more of fluid blood, a pint or two of clots and the Fallopian tube which contained a pregnancy in its isthmian portion, which had evidently ruptured in the beginning of her sickness. The hemorrhage had occurred off and on from the ruptured isthmian portion of the tube for two months after the primary symptoms until the patient was operated on. There were very strong organized clots surrounding the cornua of the uterus, which were so very firm that I at first mistook the tumor for the uterus. She was still bleeding from the rupture. The patient made a good and complete recovery.

This case presented symptoms which were close to alarming. Her worse hemorrhage probably occurred in the beginning of her complaint; however, after that the symptoms were at no time any way alarming, and she progressed into what might be termed the non-tragic stage of the disease.

CASE 4.—*Patient.*—Mrs. M., aged 32; married several years.

History.—No pregnancies excepting a pregnancy of the right tube, which I operated on two and a half years ago in the non-tragic stage of the disease. At that time the abdomen contained a quart or more of blood, and I removed the unruptured tube, which contained two small feti.

I was called to this patient by her physician on May 1, 1907. She had menstruated regularly and painlessly every four weeks, her last normal menstruation recurring on April 15, 1907. On April 25, which was ten days after her last menstruation, blood began to appear from the vagina in small quantities. In connection with the metrorrhagia she had what she termed "terrible pains," most severe in left iliac region, and running up to the left lumbar region.

I at once made a presumptive diagnosis of tubal pregnancy. For two or three days before the appearance of her colics and metrorrhagia the patient felt very tired. Colics occurred within an hour or two from the appearance of blood. Some days the blood was bright and at other times dark and "chocolate colored." Patient felt much easier when quiet. She remarked that for a day or two after the finish of her menstruation of April 15 she had a sort of "gummy leucorrhea."

During my absence from town in the few days following this, the patient was seen by another physician, who was informed of my presumptive diagnosis, and who, after making a physical examination of the patient, expressed the opinion that she was simply suffering from neurasthenia with some congestion about the left ovary and tube. The patient had some headache, a little vertigo, some nausea and vomited once. Pulse about normal. From the time I first saw her until May 16 the metrorrhagia continued, the pulse remained about normal and she had occasional colics with pain in left iliac region.

On May 12 she was awakened at 3 in the morning with severe colic accompanied by an increased flow from the vagina. The severe pain only lasted a few minutes. During this colic and for a time afterward she lay on her back with the knees well drawn up. She also noticed that her left breast was decidedly fuller than the other breast.

May 18 patient had a rather severe colic, which was followed with a good deal of soreness.

May 20 she had some slight pains now and then with soreness through the pelvis while sitting.

It might be said that from May 1 to May 25 this patient was not able to attend to her household duties, remaining part of the time on the couch, and was very little on her feet, the metrorrhagia continuing, although on many days it was a mere show of blood. At times the pulse was subnormal.

Examination.—The physical examination on May 1 showed a decided tenderness of the left tube, and it appeared slightly enlarged. Several physical examinations were made from May 1 to May 28, and the tube appeared larger as time progressed, but on May 25 it was found to be an inch or an inch and a half in diameter, and very tender under pressure. During all this time she was prepared to go to the hospital on a moment's notice had tragic symptoms presented.

Operation.—On May 28 I made a median line suprapubic four-inch incision. The abdomen contained probably six ounces of dark fluid blood and scarcely any clots. The tube was distended, dark red in color, bent on itself, and dilated to about one and one-half inches in its largest diameter. I exsected the entire tube and appendix. At the time of this writing the patient appears to be making a perfectly smooth course toward recovery.

The tube was hardened in a solution of formalin and sections revealed a very small sac in the isthmian portion. The distension of the tube was due almost entirely to hemorrhage within it. The blood in the peritoneal cavity had escaped through the ostium abdominale. From the gross appearances of the specimen I judge that the pregnancy was not itself progressive after about the tenth or twelfth day. All the symptomatic changes which followed were simply due to hemorrhage arising from the pregnancy.

This case exemplifies in both her first and second ectopic gestations the easy possibility of diagnosticating and operating in the non-tragic stage of the disease. The fetal products in both instances were at the time of operation perfectly enveloped by the dilated tube.

Case 5.—Referred by Dr. J. A. Maclay.

Patient.—Mrs. E. K., aged 39.

History.—Has had eight children and a number of abortions. Patient menstruated regularly and normally eight weeks before she was sent to the hospital.

Three weeks before being admitted to the hospital or about May 5 or 6, there was a little metrorrhagia, very slight, only spottings of blood. She may have had a little pain with it; however, the metrorrhagia continued, and there was no special complaint made of pain until May 17, when she had severe colics with some steady pain between them for three or four days. During this time she was not able to go about.

After May 21 or 22 she had occasional pains in the abdomen. Her first series of pains, lasting four days, were all through the lower abdomen, but referred more particularly to the right iliac region. Patient remarked that she never had pains like them before. No increase of temperature. Pulse about normal. No difficulty in urination. Slight loss of color.

Operation.—Suprapubic section made May 27, 1906. Quite a quantity of blood in the abdominal cavity. Right tube still enveloped the fetal products, but was distended from hemorrhage within it to a diameter of about one and one-fourth inches. The blood in the abdominal cavity had escaped from the ostium abdominale. Left tube diseased and enlarged. Both tubes were exsected. Also the appendix vermiformis.

This patient sought a physician when the colics occurred after the appearance of metrorrhagia. Was later operated on without at any time having been particularly ill, and therefore did not pass beyond the non-tragic stage of the disease.

Case 6.—Referred by Dr. Tuers.

Patient.—Mrs. P., aged 25.

History.—Married to present husband ten months, to her first husband two years and three months. First menstruated at 12. She menstruated every twenty-eight days from then until the present illness. After the age of 16, when she had some slight womb trouble, she always had terribly severe pains the first day of menstruation, with a dull heavy feeling in the pelvis on the day following menstruation. The menstrual flow always lasted five or six days, and she soiled from eighteen to twenty napkins. No pregnancies until the present tubal one.

This patient menstruated regularly for the last time on Feb. 12, 1907. After that she saw no blood until March 16 or 17. At that time she had little pain across the hypogastric, and blood appeared from the vagina. The pain in the hypogastric was not nearly so severe as the pains accompanying her usual menstruation. A little blood appeared from the vagina almost daily from March 17 until April 1 or 2. She felt moderately well from the cessation of the metorrhagia on April 1 or 2 until April 21. At that time, while out carriage riding, she felt a sort of "chilly coldness" across the lower abdomen; however, she had a good dinner when she returned from the ride, and retired at 8:30 o'clock. Shortly afterward she was awakened from sleep with severe pain in the hypogastric region. This colic she described as more severe than any pain of her dysmenorrhea. The pain was not referred to either side of her pelvis, but descended to the hypogastric region. She tried lying on her back with her knees drawn up, she sat up and leaned forward in bed, she assumed all sorts of positions, none of which afforded her any relief. She vomited. The pains entirely ceased in twenty minutes or half an hour, after which she slept through the entire night.

On the next morning, Monday, April 22, she felt a tenderness across the lower abdomen, particularly noticeable when walking; however, it was not sufficient to prevent her from remaining on her feet most all that day. A little blood appeared from the vagina, which was the first observed since April 1 or 2, which date represented the conclusion of a two weeks' metrorrhagia.

She slept fairly well on Monday night, and on Tuesday morning, April 23, she was awakened at 6:30 with a severe pain in the hypogastric. It was even more severe than the one on Sunday night, thirty-six hours previously. This colic was attended with severe pain in right shoulder. She says that the pain ran all the way down to the right iliac region. This was the first that pain was referred by the patient to one side of the pelvis. While the pain was severe she vomited three or four times. The severe colic lasted half an hour or so, and was attended and followed with a great deal of soreness in the lower abdomen, on which account she remained in bed all of Tuesday, April 23.

On Wednesday she went about the house, although still feeling some soreness in the lower abdomen.

On Thursday there was much less soreness in the abdomen and she remained up most of the day. On that evening, April 25, at 7 o'clock, and while at dinner, she experienced a severe pain in the epigastric region. Supposing that it was in her bowels she took some citrate of magnesia. The pains increased, and she vomited and remarked "that she felt as though she was dying." She was helped to bed, where she moaned with pains. Dr. Tuers was sent for,, this being the first that medical attendance was sought or obtained by the patient. He was unable to perceive any pulsation at either wrist. She appeared pronouncedly exsanguinated, and, after obtaining a very little history from her, he diagnosticated the case as one of tubal pregnancy.

I saw the patient with Drs. Tuers and Bullen just one hour after the beginning of her colic. There was not the slightest flickering of pulse in either wrist, said she was thirsty, had extreme pallor, but did not exhibit the restlessness which is often seen in the tragic stage of tubal pregnancy.

Operation.—She was at once removed to the Paterson General Hospital and taken directly from the ambulance room to the operating table. A few whiffs of ether were given. A vein was opened in her left arm in which was infused three pints or more of normal salt solution. Very soon after the administration of a little ether and the beginning of the intravenous injection a pulse was perceived. In five minutes more she had a readily countable pulse in her right wrist. The abdomen was opened, a quart or two of dark fluid blood was removed from it. A lot of large, dark clots were taken from the cul-de-sac of Douglas, and a distended right tube measuring two inches in diameter and apparently still enveloping the fetal products was tied off and removed. The patient was sent to her room with a good pulse of 130, and a respiration of 40. The blood which was found in the peritoneum in this case had escaped from the ostium abdominale. There was no evidence whatever of a perforation of the walls of the distended tube. This patient made a rapid and complete recovery.

A hardened section of the tube revealed a fetus about one and three-eighths inches in length.

Although this patient was not seen by a physician until well in the tragic stage of the disease, still she gave an entirely typical history of the non-tragic stage of the disease. Her failure to consult a physician was probably due to the fact that she was accustomed to have very severe pains with menstruation.

A simply presumptive diagnosis of ectopic gestation may be based on the two distinct items of colics and atypical menstruation.

If we would know what constitutes an atypical menstruation for any particular individual it is absolutely necessary for us to obtain definite information regarding not only the present atypical, or alleged menstruation, but also of the menstruations preceding it for a term of three or four months. We must also learn the nature, duration and character of the earlier menstruations, and the ordinary intervals from the beginning to beginning.

Inaccurate history-taking will lead to incorrect presumptions, if not also to faulty and incorrect diagnoses.

Forty-nine out of every fifty cases of tubal pregnancy present symptoms whereby the condition can be diagnosed with reasonable certainty before the tragic stage is reached.

Probably forty-five out of every fifty patients consult a physician in the non-tragic stage of the disease.

So soon as diagnosis is made operation is indicated, and I believe that the best interests of the patient will generally be subserved by immediate resort to operation whether the patient exemplifies the non-tragic or tragic stage of the disease.

I have known but one patient to decline operation in the tragic stage.[2] She consented six hours later, was taken to the hospital and died while being conveyed from the ambulance to the operating pavilion.

Three women have declined operation in the non-tragic stage. One of these presented tragic symptoms six days later and died shortly after her admission to the hospital in spite of our efforts to save her.

In dealing with women in the non-tragic stage our advice to them should be governed by the knowledge that from one-half to two-thirds of all cases of ectopic gestation, uninfluenced by operation, eventuate in death, and that if all are promptly and properly operated on, ninety-nine out of every one hundred should recover.

DISCUSSION.

Dr. C. Jeff Miller, New Orleans, La., asked Dr. Harris whether he has found tenderness of the tubal mass in the pretragic stage. Dr. Taylor of England, he said, lays great stress on this point, and insists that the mass is not sensitive until hemorrhage begins in the tube.

Dr. F. F. Lawrence, Columbus, Ohio, considered this subject one of great importance because the case is seen first by the physician, who too frequently does not recognize that it is an extrauterine pregnancy until it ruptures. If the mortality of extrauterine pregnancy is to be reduced, physicians must be taught that the diagnosis must and can be made before rupture. As to the frequency of the condition. On three different occasions in the past few years Dr. Lawrence has had three, and on one occasion four cases of extrauterine pregnancy coming under his care in a period of ten or twelve days. There was history of prior tubal disease, emphasizing the importance of tubal disease as a causative factor. The advisability of leaving the opposite tube when operating for extrauterine pregnancy is a question of importance. In Dr. Lawrence's experience subsequent extrauterine pregnancy occurred three times. The points of particular value in making the diagnosis, he said, are pain of a spasmodic though undefinable sort (not collicky); hypersensitiveness of the cervix; breast signs of pregnancy more marked in the first few weeks than in normal pregnancy. The irregular flowing is not likely in the first few days or weeks to be accompanied by any shedding of decidua. The cervix is soft.

Dr. G. L. Hunner, Baltimore, Md., said he knew of no more serious intra-abdominal condition which has the diagnosis written all over its face any more plainly than has extrauterine pregnancy, and at the same time no condition which is more often overlooked by the internist. A point helpful in the diagnosis of extrauterine pregnancy is that of going back of the history and seeing if there have not been attacks of repeated so-called ovarian neuralgia. It is, he said, surprising to find how many of these previous attacks of ovarian neuralgia were really attacks of appendicitis. He has been so impressed by this fact in going over his histories of extrauterine pregnancy that he deemed it worth emphasizing. When operating, if the patient is in a suitable condition, one should not neglect to look at the appendix, even if there is a tubal pregnancy on the other side. The appendix should be examined in every case where the patient is in a suitable condition, and should be removed if there is any evidence of disease. Dr. Hunner warned the general practitioner and the specialist not to attempt to make a too careful bimanual palpation in these cases. The history, he said, is sufficient in practically all cases without attempting to outline the tender little mass generally present.

Dr. J. H. Carstens, Detroit, Mich., did not agree with Dr. Harris that the diagnosis of this condition is an easy one to make. In the first place, the women never know that they have extrauterine pregnancy. They feel all right, and it is only when symptoms appear that the woman is made aware of her condition. One can very often be mistaken in these cases, for a woman will have some old chronic trouble and will have an ache on the side on which she has had trouble. The doctor is called in and treats her for another one of her usual attacks. Dr. Carstens did not blame the family physician, in the absence of flow and the rapid pulse indicative of hemorrhage, for making a mistake. On one occasion he was called to see a woman on whom he had operated for left tubal disease. The doctor in attendance said it was a case of appendicitis and Dr. Carstens agreed with him. There was pain over McBurney's point; temperature 100.5, pulse 84. On opening the abdomen much blood and a ruptured tubal pregnancy were found. Another instance was that of a woman thrown out of a street car. Dr. Carstens found a boggy mass in the posterior cul-de-sac, and the pulse was increased from 100 to 150. He thought that the woman had an extrauterine pregnancy which had ruptured when she was thrown out of the car. She had flooded a little before. He opened the abdomen and found neither blood nor extrauterine pregnancy, but a pregnant uterus tilted over into the cul-de-sac. He straightened out the uterus and closed the abdomen. The pulse went down and the woman recovered. These two cases, Dr. Carstens thought, illustrate the difficulties met with in the diagnosis of these cases.

Dr. J. M. Baldy, Philadelphia, Pa., believed there are instances in which the most expert diagnostician will go astray in the diagnosis of extrauterine pregnancy. He referred to one instance, the case of a woman whom he had attended in extrauterine pregnancy. Three or four years afterward the same woman suspected a second extrauterine pregnancy on the other side. For four weeks Dr. Baldy did not dare suggest operation because he could not make a positive diagnosis, although he suspected it, and so informed the patient. He went south for two weeks, and in the meantime the family consulted another gynecologist, who pronounced the condition extrauterine pregnancy. The woman suddenly had another attack of pain, and an operation followed, and there was found a ruptured extrauterine pregnancy. There was no mass at first, but everything else pointed to the diagnosis. When the mass did show it was too late, as the case was out of Dr. Baldy's hands. The other man found it and took it for a prolapsed ovary. This difficulty, he said, is found in a certain number of borderline cases of ectopic pregnancy. In such cases no man can be blamed for a failure in diagnosis. In the ordinary routine class of cases no man will make a mistake.

Dr. P. A. Harris, Paterson, N. J., said that his paper was not addressed to experts. He was sorry that any such had felt it so difficult to diagnosticate ectopic gestation, or that he should have committed the error of referring to an ascending pulse as requisite, or thought it necessary to wait for the tragic symptoms of extrauterine gestation. He did not think that any one can always be right in a diagnosis of tubal pregnancy. If he is right in nine cases out of ten it is good enough. He is accustomed to say to women who he believes to have ectopic gestation that he is sometimes wrong in diagnosis, but generally right. He thought it a duty to say this whenever in doubt, because there is no way, except by exploratory operation, of definitely determining the existence of tubal gestation. Regarding Dr. Hunner's remarks and those of others pertaining to tubal disease, Dr. Harris said it must be remembered that the acquired dysmenorrhea in his case came from tubal disease of most moderate severity. The tubes did not present the gross appearances of disease, yet they were sufficiently affected to prevent the impregnated ovum reaching the uterus, and ectopic gestation followed.

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[2] Referred by Dr. R. Atkinson.

THE SYNCYTIUM.*

LAURA HOUSE BRANSON, M.S., M.D.
IOWA CITY, IOWA.

DEFINITION AND EMBRYOLOGY OF SYNCYTIAL TISSUE.

The word "syncytium" is derived from two Greek words, signifying together, a hollow vessel.

1. *Biology Definition.*—Syncytium is tissue in which the cell or partition walls are wholly wanting and the cell bodies fused together so that the tissue consists of a continuous mass of protoplasm in which nuclei are embedded.

2. *Zoology Definition.*—The syncytium is the ectoderm of a sponge.

3. *Definition as to place in human anatomy.*—The syncytium is one of the epithelial layers of the chorionic villi. It is of fetal origin; this has been proved by the fact that in men and children neoplasms have been found of which syncytial tissue formed one of the component parts. Peters,[1] Minot[2] and Marchand[3] have demonstrated conclusively that the syncytium is derived from the primitive ectoderm and mesoderm or trophoblast. These investigations have opened the way into a broad field for the scientist; they have thrown a new light on pathologic findings on the subject of neoplasms whose derivation has hitherto been unknown.

The cell of syncytial tissue, protoplasm without cell wall, contains from one to eight nuclei; these nuclei in dividing follow the law of indirect division designated mitosis or karyokinesis. In nearly all respects the cell of the syncytium meets the requirements of the cell described as the foundation of all biologic research, differing from it in no essential feature. The syncytium, in common with all embryonal tissue, has the power to proliferate; this property of the syncytium was first observed by Ludvig Frankel[4] in 1895.

McFarland[5] advances the theory that in nearly all cases of normal pregnancy the syncytial tissue, by its cellular prolongations, invades the uterine muscularis; and that these prolongations usually disappear before the termination of the period of pregnancy. He further claims that by examination of postpartum uteri it has been demonstrated that the syncytial tissue may persist for a considerable length of time and frequently interfere with successful involution.

HISTOLOGY OF NORMAL SYNCYTIUM.

The syncytium is made up of a continuous granular protoplasmic mass in which there are numerous nuclei but no well-defined cell wall. The protoplasm stains readily; it is rich in chromatin nodules; its surface is covered with projections of newly formed tissue.

These histologic features are true for all normal syncytial tissue wherever found; the syncytium, one of the layers of the covering of the chorionic villi, is a typical exposition of this fact.

Circulation.—As the ovum surrounded by its trophoblast or nutrient bearer sinks into the uterine endometrium, it sends out prolongations which are designated "chorionic villi;" a part of these villi end freely, while others pass into the placenta uterina and become firmly connected with it. These villi at first have the form of short protuberances, consisting of gelatinous tissue and a layer of epithelium, which covers not only the villi, but also the whole chorionic membrane on its uterine side. It is believed, from recent observations, that when the circulation in the villus is completed, the ectoderm differentiates into two layers, a superficial one in which the cell boundaries disappear, so that it consists of a continuous layer of protoplasm in which the numerous nuclei are embedded, and an inner layer consisting of well-defined cells. This former is designated the syncytium, the latter Langhan's layer of cells. These two layers are separated sharply from one another; the inner layer having smaller nuclei, the outer a special affinity for acid dyes, and stains more deeply.

The villi with their covering burrow into the placenta or decidua until they reach the sinuses of the maternal blood, from which they derive the necessary nourishment; the villus in this manner availing itself of the nearest source of supply for its maintenance, the human parasite living on the life of its host. This continues throughout pregnancy, and although toward the fifth month Langhan's cells begin to degenerate and by the end of the term may be entirely wanting, the syncytium generally perseveres with its characteristic features. In some localities there occurs a thickening or a piling up of the syncytial nuclei; these are termed "proliferation islands." Again, there are portions which are reduced in thickness.

Through the umbilical cord there enter the membrana chorii two umbilical arteries which carry the blood of the embryo to the placenta fetalis, where they branch freely, breaking up into many smaller branches and forming a capillary network in the villus. The villi then grow into the decidual tissue, and the system of capillaries becomes dilated to a system of spaces; the villi are thus surrounded by blood, virtually bathed in blood.

Many claim that the intervillous spaces are the original spaces between the placenta fetalis and the placenta uterina; in that case at first they contain no blood and become filled only when the maternal vessels open into them (or are opened into them).

Branches from the internal iliac enter through the muscular coats of the uterus to the outer layer of the placenta uterina; their wall becomes thin and they lie directly on the septa placenta, where they empty into the intervillous spaces through the openings in the septa. The veins also empty into these spaces and wide lacunæ are found instead of the usual capillary net-work; these veins are thin walled.

The intervillous spaces thus contain material blood, while in the chorionic villi the capillaries under the epithelial layers are of fetal origin.

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-eighth Annual Session, June, 1907.

[1] Centrbl. f. Gynak., No. 29, 1902.

[2] Human Embryology, 1902. The Implantation of the Human ovum in the uterus.

[3] Zeitschrift, 1898, xxxvii to xxxix.

[4] Arch. f. Gynak., xlviii, 1895.

[5] American Jour. of Obstetrics, xlix, 469.

There is thought by some investigators to be no communication between these capillaries and spaces; that while there may be a diffusion of gases, fetal and maternal blood never intermingle.

NORMAL FUNCTION OR PHYSIOLOGY.

1 Ovum enters by the syncytium; 2, acts as gland and filter; 3, carrier of nourishment; 4, placental secretions act through syncytium; 5, acts as enzymes; 6, acts as true blood gland; 7, normal deportation of chorionic villi.

The syncytium furnishes a means of entrance for the ovum into the uterine mucosa, the maternal element being destroyed by the histologic properties of the syncytium. The lacunæ of the decidua are formed by the chorionic villi, covered with the syncytium, burrowing canals into the thickness of the serotina. As the plasmodium of the syncytium is not divided into cells regularly, the exchange of material between fetus and parent is thereby facilitated, this tissue acting as a filter as well as a glandular organ.

Another feature of the syncytium is to pass along the products of fetal life into the maternal circulation; it also acts on the maternal blood, carrying nourishment from it to the fetus. The syncytium modifies the substances which pass from mother to child, by a diastatic action, playing the part of the enzymes.

That the placenta possesses an internal secretion is a matter which does not admit of doubt; it has been demonstrated that a protolytic sub-ferment exists in this secretion. The chemical composition of this ferment is not known; some investigators think that there may be fat, lactic or glycogen ferments; at any rate the internal secretion of the placenta acts through the syncytium; this secretion may act on the fetus through the whole of pregnancy. Some authors believe that this secretion produces many of the phenomena of pregnancy, such as vomiting and chloasma.

Veit[6] has written of the normal deportation of villi or parts of villi together with their syncytial covering; he has proved that they may be carried to the most remote parts of the anatomy, and yet the general or cytolytic equilibrium of Nature may remain undisturbed. Whether this has any bearing on the normal function of the villi is not known as yet; in these cases this material is either absorbed or it remains unmolested and unmolesting in so far as the contiguous tissues are concerned. Hence, this metastasis might be termed a normal or physiologic function.

During some periods in the life of the syncytium it forms definite outgrowths or buds, consisting of masses of protoplasm containing round, deeply staining nuclei, similar to those surrounding the villi; cross-sections of these buds present so-called giant cells. These may take part in this normal metastasis.

PATHOLOGY CAUSED BY THE SYNCYTIUM.

Many and voluminous works have been written about the pathology of different parts of the human anatomy; pathology produced by the derangement of function in different tissues, glands or organs. The syncytium is a gland and it is but reasonable to believe that pathology may result from a derangement of its glandular function; that insufficiency of its functions might allow the passage of poisons from fetus to mother.

Metastasis.—One of the first manifestations of the syncytium acquiring a pathologic condition may be shown by metastatic deposits; this property of metastasis is not peculiar to abnormal syncytium; it is to be seen in the neoplasms carcinomata and sarcomata as well.

Metastasis is the property by which particles or cells of an original neoplasm may be carried by means of the blood and lymph channels to any adjacent or remote parts of the body, and may there remain quiescent or develop into second growths similar in all respects to the original neoplasm.

Some are of the opinion that this property of metastasis forms the criterion in the comparative diagnosis of benign and malignant neoplasms; again, the view is held that metastasis is one of the strongest indications of the infectious nature of certain neoplasms. Roswell Park[7] says concerning metastasis:

> This is in every other disease considered to be one of the most significant expressions of infection, yet until recently few of those who have willingly accorded to metastasis its now common interpretation in tuberculosis have been willing to give it the same dignity as a factor in the spread of cancer and an important explanation of its nature. Why should every other disease characterized by metastasis be everywhere viewed as parasitic and cancer, in which occur some of its most positive expressions, be denied? Metastasis has the force and significance of an inoculation experiment performed under favorable circumstances.

Theories of Toxins.—After the growth and formation of the placenta, when the embryo becomes the fetus, the blood of the mother generates in the serum antibodies which antagonize the invasion of syncytial tissue; the presence of syncytial elements in the blood determines the formation of a special cytotoxin, in this instance called syncytio-toxin.

Ehrlich's[8] side-chain theory is the foundation for the following: An organism has the power to produce anti-cells or antibodies which have the power to prevent excessive proliferation of these fetal cells or chorionic elements, and thus to keep a cytolytic equilibrium.

In this case the toxin and the body antagonizing this on the maternal side is designated anti-syncytio-toxin. This anti-syncytio-toxin has the power to dissolve or render inert any syncytial tissue in excessive proliferation.

Marchand believes that normally the syncytium exercises an influence in determining the nourishment of the villi by the maternal blood, and that normally the fetal blood is of minor importance in supplying the villi with nourishment.

The study of opsonins and the opsonic index is at present occupying the minds of many prominent observers; whether the future study of this subject will have any bearing on the toxins as a causative agent in the pathology of this tissue, and if proved will point out the remedy by strengthening the opsonic power of these agents now thought to be normally present in the blood, remains to be proven.

Eclampsia.—The pathology of syncytial tissue is an interesting study; in the light of our present knowledge of syncytial tissue, the syncytial theory of eclampsia seems to be a reasonable one. It has been proved beyond a doubt that the villi are carried by the blood. Veit and Opitz[8] believe that the syncytium covering these villi is dissolved in the maternal blood, producing syncytio-toxin; normally this is counteracted by the antibodies or anti-syncytio-toxin produced by the blood. In eclampsia there is a lack of these antibodies.

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[6] Deportation von chorionyotten, Ztschr., f. Geb. u. Gyn., xliv, 466.

[7] Park: Principles and Practice of Modern Surgery, 1907, page 257.

[8] Ztschr. Geburt u. Gynak., vol. xlix, 1903.

A similar theory advanced by Leipman[9] is that puerperal eclampsia is an autointoxication resulting from a toxin found in the albumin molecule, and separated in the placenta through faulty action of the syncytium on the albuminous bodies of the maternal blood. Normally these toxins are neutralized by antitoxin substances; when this neutralization does not take place poisoning results; the liver and kidneys protect the system against the poisoning, hence the prominent symptoms are those of a disease of the kidneys; the liver should retain these toxic albumins. In some cases only a small amount of poisoning is produced, and this is retained by the liver, hence there are no convulsions. In other cases much poison is produced; a portion is retained by the liver, while another portion causes convulsions during labor. When enough of the poison is retained there are no attacks until after labor has ended, and then the abstraction of blood at labor, the formation of the milk secretion, etc., act as protecting factors. When the system is susceptible, from anemia or any other condition, the poisoning takes place more easily and albuminuria and convulsions occur.

The theory by Veit[6] that the cause of eclampsia is the wandering of syncytial elements into the circulation is opposed by Ascoli, who considers that there is an overproduction of syncytiolysis, which is found in accordance with the laws of over-compensation.

Weichardt[10] is of the opinion that the syncytio-toxin produced by the syncytiolysis and not neutralized by the system is the causative factor in this condition. These theories as to the etiology of eclampsia are very similar, and they all place great importance on the fact that the liver participates in this autointoxication. Many microscopic examinations have been made which tend to prove this assertion.

Schauta,[11] in 1896, gave expression to the following: "Pregnancy seems to favor the formation of gallstones." Ten years earlier Jürgens[12] pointed to the possible hepatic origin of eclampsia. During the twenty years that have elapsed since his findings were published, we have had reports from many prominent writers testifying to the fact that it is the rule and not the exception for hepatic changes to take place during eclampsia. Among these writers Ewing[13] may be mentioned; he writes that hepatic changes take place in all cases of eclampsia that he has witnessed. He claims, further, that hemorrhagic hepatitis occurs in all typical cases of acute fetal eclampsia at term, and in at least 95 per cent. of all cases of any variety of eclampsia.

Stone is of the opinion that the toxema of pregnancy, eclampsia, and the yellow atrophy of the liver are one and the same disease, and that this one symptom, hemorrhagic hepatitis, is pathognomonic of eclampsia.

Ewing[13] goes further and divides the disease into three classes, according to the severity of the hepatic lesion.

It is claimed that toxins, usually from fetal metabolism, pass into the maternal circulation and act as the causative agent in eclampsia. Dienst[14] concludes that there is an abnormal permeability of the placenta in eclampsia which allows the fetal poisons to pass over into the mother's blood.

The liver in eclampsia is generally pale, hemorrhagic areas are present; hepatitis parenchymatous and hepatic hypertrophy may also be present. According to some observers, the most marked change occurs around branches of the portal vein, in many of which thrombosis often occurs.

Evans[15] wrote recently:

> Eclampsia is due to a toxemia; this toxic material exerts its deleterious action on the liver, the kidneys and the general nervous system. It is generally accepted that the liver plays an important rôle, the kidneys secondarily, and that there may be a great degree of toxemia before the kidneys are affected. Varying resistance of these organs to the toxic substances, added to the general resistance of the maternal organism, must cause variation in the clinical expression of the eclamptic condition.

All of these theories may be met by the claim that the syncytium is the main factor in the causation of eclampsia, the fetus primarily furnishing the toxic material.

Very little, if any, doubt exists that the cell emboli noted by many of our most trustworthy investigators are derived from the epithelial covering of the chorionic villi; consequently, they are of fetal origin. It has been abundantly proved also that they pass into the circulation normally in pregnancy. How easy it would be for the effect on their host to be deleterious instead of normal or physiologic, if only their fountain head, the syncytium itself, were at fault in its histology, its physiology, or its biochemical function.

A prominent investigator has shown that iron is present in the basal layer of the syncytium, and has followed it into the stroma of the villus, from which fact he reasons that a physiologic function of this glandular tissue is to carry nutrition to the placenta. If this causative factor of eclampsia were a ferment, even a placental ferment, the syncytium would still be a prime factor, for the syncytium may so change this placental ferment as it passes through it that it may become a toxic agent bearing within itself the properties of the abnormal syncytium, thus bringing about the condition of syncytio-toxin. This syncytio-toxin may also be the result, as some have said, of lack of maternal power to overcome.

The changes in the liver observed in eclampsia may be explained also as being caused by the syncytium. If the function of the liver were weakened previously to the ushering in of pregnancy, it would be unable to do its part in ridding the circulation of these emboli and of this toxin. If, again, the production of the syncytial pathology were too great for the liver to meet in its normal function, disintegration or degeneration must necessarily follow. In either case the changes noted as present in the liver in eclampsia would be manifest.

There is no doubt in my mind that the liver does play an important rôle in eclampsia, and that eclampsia in all its various manifestations is due to the failure of the syncytium to perform its histologic, physiologic or biochemical functions.

Hydatidiform Mole.—Hydatidiform mole is a condition in which swellings varying in size from 2 mm. to 2 cm. may be found at the ends of the villi or in any part of their extent; sometimes several enlargements may form into a chain of excresences. It has been most generally described as a proliferation of the syncytium and of Langhan's layer accompanied by a dropsical condition of the chorionic villi. Webster[16] writes that histologically it is a wonderful proliferation of the syncytium and Langhan's layer.

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[9] Zur, Ætiologie der Eklampsia, Mitteilung Münch. med. Woch., 1905, 637.

[10] American Jour. of Obstetrics, April, 1905.

[11] Lehrbuch Gynak., Wien, 1896.

[12] Fettembole und Metastase von Leberzellen bei Eclampsia, Berlin klin. Woch., 1886.

[13] Toxemia of Pregnancy, American Jour. of Obstetrics, 1905, li, 145.

[14] Ueberden. Verbreitungsweg. den eklampsiegiftes bei mutter und ihren Leibesfrucht Monatsschrift. f. Geb. u. Gyn., 1904, xix.

[15] Treatment of Eclampsia. British Med. Jour., Nov. 3, 1906.

[16] Text book of Obstetrics, 1903.

It is a stringy, spongy mass, consisting of pedicled clusters of thin wall cysts. These cysts or vesicles are filled with a clear viscid liquid. There are numerous pinkish-red hemorrhagic areas throughout the tumor mass; the cysts consist of enlargements of portions of the chorionic villi covered with epithelium whose cells are thin, thinner and more flattened than normal. In this epithelium there are marked and irregular proliferations; the epithelium shows also vacuolation and granular degeneration in many parts.

The interior of the villus varies. It consists of delicate branching mucoid cells with fluid between them. The relative abundance of cells and fluid varies in different cases. There may be a less number of cells and an increased amount of fluid between them, or the opposite may be true. Sometimes no cells can be distinguished.

Granular degeneration occurs in the cells; beginning in the core of the villus it disappears and spaces then fill with fluid containing mucin and albumin, rarely blood. The capillaries of the villi are usually obliterated. The uterine muscularis is invaded much more than in normal pregnancy; the peritoneal covering of the uterus may be perforated; this, however, is rare.

This extension of the villi is due to the phagocytic action of their epithelial covering; the walls of the veins and sinuses are sometimes entered and portions of the villi are carried away by the blood vessels. Metastasis may take place in this lesion; the metastatic growths tend to develop in the vulva, lungs, and in fact these may be found in any part of the body; in all respects these secondary growths are reproductions of the primary structure.

Etiology.—There may have been many theories advanced in regard to the real nature and etiology of hydatidiform mole; for many years Virchow's[17] theory that it was due to a myxomatous degeneration of the chorionic villi was adhered to, but he gave us no explanation of the nature of the epithelial covering of the villi.

At the present time Marchand's[3] theory is the one generally accepted: "Hydatidiform mole is due to proliferation of the syncytium and Langhan's layer, accompanied by a dropsical condition of the chorionic villi." His views, then, regarding the function of altered syncytium in helping to produce some such change as is present in hydatidiform mole formation, shows that the syncytium is unquestionably a factor in its etiology.

Findley[18] is of the opinion that impaired nutrition from the maternal blood favors the degenerative changes in the villi.

Direct continuity of malignant and non-malignant hydatids with epithelium covering of the fetal villi has been repeatedly observed, proving that these neoplasms are composed of fetal ectoderm. This continuity of hydatid mole formation with the chorionic epithelial has been demonstrated with no particular difficulty, proving conclusively the truth of the statement. Similar continuity of tissue has been observed in metastasis arising from this lesion, proving that metastases as well are derived directly or indirectly from the fetal trophoblast.

Syncytioma Malignum.—Syncytioma malignum is a neoplasm arising from the syncytium, and the syncytium is undifferentiated embryologic tissue. Again, it is defined thus: It is a peculiar neoplasm of the uterus, peculiar in that it occurs only after pregnancy, in that its parenchyma is derived from two forms of cells, and finally in that its origin is in fetal tissue and its development is in the maternal organism.

Up to 1905 medical literature furnishes us with 260 cases of syncytioma malignum, or chorionic epithelioma.

Microscopic Appearance.—This growth occurs single or multiple, and it may be nodular or pedunculated. In size it is variable; it may be a small growth or one filling the uterine cavity. In its earlier history it is a somewhat firm mass of a pinkish-gray color; later it becomes infiltrated with blood, changes to a soft fragile mass, usually sharply defined from the muscularis. It is prone to ulceration. Irregular or streaked masses are found; these masses are homogeneous and contain nuclei which readily imbibe stain. This is the pathologic syncytium. Cells having well-defined walls are also found; these are clearly defined and are of various sizes and in different stages of proliferation or degeneration. Chorionic villi may sometimes be seen. Protoplasm, pale and clear, its cells may contain from two to eight nuclei, varying in shape and size. The boundary between neoplasm and muscularis is irregular. The microscopic appearance varies considerably, even in the same neoplasm, according to portion examined and distribution and relation of constituent cells.

Etiology.—It is universally agreed that this neoplasm takes its origin in the epithelial covering of the chorionic villi; demonstrations have been made which leave no doubt that the protoplasmic masses found in this growth originate in the syncytium, and that the individual cells are identical with those of Langhan's layer. The syncytium remains throughout pregnancy, while Langhan's layer may disappear; this upholds the theory that the essential factor in the etiology of syncytioma malignum must always be the superactivity of the syncytium, or from its deranged function.

The trophoblast gives to the epithelial covering of the villi the power of penetration in its normal condition; it is not unreasonable, then, to believe that it retains this power in its pathologic condition. Again, normally, there is an advance of fetal cells into the uterine mucosa; this is without comparison in the whole field of human physiology, and it finds its analogue only in the advance of tumor cells. Knowing this, it should not be difficult to believe that these fetal cells, when thwarted in the performance of their legitimate work, should cause the production of a neoplasm which still retains a semblance of its physiologic self.

This tumor is one in which metastasis occurs quickly and early in the history of its formation; this is one of the most distinctive features of syncytioma malignum. Metastasis may occur in tissue either adjacent or remote; it may be the first manifestation of the disease. In gross appearance as well as in its histologic features, the secondary growth is identical with the primary.

Comparison of Syncytioma and Hydatidiform Mole.—Fifty per cent. of the cases of hydatidiform mole are followed by syncytioma malignum; this fact shows that the relation of the one to the other is very significant. Their histology is similar, in that syncytium and Langhan's layer are integral elements in both; metastasis is also common to both.

Teratoma or Embryoma.—Teratomas are embryonal in nature. Marchand[3] and Bonnet[19] trace the origin of these growths from impregnated pole cells or early blastomeres which are liberated from the cell complex, remain latent for a longer or shorter period, and then in response to as yet unknown stimuli, resume their growth with the still inherent property of forming all the structures found in the normal embryo.

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[17] Archives, 1903.

[18] Hydat. Mole. Trans. Gyn. Society, Chicago, 1903.

[19] Zur. Ætiologie der Embryoma, Monatschr. f. Geb. u. Gyn., 1901, xiii, 188.

The resulting neoplasm, genetically the twin of its host, may be highly complex or very simple; they may be found in any part of the body. Any embryonal tissue may be found in them; even the chorionic epithelium may be identified, thus explaining the finding of syncytioma malignum in the child or in the male adult. That syncytial tissue is found in teratoma is not to be wondered at, since the syncytium has been proved to be a derivation of the fetal trophoblast, and hence might reasonably be included in neoplasms that Cohnheim[20] calls embryoma. They, teratomas, are derived neither from the syncytium nor from the neoplasm designated syncytioma malignum, nor is the reverse true; they are separate and distinct growths both as to the nature of their pathogenesis and their subsequent history.

Teratoma, then, are neoplasms having the morphologic and physiologic characteristics of the trophoblast of pregnancy; morphologically, they may have syncytium and Langhan's cells, as well as any other embryonal tissue. As an embryonal tissue has at any and all times the faculty of proliferation, teratomas also have the same power. Schlagenhaufer,[21] in summing up cases in which hydatid proliferations were found in teratoma, claims that the ectodermal elements were in these neoplasms in a physiologically favorable condition, although primarily the tumors were teratomas.

There are on record 19 cases of chronic epithelioma of the testicle; in all these cases metastasis of a true chorionic epithelium were found. The view now held in regard to these is that they are genetically equivalent to the syncytioma malignum in the female, and that their actual starting point was from rudimentary fetal membranes.

CONCLUSIONS.

The syncytial tissue is of fetal origin; it is in indirect line from the ectoderm or trophoblast.

The chorionic villi or parts of them, together with their epithelial covering, may normally circulate in the vascular and lymphatic circulation of their host.

It is possible for this circulation to take place during the period of pregnancy from the formation of the chorionic villi to the termination of labor.

This epithelial covering of the chorionic villi has the power to proliferate; this proliferation may take place during the entire life cycle of the syncytium and Langhan's cells.

The syncytium has a physiologic function. If failed in its physiologic function its pathology may prove detrimental both to fetus and host.

The syncytium is the prime factor in the production of a peculiar neoplasm whose histology places it in a class by itself, viz., syncytioma malignum.

The theory of the syncytium being a prime causative factor in the production of eclampsia, is one that is upheld by recent investigations.

The syncytium as a factor in the etiology of eclampsia is the one cause that can meet all claims made by recent investigations and theories; it occupies the middle ground and meets all theories and requirements with the tested results of intelligent investigations.

Hepatic changes are the rule, not the exception, in eclampsia.

Malignant neoplasms of pregnancy have an eroding action on the structures of the uterus; this is the nature of the chorionic epithelium covering the villi, normally.

Chorionic epithelium is also one of the constituents of these neoplasms pathologically. It is reasonable, then, to conclude that their origin is the same and that this activity remains in force in the neoplasms.

I believe the future of chemistry will be to show us the natural cell constituents, and to differentiate the normal constituents of the cell from the products of the different metamorphoses taking place in the different neoplasms.

I believe the future outlook of biologic research is teeming with promise in this particular field; we hope for results great as to cell processes in general, with power to differentiate between the normal and pathologic changes taking place within the cell.

The study of the cause of cell proliferation opens up an avenue pregnant with hope; the greater our knowledge of cytomórphoses the clearer will be our understanding of cell proliferation. Cell growth is controlled by certain stimulating and inhibitory influences; the knowledge of these will explain many of the unknown phenomena, and this knowledge may also explain the cause of the retrogressive metamorphoses that we even now attribute to the cell of many neoplasms, particularly to the malignant neoplasms.

DISCUSSION.

Dr. I. S. Stone, Washington, D. C., complimented Dr. Branson on the paper, which was new and original. Unless one understands something about the minute anatomy and pathology of this subject, it is almost impossible to appreciate its importance. The important part is to understand how a process which is normal in every woman who is pregnant will in another case, with conditions apparently similar, become a malignant process much like sarcoma. In an examination of uteri operated on in hospital work, and before realizing the importance of this subject, Dr. Stone found cases of malignant curettage containing chorionic villi, but he failed to appreciate the real conditions. Recently another case came under his observation, that of a young woman with a history simulating that of sarcoma. Two competent men pronounced the material sarcomatous. Dr. Stone removed the uterus and a third pathologist declared the condition to be a chorioepithelioma.

Dr. L. H. Branson, Iowa City, Iowa, stated that she was led into comparatively close study of this subject by microscopic findings. She has always made it a point of bringing in the microscope to confirm the macroscopic findings in her diagnoses.

Cheyne-Stokes Respiration in Nephritis.—C. G. Cumston, in the *American Journal of Urology*, states that certain nephritides offer lesions of cardiac and arterial insufficiency associated with impermeability of the kidney coinciding with periodical dyspnea, and it is hardly possible in these cases to define exactly how much is due to these two factors, viz., renal insufficiency and cardiovascular lesions in the production of Cheyne-Stokes respiration. Cheyne-Stokes respiration during the progress of a nephritis, he says, does not necessarily coincide with renal insufficiency, but it always does with cardiovascular lesions, and a large number of clinical observations confirm this rule. Most frequently the physician is apt to overlook lesions less evident than the renal changes, but which are quite as real and are always found when the Cheyne-Stokes phenomenon is present. Renal insufficiency may certainly exist, but, he emphasizes, if there are other concomitant vascular or cardiac lesions, this phenomenon does not occur.

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[20] Arch. of Gynak., 1873, lcv, 3366.

[21] Wien. klin. Wochft., Nos. 22 and 23, 1902.

Clinical Notes

SPIROCHETES IN ACUTE LYMPHATIC LEUKEMIA AND IN CHRONIC BENIGN LYMPHOMATOSIS (HODGKIN'S DISEASE).

SECOND COMMUNICATION.

WILLIAM CHARLES WHITE, M.D.
Chief Physician, Tuberculosis Hospital.
AND
F. PRÖSCHER, M.D.
Pathologist, Allegheny Hospital.
PITTSBURG, PA.

In connection with a former communication[1] on spirochetes in Hodgkin's disease, we wish to report two further cases in which spirochetes were found during life.

Case 1.—*History.*—The first case presented the picture of acute lymphatic leukemia. The patient had been sick about six weeks. He entered the hospital Wednesday, August 28, and was seen by Dr. Pröscher in the hospital on the morning of this day.

Examination.—On examination he appeared very anemic and cachectic. The lymph glands over the whole body were swollen, soft and discrete. The lymph glands in the inguinal and crural region were the most enlarged, but those in the cervical and axillary regions were also very large and easily palpable. Glands behind the ear and in the cubital region were enlarged also and distinctly felt. The patient had had profuse hemorrhages from the mouth for five weeks. He had been always healthy up to six weeks before admission. There was absolutely no trace of luetic infection to be found and no history of such infection could be elicited.

The blood examination showed: Red blood corpuscles, 900,000; leucocytes, 32,000; hemoglobin, 14 per cent. The blood smears showed only large and small lymphocytes, very few polymorphonuclear leucocytes, a few poikilocytes and normoblasts.

Dr. Pröscher found in the smears made from the fluid obtained by aspiration of the lymph glands large numbers of spirochetes. These organisms averaged about 20 microns long, the curves of their body were shallow and few in number. The body was slender, and both ends of the organism pointed.

A gland was extirpated and: First. In the exudation from this gland spirochetes with very poor motility were seen with great difficulty. Second. In frozen sections stained by Levaditi's last pyridin silver method, innumerable spirochetes were found. Third. In smears made from the exudation from this gland stained by a special method (Pröscher), which we will describe later, very great numbers of spirochetes were found.

Case 2. *History.*—The second case presented the picture of chronic lymphomatosis (Hodgkin's disease). The patient had been sick about three years.

Examination.—The blood picture was normal. One year previously the red blood corpuscles numbered 5,000,000; leucocytes, 6,000; hemoglobin, 80 per cent.

The glands in cervical axillary and inguinal regions were considerably enlarged and readily palpable. One gland, extirpated one year ago by Dr. Pröscher, showed only the lesions of chronic lymphatic hyperplasia. In this patient three different glands were aspirated. In the smears from the fluid obtained in this way we found in each instance large numbers of spirochetes, which corresponded with the organism described in the former case. On aspiration, two of the glands furnished small particles of cheesy-looking material. Smears from this were made and stained for tubercle bacilli and spirochetes. No tubercle bacilli were found. The cheesy material was a solid mass of spirochetes.

In a later communication we will furnish a complete record of our findings in these cases, with six additional cases which we have now under examination, together with our conclusions concerning this class of blood diseases.

Note.—Since the writing of this paper the patient in Case 1 (the acute case) has died. It was absolutely impossible to obtain an autopsy, which would have helped us to determine: First, whether this was a pure lymphatic infection or whether the bone marrow was also involved; secondly, something of the port of entry of the organism.

AN INTERESTING CASE OF INCONTINENCE OF FECES IN AN UNDERSIZED BOY OF SIX YEARS.*

MAURICE OSTHEIMER, A.B., M.D.
Senior Instructor in Pediatrics, University of Pennsylvania.
PHILADELPHIA.

When, two years ago, three boys with incontinence of both urine and feces were brought to the Children's Dispensary, University Hospital, inside of three months, I reviewed the literature[1] on incontinence of feces in childhood and could find altogether only twelve cases in children over three years of age. Another recent review of the literature from 1904 to the present time failed to reveal any more cases of this condition.

Patient.—In February, 1907, a very small, rather stout, ruddy-cheeked boy of six years was brought to me with this history:

History.—His parents, who are well, are both short and stout. The father is a motorman. John is the fourth child, born after a protracted labor, without instruments, however. He was a large, well-developed baby at birth and had never been seriously ill. He was breast-fed until nine months of age, was then weaned, and given table food soon afterward. His teeth appeared regularly and he grew normally until four years old.

Two years ago, however, without any general or local cause which the parents could discover then or can think of now, the boy began to lose control of his bowel movements. He did not appear to be nervous; his appetite seemed normal; he ran about like other boys of four years. He had had no illness, nor had he been kept housed up during the winter. His diet had been that of the other older children, including many fried things, much tea and coffee. He was not constipated, but had a tendency to diarrhea at times. Nor had he ever had enuresis. The three older children, though uniformly small, all kept well, and John alone developed incontinence of feces.

The incontinence recurred with constantly increasing frequency until a day rarely passed without its happening once at least, and sometimes he would soil his clothing as often as six times in twenty-four hours. He has been and still is bright mentally and physically active, though his mother has not sent him to school yet on account of the incontinence. Like his sisters, who also are small for their ages, John has a slight defect in his speech, which, his mother says, all of her children have had, but they outgrow it as they grow older.

Examination.—John is 41 inches high and has been just that high for the past eighteen months. His physical development otherwise is excellent. There are no adenoids, though his tonsils are slightly hypertrophied. The circumference of his head is 19½ inches; that of his chest is 22 inches. He weighs 41 pounds. His thoracic and abdominal viscera show nothing abnormal. Rectal examination revealed a sphincter which was apparently securely closed, and this could be palpated well by introducing the finger into the rectum.

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[1] The Journal A. M. A., August 31, 1907.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-eighth Annual Session, held at Atlantic City, June, 1907.

[1] Maurice Ostheimer, "Incontinence of Feces in Children," University of Pennsylvania Medical Bulletin," February, 1905.

Treatment.—His mother tried many drugs and electricity without any good result. She assured me that she would co-operate to the best of her ability in any treatment I should suggest. With her I went over his diet very carefully, excluding tea and coffee, all fried food, fresh bread, cake and pastry, and all eating between meals. A cold sponge-bath was advised daily on rising in the morning, to last two or three minutes, followed by a good rubbing with a rough towel. The child was to be kept out in the air as much as was possible, and pills of strychnin, 1/60 of a grain each, were ordered three times a day after meals.

In spite of his mother's assurances, John objected to the cold sponge-baths, and his mother began to omit them inside of a week. Incontinence of feces was noted once on the day after treatment was begun, and then not again for five weeks, during which time his pills were taken somewhat irregularly, and he got about one sponge-bath a week. Then his mother was unable to return to the hospital, so that two weeks passed without any medicine at all, during which time the incontinence recurred three times. At her next visit I insisted on a more rigid treatment, which was at once begun, with such good effect that the incontinence has not reappeared since, a period of eight weeks now. John is still under treatment, taking the pills regularly, though only getting two cold sponge-baths each week.

The following table of statistics shows that the above patient is both below the normal height and weight for his age, six years. He shows no deformities or malformations, omitting his slight speech defect.

	Height. Inches.	Weight. Pounds.	Circumference of chest. Inches.	Circumference of head. Inches.
John	41	41	22	19½
Normal—Rotch[2]	43.75	45.07	21.75	20.50
Normal—MacDonald[3]	44.64	45.01	.....	20.51
Normal—Holt[4]	44.10	45.10	23.20	.....
Normal—Griffith[5]	43	44	.....	.....

There seems little doubt that incontinence of feces, in such cases, will recur soon after treatment is stopped, unless the treatment, rigidly carried out, extends over three months or longer. In this connection I might refer to the first case which I reported[1] in 1904, also in a boy of six years, in whom treatment was continued irregularly for several months, with apparent recovery. But five months later, after an attack of diarrhea following the ingestion of unripe fruit, the incontinence of feces recurred. The boy was left without treatment for the past two years, until I looked him up three months ago. I persuaded his mother to begin treatment again, and the child, now a big boy of nine years, is trying hard to overcome the condition, of which he is thoroughly ashamed. He is taking strychnin, cold sponge-baths daily and practically lives out of doors. Besides, he will soon begin to take swimming lessons daily.

Fresh air, cold water and strychnin all seem to act by raising the lowered tone of the rectal muscles. I wish to lay stress on the fact that the treatment of this condition, which fortunately is rare, should be instituted early, carried out regularly and continued as long as possible, in order to prevent recurrence of the incontinence.

Since reading this report two cases of incontinence of the feces have been reported by C. G. Kerley in his new book on the "Treatment of Diseases of Children." An interesting review of the treatment of the conditions, by G. F. Still, appeared in the *London Clinical Journal*, April 24, 1907.

The incontinence has not recurred in either of these cases since June, 1907.

DISCUSSION.

Dr. A. W. Fairbanks, Boston, thought that most of the cases of incontinence developing after control has once been established are really due to lack of mental control. In many of these cases the child has some anatomic or physiologic defect in other respects, or the other children in the family, or parents, may be defective in some way. Some of the children show no visible mental defect, but it is nearly always a matter of mental control. The earlier in the life of the child the incontinence occurs, after control has already attained, the less, as a rule, will be the outward evidence of slightly defective mental stamina. The later its onset in childhood, the more noticeable is likely to be some evidence in other ways of deficient cerebral capacity. In other words, the longer control has been established, the greater must be the temporary lapse of cerebral power, causing the incontinence. Incontinence, therefore, is not likely, in the absence of disease, to occur in later childhood, except in those children who show in other ways well-marked defective cerebral function.

CONCRETION IN LUSCHKA'S TONSIL.

JAMES H. MORROWAY, M.D.

RIDGEWAY, MO.

The following case is of interest from its rarity. I have been unable to find a report of a similar case in the available literature. It is further of interest from the symptoms, which resembled those of hay fever:

Patient.—A. B., male, aged 28, has always had trouble with his throat and nose, but otherwise presents no clinical history of importance. He at first appeared to be a victim of hay fever, although there was no sneezing at the moment. The face presented a vacuous expression; nose was long and narrow, giving a pinched expression. The alæ moved feebly, and considerable thin discharge flowed from the nostrils. The mouth was open to aid breathing, and there were fetor of the breath and painful deglutition. Deafness was also present.

Examination.—Anterior rhinoscopy showed the picture of trophic rhinitis: crusts and scabs, showing shallow ulcerations underneath when they were lifted by the probe. Inspection of the mouth revealed a high palatine vault, moderate hypertrophy of the faucial tonsils and pharyngitis. Posterior rhinoscopy showed a few adenoid plicæ surrounding a centrally located, greatly hypertrophied single growth, presumably the pharyngeal tonsil of Luschka's gland. The latter was onion-shaped, with a few crypts showing inspissated yellowish secretion and one rather large crypt at the most dependent portion. Uniform redness was everywhere seen.

Diagnosis.—A cystic degeneration or abscess of the third tonsil.

Treatment.—As the patient refused curettage, he was given iodin as an alterative. Appreciable relief as to ability to swallow was experienced in twelve hours. The patient was beginning to show signs of iodism and commenced to hawk and spit, when an object was felt to drop into the throat. This seemed to be a rhinolith. Inspection showed that the concretion came from the center of the enlarged tonsil, which now had a shrunk, baggy appearance and was discharging blood and pus. Improvement soon became manifest and has continued under the use of douches, etc.

The concretion had a somewhat cretaceous character, but was much harder.

The patient lives in what was evidently the bed of an ancient river, and the drinking water of the region is hard. I removed some renal calculi from a woman living half a mile south of him, and half a mile from her lived a patient on whose parotid gland I operated for calculus. These facts seem to lend some support to the theory that the calcium in the drinking water has something to do with the etiology of such calcareous deposits.

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[2] T. M. Rotch, "Pediatrics," 1901, pages 45 and 81.

[3] MacDonald, quoted by H. Koplik, "Diseases of Infancy and Childhood," 1902, page 56.

[4] L. E. Holt, "Diseases of Infancy and Childhood," 1897, page 20.

[5] J. P. Crozer Griffith, "Care of the Baby," 1903, page 53.

New and Non-Official Remedies

THE FOLLOWING ARTICLES HAVE BEEN TENTATIVELY ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR INCLUSION IN THE PROPOSED ANNUAL, "NEW AND NON-OFFICIAL REMEDIES." THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT, BUT TO SOME EXTENT ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE FINAL ACCEPTANCE AND PUBLICATION IN BOOK FORM.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*A list of all accepted articles is published on one of the advertising pages of The Journal in the first issue of each month.*)

(*Continued from page 1029.*)

ERPIOL—DR. SHRADER.

Capsules stated to contain, in each: Apiol, green (see Oleoresin of Parsley Seed), 0.31 Cc. (5 minims), Ergotin, Bonjean's process, 0.065 Gm. (1 grain), Gosspyin, resinoid, 0.195 Gm. (3 grains).

Actions and Uses.—It is to be used in the treatment of dysmenorrhea and amenorrhea.

Dosage.—One or two capsules three times daily.

Prepared by the Wm. S. Merrell Chemical Co., Cincinnati, Ohio. Not patented or trademarked.

GLYCEROLE TRYPSIN—ARMOUR.

Glycerole trypsin is a 70 per cent. glycerin solution containing approximately 5 per cent. of trypsin powder.

Glycerole trypsin-Armour is prepared directly from the fresh pancreas of the hog.

It is a yellowish to brownish clear liquid of sweetish taste and peculiar characteristic odor. Its incompatibilities are the same as those of trypsin. It should be kept in a cool place.

The strength of glycerole trypsin is tested in the same way as that of trypsin, using 3 to 5 Cc. of glycerole trypsin for 10 Gm. of moist blood fibrin.

Actions and Uses.—It is intended for internal and hypodermic use in the treatment of cancer.

Dosage.—Internally 4 to 8 Cc. (1 to 2 fluidrams) three times daily. Hypodermically 0.3 Cc. (5 minims) every other day, gradually increased, depending on the patient. This dose should be diluted with two or three volumes of sterile normal salt solution, using aseptic precautions and employing some local anesthetic.

Manufactured by Armour & Co., Chicago.

KELENE.

A name applied to Æthylis Chloridum, U. S. P., supplied in a special form of container.

Manufactured by Fries Bros., New York.

MERCURAN.

Mercuran is stated to be a 50 per cent. mercurial ointment in which the benzoinated lard of the official ointment (Unguentum Hydrargyri U. S. P.) has been replaced by goose fat stearin. It is supplied in capsules containing about 4 Gm. (60 grains) each.

Manufactured by the Wm. S. Merrell Chemical Co. for the Eusoma Pharmaceutical Co., Cincinnati, Ohio. Not patented or trademarked.

SILVER CITRATE.

Silver citrate, $Ag_3C_6H_5O_7$, is the normal silver salt of citric acid.

Solution of citric acid is neutralized with sodium carbonate and the solution of silver nitrate added with constant stirring. The precipitate is allowed to subside, washed with water, and dried on porous plates. The entire operation must be conducted under protection from the light.

Silver citrate forms a white, odorless, heavy powder which is moderately sensitive to the light. It dissolves in 3.800 parts of water. On heating to redness a residue of metallic silver remains weighing 63.16 per cent. of the original salt.

It should be carefully protected from the light.

Actions and Uses.—Silver citrate is a non-irritating antiseptic.

It is said to be useful in the treatment of wounds, ulcers, gonorrhea and other affections of the mucous membranes.

Dosage.—It may be applied in substance to wounds. Solutions of from 1 to 4,000 to 1 to 10,000 are recommended for injection into the body cavities, the urethra, etc.

SILVER LACTATE.

Silver lactate, $Ag.C_3H_5O_3 + H_2O$, is the normal silver salt of lactic acid.

It is prepared by dissolving freshly precipitated silver carbonate in a solution of lactic acid by the aid of heat and concentrating the solution until crystallization begins. The operation must be conducted in a darkened room.

Silver lactate forms colorless crystalline needles, turning brown on exposure to light; it dissolves in 15 parts of water. On heating it leaves a residue of metallic silver weighing 50.2 per cent. It is usually colored somewhat brown and gives with water a brownish or reddish solution. The salt must be protected from the light.

Actions and Uses.—The 1 to 300 to 1 to 500 aqueous solution is said to be equal in disinfecting power to a 1 to 1000 solution of mercuric chloride. It is irritating if applied in substance to wounds.

It is recommended for all purposes for which a powerful antiseptic is desired.

Dosage.—1 to 100 to 1 to 2,000 solutions.

TRYPSIN—ARMOUR.

Trypsin is the proteolytic ferment of the pancreas.

Trypsin-Armour is prepared from the fresh pancreas of hogs with the view of retaining the proteolytic ferment in an especially active condition. It has been activated by enterokinase.

It is a light yellow powder, possessing a faint odor and a meat-like taste. It is not completely soluble in water at once, but dissolves almost entirely in time. It is insoluble in alcohol and ether. Free acids (in more than traces), pepsin and large amounts of alkalies are incompatible. Solutions of trypsin should not be exposed to a temperature above 40.6 degrees C. (105 degrees F.).

The proteolytic power of trypsin is determined by digesting ten grams of fresh moist blood fibrin in 50 Cc. of solution of sodium carbonate, 0.4 per cent., to which has been added 0.150 to 0.300 Gm. of the trypsin powder, maintaining the mixture at 40 degrees C. (104 degrees F.) for one hour, and shaking by rotation every ten minutes. The fibrin used is washed free from blood with cold water and then chopped, using an Enterprise meat chopper with plate having 5/64 inch perforations. The hashed fibrin is pressed lightly in a cloth, mixed, and is then ready for use. The residue left after one hour's digestion is compared with the amount left by employing a standard sample of trypsin powder under exactly the same conditions at the same time.

Actions and Uses.—Trypsin has the power of digesting proteid materials; it acts best at 40 degrees C. (104 degrees F.) and in a slightly alkaline medium.

When applied locally in solutions made alkaline by sodium carbonate, it dissolves diphtheritic and other false membranes. It is claimed to have the power of destroying the cells of cancer without acting on the healthy tissue. When taken internally in combination with ox-gall, it is said to improve the condition of cancer patients.

Dosage.—Trypsin is applied locally by means of a brush or as a spray. About 0.4 Gm. (6 grains) are mixed with 0.13 Gm. (2 grains) sodium bicarbonate and triturated in a mortar while adding 1 or 2 drams of distilled water, then warmed to 38 to 40.6 degrees C. (100 to 105 degrees F.) and applied immediately. The application may be repeated several times an hour if necessary, a fresh solution being made before each application. The internal dose is 0.13 Gm. (2 grains) or more three times daily. It should not be used for hypodermic injection.

Manufactured by Armour & Co., Chicago.

(*To be continued.*)

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[For other information see second page following reading matter.]

SATURDAY, SEPTEMBER 28, 1907.

THE ROYAL COMMISSION ON NOSTRUMS.

Some three years ago we commented[1] on the report of the royal commission, established in 1903 to investigate the causes of the steady decline in the birth rate in New South Wales. As will be remembered, the commission in its conclusions gave as one of the causes of lowered birth rate the use of noxious "patent medicines," of late years increasingly prevalent through unscrupulous advertising, and it was recommended that a separate commission be appointed to pursue the line of investigation thus indicated. This recommendation was adopted and a commission appointed, its functions, however, being broadened to an inquiry into the manufacture, sale, advertising and prevalent use of alleged remedial agents of secret composition, the effects of their use and the legislation in regard thereto in various parts of the world.

We have just received from Australia the report[2] of this later commission, appointed Dec. 11, 1906, under the authority of the Australian Commonwealth, in accordance with the recommendation of its predecessor. This remarkable official document consists of a folio volume of 455 pages, containing the most exhaustive arraignment of the nefarious traffic in measures for the prevention of conception and for abortion and in secret nostrums both for the laity and the profession, either dangerous or fraudulent or both, that has hitherto appeared. The report is, of course, largely a compilation, but it is a compilation that collects and lays bare officially all that has been done in this direction, and adds much important material gathered by the commissioner in the course of his widely extended investigations. These investigations included a personal examination of the conditions and the efforts made to cope with them in the United States, and particularly in Washington, D. C., San Francisco, Chicago, New York and Boston; in Canada, England, Berlin, Saxony (as representative of the component German states) and France.

The report is divided into six parts: (1) Prevention of conception and feticide, (2) infanticide, (3) injury and death to the adolescent, (4) injury and death to adults, (5) advertisements, and (6) legislation.

"It is hoped," says the report, "that by contemplating one after another the various provinces of the inquiry under what may be called natural classification, legislators and other readers will be able to form a more permanent impression of the multifarious evils of the traffic in secret drugs. *The principle of deception has come to be recognized as an unwritten law, a prescriptive right, a sanction by long continued though not immemorial custom.*" (Italics ours.)

It is a common subterfuge on the part of manufacturers affected by an analytical exposure of their products, to take refuge under a flat denial of the accuracy of the analysis, thus clouding the issue, cuttlefish-like, by a conflict of evidence. This being the case, it becomes a duty to weigh the character of the evidence and of the witnesses on either side, and on this point the words of the commissioner are well worth noting. He says: "Particular attention is drawn to the complete liberty of the packers of secret drugs, wrongly called 'patent,' to vary the ingredients and the proportions of them while using the name, description and testimonials attached to the nostrums. Therefore, mere contradiction by the vendors, of the authoritative analysis, or variation of the analyses themselves, is not to be accepted as evidence of inaccuracy on the part of the analysts. Personal contact with these eminent men in the countries visited, together with personal inspection of their systems, practice and results justifies your commissioner in claiming preference for their authoritative statements, made in the interests of society at large, over *ex parte* declarations."

The fundamental principles in the domain of public health established as essential to a remedying of the conditions are laid down by the commissioner as: (1) prohibition of secrecy, (2) punishment of deception, and (3) responsibility both of the publisher and of the vendor.

The Council on Pharmacy and Chemistry has been criticised for the stringency of its requirements in the endeavor to establish a standard of moderate honesty to which all privately owned remedies that aspire to any official recognition at the hands of the medical profession shall conform; yet these requirements are lenient, indeed, when compared with those laid down as absolutely essential to check the waste of health and life and the physical and moral deterioration of the race, by an independent commissioner—not a member of the medical profession and, therefore, not to be charged, as we of that profession are sometimes charged, with being possessed by impossible professional prejudice — appointed by an enlightened government to make an "authentic and authoritative investigation into the subject from a point of view that may be called international." These recommendations include among others the publication, with every sale, of a complete qualitative and quantitative formula in official nomenclature; no advertisement, testimonial or award of merit to be permitted on the article or its container; the absolute prohibition of advertisements of secret remedies by newspapers, posters, etc.; refusal of mail privileges to newspapers, books, etc., containing such advertisements; compulsory registration of every proprietary name, but no right in any invented name, whether descriptive, fanciful, or other, to be allowed in respect of any chemical, pharmaceutical, organic or bacterial preparation, or single or compound substance for external, internal, subcutaneous or intravenous use, in the prevention, alleviation or cure of human disorders or injuries of any kind.

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[1] The Journal A. M. A., Oct. 15, 1904.

[2] Commonwealth of Australia: Royal Commission on Secret Drugs, Cures and Foods; Report, together with Copy of Commission, Diagrams, and Fac-simile copies of Advertisements, Vol. I. 1907.

The perusal of the vast accumulation of evidence contained in this report impresses on us two things: First, the significance of the undertaking of such an investigation by a government, of its own proper motion and without pressure, and regardless of the antagonisms such a course must necessarily arouse among those whose "vested interests" are thus threatened; and, second, a sense of humiliation that such an independent, first-hand and exhaustive investigation should lead, and we cannot deny justly lead, to the statement that "many or most of these swindles, together with the traffic in private letters of patients, are American." This statement is amply borne out in page after page of the facts adduced.

In the German Confederation, in Sweden, Norway, Denmark, Italy and other countries the principle is fully recognized that the interests of society demand the publication of any real prophylactic remedy, or palliative for any of the ills to which flesh is heir, and this principle is conscientiously enforced in these countries by federal, state, municipal and parochial authorities, supported by the judiciary.

In the Anglo-Saxon nations, on the other hand, the principle is acknowledged only by the medical profession, and can be enforced by them only on the voluntary associations of their own members; while the legislature in Great Britain, Canada and Australasia, and until recently, and even yet in some part, the United States, sanctions, and the judiciary consequently enforces, an entirely opposite principle, viz., the right, without control or supervision, to sell under any representation, true or false, as cures for all or any ills any drugs, however noxious or however inert. It will thus be clear that the Anglo-Saxon countries are the principal victims of this nefarious traffic, while the United States is the chief offender, as well as the greatest victim of them all.

We hope, though from past experience we hardly dare to do so, that this evil, now that it is officially pilloried for public execration, will receive that attention at the hands of the public press that the exposures and denunciations of the medical profession have hitherto failed to secure for it.

OPHTHALMO-TOXIC REACTIONS.

The phenomenon of a local reaction in the subject of an infectious disease on the injection of the corresponding toxin, and its application by von Pirquet in eliciting a cutaneous reaction in tuberculosis were commented on some weeks ago.[1] A distinct advance in the method of utilization of this principle in diagnosis was made when Calmette[2] showed that if tuberculin were instilled into the eye there would be a marked congestive reaction in the case of tuberculous patients, while the healthy or non-tuberculous responded with a very much milder reaction. Calmette makes use of a 1 per cent. aqueous solution of the precipitate obtained on the addition of alcohol to tuberculin. Within three or four hours after the instillation of one drop of this solution a marked congestion of the palpebral conjunctiva is noted in the tuberculous subject. The caruncle becomes swollen, red and covered with a light fibrinous exudate. In the course of about six hours this serofibrinous exudate will be found abundantly in the inferior cul-de-sac. The reaction reaches its maximum in from six to ten hours and disappears after eighteen hours in children and after from twenty-four to thirty-six hours in adults. No constitutional disturbance accompanies the mild conjunctivitis thus set up. The reaction is practically painless and the technic is a matter of the utmost simplicity.

Chantemesse, working along the same line, reported at a recent session of the Paris Academy of Medicine (July 23, 1907) that he had successfully applied the same method to typhoid fever and that the reaction thus obtained is a very reliable and early sign. Chantemesse obtains his typhotoxin by precipitation with absolute alcohol from cultures of the *B. typhosus*. This precipitate is powdered and used in aqueous solution, one-fiftieth of a milligram being the amount he uses for a test. The eye of a typhoid patient or convalescent will exhibit a marked and lasting reaction. As in the ophthalmo-tuberculin reaction, there will be noted congestion, lachrymation and a serofibrinous exudate. This reaches its height in from six to twelve hours and is always noticeable for at least twenty-four hours, sometimes, indeed, for two or three days. In individuals who have not typhoid fever there will be seen a moderate congestion and lachrymation, usually disappearing in the course of four or five hours and never seen after twenty-four hours. It is not yet known just how early in the disease this sign may be elicited. Chantemesse has shown, however, that in rabbits it may be brought out forty-eight hours after the subcutaneous injection of typhoid cultures. The normal rabbit does not respond to any greater extent than does the human subject who is not infected with typhoid.

The test is accompanied with very little discomfort, and if further investigations uphold its reliability it should prove a valuable sign. The work so far done with the ophthalmo-typhoid reaction seems to indicate that it may be elicited somewhat earlier than the Widal reaction, and it is a very much simpler procedure than the taking of a blood culture. A further study of the specificity of this reaction and comparison with the reactions obtained with the toxins of different strains of paratyphoid organisms would be of much interest.

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[1] The Journal A. M. A., July 27, 1907, p. 331.
[2] Comptes rendus de l'Académie des Sciences, June 17, 1907.

IRON AS A THERAPEUTIC AGENT.

Because of the flat contradiction which existed between the results obtained by the clinicians in actual practice and the more or less hypothetical conclusions of the physiologic chemists and experimental pharmacologists, the question of the utilization by man of inorganic iron given by mouth in the construction of hemoglobin has been the subject of zealous and often bitter strife. Although the practicing physician knew well through abundant experience that administration of inorganic compounds of iron had an almost specific effect in increasing the amount of hemoglobin of chlorotic patients, yet many physiologic chemists were not ready to accept this fact at its face value. Appreciating the limited power of the animal organism to synthesize complex substances from simple ones, they could not imagine that iron in simple inorganic forms given by mouth could be built into the enormous hemoglobin molecule. On the other hand, since they knew that in the development of the chick from the egg the hemoglobin is formed from complex protein-iron compounds, and that the only iron received by the suckling mammal is in a similarly complex combination, they were led to believe that the adult animal can utilize only the same sort of iron compounds. In further support of this theory they cited the fact that the iron of the food, from which hemoglobin iron must be derived under natural conditions, is entirely in complex compounds, and, as a clinching argument, showed that when inorganic iron is given in the food it can all, apparently, be recovered in the feces. Supported by this evidence, they denied the possibility that inorganic iron could be utilized for hematogenesis, scoffed at the lowly Bland's pill, and gave ground for the introduction into commerce of as many compounds or supposed compounds of "organic" iron in "assimilable" forms as could be fitted with striking copyrighted titles.[1]

As is well known, one of the chief opponents of the view that inorganic iron is absorbed directly was the Swiss physiologist, Bunge, and his explanation of the action of inorganic iron in chlorosis is to be found in every text-book—namely, that inorganic iron merely combines sulphids or similar products of intestinal putrefaction, which otherwise would combine with the assimilable protein compounds of iron and prevent their passage through the intestinal wall. This hypothesis met with vigorous opposition, and it was soon shown that there is no good reason for believing that there is any unusual formation of sulphids or other iron precipitants in the intestine in chlorosis. Furthermore, the substitution for iron of other precipitants of sulphids, such as bismuth or manganese, does not have the same effect on the hemoglobin in chlorosis as does iron.

In the controversy that has been waged over this and other features of iron absorption an enormous literature has been produced, which has recently been critically reviewed and abstracted by Erich Meyer[2] in a lengthy résumé. The evidence collected in this paper seems sufficient to settle beyond reasonable doubt that inorganic iron can be and is absorbed from the intestine, and utilized in the formation of hemoglobin, when given in the usual medicinal doses. In the first place it has been repeatedly shown by different experimenters that the organs of animals that have been fed inorganic iron preparations regularly contain more iron than the corresponding organs of control animals. The liver is the great storehouse for iron, and apparently the hemoglobin of the blood is largely formed from iron which has been stored in this organ as ferratin. It would seem that no matter in what form iron is given it is first taken to the liver, and perhaps also to other storehouses, where it is held until needed for the formation of hemoglobin; therefore, after hemorrhages the iron reserve in the liver is rapidly depleted. When animals are kept on a diet very poor in natural forms of iron, and bled at frequent intervals, the amount of hepatic iron is rapidly reduced to a very small fraction of the normal amount, and the animal soon ceases to replace the lost hemoglobin. But control animals given the same diet, to which has been added iron in any of the usual forms used in therapeutics, no matter whether organic or inorganic, suffer much less loss of hepatic iron and replace the lost hemoglobin completely if the bleedings are not too frequent or too severe. It is probable that no matter how the iron is combined when it enters the stomach, it is not used directly for the formation of hemoglobin, but is always first converted into the ferratin of the liver, which constitutes an intermediate step in the conversion of food iron into hemoglobin, thus ensuring a constant material for the formation of hemoglobin irrespective of the sort of iron compound obtained by the animal in its food. This view has been urged by Meltzer[3] in a recent article.

Studies by microchemical methods of the absorption of iron through the walls of the gastrointestinal tract indicate also that direct absorption of iron does occur, and the paths of absorption seem to be much the same whether the iron is taken as complex organic or as simple inorganic compounds. The greater part is absorbed in the duodenum, although if refractory forms are given it may also be absorbed lower down in the small intestine, and probably enters the blood rather than the lymph. That inorganic iron is converted into organic compounds in the liver is shown by the observation that even when dogs fed inorganic iron compounds are repeatedly bled, the iron which is found abundantly in their livers is in a form not precipitable by ammonium sulphid, which reagent precipitates inorganic iron compounds present in the body.

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[1] Organic Iron Preparations: New and Non-Official Remedies, 2d Ed., p. 76.

[2] Ergebnisse der Physiologie, v, p. 698.

[3] The Journal A. M. A., Aug. 24, 1907, p. 639.

If we consider the elaborate mechanism by which the body reduces the manifold sorts of protein entering it as food into their constituent amino-acids, thus enabling the body to resynthesize these elementary substances into stable types of protein normal to its own composition, we find there is a good analogy for the methods adopted by the body to form hemoglobin. Hemoglobin is a very complex substance, with iron forming but a minute part of a molecule which contains also hematoporphyrin and protein, and there seem to be many sorts of hemoglobin specific for each species. The body receives iron in many different forms, and were it to build these various compounds directly into hemoglobin there could be no constancy in the composition of the resulting hemoglobin. The natural method of utilizing iron from these various sources and yet securing a constant composition for the hemoglobin would be to reduce each iron compound to some simple form, presumably inorganic, before its absorption, then to bind this into some loose but relatively constant compound, such as ferratin, and from this manufacture the hemoglobin. This being apparently the method adopted by the body, it would seem that there should be no fundamental difference whether the iron given therapeutically is in organic or inorganic form —such as reduced iron, Blaud's pills, tincture of the chlorid of iron or iron citrate, tartrate, acetate, etc.— and this perhaps may be the real reason why there exists so much honest difference among clinicians as to their choice of iron preparations.

THE ERROR OF THE VEGETABLE UNIT DESCRIPTION.

A common error of medical writers, which is by no means limited to the novice, is that of describing the size and shape of a pathologic growth or area of tissues by comparing it with some common object, a method which is a constant source of annoyance and difficulty to those who would afterward make use of their descriptions. The chief reason why this method is defective is that an object that may be common in one country may be unfamiliar in another, and also that the size of the same class of objects may be subject to great variations. For example, English writers say frequently that a lesion is the size of a horse bean; now what will that signify to an Italian student of the literature? To specify sizes by comparison to such things as a horse chestnut, a lentil, a watermelon seed, or a muskmelon is sure to give rise to international complications; and our foreign contemporaries are just as prone to these provincial comparisons as we ourselves are. In an article at hand, in German, the author refers to a *"kastaniengross"* tumor, and to another the size of an *"Apfelsine;"* now does he appreciate that to an Italian reader the word chestnut calls to mind an object several times as large as it does to an American, and how is the reader of any nationality to know whether the author refers to the Italian chestnut, which is a common article of commerce in Germany, or to the native German chestnut, which, if our remembrance is correct, is intermediate in size between the Italian and the American variety? And as for the orange-sized tumor, has our German pathologist ever seen an American navel monster, or does he know only the smaller fruit of southern Europe? Examples might be multiplied to great length, and will occur to every reader of medical literature, to whom they have probably been a source of time-consuming annoyance. When every country has some system of weights and measures, why not use it in describing objects which possess dimensions that it is desired to record? Even although the system be no better than the one in vogue in English-speaking countries, it furnishes at least a fixed unit, which does not vary according to the climate or the season, as do the vegetable units so dear to many writers.

ANTHROPOMETRY IN NATIONAL EVOLUTION.

Among the papers read at the recent meeting of the British Medical Association was one of special interest from a medical point of view by Mr. J. Gray on "Anthropometrics in Schools; the Problem of National Evolution." The gist of Mr. Gray's argument may be summed up in the statement that how best to improve the conditions of the people is a biologic rather than an economic problem. Measures for the improvement of the people in the abstract are all more or less Utopian. Great Britain, said Mr. Gray, has cheap food in consequence of its free trade; sanitary reforms have given it healthy towns; cheap locomotion has enabled the town dwellers occasionally to get away from their environment into the country, and now it has to discuss such questions as free meals for school children and the employment of the unemployed by the state—reforms directed to the benefits of particular classes. This indicates an alarming condition of deterioration that demands immediate attention, which must be directed, he thought, toward the establishment of a sound national physique, as more important than a sound national finance. Dr. F. C. Shrubsall urged the necessity of anthropometry in the schools as essential to a wide study of large factors of environment, and Sir Victor Horsley added a resolution calling on the government to undertake a system of periodical measurement of school children in connection with their medical inspection, so as to provide definite information on their physical condition and development. There is a general awakening to the fact that the school is the proper field, and must be the most fruitful one, both for investigation into human economics and for the practical application of the principles deduced therefrom.

Acquired Causes of Insanity.—Punton, in the *Kansas City Medical Index-Lancet*, states that among the more prominent direct or acquired causes of insanity are use and abuse of certain agents, such as alcohol and opium, excesses of all kinds, mental and physical strains, overstudy, excessive grief, domestic infelicity, malformations, disturbances of circulation, acute diseases, and injuries of all kinds.

Medical News

CALIFORNIA.

Personal.—Dr. Arthur A. O'Neill, temporary warden at the City and County Hospital, San Francisco, has been made permanent warden.——Dr. L. W. Burtt, Los Angeles, has left for a two years' course of study in Europe.——Dr. J. T. Kitchings, Stockton, who was suffering from mental aberration, is said to have set fire to a number of houses between Stockton and Collegeville.——Dr. George S. Harkness, Stockton, has returned home from St. Luke's Hospital greatly improved in health.——Drs. Agnes Walker and A. Wherry have been appointed assistant bacteriologists by the board of health of San Francisco.——Dr. Arthur L. Holcombe has been chosen a trustee of Compton.——Drs. Edward Topham, William H. Harrison and Tilton E. Tillman have been appointed surgeons on the San Francisco Emergency Hospital staff.——Dr. William J. Hanna, Sacramento, has been appointed director of the Soldiers' Home at Yountville.

Hospital Notes.—Articles of incorporation of the Northern California Hospital Association have been filed with the object of erecting a hospital in Eureka. The capital stock of the association is $250,000. Dr. Charles C. Falk is president, George T. Rolley vice-president, and Dr. Curtis O. Falk secretary-treasurer.——The Southern Pacific Railway Company has applied for a permit to erect a three-story steel and concrete hospital on Hayes street, San Francisco.——At a meeting of the board of regents of the University of California the president reported that a gift of $2,500 had been received from Mrs. William H. Crocker to be used for the equipment of a ward in the University Hospital, San Francisco.——The new St. Elizabeth's Hospital, Red Bluff, was formally opened September 24, with a public reception held in the grounds and building.

GEORGIA.

Medical Scholarships.—The governor has selected the following individuals for beneficiary scholarships in the Medical Department of the University of Georgia for the term of 1907-8, as provided by law:

State at Large.—Sheddie. Usher, Springfield; W. K. Smith, Pembroke; William Massey, Barwick; F. L. Lanier, Sylvania; Clarence Cox, Ellijay; D. L. Deal, Statesboro.

First District—W. H. Sutton, Swainsboro; T. B. Brantley, Sylvania.

Second District—W. D. Sloan, Milltown, J. G. Standifer, Blakely.

Third District—G. G. Lunsford, Americus; J. W. Polhill, Hawkinsville.

Fourth District—Albert Martin, Columbus.

Fifth District—Mason Smith, Douglasville; T. R. Aycock, Monroe.

Sixth District—T. F. Bradley, Bradley; G. L. Johnson, Yatesville.

Eighth District—DeWitt Payne, Fort Lamar; Fred Griffith, Eatonton.

Ninth District—Ralph Freeman, Dacula; M. B., Ketron, Clarkesville.

Tenth District—H. N. Bussey, Thomson; John A. Johnston, Augusta.

Eleventh District—W. E. Williams, Soperton; D. W. F. Maloy, Beach.

So far as The Journal is informed, Georgia is the only state in which such an arrangement exists.

ILLINOIS.

Typhoid Fever.—An epidemic of typhoid fever is reported at Canton.——As a result of drinking impure water while camping at McHenry, five citizens of Elgin are ill with typhoid.

Cost of State Charges.—The average per capita cost of inmates of the state institutions for the quarter ending June 30 was $42.68. The highest per capita was at the St. Charles Boys' School, which amounted to $73.45: the lowest was at the State Hospital for the Incurable Insane, Bartonville, with a per capita of $25.

Personal.—Dr. Cyrus H. Anderson, McLeansboro, has been appointed superintendent of the Hospital for Insane Criminals, Chester, vice Dr. Walter E. Songer, deceased.——Dr. John E. Haughey, Rockford, has succeeded Dr. Charles E. Crawford as physician of Winnebago County.——Dr. Hugh F. Gunn, Galena, has been appointed physician of Jo Daviess County.——Dr. Harry C. Blankmeyer, Springfield, bacteriologist for the State Board of Health, has resigned.——Dr. John C. Sonders has been elected physician of the poor for Rock Island.

Conference of Charities to Meet.—The Illinois State Conference of Charities will meet at Jacksonville October 9 to 11. Dr. Frank P. Norbury, Jacksonville, president of the conference, will deliver an address on "Education of Physicians and the Public Regarding Insanity:" Dr. Richard C. Cabot, Boston, will consider "The Social Aspect of Medical Work:" Dr. William H. C. Smith, Godfrey, will describe the "Work for Deficient Children in Illinois;" C. W. Hart, St. Charles, will deliver an address on "Methods of Training Children in Institutions;" Mrs. James A. Parsons, Jacksonville, will speak on "The Care of the Poor in Small Communities;" S. T. Metcalf, Buffalo, will read a paper on "Public Care of the Poor: The Modern Almshouse;" Governor Deneen will deliver an address on "The Wards of the State;" Col. Frank D. Whipp will speak on "Business Administration of Public Institutions;" Mr. Henry Wolfer will speak on "The Model Penitentiary;" F. Emory Lyon will discuss "The Needs of Jails and Lockups;" Judge McKenzie Cleland, Chicago, will consider "Adult Probation;" Prof. Charles R. Henderson will deliver an address on "Social Hygiene," and Dr. H. G. Hardt will speak on "The Continuous Care of the Feeble-Minded."

Chicago.

Personal.—Dr. and Mrs. Eugene S. Talbot returned from Europe September 21.——Dr. George Paull Marquis returned from Europe September 8.——Dr. David J. Doherty, Manila, P. I., is in Chicago for a brief visit.——Dr. and Mrs. Glenn M. Hammon have returned after three months in Alaska.——Dr. Harry H. Rittenhouse is reported to be critically ill.——Dr. L. Harrison Mettler and family have returned from Mackinac Island.

Deaths of the Week.—During the week ended September 21 618 deaths were reported, 48 more than for the preceding week and 70 more than for the corresponding week of 1906, equivalent to an annual mortality of 15.29 per 1,000. Acute intestinal diseases still headed the list with 114 deaths, followed by consumption with 57, nephritis with 48, pneumonia with 42, heart disease with 41, violence, including suicide, with 34, nervous diseases with 25, cancer with 21, scarlet fever 15, typhoid fever with 14, diphtheria with 9, measles with 3, and whooping cough with 2.

MARYLAND.

College Opened.—The forty-seventh session of the Baltimore Medical College opened September 20, with an address by Dr. Charles G. Hill.

Defective Children.—As a result of the medical inspection of 60,000 pupils in the public schools of Baltimore, 17,860 were found deficient, not including 593 who had not been vaccinated. Diseases of the hair, particularly pediculosis, led the list, followed by diseases of the throat, eye, nose, mouth, general diseases, diseases of the skin, ear and mental defects.

Illegal Practitioners.—Dr. Herbert Harlan, president of the State Board of Medical Examiners, reports that a special committee of the Baltimore City Medical Society worked with the State Board, and that as a result of their efforts 11 persons were indicted in October, 1906, for practicing without registration. In March, 1907, five others were indicted. Not one of the cases has yet been tried, but one defendant pleaded guilty and paid a small fine; another was indicted and convicted of assault, the assault being a medical examination. Dr. Harlan declares the delay is in the state's attorney's office, and that proper consideration has not been given to the interests of the public and profession. The state's attorney has replied, stating that some of the cases were settled on advice of complainants and that ample reason has existed for delay in the cases delayed.

MISSOURI.

Defective School Children.—Examination of the school children of Kansas City, by city medical officers, is said to show that 67 per cent. are affected with some contagious disease or abnormality. Of the pupils, 40 per cent. have weak or defective eyes, 25 per cent. have throat diseases, and 5 or 10 per cent. have defective hearing.

Hospital Notes.—The addition to the Emmaus Home for Epileptics and Feeble-minded at St. Charles, was formally opened September 15. In July there were 84 patients in the institution.——The Dr. C. R. Woodson Sanitarium Company, St. Joseph, capitalized at $15,000, has been incorporated "to furnish, maintain and equip a sanitarium for the purpose of boarding, rooming, nursing and treating patients afflicted with nervous or mental diseases."

NEW YORK.

New Tuberculosis Pavilion.—A contract has been let for the erection of a pavilion for tuberculous patients at the Willard State Hospital at a cost of $15,500.

Personal.—Dr. John A. Barnette, Watertown, has returned from Europe.——Dr. John L. Heffron has been made acting dean of the College of Medicine of Syracuse University pending the election of a successor to the late Dr. Gaylord D. Clark.

——Dr. George W. Goler, health officer of Rochester, is attending the International Anti-Tuberculosis Congress in Brussels.

Diphtheria and Smallpox.—An epidemic of diphtheria is reported to be raging in the village of Natural Dam.——The diphtheria situation at Addison is now believed to be under control. One school has been closed for purposes of disinfection.——Several cases of diphtheria have appeared in Onondaga Valley and one room of the Onondaga Academy has been closed by the health authorities.——Two cases of smallpox are reported at Talcottville.

New York City.

To and From Europe.—Dr. and Mrs. Graham Lusk returned from Europe September 17.—Dr. Henry H. Morton of Brooklyn returned from Europe September 19.——Dr. James W. Markoe and Dr. and Mrs. Charles F. Chapman sailed for Europe September 21..

Alumni Association Organized.—The Alumni Association of the New York Skin and Cancer Hospital was recently organized with the following officers: President, Dr. J. Francis Aitken; vice-president, Dr. Henry H. Whitehouse; and secretary, Dr. Jerome Kingsbury, all of New York City.

Lectures on Tuberculosis.—The fifth season of popular lectures on tuberculosis has been opened by the committee on tuberculosis of the Charities Organization Society. Last year's lectures were given before fifty-nine unions, fifty-four churches, club and lodges, and it is proposed to double the number this year.

Eligible List for City Doctors.—The Municipal Civil Service Commission has established an eligible list for the medical positions under class 3, which includes police surgeon, medical officer in the fire department, coroner's physician, etc. There were 228 physicians in this examination. More than 50 per cent. of those who took the examination succeeded in passing the test, but as a rule, with very low averages.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended September 14, 365 cases of tuberculosis, with 142 deaths; 189 cases of diphtheria, with 20 deaths; 183 cases of measles, with 4 deaths; 182 cases of typhoid fever, with 18 deaths; 108 cases of scarlet fever, with 4 deaths; 11 cases of cerebrospinal meningitis, with 6 deaths; 10 cases of whooping cough, with 6 deaths; and 17 cases of varicella, a total of 1,065 cases and 200 deaths.

Nathan Straus' Work.—The fifteenth season of Nathan Straus' work in dispensing pasteurized milk has just ended. There were 2,917,336 bottles and 1,222,048 glasses of milk sold or given away this season. The new building Mr. Straus is erecting at a cost of more than $100,000 will be finished and equipped with a large pasteurization plant this winter, so as to be in full operation next spring. The totals for the fifteen years show the dispensing of 18,710,892 bottles and 10,089,674 glasses of this milk. Mr. Straus' plan has been copied in nearly 400 cities in all parts of the world.

Milk Inspectors.—George W. Wickersham, representing the Association for Improving the Condition of the Poor, brought before the Board of Estimate and Apportionment a request for an appropriation of a minimum of $50,000 or a maximum of $75,000 to provide for fifteen or twenty additional inspectors in rural communities of milk shipped to New York. This was strenuously opposed by Controller Metz, who believes that the traveling expenses would exceed the salaries. About 40,000 farms are drawn on for the city's milk supply. The matter was finally referred to the select committee.

Hospital Notes.—An appeal to the public for $750,000 for a free hospital for the treatment of communicable diseases among sailors has been made by Dr. William T. Jenkins, the president and managing director of the Merchant Marine-Hospital Service.——St. Vincent's Hospital is to be enlarged by adding two full stories to the central pavilion. It is to be fitted with a roof garden, a solarium, and an operating pavilion. The improvements are to cost $75,000.——The Italian government has subscribed $60,000 and J. Pierpont Morgan $5,000 for a new Italian Hospital to be built in Washington Square, South.

Lectures on Hygiene.—The Brooklyn Institute has affiliated with the Medical Society of the County of Kings in presenting a series of lectures on hygiene, to be given at the hall of the Institute by distinguished specialists. The list of lecturers is as follows:

October 5, "Typhoid Fever and Other Infectious Diseases: How They are Spread," Dr. Thomas Darlington, Commissioner of Health; October 13, "The Care of the Sick Room," Dr. Florence Leigh Jones; October 19, "What Surgeons Can and Can Not Do," Dr. William F. Campbell; October 27, "The Relation of Bacteria to Disease," Dr. Joshua M. Van Cott; November 2, "Tuberculosis: Its Modern Treatment," Dr. John A. McCorkle; November 10, "The Milk Supply and the Certification of Milk," Dr. Harris Moak; bacteriologist to the Milk Commission; November 16, "Patent and Proprietary Remedies"; November 24, "The Physical and Mental Development of Children," Dr. Elias H. Bartley, and November 30, "Adulteration of Food and Drugs."

Physical Welfare of School Children.—The physicians employed by the committee on physical welfare of school children report that they have examined 1,400 school children since the schools closed. The main troubles were malnutrition, enlarged glands and defective breathing. If the percentages given hold good for all the school children of this city, 48,000 suffer from malnutrition, 187,000 from enlarged glands and 230,800 from defective breathing, a total of 465,800. The object of this report is to prepare the way for the presentation of a plan to improve conditions in a rational way, and the ideas are embodied in the report as follows:

1. A thorough physical examination of all children of all schools.
2. Notification to all parents, followed when necessary by a second notice and visits to inform and persuade parents to take proper action.
3. The enforcement of the existing laws and securing proper authority, where this is now lacking, to compel parents who refuse to take necessary steps.
4. Periodic re-examination of school children during school life.
5. Physical examination of children when applying for work certificates.
6. Enforcement of health, tenement-house and child-labor laws.
7. The establishment, in connection with boards of education, of departments of school hygiene, whose duties shall be to see that school buildings are so constructed and so conducted that they can not of themselves produce or aggravate physical defects and that the school curriculum should be so devised and executed as neither to produce nor aggravate them; to study the effect of school environment—curriculum, building, home study; physical training—on the child; and to teach hygiene so that the children will themselves cultivate habits of health and see clearly the relation of health and vitality to present happiness and future efficiency.

Dangers from Dust.—Lyman A. Best, president of the Brooklyn Teachers' Association, in his last annual report gives the results of investigations made regarding contagious and infectious diseases in the public schools. Dust and feather dusters, he says, are the principal means of infection among school children. Figures are given from 1898 to 1906 inclusive, covering measles, scarlet fever and diphtheria. The schools of the city are visited every two years by an epidemic of measles, February and March being usually the record months. In January, February and March, 1898, there were 6,921 cases of measles. The number decreased during the year until in July, August and September there were only a few more than 100 cases. In 1899 there were only 2,667 cases during the first three months of the year. There was a well-developed epidemic in 1900, January showing 3,299 cases; February, 3,473, and March, 3,742. The next year there were only 421 cases in January, 640 in February and 1,256 in March. In 1902 there were 3,353 cases in January and 3,872 and 3,371 during the next two months respectively. There were only 647 cases in January of the next year, 834 in February and 1,212 the next month, but in 1904 January, February and March showed 3,460, 4,438 and 7,112, respectively. In 1905 there were only a few cases.

OKLAHOMA.

New Hospital for Oklahoma City.—The Oklahoma Baptist Memorial Hospital Association, at a recent meeting in Oklahoma City, elected Dr. H. Coulter Todd, president. The association proposes to build a fireproof three-story hospital in Oklahoma City, to cost $100,000.

Contract for Asylum Let.—The territorial board of trustees of the Fort Supply Insane Asylum has let the contract for the remodeling of the old army post at Fort Supply that it may be used as a territorial insane hospital. The contract calls for the completion of the work by November 15.

Oklahoma Court Sustains Board.—The right of the territory to revoke the licenses of practicing physicians shown to have obtained their licenses from "diploma mills" was sustained by the Oklahoma Superior Court, September 6, in an opinion on the appeal of Calvin D. Gulley vs. the territory. Gulley was granted a license to practice medicine by the territorial board of health on Feb. 11, 1902, on his sworn statement that he was a graduate of the Independent and Metropolitan Medical College of Chicago. At the trial it was demonstrated that there was no such medical college and that the institution is merely a "diploma mill," where any one may secure a medical diploma without examination, on payment of a certain fee. The supreme court holds that the district court has exclusive jurisdiction in determining the validity of medical licenses and that any license from a fraudulent medical college may be revoked.

OREGON.

Medical Building.—The Medical Building, at the corner of Park and Alder Streets, Portland, intended exclusively for physicians and dentists, will; it is announced, be ready for occupancy December 1.

Hospital Notes.—The Dominican Sisters have purchased a ten-acre tract at Ontario on which to erect a hospital and sisters' school, at a cost of $25,000.——Dr. R. D. Cashatt, Weston, has sold his sanitarium at that place to Dr. Seymour L. Corpe, Cove.

Personal.—Dr. Esther C. Pohl has been elected city health officer of Portland, vice Dr. Wheeler, resigned.——Dr. Mary B. Thompson, a pioneer practitioner of Portland, was thrown from a street car August 13, and seriously injured.——Dr. Andrew C. Smith, Portland, was thrown from his horse while hunting in Crook County, central Oregon, and suffered a dislocation of the right ankle.

PENNSYLVANIA.

Philadelphia.

New Home for College of Physicians.—It has been stated that before the first of the year work will begin on the new building for the College of Physicians, which has been described and pictured in these columns.

Personal.—Dr. Stillwell C. Burns sailed for Europe September 19.——Dr. Carl D. Cramp, late instructor in nervous diseases at the University of Pennsylvania, has been appointed professor of neurology in the University of Michigan, Ann Arbor, and left for his new field of duty September 18.

Typhoid in Orphanage.—Fifteen cases of typhoid fever have been reported in the Bethsaida Christian Children's Home. The typhoid epidemic in the orphanage seems to be limited to the boys' building, and thus far the source of the infection has not been determined. Every precaution is being taken to prevent the spread of the disease.

Insane Ignored.—The action of the Council finance committee in decreasing the apportionment absolutely required for the improvement in the conditions of the city's indigent insane is greatly deplored by those interested in the welfare of these individuals. The failure to provide a building for the city's insane on the Byberry farm it is expected will be one of the points to be attacked in Councils when the loan bill ordinance is considered. The insane department of Blockley has been over-crowded for years, and it has been declared by municipal authorities that the increased inability to care for the insane patients at Blockley is a disgrace.

Hospital Improvements.—A contract has been awarded for the completion of the interior work on the Garretson Hospital. The superstructure of this institution was completed two years ago, but the interior finishings were delayed, awaiting an appropriation from the legislature. This money is now available and work will be pushed to completion. The cost will be $22,000.——Plans have been completed for the erection of a hospital for the Woman's Medical College, and the designs submitted to the Bureau of Building Inspection call for a 6-story brick, stone and terra cotta hospital building. This institution will be erected on the lower side of College Avenue, near Twenty-second street, and will be known as the Woman's Medical College Hospital of Pennsylvania. It will be used by the Woman's Medical College as one of its teaching departments.

Health Report.—The number of deaths reported for the week ended September 21 aggregated 451, a decrease of 6 from the number reported for the preceding week, and an increase of 29 over the number reported for the corresponding week of last year. The principal causes of death were: Typhoid fever, 11; whooping cough, 4; diphtheria, 7; tuberculosis, 49; cancer, 20; lead poisoning, 6; apoplexy, 11; paralysis, 5; endocarditis, 12; heart disease, 33; acute respiratory diseases, 34; enteritis, 60; diseases of liver, 8; diseases of stomach, 5; diseases of intestines, 9; appendicitis, 7; acute nephritis, 5; Bright's disease, 38; hydrocephalus, 5; premature birth, 10; congenital debility, 13; old age, 5; accidents and injuries, 26; and marasmus, 14. There were 149 cases of contagious disease reported, with 19 deaths, as compared with 146 cases and 18 deaths for the preceding week.

SOUTH CAROLINA.

Medical College to Open.—The annual session of the Medical College of the State of South Carolina, Charleston, opens October 2. Indications are that an unusually large number of students will be enrolled. Dr. W. H. Zeigler has been elected instructor in practical pharmacy.

Personal.—Dr. Junius L. Mann, Branchville, was operated on recently at the Knowlton Infirmary, Columbia, for appendicitis and is making a good recovery.——Dr. James D. McDowell, Yorkville, who has been forced to relinquish practice for some time on account of ill health, is at Saranac Lake, N. Y.

Physicians Must Report Illness.—Health Officer, Dr. J. Mercier Green of Charleston, moved by the failure of physicians of the city to obey the ordinance which requires the report at the health office of all transmissible diseases within twenty-four hours after diagnosis, has sent out an emphatic warning that all those who violate this ordinance hereafter will be dealt with in the recorder's court.

TENNESSEE.

College Opens.—The Medical Department of the University of Tennessee, Nashville, opened for its annual session September 16. The term will be seven and a half, instead of seven months, as heretofore. The opening address was made by Dr. Charles A. Walters.

Confidence Man Sentenced.—A smooth-talking individual who operated in Knoxville several months ago, presenting checks on a Muncie (Ind.) bank, which were invariably returned endorsed, "no funds," and who was known as Dr. J. F. Ross, Dr. Barry and Dr. Spalding, is said to have been sentenced to serve a term of four and one-half years in the Alabama State Penitentiary.

Communicable Diseases.—The Nashville Board of Health reports a decrease in the number of local typhoid fever cases.——A number of cases of scarlet fever are reported in Knox County and the school at Powell's station has been closed in consequence of the prevalence of the disease.——Several cases of scarlet fever are reported at Mount Pleasant.——An outbreak of scarlet fever is reported at Marysville, Blount county. The origin of the epidemic is said to have been traced to Atlanta, Ga.

Personal.—Dr. and Mrs. William D. Haggard, Nashville, have returned from Europe.——Dr. Edward F. Malone, Nashville, sailed for Europe September 25.——Dr. A. E. Rippey, Obion County, has been appointed physician at the state prison, vice Dr. Frank Head, resigned.——Dr. George F. St. John, Knoxville, has been appointed physician at the prison camp, Brushy Mountain.——Dr. Michael Campbell, superintendent of the Eastern Hospital for the Insane, Knoxville, who has been critically ill, is reported to be improving.

VIRGINIA.

Failure to Report Births.—Six physicians of Norfolk, who failed to comply with the law which requires all physicians to report births to the board of health, have been summoned to appear in the police court to answer this charge.

Richmond Deaths in August.—The total number of deaths reported in August was 186, equivalent to an annual death rate of 19.47 per 1,000. The deaths from all causes among infants under one year of age were 37, as compared to 72 in the previous month, and the deaths from infantile diarrhea decreased from 44 in July to 22 in August.

Personal.—Dr. E. Guy Hopkins, city bacteriologist of Richmond, resigned August 15 and has been succeeded by Dr. H. B. Spencer.——Dr. E. W. Magruder of Richmond, who has been for three weeks in the Virginia Hospital, ill with typhoid fever, has recovered.——Dr. Richards, Richmond, who has been seriously ill at the City Hospital, has gone to Blue Ridge Springs to recuperate.

WASHINGTON.

Medical Examination of Pupils.—For the first time in the history of the schools of Seattle, periodic medical examinations are to be made of all pupils.

Society Organized.—The physicians of Palouse met August 20 and organized a local society with the following officers: President, Dr. J. Earl Else; vice-president, Dr. Walter Farnham, and secretary-treasurer, Dr. George T. Boyd.

School Named for Physician.—The Seattle board of school directors has named the new school building on North Queen Anne hill, the "Frantz H. Coe" school, in memory of the physician of that name who was formerly president of the school board of the city.

Hospital Notes.—The new hospital building at the Soldiers' Home, Orting, is nearly completed.——A dwelling house in Woodland has been leased by the officials in charge of the railroad work, to be used as a hospital for the men employed on that division of the road.

WEST VIRGINIA.

State Board of Health Election.—At the annual meeting of the State Board of Health Dr. Joseph E. Robins, Claremont, was elected president, vice Dr. David P. Morgan, Clarksburg, term expired, and Dr. Hugh A. Barbee, Point Pleasant, was re-elected secretary and executive officer of the board.

Society Organized.—Following an address by Dr. J. N. McCormack at Hinton, September 9, the physicians of Summers County organized a county medical society, which begins work with twelve members and a good prospect of securing the remaining ten physicians in the county. Much interest was aroused by Dr. McCormack's address, speeches being made at the public meeting by several prominent citizens regarding the benefits of cooperation between the medical profession and other forces of society. The newly organized society elected Dr. William L. Barksdale, president; Dr. John F. Bigony, secretary, and Dr. William N. Palmer, treasurer, all of Hinton.

Personal.—Dr. Garver, formerly of Pittsburg, has been appointed assistant to Dr. Charles A. Sinsel, Baltimore & Ohio medical examiner at Grafton.——Dr. Robert W. Fisher, Morgantown, has been discharged from the City Hospital, convalescent.——Dr. John L. Dickey, Wheeling, who has been in Europe, returned September 16.——Dr. John E. Cannaday, Hansford, has resigned as surgeon in charge of the Sheltering Arms Hospital, to take effect November 1. After a tour of Europe Dr. Cannaday will locate at Moundsville, where he will be surgeon in charge of the Reynolds Memorial Hospital.——Drs. William H. McLain, Eugenius A. H. Hildreth and Andrew J. P. Wilson have been appointed a local board of health for Wheeling.

GENERAL.

Yellow Fever.—The U. S. Consul at San José, Costa Rica, reports that owing to the prevalence of yellow fever in Cuba the government of Costa Rica has declared quarantine against that island.

Leper Colony for Guam.—The naval surgeons at Guam have perfected a plan for the segregation of 100 or more lepers on that island. A site has been selected for a leper colony and the lepers, it is believed, will be in part self-supporting.

The Plague.—Dr. Rupert Blue, U. S. P. H. & M.-H. Service, who is in charge of the plague situation in San Francisco, has secured an appropriation of $25,000 from the rehabilitation fund to be used in sanitary work throughout the city.——A case of plague is reported on a German steamship which arrived in Manila July 23.

Compulsory Vaccination in Porto Rico.—Acting on the recommendation of Governor Post, the executive council has decided to institute compulsory vaccination in Porto Rico, and 600,000 vaccine points have been ordered. No death has occurred from smallpox on the island since 1898, when the entire population was vaccinated by order of the United States authorities.

To Investigate Tropical Diseases.—Captain James M. Phalen and Lieutenant Henry J. Nichols, assistant surgeons U. S. Army, have been appointed members of the army board for the investigation of tropical diseases, replacing Captains Percy Ashburn and Charles F. Craig, assistant surgeons, who have been ordered to return home, their tour of duty on foreign service having expired.

Work of the Porto Rico Anemia Commission.—The commission has stations established at 34 points and during May had 63,032 patients under treatment, with 13,516 applicants and 61 in the hospitals. There were only 20 deaths during the month. In June 7,882 patients applied to the dispensaries and nearly 15,000 are still under treatment. Between 200 and 300 houses were inspected each month.

Medals Awarded.—The Mary Kingsley medal, instituted by the School for the Study of Tropical Diseases, Liverpool, in memory of the African traveler, Miss Mary Kingsley, has been awarded to Dr. Carlos Finlay, Havana, chief sanitary officer of Cuba, and to Colonel William C. Gorgas, assistant surgeon-general U. S. Army, chief sanitary officer of the Canal Zone, on account of their work in regard to yellow fever, and to Dr. Theobald Smith of Harvard Medical School for his investigations regarding blood parasites in the so-called Texas fever of cattle.

Changes in Faculty of Army Medical School.—The following changes are announced in the faculty of the Army Medical School, Washington, D. C., for the ensuing session, which begins October 1: Majors William D. Crosby and Francis A. Winter, surgeons, have been appointed members of the faculty, vice Majors William C. Borden and James D. Glennan, surgeons, ordered to the Philippines. It is expected that the vacancy in the chair of clinical microscopy and bacteriology, caused by the death of Major James Carroll, will be filled by the detail of Captain Frederick F. Russell, assistant surgeon.

Strike of Sanitary Employés.—Captain Henry D. Thomason, assistant surgeon U. S. Army, in charge of sanitary work at Cienfuegos, was confronted a few days ago with a strike among civilian employés whom he had taken with him from Havana on account of their proficiency in sanitary work and who were acting as instructors for others. At the end of a month, on account of some slight delay in the arrival of their pay, they went on strike and tried to coerce their local associates to join them. Thanks to the tact of Captain Thomason the local men refused to strike and the work of sanitation went on without serious interruption. In the meantime Captain Thomason completed the vouchers, paid the strikers, and summarily dismissed them with the notice that they would not be re-employed under any circumstances.

Personal.—Dr. John N. Thomas of the United States Public Health and Marine-Hospital Service, has returned after an investigation and inspection of conditions at the ports of Tampico, Vera Cruz, Coatzacoalcas, Sabina Cruz, Progreso and interior towns near these points.——Dr. Park Findley, in charge of the hospital of the Mexican Central railroad at Monterey, verifies the report that yellow fever is feared in that city, and that typhoid fever is prevalent and increasing.——Dr. Francisco Varela, consulting physician in the Princess Hospital, Madrid, has opened an office in Manila.——Dr. P. W. Monroe, on August 31, was elected house surgeon of the American Hospital, City of Mexico, vice Dr. Charles Westmoreland.——Dr. Gustavo Pagenstecher, City of Mexico, was successfully operated on for appendicitis at his sanitarium, September 7.

Society Meetings.—At the annual meeting of the Association of the Lehigh Valley Railroad Surgeons held in Wilkes-Barre, Pa., September 6, the address of the president, Dr. Grosvenor R. Trowbridge, Buffalo, impressed the importance of dealing promptly with railroad accidents, on account of the liability to the development of neuroses. Buffalo was selected as the place of the next annual meeting, and the following officers were elected President, Dr. James B. Tweedle, Weatherly, Pa.; vice-presidents, Drs. William Taylor, Canastota, N. Y.; Phaon Hermany, Mahanoy City, Pa.; and George W. Tyrrell, Perth Amboy, N. J.; secretary, Dr. Jacob G. Zern, Lehighton, Pa., and executive committee, Drs. William G. Weaver, Wilkes-Barre, Pa., Charles H. Ott, Sayre, Pa., and T. Ben Johnson, Towanda, Pa.——The National Medical Association, composed of colored physicians, pharmacists and dentists, held its seventh annual convention in Baltimore August 27 to 29. The following officers were elected: President, Dr. William H. Wright, Baltimore; vice-president, Charles Roberts, New York City; secretary, J. A. Kenney, Tuskegee, Ala.; treasurer, Dr. A. Wilberforce Williams, Chicago, Ill.; assistant secretary, Dr. Isaac A. Lawrence, Elizabeth, N. J.; corresponding dental secretary, L. H. Fenderson, Washington, D. C., and corresponding pharmaceutical secretary, Phillip D. Lee, Milledgeville, Ga. It was decided to hold the next annual meeting in August, 1908, in New York City.——The eighth annual meeting of the American Roentgen Ray Society will be held at Cincinnati, October 2 to 4, under the presidency of Dr. Preston M. Hickey, Detroit, Mich.

FOREIGN.

Electricity in Therapeutics Restricted to Medical Men in Germany.—According to a recent notice of the minister of medical affairs in Germany, the application of electricity in treatment of disease, even in the form of electric baths, is to be regarded as pertaining to the practice of medicine.

The Liverpool School of Tropical Medicine.—The British government has made a fresh grant of $2,500 a year to the Liverpool School of Tropical Medicine; this makes $5,000 a year for five years. At present this school has five expeditions out studying malaria, sleeping sickness and yellow fever.

Care of Lepers in Japan.—It is reported that an imperial ordinance with regard to leprosy has been issued in Japan. At a conference of authorities, it was determined to begin at once the erection of buildings in five prefectures, the expense to be borne by the imperial and local treasuries. It has also been decided to begin enforcing the isolation law in April, 1908. Foreign lepers, it is said, will be allowed to land in exceptional cases, and for a short time only.

Lectures on School Hygiene.—A course on school hygiene, including lectures, demonstrations and practical work, has been arranged to begin Oct. 12, 1907, at University College, London. The course will be given by Prof. Henry Kenwood and Dr. H. Meredith Richards. It is designed to meet the requirements of school teachers, school lecturers and those qualifying for school inspectorships and as school medical officers. A certificate of proficiency will be granted to those who qualify themselves.

Endowment to Prevent Alleged Human Experimentation.—A Parisian capitalist has offered the hospitals of Paris $200,000 for a committee to obtain cognizance of and to prevent foolhardy operations and therapeutic experiments on the patients in the hospitals. The would-be donor states that no member of the medical profession is to be allowed on the committee. The authorities have not accepted the "Soller endowment," but the fact that it was offered has aroused intense indignation in medical circles.

Right of Medical Associations to Sue Irregulars for Damages.—The Medical Syndicate of Savoy, France, and the Medical Association of Savoy recently brought joint suit for damages against a man practicing massage and irregular medicine, who had previously been sentenced by the courts for illegal practice of medicine. They asserted in their plea that the moral interests of the medical profession require that the practice of medicine should be restricted to those legally qualified to practice medicine, and that they were entitled to damages for the injury resulting from the illicit competition of the illegal practice of medicine. The decision of the court confirmed the justice of their plea, and condemned the defendant to $60 damages and costs.

Sale of a Medical Practice Not Legal in Germany.—The civil courts confirm the decisions of the medical court of honor in regard to the impropriety of buying or selling a medical practice. Physicians who have tried to recover the sum agreed on by contract at the time of sale have found that such a contract is not recognized as legal in the courts. The great mischief in such a transaction was stated to be that the seller would pay less attention to the scientific attainments of the buyer than to his capacity for paying the sale price. Another argument against the practice is that the buyer would be unable to pay the sum agreed on without extreme efforts and sacrifice of various kinds, detracting from his professional usefulness. In the latest test case a dentist sold his apparatus to another under contract to pay nearly $400 monthly for at least six months, with no mention of the sale of the practice. Both parties were registered physicians.

Latest Report from Koch in Africa.—Extracts from Robert Koch's latest report on his work on sleeping sickness in the heart of Africa are published in the *Deutsche med. Wochschr.* for September 5. He has found a few more endemic foci in German possessions in the vicinity of Uganda. At one of these points the glossina had been found the year before, but no cases of sleeping sickness. Importation of a few cases has resulted in the development of an endemic focus. He found in the province of Kisiba so many cases that he established another camp for treatment of the disease, near a village of 3,000 inhabitants, the native authorities aiding in the construction of native huts with a pavilion for the microscopic work. In a few days 200 sick had gathered at the spot and treatment was commenced at once. Dr. Kudicke was left in charge of the work at this point. Koch is convinced that all of the 400 cases of sleeping sickness he encountered in this district were imported cases, as the men had returned recently from work in the infected district of Uganda to the north. He found only eight cases, all in women who had not left the region, which he regarded as acquired at home. The women had possibly become infected by some other agency rather than the sting of the glossina, as it was found impossible to discover the glossina in this district. No mention is made of the methods or results of treatment in the extracts from his report given out for publication by the German authorities.

Congress of French-Speaking Neurologists and Alienists.—The question of medical expert testimony in regard to the responsibility of criminals was discussed at this congress, which was held at Geneva in August. The French law states that there is no criminality when the accused was in a state of dementia at the time the act was committed. The congress adopted a resolution to the effect that magistrates in their conduct of cases and in their judgments should not call on physicians to determine the responsibility of the accused, as this exceeds their competence. Another resolution advocated that the law should be amended to recognize the conception of medical or physiologic responsibility, and to provide for the compulsory treatment in special establishments of condemned criminals whose responsibility has been recognized as attenuated or abolished. Periodical psychoses and idiopathic mania and melancholia were discussed by Régis and others. In Régis' own experience fully 70 or 80 per cent. of his patients with mania or melancholia, under observation for more than twenty years, have not manifested any tendency to recurrence of the trouble. In Ballet's experience the non-recurring cases are the exceptions. Dupré cited the histories of the musicians, Schumann and Hugo Wolff, as examples of periodical psychoses. The former had six long periods of melancholic depression, alternating with periods of excitement with productive energy and cheerfulness. His uneven musical work reflects these oscillations in his psychic activity. Delirium and hallucinations finally ensued, with attempts at suicide and death from a diffuse chronic affection of the brain. Wolff also passed through four periods of excitement and productive activity, alternating with long periods of inactivity and silence. He also succumbed early to a chronic diffuse affection of the brain. The subject of "Hysteria" was again thrashed over, and a group of cases reported to disprove Marie's conception of the organic seat of aphasia.

LONDON LETTER.

(From Our Regular Correspondent.)

London, Sept. 14, 1907.

Insanity in Great Britain in 1906.

The annual report of the British Commission in Lunacy, just published, is a "dry-as-dust document," containing no illuminating papers. From a perusal of the report, it might be easily imagined that the commissioners do not recognize insanity as a disease. The compilation of statistics seems to be looked on by them as their sole duty. The report reveals with more or less clearness the fact that insanity is increasing in England, despite the continually reiterated suggestion that, notwithstanding the increase of numbers in asylums, insanity may not be increasing so rapidly as figures would lead us to suppose. On Jan. 1, 1859, the total number of the certified insane in England and Wales was 36,762; and on Jan. 1, 1907, it was 123,000, a rate of increase equivalent to 237.2 per cent. The estimated general population increased during the same period only at the rate of 77.5 per cent., so that the amount of recorded insanity has increased during the past fifty years at just about three times the rate of population. As to the causes of insanity, the commission appears to be at sea, although reference is made to drink, venereal disease and other causes usually brought forward. The medical control of asylums in England has been more concerned with discipline than with the requirements of science.

Coal Mine Inspection.

The British Royal Commission on Mines has appointed Dr. A. E. Boycott of the Lister Institute of Preventive Medicine to make an investigation to see if ankylostomiasis exists in coal mines in England. Mr. J. Cadman, assistant inspector of mines, is appointed to test mine air to see whether or not any standard of ventilation should be enforced for mines.

Medical Inspection of School Children.

The English board of education has decided to establish a medical department to advise and to assist in regard to medical inspection of school children in England and Wales. Dr. George Newman is made chief medical officer. He has been medical officer of health to the metropolitan borough of Finsbury since 1900. Dr. Alfred Eicholz, who has been for nine years a medical inspector of schools, will also be appointed to the medical department.

Anthrax in Great Britain.

Anthrax among human beings has increased considerably in Great Britain during the past few years. In 1905 there were 59 cases of anthrax in Great Britain, with 18 deaths; and in 1906 these numbers rose to 67 and 22, respectively, the highest recorded in any year since notification became compulsory in 1896. Bradford and district in Yorkshire, the headquarters of the woolen industry, are the parts of the country in which the malady is most prevalent. The local government board for Scotland has issued circulars to all medical officers of health, stating that the board has been approached by the Board of Agriculture and Fisheries as to the desirability of making arrangements for the notification of cases of glanders, anthrax and hydrophobia in man, in which the facts point to the possibility of infection from an animal or its carcass, or in which inquiry under the Diseases of Animals Act seems desirable in the opinion of the medical man concerned.

Dental Disease in Children.

A paper was read on this subject at the recent meeting of the British Medical Association. According to Mr. Edmund Owen, one of the chief causes of dental disease in children is faulty feeding. Mr. Owen further insisted that all advertised sterilized foods are bad for children's teeth, and if a child must be brought up on cow's milk, the milk should not be dealt with in any way likely to destroy that living something, which is essential to the well-being of the child. The manufacturer of drugs, the mere tradesman, has of late taken on himself to teach medical men how to prescribe and the vendor of patent foods dictates to the profession and the public as to how children should be fed, while the profession and the public allow themselves to be led. In his opinion, prevention of dental disease in children is a better study than its treatment, and the so-called "high" civilization of the day is accountable for most of dental troubles.

Special Schools for Physically Defective Children.

It is now eight years since the London school board opened the first invalid center for the instruction of children who, owing to chronic ill health or to physical defect, are unfit to mix with their fellows in the ordinary schools. These schools are principally intended for children suffering from the severer forms of surgical tuberculosis. The number of centers has increased until at the present time there are 23 in various parts of London, accommodating 1,428 children. Ambulances are used to take the children to and from school and a mid-day meal is provided, for which the children pay a small sum if able, otherwise it is provided free through the generosity of a voluntary association. Medical supervision and necessary nursing is provided. Dr. R. C. Elmslie, local assistant medical officer to the education committee of the London County Council, found among 1,050 of these children 72 not properly included under the conditions for which these schools were primarily intended. This group included semi-blind, semi-deaf, and nervous children unfit to mingle with healthy children in a large school. Of the others about one-half suffered from tuberculous bone or joint disease, generally in an advanced and inactive state, in whom deformity had been produced long before the school age was reached. Assistance is given by the voluntary association in finding suitable work after leaving school. The results, however, are not satisfactory. In criticising the methods, Elmslie points out that voluntary work is not always systematic, and the well-meaning workers have often insufficient technical knowledge and have no power over improvident parents who care more for the wages of their child as an errand boy than to have him apprenticed to a suitable trade. It is estimated that only 20 per cent. of the children will be able to earn their living at any ordinary occupation, 50 per cent. will be able to work at special skilled work, and the other 30 per cent. will either not live or be totally unable to support themselves.

VIENNA LETTER.

(From Our Regular Correspondent.)

Vienna, Sept. 14, 1907.

The Smallpox Epidemic.

The epidemic of smallpox, which was discussed in a previous letter (The Journal, Sept. 14, 1907, p. 952), is now under control. The number of cases officially reported is 120. Practically all the infected individuals lived in the densely populated southern portion of the city. The source of the epidemic has been traced to a woman engaged in cleaning and sorting feathers, imported from Russia. An appeal to the public, from the medical and public authorities, to submit to vaccination was responded to at once so freely that the enormous demand for vaccine could not be met. At least 20,000 people are being vaccinated daily at the 53 public vaccination stations alone, to say nothing of those that are being inoculated privately. The entire supply of vaccine from Budapest, Berlin and Switzerland was required to deal with the emergency, and within a fortnight more than 500,000 persons were reported to the board of health as having applied for vaccination. Of the cases of smallpox reported, 76 per cent. of the patients either had never been vaccinated or had not been vaccinated for over twenty years. Of the remaining 30 cases, 14 of the patients had been vaccinated only between six and eight days previous to being attacked, so that infection had taken place before immunization was possible. Ten patients have died—all of them of the "non-vaccinated." As regards the age of the infected, 33 per cent. were below 10 years, 30 per cent. between 10 and 25 years, and the rest between 25 and 60 years; the mortality was 9 per cent., 4 per cent. and 1 per cent., respectively.

Therapeutics

[It is the purpose of this department to outline an up-to-date management of disease, to suggest scientific treatment for diseased conditions, and to present prescriptions that are simple, useful and palatable. Prescriptions are written in both the metric and apothecaries' systems, but the amounts of the ingredients are NOT exact translations of one system into the other, but quantities convenient for pharmacist and physician. It should be understood that solids are weighed in grams or fractions of grams, while liquids are measured in cubic centimeters; that a teaspoon holds five cubic centimeters, i. e., more than a fluid dram, hence a 100 cubic centimeter preparation will contain twenty doses.]

Gastric Ulcer.

Dr. William A. Dickey, Toledo, Ohio, (*Medical Record*, June 29, 1907), after discussing the diagnosis of the condition and the advisability of surgical interference, marks out the treatment that is most successful and often renders surgery unnecessary. "Rest in bed is absolutely essential, for from ten days to three weeks. If there is hemorrhage, the patient must not assume the upright position under any circumstances. If there is vomiting, especially of particles of food, the stomach should be washed out by means of a tube with a weak alkaline solution until the water comes away perfectly clear. No food should be allowed for five days except in rare instances. Thirst may be allayed by rinsing out the mouth with cold water, or pellets of ice may be held in the mouth. The hyperchlorhydria, which is so generally present, should be arrested by the administration of such alkalies as sodium bicarbonate and subnitrate of bismuth." He advises half-teaspoonful doses of subnitrate of bismuth suspended in water, given once or twice daily. After the patient takes the bismuth he should lie on the side in which the ulcer is supposed to be situated. During convalescence, or in the milder forms of the disease when the patient is ambulatory, Dickey advises nitrate of silver, and gives it in tablespoonful doses, 0.1 of 1 per cent. solution. Administration of Carlsbad salt in the morning as an antacid and a laxative is considered good treatment.

The best treatment of hemorrhage from the stomach is stated to be the application of the icebag to the epigastrium and the swallowing of pellets of ice. Dickey does not place much confidence in such drugs as opium, acetate of lead, ergot and adrenalin.

While urging "the necessity of complete rest of the stomach by putting nothing into it during the first days of treatment of the ulcer, instances will arise, however, from time to time, in which the nutrition of the individual will be at such a low ebb that rectal feeding will not be sufficient." In such patients it would be well to risk a small amount of food by the stomach after the original five days' fasting. If possible, "however, the principal reliance should be for as many days as possible, on rectal feeding." "Before giving the nutrient enema, the bowel should be well washed out with warm soapsuds so that the material injected may be the better absorbed. Milk and eggs, and occasionally meat powder, and if a stimulant is wanted wine or brandy, to all of which should be added a pinch of salt, is probably the best." He does not think that it is absolutely necessary to predigest this nutriment. "If there is a tendency for the bowel to expel the enema, from 15 to 20 drops of tincture of opium may be added to each enema. The temperature of the injected fluid should be that of the body, and the tube should be inserted as far up the colon as possible."

The exact procedure is to wash out the lower bowel early in the morning with a quart of warm saline solution, then to give the nutrient enema. The nutrient enema should be repeated three times in twenty-four hours. "If there is great thirst, a pint of warm physiologic saline solution should be injected periodically into the colon."

On returning to stomach nutrition he cautions against overdistension of this organ. "Small quantities of ice-cold milk and lime water (three parts milk to one part lime water) may be given at two-hour intervals. A teaspoonful of meat jelly should be administered at three-hour intervals, as the amount of milk given is not sufficient for the nutrition. The meat jelly is prepared by boiling beef with calf's foot until it is thoroughly cooked, when a gelatinous mass is formed. While cooking, an egg is added, stirring the whole meanwhile, and the mixture is then strained. Salt is added to suit the taste, and the food is given cold." As the object is to prevent hyperacidity of the stomach, if possible, "care must be taken in the administration of albumins, but it may be necessary to give some carbohydrates." He quotes Senator as recommending gluten, fat and sugar with small quantities of albuminoids in a decoction of gelatin. For the fat he uses in addition to the cream, small bits of frozen butter. The theory of the gelatin is that it prevents hemorrhage and at the same time replaces in a degree the albumin. The diet should be gradually but slowly enlarged and made more liberal, but meat should be the last food given, though Lenhartz does not believe that scraped raw beef does any harm.

We are a little surprised that the author has not more belief in tannic acid or in suprarenal extract in the treatment of hemorrhage from ulceration of the stomach. We are also not sure that a solution of iron may not be needed in serious danger from gastric hemorrhage, however objectionable the clots may be. Calcium chlorid has also been given in solution as a styptic in gastric hemorrhage.

Duodenal Ulcer.

Dr. G. W. McCaskey, Fort Wayne, Ind. (*Fort Wayne Medical Journal-Magazine*), thinks the same etiologic factors are at work in causing duodenal ulcer as cause gastric ulcer and peptic ulcer of the lower end of the esophagus. "While there is no doubt that the action of the gastric juice, i. e., pepsin and hydrochloric acid, is the essential factor in the final destruction and solution of the tissue which occupies the site of the ulcer, there must be something back of this which destroys the vitality of the tissue at the point of ulceration without which such erosive digestion could not occur." Dr. McCaskey does not believe that hyperacidity or hyperchlorhydria is the only cause of these ulcers, or even a necessary cause, as he has seen these ulcerations with complete absence of hydrochloric acid in the stomach contents.

"The differential diagnosis of duodenal from gastric ulcer is sometimes a very difficult and often an impossible problem when we remember that gastric ulcer occurs most frequently at the pyloric end and that duodenal ulcer is by much the most frequent also near the pylorus, it will be readily understood that the symptomatology may be practically identical in the two conditions. There are, however, certain symptoms which enable us to make the differentiation with more or less certainty in some cases, although it may be impossible in others.

"The seat of pain, and especially tenderness, differs somewhat. In duodenal ulcer it is mostly found just below the liver in the right parasternal line, while in ulcer of the stomach it is higher up and further to the left. If, however, we recall how short may be the distance from a duodenal ulcer on one side of the pylorus to a gastric ulcer on the other side, we can readily see that if the tenderness corresponds to the location of the ulcer the difference may not be great. Furthermore, the mobility of the stomach even in health and especially its altered position even in ptosis and ectasia, will tend to throw doubt on the validity of the particular sign.

"The time of occurrence of the pain is also very significant. As a general rule the pain in gastric ulcer occurs almost immediately after the ingestion of food, while that of duodenal ulcer does not usually commence sooner than two or three, and may be as late as four or more hours after the meal. These are the typical time relations of pain to the digestive processes, but here again we meet numerous exceptions and occasionally find that the pain of gastric ulcer is late and the pain of duodenal ulcer early. Nevertheless, this is one of the most valuable diagnostic points to aid in the differentiation of the two conditions.

"The treatment of duodenal ulcer should be governed by the same general principles as are applicable to the treatment of gastric ulcer. Rest as absolute as possible, and freedom from all irritating material are the fundamental requirements. The anatomic and physiologic conditions presented, however, are somewhat different from those which obtain in gastric ulcer, and the treatment deserves a separate consideration. The thinness of the duodenal wall makes perforation much more likely to occur and the hazards, therefore, are very much greater than in gastric ulcer. Active peristalsis or the presence of hard food masses are especially dangerous by producing a tension of the base of the ulcer which may at any moment cause perforation into the colon, pancreatico-duodenal-artery, vena cava or peritoneal cavity. On making a diagnosis, or entertaining a strong suspicion of duodenal ulcer, the patient should be placed in bed and kept absolutely quiet. Nothing whatever should be taken by the stomach either in the way of food or drink.

"With regard to stomach medication we must again be governed by the individual case. If we have reason to believe or have been able to determine by a chemical examination of the contents of the stomach, obtained by lavage, that there is a continuous secretion in the stomach in the intervals of digestion, then alkalies and especially bismuth in large doses, should be given. If, on the other hand, the stomach is believed to be empty and free from secretion, when neither food nor fluid has been taken, then I believe that the best treatment is to withhold drugs of all sorts from the stomach, because even bismuth will probably excite some secretion and peristalsis, otherwise it would never reach the duodenal ulcer. The symptoms must be combated, of course, as they arise. Pain may require codein or even morphin, and vomiting under certain conditions may be relieved by gastric lavage."

Tobacco Poisoning.

Dr. L. Pierce Clark, New York (*Medical Record*, June 29, 1907), sums up the results of experimentations on animals with tobacco by stating that it is fairly proved that:

"1. Tobacco is primarily a cardiovascular poison.

"2. It is first an excitant to the neuromuscular apparatus and then a motor nerve depressant, and finally a paralyzant of the central and peripheral nerves of the heart and lungs.

"3. It can produce a mild type of degenerative neuritis."

When studying what appear to be functional disturbances in male patients we should never forget to inquire concerning the amount of tobacco that is being used. The action on the heart is rather generally understood, but that young men can prevent the proper development of their lung capacity by oversmoking is not sufficiently recognized. It is also not noted that leg weariness, pains in the calves of the legs, and even joint pains and irregular or localized nerve pains, to say nothing of digestive disturbances, are often caused by the overuse of tobacco. Profuse perspiration on least exertion, and especially of the palms of the hands, with the tendency of the hands and feet to be cold are many times indicative of overuse of tobacco. Hence any treatment that is instituted for the disturbed conditions must be coincident with the absolute withdrawal or decided diminution of the tobacco.

When the tobacco is abruptly stopped bromids should be given for a few days, as they prevent the intense nervousness caused by the withdrawal of the narcotic. A laxative is also often needed, as nicotin is a stimulant to intestinal peristalsis. Many times small doses of digitalis and strychnin are needed to tone up the circulatory system.

Cerebral Hemorrhage.

Sir William R. Gowers, in the *British Medical Journal*, July 6, 1907, emphasizes the need for absolute physical and mental rest in this condition. He decries the transportation of a patient who has suffered from cerebral hemorrhage, or thrombosis or embolism, from one place to another. He is convinced that jarring and physical disturbance may cause a fatal termination in a case in which the patient might otherwise recover. "If a vessel has ruptured, an active purge is wise, such as croton oil, to lower the blood pressure. Salines, it should be remembered, seldom alone act well in a horizontal posture; they need the aid of gravitation.

"If there is reason to regard the lesion as thrombosis, little more can be wisely done. We have no practical agents to reduce the coagulability of the blood. Citric acid is said to have this effect, and may be given as lemon juice in plenty of water. When hemorrhage may be confidently diagnosed, the treatment should be such as to increase the tendency of the blood to clot. Salts of calcium have this effect, and may be given in whatever form can be most promptly obtained. Arsenic, by hypodermic injection, has a similar effect, and one-fifth of a grain of the arsenate of sodium may be given in a few drops of water. There is no reason to believe that small doses of iodid of potassium, which are constantly given in the early or later stage, exert the slightest influence."

We are surprised that a lowering of the blood pressure is not more considered in this condition, as if the blood pressure is high venesection should certainly be done. Also nitroglycerin may be given to dilate the vessels of the body and thus relieve the tension in the head.

If there is a gouty condition, Gowers suggests the administration of lithium, or potassium combined with some diuretic as spirits of juniper, and if there is a weak heart action he would also give digitalis. We can not agree with him that the iodid of potassium as an after-treatment is of no benefit, especially if any condition of arteriosclerosis is present. Also when there is thrombosis we should consider it of value. Iodid of potassium in small doses, not sufficient to disturb the digestion, certainly renders the blood pressure less high and diminishes the viscosity of the blood.

The calcium above referred to may be administered in the following manner:

℞.	gm. or c.c.		
Calcii chloridi	5		gr. lxxv
Acaciæ granulatæ	10	or	ʒiiss
Aquæ menthæ piperitæ	ad 100		℥iii

M. Sig.: A teaspoonful, in plenty of water, every three hours.

Mouth Wash.

℞.	gm. or c.c.		
Sodii bicarbonatis	.50		gr. viii
Sodii boratis	.50		gr. viii
Olei pini	1	or	m. xv
Glycerini	10		flʒiiss
Aquæ	ad 100		fl℥iv

M. et sig.: Mix with four parts of water for mouth wash, or use undiluted in atomizer.

Lotions for Pruritus.

℞.	gm. or c.c.		
Resorcinolis	10		ʒiiss
Thymolis	1		gr. xv
Sodii boratis	2		gr. xxx
Phenolis liquefacti	10	or	flʒiiss
Glycerini	10		flʒiiss
Alcoholis	50		fl℥ii
Aquæ	ad 500		Oi

M. et sig.: Apply externally.

℞.	gm. or c.c.		
Sodii salicylatis	10		ʒiiss
Chlorali hydrati	4		ʒi
Glycerini	10	or	flʒiiss
Alcoholis	10		flʒiiss
Aquæ	ad 200		fl℥vi

M. et sig.: Apply externally.

Correspondence

Chemistry in Medical Colleges.

Philadelphia, Sept. 14, 1907.

To the Editor:—Among the many ways in which The Journal has benefited the profession, not the least, in my opinion, is the information given concerning the state board examinations, the questions and the results. Unfortunately, the full details are necessarily withheld, and it is even unusual for the public to be furnished the marks for the individual branches. In a recent number[1] the latter data are given, and some points that appear from a study of them are, I think, worthy of special mention. According to that report, 90 applicants passed and 32 failed. Among the former, the chemistry has the lowest mark (or, at least as low as any) in 34 instances; among the latter chemistry has the lowest mark in 16. More than one-third of the successful candidates and one-half of the unsuccessful found their danger line in chemistry. In a few other cases the chemistry mark is saved from being the lowest only by a narrow margin.

It seems to me that this fact is due to three conditions: Chemistry is a very difficult branch; it is discontinued in most colleges at the close of the second year, so that the student has two years in which to forget it; the examinations are, as a rule, more unfair than in any other branch. As an illustration of the last mentioned point, I will refer to the chemistry questions given by the Vermont board.[2] As the series is brief (which is one merit) I will quote it:

> 1. What is allotropy? In what elements is it exhibited? 2. Describe three elements belonging to the nitrogen group. 3. Describe the properties of ozone. At what time of year is it most abundant in the air? 4. Give an explanation of the processes of fermentation and putrefaction. 5. State important differences in composition of human and cow's milk. Describe in detail tests for albumin in urine.

The second part of the first question could scarcely be answered properly by any but special students in the department of physical chemistry. The second part of the third question is unfair. It is unlikely that the information will be found in ordinary text-books, and even if found, the statement is of no practical interest. The fourth question is unanswerable in the present state of our knowledge. The framer of the question probably intended to ask for "some account of the phenomena of the two processes." The only questions that are both fair and relevant are the second and fifth, and even the former is not well worded. I have watched with interest the trend in the case of chemistry questions. An improvement over the early forms may be noted, but much remains to be accomplished.

Henry Leffmann.

Plastic Radiography.

Cleveland, Ohio, Sept. 22, 1907.

To the Editor:—Replying to the letter of Dr. J. E. Tuckerman in The Journal, September 21, page 1042: To give in full the reasons why we believe that the pictures shown in our article on Plastic Radiography (The Journal, August 31, page 751), are reproductions of the actual impressions made by the x-light from the use of two tubes on the negative plate would take more space than we are here allotted. We have ourselves once held the same views about it being only a "fake," as does Dr. Tuckerman, but several months' work convinced us that if we did not get a good plastic negative in the first place no amount of "out of register" or other "dodging" could produce a good plastic.

These plastic radiographs are not only "pretty and artistic pictures," but they are correct down to the finest details.

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[1] The Journal, Sept. 7, 1907, p. 873.
[2] The Journal, Sept. 14, 1907, p. 963.

Reliefs made by placing plates out of register are blurred and obtain their contrast effects at the expense of the details. Our plastics show the finest details of the bony structure and are therefore anatomically correct and trustworthy. (This detail is beautifully reproduced in the excellent half-tone cut of the hand on page 752 of The Journal.) While we do not deny that by "dodging" one can obtain relief effects from any old negative, this fact does not detract from the actual value of the plastics any more than the fact that there can be made an artificial oil of wintergreen detracts from the value of the natural product.

The double-coated plates, made for us by the Lamieré Company, of Burlington, Vt., are not, as Dr. Tuckerman says, to decrease but rather to increase the contrasts, which as any one may know, is usually lacking on the ordinary *x*-ray plates. We do not even pretend to understand the "elementary" mathematical discussion. According to our algebra the combination of two plates, one a negative and one a positive, is an addition, not a multiplication, and the formula ought to read as follows: $K = (\pm) F + (\mp) F'$, instead of $K = F \times F'$, and as the points F and F′ are identical points, $F = F'$ and $K = 0$. Q. E. D.

Walter G. Stern.

Queries and Minor Notes

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

RATTLESNAKE BITES.

Santee Agency, Santee, Neb., —— ——

To the Editor:—Please state in The Journal (1) the present status of the treatment of the bite of the rattlesnake. (2) Is there a known specific antidote? I have been told that a former physician of this agency had a formula emanating from the Smithsonian Institution, which given hypodermically was a specific, he having used it specifically in two cases. E. S. Hart, M.D.

Answers—1. Many consider the most practical method of dealing with all kinds of venomous snake bites to be by potassium permanganate, which, it has been demonstrated, neutralizes about its own weight of every kind of snake poison. A good method of employing it is that suggested by Brunton and Fayrer, of rubbing the pure crystals into the wound after ligating the limb above it, making free incisions, and applying suction by the mouth (care being taken that there is no abrasion of the mucous membrane) or by cupping, to encourage transudation of the poison. W. H. Haw recommends the use of an ethyl chlorid spray to freeze the tissues and thus, as it were, to keep the poison imprisoned in the part, so that it may be effectively dealt with by scarification, suction and potassium permanganate. Rogers reports 12 cases of snake bite, treated with permanganate crystals, with 10 recoveries, the two deaths occurring in patients who had not been seen until after a lapse of 9 hours. The liberal use of alcohol in the shape of whisky or brandy is also a practical measure and one in favor of which there is incontestable evidence. It is more commonly available, when needed, than any other, and may prove useful as an adjuvant, even when more scientific measures are at hand. Persons prostrated by snake bite do not appear to become intoxicated by even huge doses of alcoholics. Other measures that have been recommended are, strychnin hypodermically, adrenalin, 15 minims of a 1/1000 solution, intravenous injection of liquor ammoniæ, and artificial respiration, when indicated. O. T. Brown (*Medical Council,* July 1907), in addition to the hypodermic use of strychnin, ligature and incision, used immersion in 1/500 bichlorid solution in a successful case.

2. There is a specific therapy for snake bite, but it is so very specific that apparently each kind of snake poison requires its own particular serum antidote. Calmette's antivenin, for instance, appears of service only in cobra bites. Brazil reported in 1903 the use of his "antiophidic" serum in 21 cases, three of them very grave, in which recovery was prompt on the injection of from 20 to 60 c.c. of the serum. He makes three kinds, including one for rattlesnake poison. The necessity for different sera seems to be dependent on the fact that, as shown by Christini's experiments, snake poisons are products of digestion, the poison glands freeing the body from poisonous compounds formed in the blood. According to Fraser, the dried serum of a snake is practically identical with the snake's antivenin, i. e., the substance obtained from the blood serum of animals immunized by injection with small doses of the snake's poison. Bassewitz recommends the injection into the flank or scapular region, with aseptic precautions, of the snake's liver triturated with 50 to 100 c.c. of a .07 per cent. salt solution, and filtered through filtering paper or cotton. Also, since the elimination of the poison takes place largely through the stomach, he recommends drinking the contents of the snake's gall bladder as an additional means of bringing the antidote into direct contact with the poison. The necessity for different antivenins, and the fact that they are very expensive to prepare and spoil very readily, are serious causes militating against their usefulness.

3. Write to the Smithsonian Institution, Washington, D. C.

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The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Sept. 21, 1907:

Davis, W. B., deputy surgeon-gen., will proceed, at the proper time, to Omaha, and report in person not later than Oct. 31, 1907, for duty as chief surgeon, Department of the Missouri. He will retain station in New York City pending his departure for Omaha.

Collins, C. C., asst.-surgeon, assigned to duty as surgeon, Camp at St. Joseph, Mo., during military tournament at that city, Sept. 23 to 28, 1907.

The following-named officers will report in person, in service uniform, mounted, to the Dept. Commander, on the dates and at the posts indicated below, for the purpose of testing their skill and endurance in horsemanship as prescribed in Special Orders 210, Dept. of the East and General Orders 181, War Dept., Aug. 30, 1907:

At Camp Captain, John Smith, Jamestown Exposition, Va., Oct. 11, 1907: Carter, W. F., surgeon; Woodruff, C. E., surgeon.

At Fort Ethan Allen, Vt., Oct. 16, 1907; Powell, J. L., surgeon; Gibson, R. J., surgeon; Hallock, H. M., surgeon.

At Fort Myer, Va., Oct. 21, 1907: Byrne, C. B., asst. surg.-gen.; Richard, Chas., surgeon; Mearns, E. A., surgeon; Winter, F. A., surgeon; Wilson, W. H., surgeon.

Reynolds, F. P., surgeon, assignment to duty at Fort Sill, Okla., revoked, and instead, ordered to Fort Snelling, Minn., for duty.

Arthur, W. H., and Edie, G. L., surgeons, appointed members of an Army retiring board to meet at Washington Barracks, D. C., on Oct. 15, 1907, for the examination of such officers as may be ordered before it.

Woodall, W. P., asst.-surgeon, relieved from duty at Fort Sill, Okla., and ordered to the Philippine Islands, for duty.

Boyer, P. L., asst.-surgeon, relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., and ordered to the Philippine Islands for duty.

Macy, F. S., asst.-surgeon, relieved from duty at Fort Williams, Me., and ordered to the Philippine Islands for duty.

Harvey, P. F., asst.-surgeon-gen., will proceed to Fort Thomas, Ky., and Forts Wayne and Brady, Mich., for the purpose of making an inspection of the sanitary conditions at those posts.

Gregory, J. C., asst.-surgeon, granted three months' leave of absence.

Brown, O. G., asst.-surgeon, will proceed to St. Joseph, Mo., for duty with troops at the camp hospital at that city during the tournament.

Banta, W. P., asst.-surgeon, ordered to Fort Riley, Kans., for temporary duty.

Gosman, G. H. R., asst.-surgeon, to accompany the 16th Infantry from San Francisco, to Fort Crook, Neb.

Zinke, S. G., asst.-surgeon, to accompany the 16th Infantry from San Francisco, to Fort Crook, Neb.

Lewis, W. F., asst.-surgeon, to accompany 16th Infantry from San Francisco, to Fort Logan H. Roots, Ark.

Lewis, W. F., surgeon, granted 23 days' leave of absence.

Havard, V., asst.-surgeon general., Carter, W. F., and Woodruff, C. E., surgeons, detailed to represent the Medical Department of the Army at the 16th annual meeting of the Association of Military Surgeons of the U. S. at the Jamestown Exposition, Oct. 15 to 18, 1907.

Cullen, C. W., contract surgeon, left Fort Sam Houston, Texas, for Fort Logan H. Roots, Ark., for temporary duty.

Worthington, J. R., contract surgeon, returned to duty at Fort Oglethorpe, Ga., from temporary duty at Fort Moultrie, S. C.

Chamberlain, G. E., contract surgeon, left Fort Walla Walla, Washington, on practice march with troops B and D, 14th Cavalry.

Repp, J. J., contract surgeon, granted leave of absence for 16 days, about Sept. 20, 1907.

Magee, J. C., contract surgeon, reported at Fort Michie, N. Y., for duty.

Garcia, L. C., contract surgeon, will accompany Battery C, 5th Field Artillery, to Fort Leavenworth, Kans., and then return to his station, Fort Riley, Kans.

Tuttle, A. D., contract surgeon, will accompany 2d Cavalry, to St. Joseph, Mo., report for duty at the hospital to be established at the camp, and at the proper time return to Fort Des Moines, Iowa, with the Second Cavalry.

Wolven, F. H., dental surgeon, will proceed, at the proper time, to San Francisco, and take transport to sail on or about Nov. 5, 1907, for the Philippine Islands.

Woolley, H. C., contract surgeon, will proceed from Fort Gibbon, Alaska, to Fort Davis, Alaska, for duty.

Coffey, A. McD., contract surgeon, will proceed from Fort Davis, Alaska, to Vancouver Barracks, Washington, and report to the Adjutant General of the Army for further orders.

Graig, E. J., dental surgeon, is relieved from duty in the Philippines Division and will proceed not later than Sept. 25, 1907, to Fort Leavenworth, Kans., for duty.

Millikin, J. D., dental surgeon, will proceed from Ft. Leavenworth, Kans., to Fort Sheridan, Ill., for duty.

McAlister, J. A., dental surg., will proceed from Fort Sheridan, Ill., to San Francisco, and take first available transport for the Philippine Islands for duty.

Wilson, E., contract surgeon, will proceed from Mohave City, Ariz., to Presidio of Monterey, Cal., for duty.

Bell, L. P., contract surgeon, left Fort Sheridan, Ill., on 10 days' leave of absence.

Barney, F. M., contract surgeon, relieved from further duty in Cuba and on expiration of present leave of absence will proceed to Fort Myer, Va., for duty.

Roberts, E. E., contract surgeon, will proceed from Fort Riley, Kans., to Fort Sill, Okla., for duty.

Bell, L. P., contract surgeon, will proceed to his proper station, Fort Riley, Kans., for duty.

Parkman, W. E., contract surgeon, returned to duty at Fort Keogh, Mont., from duty with troops, to San Francisco.

Navy Changes.

Changes in the Medical Corps, U. S. Navy for the week ending Sept. 21, 1907:

Campbell, F. E., P. A. surgeon, detached from the *Washington*, ordered home, resignation accepted to take effect October 1, 1907.

Clifford, A. B., asst.-surgeon, orders of June 17, revoked; detached from the *Maryland* and ordered to the Naval Hospital, Mare Island, Cal.

Cather, D. C., asst.-surgeon, detached from the *Pennsylvania* and ordered to the Naval Training Station, San Francisco.

Pleadwell, F. L., surgeon ordered to the Bureau of Medicine and Surgery, Navy Department.

Ohnesorg, K., P. A. surgeon, detached from the *Wabash* and ordered to the Naval Hospital, Philadelphia.

Belknap, J. L., asst.-surgeon, detached from duty with the Marine detachment, Camp Harrington, Va., and ordered to the *Wabash*.

Vickery, E. A., asst.-surgeon, ordered to the Naval Hospital, Boston.

Cowan, J., pharmacist, retired, detached from the Naval Recruiting Station, New York, N. Y., and ordered home.

Hoen, W. S., P. A. surgeon, ordered to additional duty with Recruiting Party No. 1.

Ames, H. E., medical inspector, detached from duty on board the *Connecticut* as fleet surgeon of the Atlantic Fleet, and ordered to command the Naval Hospital, Boston.

McLean, N. T., asst.-surgeon, detached from the Naval Hospital, Washington, D. C., and ordered to the Naval Station, New Orleans, September 25.

Grayson, C. T., asst.-surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Navy Yard, Washington, D. C.

The following assistant surgeons and acting assistant surgeons have been ordered to report for course of instruction at the Naval Medical School, Washington, D. C., Sept. 30, 1907: Asst.-Surgeons: M. E. Rose, W. H. Short, H. L. Kelly, M. A. Stuart; Acting Asst.-Surgeons: S. Bacon, C. W. O. Bunker, C. J. Holeman.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended Sept. 18, 1907:

Stimpson, W. G., surgeon, granted leave of absence for three days from Sept. 17, 1907.

Cofer, L. E., P. A. surgeon, temporarily relieved from duty at Honolulu, and assigned to temporary duty at Ellis Island, New York.

Cofer, L. E., P. A. surgeon, leave of absence granted for one month from August 22, amended to read for 17 days only.

Mathewson, H. S., P. A. surgeon, directed to proceed to Canton, Ohio, for special temporary duty; on completion of which to rejoin his station at Cleveland, Ohio.

Goldberger, Joseph, P. A. surgeon, granted leave of absence for 11 days from September 3, on account of sickness.

Holt, J. M., P. A. surgeon, directed to proceed to Portland, Ore., for special temporary duty; on completion of which to rejoin his station at Columbia River Quarantine.

Vogel, C. W., P. A. surgeon, directed to proceed to San Francisco and report to P. A. Surgeon Blue for special temporary duty, Sept. 16, 1907.

Creel, R. H., asst.-surgeon, directed to proceed to San Francisco and report to P. A. Surgeon Blue for special temporary duty, Sept. 16, 1907.

Roberts, N., asst.-surgeon, leave of absence granted for 7 days from Sept 11, 1907, under Paragraph 191, Service Regulations, amended to read for two days only.

Ashford, F. A., asst.-surgeon, granted extension leave of absence for 10 days from Sept. 13, 1907.

Bean, L. C., acting asst.-surgeon, granted leave of absence for two days from September 16, 1907.

Griffitts, T. H. D., acting asst.-surgeon, granted leave of absence for 7 days from Sept. 10, 1907, and excused from duty without pay for 7 days, from Sept. 17, 1907.

Hicks, B. I., acting asst.-surgeon, granted leave of absence for 21 days from Sept. 6, 1907.

Royster, W. L., acting asst.-surgeon, granted leave of absence for ten days from Sept. 15, 1907.

Tuttle, Jay, acting asst.-surgeon, granted leave of absence for 16 days from Sept. 16, 1907.

BOARDS CONVENED.

A board of medical officers was to meet on the call of the chairman for the examination of an employé of the Life-Saving Service at Cape Charles, Virginia. Detail for the Board: Surgeon C. P. Wertenbaker, chairman, and Acting Asst.-Surgeon G. P. Moore, recorder.

A board of Medical officers was to meet at Fort Stanton, N. M., Oct. 3, 1907, for the examination of Pharmacist J. M. Bell, to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Surgeon P. M. Carrington, chairman, and P. A. Surgeon L. D. Fricks, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Sept. 20, 1907:

SMALLPOX—UNITED STATES.

California: San Francisco, Aug. 25-31, 2 cases.
Colorado: 12 Counties, July 1-31, 65 cases.
Indiana: 12 Counties, July 1-31, 74 cases.
Kansas: 21 Counties, July 1-31, 76 cases.
Minnesota: St. Paul, July 1-31, 19 cases.
New York: Homer, Aug. 5-Sept. 6, 1 case; Syracuse, Aug. 7-Sept. 6, 1 case.
North Carolina: Greensboro, Sept. 1-7, 1 case.
Pennsylvania: Spring City, Aug. 19-Sept. 6, 1 case.
Vermont: Marshfield, July 15-Sept. 4, 6 cases.
Wisconsin: 30 Counties, April 1-June 30, 426 cases, 2 deaths; Milwaukee, Sept. 1-7, 2 cases.

SMALLPOX—FOREIGN.

Austria: Vienna, Aug. 18-24, 28 cases, 2 deaths.
Brazil: Para, Aug. 18-31, 25 cases, 19 deaths; Pernambuco, July 1-31, 225 deaths; San Paulo, July 28-Aug. 4, 1 death.
China: Shanghai, Aug. 1-8, 1 case (from U. S. S. S. *Pennsylvania*, from Chefoo).
Colombia: Cartagena, to Aug. 27, present.
Canada: Halifax, Sept. 1-7, 1 case.
Ecuador: Guayaquil, Aug. 18-24, 1 death.
Formosa: General, Sept. 28-Aug. 3, 14 cases, 13 deaths.
Greece: Piræus, Aug. 18-24, 1 case.
Java: Batavia, Sept. 28-Aug. 10, 8 cases.
India: Bombay, Aug. 13, 1 death; Calcutta, July 27-Aug. 3, 9 deaths; Madras, Aug. 3-9, 1 death.
Italy: General, Aug. 12-29, 24 cases.
Madeira: Funchal, Aug. 26-Sept. 1, 5 cases, 1 death.
Mexico: Aguas Calientes, Aug. 24-31, 4 deaths; Mexico City, Aug. 4-10, 4 deaths; Monterey, Aug. 26-Sept. 1, 1 death.
Russia: Moscow, Aug. 11-17, 1 case, 2 deaths; Reval, July 1-31, 4 cases; St. Petersburg, Aug. 11-17, 1 case, 1 death.
Portugal: Lisbon, Aug. 18-24, 1 case.
Venezuela: La Guira, Aug. 25-31, present.

CHOLERA.

India: Bombay, Aug. 7-13, 38 deaths; Calcutta, July 21-Aug. 3, 401 deaths; Cochin, July 21-26, 8 deaths; Madras, Aug. 3-9, 6 deaths; Rangoon, July 28-Aug. 3, 1 death.
Japan: Moji, Aug. 15-21, epidemic; Nagasaki, Aug. 4-10, 3 cases; Shimonoseki, Aug. 4-10, 1 case (from S. S. *Hakaui Maru*, Aug. 10-21, epidemic); Yokahama, Aug. 1-17, 1 case.
Philippine Islands: Manila, July 26-Aug. 1, 1 case.
Russia: Archiersiski-Passelock, Aug. 19, present; Astrachan, Aug. 14, present; Ataman-Stanitza, Aug. 19, present; Samara, July 22-Aug. 5, 23 cases, 6 deaths; Saratov, July 16-Aug. 5, present.
Singapore: Straits Settlements, July 4-Aug. 3, 21 deaths.

YELLOW FEVER.

Brazil: Manaos, Aug. 3-17, 7 deaths; Para, Aug. 18-31, 8 cases, 8 deaths.
Cuba: Cienfuegos, Sept. 11-17, 11 cases, 3 deaths, total since recent outbreak to Sept. 17, 50 cases and 13 deaths; Habana, Sept. 10-14, 2 cases, 1 death (from Palos); Matansas Province: Bermeja, Sept. 10, 1 case, 1 death; Santiago Province, Gibara, Sept. 12, 1 case (from S. S. *Galveston*, from Guanto, Venezuela).
Ecuador: Guayaquil, Aug. 11-17, 1 death.
British West Indies: Trinidad, Port of Spain, Aug. 12-18, 2 cases, 2 deaths.

PLAGUE—UNITED STATES.

California: San Franciso, Sept. 11-17, 8 cases, 8 deaths; total number of cases from Aug. 12-Sept. 17, 29 cases, 17 deaths.

PLAGUE—FOREIGN.

Africa: King Williams Town, July 30-Aug. 1, 1 case, 1 death (from Dubois location); Izeli, June 23-Aug. 2, 6 cases, 6 deaths.
Chile: Arica, July 31-Aug. 6, 7 cases.
Brazil: Pernambuco, July 1-15, 2 deaths.
China: Amoy-Kulangsu, to Aug. 10, 25 deaths daily.
French Indo-China: Saigon, July 26-Aug. 1, 3 cases, 3 deaths.
India: General, July 7-13, 5,557 cases, 4,899 deaths; July 14-27, 3,995 cases, 3,335 deaths; Bombay, Aug. 6-13, 13 deaths; Calcutta, July 21-Aug. 3, 20 deaths.
Japan: Osaka, May 29-Aug. 3, 6 cases, 7 deaths; Yokahama, vicinity of, Aug. 4-21, 2 cases, 2 deaths.
Mauritius: July 25-Aug. 8, 1 case, 1 death.
Peru: Trujillo, Aug. 9-15, 3 cases, 1 death.
Philippine Islands: Manila, July 23-25, 1 case, 1 death (from German S. S. *Ferd Laiesz*).
Straits Settlements: Singapore, July 21-Aug. 3, 2 deaths.
Siam: Bankok, July 14-20, 2 cases, 2 deaths.

Marriages

David H. Lando, M.D., to Miss Ida Oberg, both of St. Paul, Minn., September 11.

Frank C. Greene, M.D., Chicago, to Mrs. Mattie May Smith, in Oswego, N. Y., in July.

Roger S. Morris, M.D., to Mrs. Mary Bledsoe Carter, both of Baltimore, September 10.

I. H. Levin, M.D., Berwick, La., to Miss Rose Oppenheim, of New York City, September 19.

H. A. Cobb, M.D., Dunlap, Iowa, to Miss Gertrude Holcomb, at Earling, Iowa, September 1.

Stanley R. Perkins, M.D., Mishawaka, Ind., to Miss Cora Etta Hill, of Chicago, September 11.

James P. Lane, M.D., Cascade, Iowa, to Miss Mary Leyden, of Independence, Iowa, September 12.

William C. Hall, M.D., Coffeyville, Kan., to Miss Nellie E. McCord of Golden, Ill., September 4.

John H. Charters, M.D., Boyne City, Mich., to Miss Nellie B. Hansen, of Flint, Mich., September 10.

William Friesleven, M.D., St. Cloud, Minn., to Miss Anna Kremer of St. Paul, Minn., August 31.

John Donnington Bartlett, M.D., Chicago, to Miss Edith Booker of Helena, Mont., September 4.

Harold Hill Baker, M.D., Rochester, N. Y., to Miss Mabel Romer of Buffalo, N. Y., September 5.

William S. Nicholl, M.D., Rockledge, Pa., to Miss Margaret J. Knight, of Philadelphia, September 11.

James H. Bindley, M.D., San Antonio, Texas, to Miss Isa McBean of New York City, September 7.

George W. Betson, M.D., East New Market, Md., to Miss Ida Carke, at Laurel, Del., September 4.

Edward F. Malone, M.D., Nashville, Tenn., to Miss Fay Hyson, of Hempstead, Md., September 24.

Eugene J. Hickey, M.D., Barnard, Vt., to Miss Alice Vivian Everett, of Burlington, Vt., September 11.

W. P. Hanna, M.D., Tappan, Ohio, to Miss Mary Florence Guyton of Winterset, Ohio, September 18.

Frank Edwin Coulter, M.D., Omaha, to Miss Annabel Manetta Fishback of Northfield, Minn., July 17.

Edward S. Johnston, M.D., Mt. Auburn, Cincinnati, to Miss Alice Stuebing, of Cincinnati, September 25.

John Francis Stein, M.D., to Miss Emma Kern, both of Cecil, Wis., at Shawano, Wis., September 10.

Charles U. Aydelott, M.D., Cincinnati, to Miss Margaret Kissick of Lewis County, Kentucky, recently.

Clayton Milo Brown, M.D., Buffalo, N. Y., to Miss Evlyn Maud Haines of Mountsburg, Ont., September 11.

Robert Harper, M.D., medical missionary to Burmah, to Miss Nellie Briggs of Oxford, Mich., September 6.

Warren J. Howard, M.D., Roxbury, Boston, to Miss Lena Evelyn Everett, of Burlington, Vt., September 11.

George Edward Koontz, M.D., Salem, Va., to Miss Reba Ball Browning, of Pocahontas, Va., September 11.

Edwin D. Moten, M.D., Winchester, Texas, to Miss Susie Annetta Whitlock of Lynchburg, Va., September 18.

Charles Fitzgerald, M.D., Hartford, Conn., to Miss Josephine Paula Schweiger, in New York City, September 4.

Byron Edgar Giannini, M.D., Coalmont, Ky., to Miss Margaret Frances May of Central City, Ky., September 25.

Alfred M. Smith, M.D., Hagerstown, Md., to Mrs. Margaret C. Bishop, at Shannondale Springs, W. Va., September 7.

W. Brown Watson, M.D., Brunswick, Md., to Miss Eva Katherine Mohler, at Summit View, W. Va., September 3.

R. Ralph Ferguson, M.D., Irving Park, Chicago, to Miss Goldie Abigail Edgerton, of Hastings, Neb., September 17.

Charles Stewart Morrison, M.D., Colorado City, Colo., to Miss Lillian Burnham of Woods Cross, Utah, September 12.

John C. Kibler, M.D., Elkins, W. Va., to Mrs. Brewster D. Duke, of Tarpon Springs, Fla., at Warren, Pa., September 7.

Wilfred George Grandison, M.D., Charlestown, Boston, to Miss Alice Maude Squire of West Somerville, Mass., September 3.

Micajah Boland, M.D., acting assistant surgeon U. S. Navy, Ft. Smith, Va., to Miss Elizabeth Sydnor Terry, of News Ferry, Va., at the U. S. Naval Hospital, Norfolk, Va., September 11.

Deaths

Patrick Livingston Murphy, M.D. University of Maryland School of Medicine, Baltimore, 1871; in 1879 assistant physician at the Western State Hospital for the Insane, Staunton, Va.; superintendent of the State Hospital for the Insane, Morganton, N. C., since 1882; one of the leading alienists of the South; a member of the Medical Society of the State of North Carolina and Burke County Medical Society; a Confederate veteran; some-time member of the Board of Medical Examiners of North Carolina; a director of the North Carolina School for the Deaf and Dumb; president of the Medical Society of the State of North Carolina, and an officer of the American Medico-Psychological Association; died at his home in Morganton, September 11, after an illness of several months, aged 58. By special order of the board of directors, Dr. Murphy was buried in an attractive location on the grounds of the State Hospital, September 12.

John Henry Jackson, M.D. University of Vermont College of Medicine, Burlington, 1865; a member of the American Medical Association; a delegate to the International Medical Congress in Berlin in 1890; professor of physiology in the University of Vermont since 1882; president of the board of directors of the Barre (Vt.) City Hospital; superintendent of the public schools of Barre in 1881 and 1882, and for many years trustee and treasurer of the Barre Academy; a member of the legislature in 1878 and 1879; in 1903 mayor of Barre; president of the Barre Savings and Trust Company, and vice-president of the National Bank of Barre; one of the most prominent practitioners and citizens of that portion of Vermont; died at his home, September 13, three days after an operation for appendicitis, aged 63.

Francis Hartman Markoe, M.D. College of Physicians and Surgeons in the City of New York, 1879; a member of the medical societies of the State and County of New York; Academy of Medicine; New York Pathological Society; New York Surgical Society, and the American Surgical Association; from 1880 to 1884 assistant demonstrator of anatomy, then demonstrator of anatomy, lecturer on clinical surgery and professor of clinical surgery, at the College of Physicians and Surgeons; one of the surgical staff of St. Luke's Hospital; consulting surgeon to the New York Hospital and Orthopedic Hospital, and attending surgeon at Bellevue and the New York Hospital; died at his home in New York City, September 13, from heart disease, after a prolonged illness, aged 51.

William G. B. Harland, M.D. University of Pennsylvania, Department of Medicine, Philadelphia, 1890; a member of the American Medical Association; College of Physicians of Philadelphia; Philadelphia Pathological Society; the American Rhinological, Laryngological and Otological Society, and Philadelphia Pediatric Society; instructor in laryngology in the University of Pennsylvania; instructor in otology, Philadelphia Polyclinic; laryngologist to Phipps Institute for Tuberculosis, and laryngologist to the Philadelphia General Hospital; a prominent specialist on diseases of the ear, nose and throat, died in the City Hospital, Worcester, Mass., September 14, an hour after an operation for appendicitis, aged 38.

Charles Edwin Booth, M.D. Rush Medical College, Chicago, 1870; a member of the American Medical Association; superintendent of the Northern State Hospital for the Insane, Winnebago, Wis., from 1888 to 1891; a member of the legislature of Wisconsin from 1876 to 1877; chief surgeon, Lowmoor Iron Company, from 1892 to 1896; in charge of private hospital at Escanaba, Mich., from 1896 to 1901; district surgeon of the Chicago & Northwestern Railway from 1878 to 1885; at the time of his death surgeon of a turpentine manufacturing company at Gay, Fla.; died at the home of his brother in West Colesville, N. Y., September 9, aged 67.

Philip Bernhardt Krichbaum, M.D. Bellevue Hospital Medical College, New York City, 1893, of Sayville, N. Y., a member of the medical societies of the State of New York and Suffolk County, and of the Associated Physicians of Long Island, formerly health officer of the town of Islip; and local surgeon of the Long Island Railroad; surgeon of the S. S. *Gunther* of the Hamburg-American line, died at sea August 1, aged 35.

Albert S. Slater (Years of Practice, Ill., 1877); of Wataga, Ill.; a member of the Illinois State and Knox County medical societies; hospital steward and assistant surgeon in the Army during the Civil War; for ten years coroner of Knox County; for twelve years an alderman and for four terms mayor of Wataga; died September 11, at the home of his niece in Anderson, Ind., from kidney disease of long standing, aged 67.

Felix Nordemann, M.D. University of Berne, Switzerland, 1853; a member of the medical societies of the State and County of New York; founder of the German Medical Society in 1860, and in the early days of the municipal hospital a member of the advisory board of physicians; one of the best known German practitioners of New York City; died at his home, September 15, from heart disease, aged 79.

Edward P. Nichols, M.D. College of Physicians and Surgeons in the City of New York, 1851; assistant surgeon in the Army during the Civil War; a member of the Connecticut State and Middlesex County medical societies; for 20 years medical examiner of Killingworth, Conn., and at one time a member of the legislature; died at his home in Killingworth, September 3, from senile debility, aged 79.

Samuel Burnham Church, M.D. Bellevue Hospital College, New York City, 1864; a member of the Rhode Island State and Washington County medical societies; at one time town treasurer of Wickford, R. I.; a member of the school committee and superintendent of schools of North Kingston, R. I.; died at his home in Wickford, September 11, after an illness of a few weeks, aged 72.

William M. Yandell, Jr., M.D. Medical Department of the Tulane University of Louisiana, New Orleans, 1898; a member of the American Medical Association, and a well-known practitioner of Canton, Miss.; died at his home, September 9, from an overdose of morphin administered by himself, hypodermically, supposedly with suicidal intent, while despondent, aged 32.

James M. F. Brown, M.D. Royal Medical College, Belfast, Ireland, 1849; a resident of Roseburg and Portland, Ore.; for many years grand medical examiner for Oregon of the A. O. U. W., and at one time a professor in Willamette University; died at the Mary Johnson Sanitarium, Boise, Idaho, August 24, from cancer, after an illness of several months, aged 79.

William H. Abercrombie, M.D. New York Homeopathic Medical College and Hospital, New York City, 1872; surgeon U. S. Navy retired; formerly United States consul at Kobe and Nagasaki, Japan; died in his apartments in Washington, D. C., September 5, from gas asphyxiation supposedly with suicidal intent, due to mental depression, aged 62.

Gottfried Stamm, M.D. University of Berne, Switzerland, 1867; for many years consul for Switzerland for Minnesota, Montana, Wyoming and the Dakotas; from 1891 to 1894 a member of the Board of Education of St. Paul, died at his home in that city September 15, from cancer of the intestines, after a lingering illness, aged 64.

Nathaniel L. Gallaway, M.D. New York University Medical College, New York City, 1855; surgeon of the Forty-second Georgia Infantry, C. S. A., during the Civil War, and twice a member of the General Assembly of Georgia; died suddenly at his home in Monroe, Ga., September 1, from cerebral hemorrhage, aged 75.

Vernon Otis Taylor, M.D. Medical School of Harvard University, Boston, 1868; a member of the Rhode Island and Providence County medical societies; a practitioner of Providence, R. I.; died in the Rhode Island Hospital, in that city, September 10, from kidney disease, after an illness of two weeks, aged 65.

Obadiah H. Riggs, M.D. Long Island College Hospital, Brooklyn, 1888; formerly of Cincinnati, but for the last five years a practitioner of Kansas City, Mo., died September 11 from pneumonia following an injury received four days before, in which three ribs were broken and the lung was penetrated, aged 63.

John Sidney Dyer, M.D. Northwestern University Medical School, Chicago, 1905; after his graduation an interne in St. Luke's Hospital, Chicago, and later a practitioner of Boone, Iowa; died in St. Anthony's Hospital, Denver, Colo., August 31, from cirrhosis of the liver, after an illness of several weeks, aged 25.

Charles Burr Bridgham, M.D. Medical School of Maine, Medical Department of Bowdoin College, Brunswick, 1863; a member of the Massachusetts Medical Society and Norfolk County Medical Society and a veteran of the Civil War, died at his home in Cohasset, Mass., September 17, from nephritis, aged 66.

Almon W. Nicholson, M.D. University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1873; a member of the Michigan State and Luce County medical societies; connected with the State Board of Health in the '80s; died at his home in Newberry, Mich., September 14, aged 63.

Byron E. Osborn, M.D. Albany (N. Y.) Medical College, 1854; of Auburn, N. Y.; a member of the Medical Society of the State of New York and the Cayuga County Medical Society; died recently in Rochester, N. Y., and was buried at Auburn, September 12.

John I. Clark (Examination, Ind., 1897); a member of the Gibson County (Ind.) Medical Society; a veteran of the Civil War, and a prisoner in Andersonville; died at his home in Owensville, Ind., in June, from paralysis, after an illness of three months, aged 72.

John Hancock, M.D. Berkshire Medical College, Pittsfield, Mass., 1847; assistant surgeon of the Fiftieth Massachusetts Volunteer Infantry during the Civil War died at his home in Holyoke, Mass., September 11, from senile debility, after a long illness, aged 86.

Electa B. Whipple, M.D. College of Medicine of Syracuse University, Syracuse, N. Y., 1884; a member of the American Medical Association, and of the Physicians' League of Buffalo, N. Y.; died at her summer home in Orchard Park, September 13, aged 59.

Frederick Calvin Wolf, M.D. University of Maryland, School of Medicine, Baltimore, 1866; a member of the medical societies of the State of Pennsylvania and Adams County; died at his home in East Berlin, Pa., from pneumonia, September 8, aged 68.

George W. Benedict, M.D. College of Physicians and Surgeons in the City of New York, 1878; a practitioner of South Norwalk, Conn., and once postmaster of that city; died at Westport, (Conn.) Sanitarium, August 23, from nervous disease.

Walter E. Songer, M.D. St. Louis (Mo.) College of Physicians and Surgeons, 1890; a member of the American Medical Association and superintendent of the Illinois Asylum for Insane Criminals, Chester, died at that institution, September 18.

Alexander Adler, M.D. University of California, Medical Department, San Francisco, 1903; after his graduation an interne at the German Hospital, San Francisco; died in that city, August 31, after an illness of five weeks, aged 26.

D. S. Maddox, M.D. Louisville (Ky.) Medical College, 1884; formerly coroner of Marion County, Ohio, and a practitioner of Marion; died in Columbus, September 10, from nervous exhaustion, aged 46.

Albert Lewis Mahaffey (Examination, New Mexico); for several years physician at the Indian School, Albuquerque, N. M.; died at a hospital in Chicago, September 1, from cancer, aged 60.

F. V. Frankenstein, M.D. American Medical College, St. Louis, 1890; died at his home in Epiphany, S. D., August 29, from an overdose of carbolic acid, taken by mistake, aged 70.

James W. Mershom, M.D. Physio-Medical College, Cincinnati, Ohio, 1876; died at his home in Des Moines, Iowa, September 10, from dropsy, after an illness of several months, aged 55.

Russell Thomas Barry, M.D. Rush Medical College, Chicago, 1902; died at the home of his parents in Chicago, September 12, from tumor of the brain, after a brief illness, aged 26.

James F. Duffie, M.D. Medical College of the State of South Carolina, Charleston, 1859; a Confederate veteran; died at his home near Blackstock, S. C., September 7, aged 72.

Thomas Brunskill, M.D. University of the Victoria College, Coburg, Ont., 1869; died September 2, at his home in Kew Beach, Toronto, from heart disease, aged 62.

John Bender, M.D., an eclectic practitioner of Lansing, Mich., for fifty-eight years, died at his home September 8, after an illness of one week, aged 90.

William H. Abbitt, M.D. Medical College of Virginia, Richmond, 1853; died at his home in West Appomattox, Va., September 13, aged 75.

Dwight M. Coonley, M.D. Michigan College of Medicine and Surgery, Detroit, 1903; died at his home in Detroit, August 30, aged 63.

Allen Heald, M.D. Eclectic Medical Institute, Cincinnati, died at his home in South English, Iowa, August 15, aged 78.

William Bracken (License, Ind., 1897), died recently at Greensburg, Ind., aged 90.

Deaths Abroad.

E. Hitzig, M.D., until recently professor of psychiatry at Halle, eminent by his works on the physiology and pathology of the brain, died at a summer resort, August 20, aged 69.

E. De Lavarenne, M.D., one of the founders of the *Presse Médicale* of Paris, in 1893, died August 19, aged 55.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, CONTRACT PRACTICE, INSURANCE FEES, MEDICAL LEGISLATION, ETC.

The Harm of Contract Practice.

In the August *Wisconsin Medical Journal* appears an article on contract practice by Dr. W. F. Zierath of Sheboygan. He thinks the question is of special interest to the young practitioner who knows nothing of the trials about to confront him and who thinks that the perplexities of diagnosis and treatment constitute his real difficulties. Notwithstanding careful preparation, the young practitioner finds the number of his patients in inverse ratio to his expectations. On investigation, he learns that various fellow-practitioners are under contract with corporations, lodges and fraternal societies to treat the employés, or members, or even the whole families of members at a ridiculously low price.

Dr. Zierath defines contract practice as the payment of a certain fixed compensation for an indefinite amount of professional services, and discusses, in particular, lodge practice, or contract work for fraternal societies. "This form of evil," he says, "is a constantly growing one, and is rapidly invading all classes of society, especially the middle class, special societies being organized all over the country, which make it their business policy to obtain medical service at an excessively low rate." He instances, in this particular, the Order of Eagles, which furnishes medical service for the entire family of a member for an annual fee of $2. At their annual elections there are usually several applicants for the appointment of lodge physician, who in their anxiety to receive this appointment, sometimes resort to all the petty schemes and subterfuges of political ward leaders.

Dr. Zierath points out that fees in general are to-day the same as those received by physicians forty years ago, in spite of the fact that the cost of living has greatly increased in the last ten years, and that the cost of medical education and the running expenses of the physician are much greater than they were twenty years ago. Another factor is that the medical profession is overcrowded and that cheap, ill-equipped institutions are annually graduating hundreds of students, many of whom, in the struggle for existence, are forced to accept exceedingly low fees.

The results of contract practice are considered from three viewpoints, the effect on the physician himself, on the profession and on the public. The effects on the physician are that he is looked on with suspicion by his patients and his capabilities are regarded slightingly, owing to the fact that he is willing to work for an amount so far below that demanded by his colleagues for similar services. The patient knows that the physician has already received his compensation and that it is in no way dependent on the quality of service rendered. He, therefore, prejudges and is convinced beforehand that the physician is going to shirk his duty and that he will do as little as possible. This lack of confidence on the part of the patient is fatal to proper cooperation and understanding between the patient and the physician. The incentive to study and self-improvement on the part of the physician is lacking. All his time is occupied in making hasty calls on his contract patients. As his services can not cost the individual more than the specified amount, he is sent for repeatedly, in cases in which, under ordinary circumstances, a physician would not be called. The expectation of obtaining surgical and obstetric cases through lodge contracts generally results in disappointment. The young physician who takes a contract as a lodge physician is working directly against his own best interests. Such an arrangement does not increase the reputation of the physician either with the public or with the profession. The majority of physicians who have the welfare of the profession and the public at heart are earnestly opposed to contract and lodge practice and are, consequently, disposed to criticise the physician who enters into such a relation.

As to the effect of lodge practice on the profession, Dr. Zierath emphasizes the dissension and strife, instead of the harmony and cooperation, which results from such methods. The respect of the public for the profession is lowered. Constant dissension, charges of unethical conduct, etc., decrease the influence of the profession with the public. The general tendency of contract practice is to lower fees and to place professional services on a purely commercial basis. The abolition of contract practice results in more even distribution of the professional work of the community, thus leading to greater equality of income, more time for study, recreation and graduate work.

The most pernicious effects of contract practice, however, are those borne by the public. Under such a system, the quality of medical services deteriorates inevitably. Working men and heads of families are given inadequate and unsatisfactory care and treatment, as a result of which lives are sacrificed unnecessarily and wage earners are incapacitated for a greater length of time than would be the case if they received proper medical attention. This results in loss of wages, wasting of savings, increase of the number of dependents, and reduction of wage, earning capacity. As a result of shaken confidence in the physician, the patient or his friends are often led to place their lives and health in the hands of quacks and charlatans, with increasing loss of both health and money.

The remedy proposed by Dr. Zierath is simple and effective; it is simply for the reputable members of the profession, through organized action and effort, to refuse to participate in or sanction this form of contract practice. In some cases this requires some personal sacrifice, but Zierath truthfully says: "The individual must sink his selfish interests in the welfare of the whole profession. He must be made to understand that what is now, to him, possibly a source of small profit will eventually react to his own detriment and to that of the whole profession. If some, for purely selfish reasons, will not act in harmony with the majority, let that not deter the majority from action. Let the best element in the profession refuse to do contract work and let the public know that their action is based on justifiable grounds."

Dr. Zierath's article is well worth reading as a careful and dispassionate consideration of a question which has always been a vexing one and which is rapidly becoming vital. Contract practice, in different forms, has been considered in these columns a number of times. The question is one admitting of much discussion and requiring fair-minded and impartial investigation in order to differentiate the various forms of contract practice and to point out the peculiarities of each. As to lodge practice, the particular form of contract practice considered in Dr. Zierath's article, there is practically no room for argument. It is pernicious and injurious to both the physician, the profession, the individual patient and the public. It has no excuse for existence, except as a means of revenue to the middleman, who, whether as an individual or as an organization, farms out the physician by buying professional services at wholesale and selling them retail. A physician who engages in such practice is simply sacrificing his professional character and his own future for the sake of a very slender temporary income. Such commercializing and prostituting of the practice of medicine should be condemned by the organized profession in no uncertain terms and the condemnation should carry with it adequate penalties for violation.

Reorganization in New Hampshire.

The Transactions of the New Hampshire Medical Society for 1907, just received, contain an interesting report of the one hundred and sixteenth session of this body. The secretary, Dr. D. E. Sullivan, says in his report: "It can be safely stated that, thanks to reorganization, there exists in New Hampshire to-day, a more compact union of physicians than ever before, and if no further results are apparent, or even expectant, the results now at hand are such as fully to warrant a more glorious anticipation of success for this society."

The committee on revision of the constitution reported that it had decided to submit the first report, made three years ago and embodying the idea of component county societies. After mature consideration, this report was adopted and the committee instructed to revise the constitution and by-laws during the coming year so as to eliminate any contradictions or incongruities. The appointment of a committee on medical defense and the adoption of resolutions on contract work have already been mentioned in this department.

Insurance Notes.

Insurance resolutions protesting against the reduction of life insurance examiners' fees and pledging the society to the support of the Kentucky resolutions, have been adopted by the Polk County (Tenn.) Medical Society and the Cumberland Valley Medical Association.

The following companies are now paying the $5 rate for life insurance examinations:

Etna Life of Hartford, Conn.
American National Life of Galveston, Texas.
Citizens Life of Louisville, Ky.
Capital Life of Denver.
Colorado National Life of Denver.
Ft. Worth Life of Ft. Worth, Texas.
Guarantee Life of Houston, Texas.
Pacific Mutual Life of San Francisco.
Southwestern Life of Dallas, Texas.
State Mutual Life of Rome, Ga.
Southern States Life of Atlanta, Ga.
Manhattan Life of New York.
Massachusetts Mutual of Springfield, Mass.
Mutual Benefit Life, Newark, N. J.
Mutual Life, of New York.
National Life, Montpelier, Vt.
Northwestern Mutual Life, Milwaukee, Wis.
Reliance Life, Pittsburg, Pa.
Connecticut Mutual Life, Hartford, Conn.
Provident Life and Trust Company, Philadelphia.
Commonwealth Life, Louisville, Ky.
Boston Mutual Life, Boston.
Citizens Life, Louisville, Ky.
New England Mutual Life, Boston.
Pacific Mutual Life, Los Angeles, Cal.
Equitable Life of New York.

The Polk County (Tenn.) Medical Society at its last meeting adopted a resolution providing that no life insurance examination should be made by its members for less than $5. A resolution was also adopted providing that no member of the society should act as an assistant to any physician or surgeon engaged in club practice.

Society Proceedings

American Public Health Assn., Atlantic City, Sept. 30-Oct. 4.
Medical Assn. of District of Columbia, Washington, Oct. 1.
American Roentgen Ray Society, Cincinnati, Oct. 2-4.
Idaho State Medical Society, Boise, Oct. 3-4.
Delaware State Medical Society, Wilmington, Oct. 8.
Nevada State Medical Society, Reno, Oct. 8-9.
Mississippi Valley Medical Association, Columbus, O., Oct. 8-10.
Medical Assn. of the Southwest, Hot Springs, Ark., Oct. 8-10.
Vermont State Medical Society, St. Johnsbury, Oct. 10-11.
Kentucky State Medical Association, Louisville, Oct. 15-17.
Assn. of Military Surgeons of the U. S., Norfolk, Va., Oct. 15-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twentieth Annual Meeting, held at Detroit, Sept. 17-19, 1907.

The President, Dr. Robert T. Morris, New York, in the Chair.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. E. Gustav Zinke, Cincinnati; vice-president, Dr. John W. Keefe, Providence, R. I., and Dr. W. A. B. Sellman, Baltimore; Secretary, Dr. William Warren Potter, Buffalo, re-elected; treasurer, Dr. X. O. Werder, Pittsburg, re-elected.

Baltimore was selected as the place for holding the next annual meeting, Sept. 15-17, 1908.

Preservation of the Resistance of the Patient.

The president, Dr. Robert T. Morris, New York, in his address, said that the surgical patient is a factory, whose business it is to manufacture phagocytes and opsonins for destroying bacteria. The new idea is to avoid disturbing this factory in such a way that it can not manufacture phagocytes and opsonins. The dominant idea in surgery to-day began with the studies of Pasteur and Semmelweis, formulated by Lister, and continued by scientists of all countries for the purpose of removing by the artifices of the surgeon, the bacteria which cause disease. Exactly opposed to this is the new idea of letting a patient manage his own bacteria, while the surgeon should let patients alone. There are many ways for preventing this factory from manufacturing its full complement of phagocytes and opsonins, and among them he mentioned long-continued operations, extensive operations, free handling of viscera, tissues, and long-continued anesthesia. He referred to the importance of rapid operating, and said that surgeons should cultivate rapidity of action to the point that the average abdominal operation shall require not more than fifteen minutes for its completion from beginning to end.

Toxemia of Pregnancy as Observed by the Gynecologist.

Dr. Raleigh R. Huggins, Pittsburg, stated that observations lead to the belief that pernicious vomiting, acute yellow atrophy and eclampsia are but the results of conditions which, as a rule, have gradually developed. The onset may be severe enough to seriously impair the process of metabolism and thus render the patient more susceptible to many other complications which frequently accompany pregnancy and the puerperium. That many dangerous complications are liable to develop after delivery as a result of previous toxemic conditions is a fact that has not received the attention which its importance merits. There is much greater danger of infection at delivery as a result of lowered resistance than when the eliminative organs have been functionating normally throughout pregnancy; in a number of cases of cholecystitis occurring during pregnancy and the puerperium it has developed in the presence of toxemic symptoms, and complications such as cholecystitis and empyema of the gall-bladder have been the direct result of an overworked liver caused by the toxins of pregnancy. A large percentage of cases of insanity occurring during the puerperium give a history of toxemic symptoms previous to delivery.

DISCUSSION.

Dr. E. Gustav Zinke, Cincinnati, said that he is satisfied that puerperal toxemia can be eliminated in nine-tenths of the cases. These women should have the necessary care from the beginning of their pregnancy until the end of it, until they are able to be up and about after their confinement. This is what the young practitioner should be taught; this is what practitioners should teach to the public.

Dr. Joseph Price referred to a prominent young woman who developed diabetes during pregnancy and the question arose as to whether it was safe for her to bear a child. He was called to settle that point. He decided that the woman could safely conceive. She was watched with great care by a physician, a man of great skill, who made high application of the forceps, and delivered her of a child who is now alive.

Dr. William H. Humiston said that in the severe cases that have resisted other methods of treatment he has had good success from the use of stomach lavage, twice daily, with rest in bed and enemas of salt solution.

Ophthalmia Neonatorum: A Pathologic Anachronism.

Dr. F. Park Lewis, Buffalo, N. Y., by invitation, delivered an address in which he pointed out the importance of securing the enactment of laws in each state giving to boards of health supervisory control and licensure of midwives, requiring the latter to be examined and registered in each county, and to report immediately each case of ophthalmia occurring in their practice, under penalty of fine and forfeiture of license. Health boards should distribute circulars to midwives and mothers, giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum. He urged the appointment of committees by the various state and county societies, whose cooperation will make concerted action possible.

To Aid in Prevention of Ophthalmia.

The association appointed a committee to consider the question of ophthalmia neonatorum, and subsequently the committee submitted the following resolution, which was adopted:

Resolved, That it is the expression of the sentiment of this association that definite steps should be taken to secure the enactment of such laws in the various states as shall compel the use of proper measures of ophthalmic prophylaxis by the attendant at every confinement, the execution of such laws to be under the jurisdiction of the state boards of health, and we hereby pledge our assistance and cooperation to the committee of the American Medical Association in its undertaking.

(To be continued.)

INTERNATIONAL DERMATOLOGIC CONGRESS.

Sixth Meeting, held in New York City, Sept. 9-14, 1907.

MONDAY AFTERNOON SESSION.

(Continued from page 1050.)

American Vice-President, Dr. Edward L. Keyes, Sr., in the Chair.

Proposals to Diminish the Diffusion of Lepra and Its Treatment.

Prof. R. Campana, Rome, Italy, said that a mutual understanding should be arrived at among civilized nations concerning the treatment of this disease. Local treatment, he said, is necessary in leprosy in the initial stages of macular and tubercular symptoms. These can be arrested by radical surgical treatment, followed up by cauterization. The most rigorous aseptic and antiseptic treatment of the ever varying lesions is indispensable, according to the manner in which they are developed in the patients, and this is especially the case in the latter stages of the disease.

DISCUSSION.

Dr. D. W. Montgomery, San Francisco, recalled the case of an Irish woman, who was first in New York and then went to San Francisco. Her husband had been in Ireland and also went to San Francisco. Their children were not lepers, but she was a well-marked leper. Dr. Montgomery knew that he would find another leper, and it was learned later that she had harbored in her house a patient from Hawaii.

Dr. Walter R. Brinckerhoff, Honolulu, T. H., said that in Hawaii the disease had been controlled by segregation. For such control of the disease it was necessary to have it generally disseminated among the people the idea that the disease is to be treated in a systematic way. The general belief among them is that when they go to leprosaria they go to be neglected and to die. They should be informed as to what can be done for them to make them more comfortable.

Prof. R. Campana, Rome, Italy, said that the bacillus is present in the beginning of the disease. After a while it is found in cultures, but after a time disappears entirely.

Dr. Isadore Dyer, New Orleans, said that he believes that the bacillus of leprosy becomes attenuated with the production of different types of the disease. The observation of the large number of cases in Havana showed this. Of over 200 cases there were but 12 or 15 cases of tubercular type. In Louisiana, since 1894, they have had altogether 240 patients under observation. There have been 50 or 60 patients always at the leper home. Isolation apparently reduced the number greatly. In the new cases the patients seldom show evidences of acute leprosy, i. e., leprosy of an acute macular type. Sunshine, good water, hot-water baths, regulation of the diet, at the end of two or three years showed some results. In some cases in five, six, seven or eight years the disease was removed by treatment.

Dr. Prince A. Morrow, New York, said that he believes it is impossible to say whether the bacillus that escapes in the advanced stages of tubercular leprosy is alive or dead. It would mean a warfare against the tuberculous if they attempted to isolate the cases in the early stages, simply because the disease can not be detected in the large proportion of the cases. It is a matter of general knowledge that leprosy may exist five, ten, fifteen and even twenty years without positive evidences on the skin in the shape of manifestations in the nerves that can be recognized by the physician. That is the reason why we can not exclude leprosy from this country. It should not be taught that leprosy is an incurable disease. Dr. Morrow said he had cured at least two cases, the patients going without symptoms for at least ten years.

Dr. William T. Corlett, Cleveland, said that he recently visited a leper hospital with 260 inmates, and he was impressed by the fact that there was not a single instance in which an attendant became infected during 35 years.

Dr. H. Radcliffe-Crocker, London, said that he knew a woman, 40 years old, who contracted the disease in mild form and who was under observation eight or nine years; she practically made no progress in the wrong direction. He has also seen two cases of the tubercular variety, both patients being treated with chaulmoogra oil. He believes the prognosis in the tubercular cases is largely a question of whether they are able to take adequate doses of the oil.

Dr. Burnside Foster, St. Paul, says that the Scandinavian lepers are able to recognize the disease in the beginning, and are able to conceal the disease. Many of these cases remain undetected for a good many years.

The Treatment of Leprosy with Perforation and Cauterization.

Dr. José Viñeta-Bellaserra, Barcelona, Spain, said that lepers are subject to febrile attacks of varying severity and duration. These attacks were pointed out by the physicians of the middle ages. The fever frequently is so slight that the patient pays no attention to it. In other cases the body is shaken by severe chills, and there is a considerable rise of temperature. Frequently a sudden and severe fever makes its appearance, accompanied by infections, digestive disturbances, etc., which threaten the patient's life, coinciding with the infiltration and suppuration of the leprous tubercles. When the symptoms are demonstrated he takes the fine point of a galvanocautery and proceeds to the perforation and thermic cauterization of all the tissues invaded by the germ of leprosy. As regards the general condition of the patients, they are built up in the first place by good food and tonics, especially the sulphate of quinin. Chaulmoogra oil is administered in large doses.

The Treatment of Leprosy and of the Microbic Dermatoses with the Products of the Basilian Flora.

Prof. Egas Moniz Barreto de Aragao, Bahia, Brazil, presented this communication.

Treatment of Lupus Vulgaris with Béraneck's Tuberculin.

Dr. A. Lassueur, Lausanne, Switzerland, said that the results previously obtained by others with Koch's tuberculin, and those obtained with Béraneck's tuberculin, would seem to justify them in assigning a part to this specific treatment in the therapeutics of lupus vulgaris. The favorable results obtained with Béraneck's tuberculin in the treatment of the surgical tuberculoses encouraged them to employ this same tuberculin in the treatment of lupus.

Cutaneous Tuberculosis in the City of Mexico.

Dr. Jesus Gozalez Urueña, City of Mexico, said that among 5,268 skin patients treated in the *Consultorio Central de Beneficiencia Publica*, in Mexico, from Feb. 9, 1905, until April 20, 1907, there were 42 cases of cutaneous tuberculosis. It is noteworthy that in Mexico, a city situated at an altitude of 2,222 meters (7,221 feet) above the sea level, with a sky almost always blue and a very bright sun, lupus erythematosus (tuberculoid) is far more common than lupus vulgaris (tubercular). It should likewise be noted that the ulcerative, gnawing, destructive forms of the latter are practically unknown in Mexico.

The Nature and Treatment of Lupus Erythematodes.

Professor Campana, Rome, and Dr. G. Lanzi, Rome, presented this paper. Dr. Lanzi puts forth the theory that different predispositions, due to chronic infections, may occur and constitute a great part of the cause of the disease. With this opinion, they are justified in affirming a useful therapeutic principle which has certainly the merit of practicability and considerable foundation in experience. The conclusion is that with old means and methods they may go wrong, if guided only by the idea that in the treatment of lupus mercury has proved beneficial or curetting has proved beneficial, without discriminating when and why. On the other hand, distinguishing according to the basis of the etiologic predisposition, we can proceed to operate, or to apply mercury with evident and precise reasons. A third remedy has been recently mentioned by Fox, Jackson and Lüstgarten, namely, small continued doses of sulphate of quinin.

Recent Research on the Subject of Papulovesicular Eczema.

Dr. L. Brocq and Dr. G. Ayrignac, Paris, France, said that the term papulovesicular eczema is applied to a pathologic condition characterized from the objective point of view, and as a primary elementary lesion, by a papular vesicle of small size, but very distinctly marked in the locations where it forms on the healthy skin. Based on analysis of clinical facts, they had determined long ago the fact that the leading part in the genesis of papulovesicular eczema is played by the accidental intoxications, the autointoxications, the shocks sustained by the nervous system. This special point was studied clinically. Fourteen patients were selected, in whom the diagnosis was positive, the type of the eruption being perfectly pure. Three hundred consecutive analyses of the urine were made in these cases. In 80 per cent. of the cases there was a notable diminution of the renal probability, and in 90 per cent. of the cases there was a considerable increase of the intestinal fermentations.

Complementary Deviation in Gonorrhea and Skin Diseases.

Dr. R. M. Miller and M. Oppenheim, Vienna, Austria, stated that the serum of patients having gonorrhea invariably contains circulating substances which may be demonstrated by means of the method of complementary deviation. These were first demonstrated by them in the serum of a patient who had died from gonorrheal arthritis. The serum of certain individuals has in itself an inhibiting influence on the hemolysis. The vast majority of these sera are derived from cases of psoriasis.

Methodical Scraping as a Diagnostic Method in Certain Dermatoses.

Dr. L. Brocq, Paris, France, gave in detail the information obtainable by this method. Two points were insisted on: 1. The importance of the degree of serous exudation thus ascertained, from the point of view of the prognosis and the treatment to be instituted. 2. The importance, from the diagnostic point of view, of the traumatic purpura produced by the scrapings.

Value of an Absolutely Vegetarian Diet in Psoriasis.

Dr. L. Duncan Bulkley, New York, read this paper, in which he offered the following conclusions: 1. The cause of psoriasis is as yet unknown. Many facts point to its not being a purely local disease of the skin. 2. Psoriatic patients often appear to be in perfect health, but metabolic disturbances can generally be discovered by complete quantitative urinalysis. 3. The error is generally along the line of faulty nitrogenous metabolism and diminished excretion of the purin products. 4. Long observation shows a decided increase of eruption with excessive meat eating. 5. Marked improvement in the eruption occurs, under the same treatment, when a strictly vegetarian diet is faithfully carried out. 6. Continued strict vegetarian diet is often attended with freedom from eruption, and relapses are often directly traceable to dietary errors in this direction.

DISCUSSION.

Dr. H. Radcliffe-Crocker, London, said that he recalled the case of a young girl, 13 years old, who had well-marked psoriasis, and who was naturally a vegetarian, never having taken the smallest piece of meat in her life. If the initial lesion could be thoroughly treated, one might cure the disease. He believes the disease to be microbic in the beginning. He did not agree with Dr. Bulkley that the disease is primarily one of metabolism.

TUESDAY, SEPTEMBER 10.—MORNING SESSION.

Vice-President, Dr. H. Radcliffe-Crocker, London, in the Chair.

The morning session began with an exhibition of patients and a formal discussion on the same.

Pathology of the Brown-Tail Moth Dermatitis.

Dr. E. E. Tyzzer, Boston, said the exact date of the introduction of the brown-tail moth into this country is unknown, but it was first noted in large numbers in 1897, in one of the suburbs of Boston. This species has since spread throughout the greater part of New England, and has also penetrated adjacent territory. It has been shown that the dermatitis which is produced by these insects is due to very minute, sharp-pointed, barbed hairs, the "nettling hairs," which develop on the caterpillar. On experimentation with the nettling hairs, it is found that when they are mingled with a drop of blood a peculiar reaction takes place which serves as an index of their toxicity. The toxic principle is removed from the hairs by dilute alkalis and by water heated to 60 C., but it is insoluble in other common reagents. It is, however, quite resistant to heat and withstands baking for one hour at 110 C., but is destroyed by baking at 115 C.

DISCUSSION.

Dr. James C. White, Boston, said that these caterpillars always produce a widespread dermatitis. There is no geographic limitation to the progress of the disease.

Trauma as an Etiologic Factor in Skin Diseases.

Dr. Neuberger, Nuremberg, Germany, emphasized the importance of trauma as an etiologic factor in skin diseases.

DISCUSSION.

Dr. Joseph Zeisler, Chicago, said that the relation of syphilis to trauma was pointed out long ago. Whether traumatism is able to produce a disease like psoriasis is a question; before this is settled many observations will be necessary.

Dr. A. Ravogli, Cincinnati, said that he believes trauma calls attention to a disease already existing in the body, as, for instance, a tuberculous knee following traumatism, or an injury to the knee being followed by an infiltrated gumma. Trauma should be more studied as an etiologic factor in diseases of the skin.

Idiopathic Multiple Hemorrhagic Sarcoma (Kaposi).

Dr. M. B. Hartzell, Philadelphia, said that the number of recorded cases of this disease is now something over 100. The number of cases reported in America is extremely small, and, for this reason, he reported in detail a new and typical case occurring in native-born Americans. The disease is practically limited to the legs and feet. The treatment consisted in the local use of antipruritic lotions and the internal administration of arsenic in fairly large doses by the mouth and the use of the *x*-ray. Improvement followed in all parts exposed to this treatment.

DISCUSSION.

Dr. H. Radcliffe-Crocker, London, said that only the Polish Jews are seen in England with this condition.

Prof. Erich Hoffmann, Berlin, Germany, discussed the paper in German.

Dr. Schields, Cincinnati, said that he has observed five cases of this disease with Kaposi in 1892-1893. One case was of particular interest. The patient had an extensive involvement of the legs and developed a temperature of 40 C. The patient died and a section of the lesion showed that the infiltrating cells had entirely disappeared.

Dr. Stevens, Detroit, said that two years ago he had a similar case at Ann Arbor. An old man, 72 years old, developed multiple idiopathic hemorrhagic sarcoma five years before, after a visit to Denver. He was an American.

Dr. Samuel Sherwell, Brooklyn, said that in 1886 he published a paper in which he claimed good results from the use of arsenic.

Dr. M. B. Hartzell, Philadelphia, said the question still remains as to whether this was a sarcoma or something else.

Multiple Benign Cystic Epithelioma.

Dr. M. L. Heidingsfeldt, Cincinnati, said that it is evident that multiple benign cystic epithelioma presents many clinical and pathologic variations. Walter Pick states that the clinical variations are marked, but the histologic picture is so characteristic and marked as to permit both the diagnosis and differential diagnosis. The relation of these cases to malignancy has already received careful consideration and his personal experience in the pathology of multiple benign epithelioma is a confirmation of Fordyce's, and he is frank to state that the advanced lesions of multiple benign cystic epithelioma not only show evidences of malignant change, but he has been able to find a parallel for them in every pathologic phase and form in the clinical lesions of early pre-malignant change in the skin.

DISCUSSION.

Dr. M. B. Hartzell, Philadelphia said that the two diseases, multiple benign cystic epithelioma and adenoma sebaceum, are closely alike, and any pathologic changes are due to an abnormal increase in the epithelia, in both instances, in the region of the hair follicles.

Skin Diseases in the Negro.

Dr. Howard Fox, New York, said that he has been enabled to make a comparative study of 4,400 cases of skin diseases, half of them in the negro and half in the white race. He concludes that: 1. In spite of the fact that the negro is more susceptible to disease in general than the white man, and that his mortality is twice as great, he suffers less frequently and less severely from diseases of the skin. 2. The negro skin is decidedly less susceptible to external irritants. 3. The full-blooded negro is almost immune to ivy poisoning. 4. Acne is less common and much less severe in the negro. Rosacea is a rare and very mild affection. Eczema is perhaps not less frequent, though certainly less severe. Psoriasis in the full-blooded negro is very uncommon. 5. Tuberculosis of the skin is not more common in the negro in spite of the great prevalence in this race of pulmonary and other forms of tuberculosis. 6. Syphilis is certainly more common in the negro than in the white. A tendency to the annular syphilide as well as to keloid, elephantiasis and fibroma, deserve to be classed as a racial peculiarity of the negro. 7. The negro is more subject to new growths of connective tissue origin and less so to those originating in epithelial structures. Cutaneous epithelioma is very rare in the full-blooded negro. 8. The mucous membranes as well as the skin are less susceptible to disease. 9. Many of the rarer forms of skin disease are observed in the negro. 10. Mulattoes are more susceptible to skin diseases than negroes, being especially prone to chloasma.

DISCUSSION.

Dr. Isadore Dyer, New Orleans, commended the paper. He said that the social conditions of the negro in the South are so different from those of the North that any statistics he might give would be of little value in the study of skin diseases in the negro. The negro does not apply for treatment unless there is some complication which is either disfiguring or causes suffering. The observation is made that perhaps the only malignant type of syphilis seen in New Orleans occurs in the negro.

Dr. Joseph Grindon, St. Louis, said that there are 40,000 negroes in his city and their study is beset with difficulties. The first question in studying the relative frequency of skin diseases would be, "What is a negro?" Should they be limited in their study to the pure negroes and the pure whites? In his personal experience syphilis is a more severe disease in the negro than in the white.

(To be continued.)

OHIO STATE MEDICAL ASSOCIATION.

Annual Meeting, held at Cedar Point, Aug. 28-30, 1907.

(Continued from page 1052.)

Hemorrhage of the Bladder with Subsequent Paralysis of That Organ for Three Months.

Dr. John G. Albers, Fulda, reported a somewhat remarkable case of a man, aged 88, in whom a diagnosis of chronic cystitis and ulceration of the vesical mucous membranes, with enlargement of the prostate, was made. The patient improved under treatment, but after taking a long walk, he had bloody urine. After vigorous treatment the patient's pain was relieved, but retention of urine supervened for three months. Electricity was used over the whole area of the bladder; flushing the rectum with hot water, massage of the prostate gland and suppositories every night constituted the treatment. At the end of three months the patient was able to void his urine and is now in good health. Dr. Albers thinks it reasonable to presume that ulcers of the vesical mucous membranes had caused erosion of its vessels and consequent bleeding, or even that the enlarged prostate might have proceeded to suppuration, broken, and discharged blood and pus into the bladder.

DISCUSSION.

Dr. Goodhue emphasized the importance of cystoscopic examination before operating, as these troubles are usually due to carcinoma, papilloma or polyp. The cystoscope will show whether or not the growth is malignant, and will tell the number and location of tumors.

Dr. Rankin said that not all cases are of hemorrhage of the bladder or caused by foreign bodies therein. He spoke of the use of extract of logwood, an old and practically forgotten remedy.

Dr. Lower, Cleveland, said that of 115 cases under his observation, in 65 the bleeding was from the bladder, and in 50 from the kidney. In a number of cases tuberculous ulcers caused considerable bleeding, and in one case simple ulcer. In 75 per cent. of cases of hematuria the condition was painless and with no symptoms to locate the exact source of the hemorrhage. It is often impossible to find it without the aid of the cystoscope.

Dr. Kurtz related the history of a patient brought to him for cystoscopic examination; there had been bleeding for months. He found a badly congested trigone. He washed the bladder with boracic acid solution before and after the use of the cystoscope, and the next day the bladder was better. Acting on that suggestion he washed out the bladder daily and the hemorrhage ceased entirely. There has been no return in six months.

Dr. Bunts spoke of the many cases in which there is no growth, but which are essential hemorrhages of the kidney. It means nothing but hemorrhage without discoverable cause. The possibility of nephritis must be borne in mind in cases of painful hemorrhage, and medical attention should be given on that line.

The Diagnostic Significance of Acute Abdominal Pain.

Dr. C. D. Kurtz, New Philadelphia, stated that the great majority of these cases have been diagnosed by one physician and another as "bilious attacks," "indigestion," "gas in the stomach," or "neuralgia of the stomach." He emphasized the fact that the majority of cases of severe acute abdominal pain in the adult are due to some serious lesion. In the young child the opposite is true, as most cases of acute pain are due to intestinal colic, the result of indigestion. In seventeen years' work he has not seen a case of acute gastralgia that was not due to gallstones, inflammation of the bile ducts or gastric ulcer, with the exception of those cases of crises due to locomotor ataxia. He differentiated the symptoms arising in appendicitis, in which the location of the pain is not always an index to the seat of the trouble; perityphlitis, which without appendicitis is of rare occurrence; acute cholecystitis, perforating gastric ulcer, acute inflammation of the gall bladder and ducts; acute intestinal obstruction; the so-called Dietl's crisis in movable kidney; renal colic; acute pancreatitis; the twisting of the pedicle of an ovarian or dermoid cyst; rupture of ectopic gestation; perforation of the intestine by typhoid ulcer; acute cystitis, prostatitis and vesical calculus. In acute pelvic inflammation the location of the pain in the hypogastric and pubic regions should suggest an examination of the pelvic organs. Pneumonia, pericarditis and pleurisy may cause pain in the abdomen. Arteriosclerosis of vessels in the splanchnic area will sometimes cause attacks of pain in the upper abdomen. Acute lead poisoning, arsenical poisoning and intestinal colic due to acute indigestion were mentioned, and he concluded with the importance of making a careful examination in every case of acute abdominal pain.

DISCUSSION.

Dr. Smith, Cincinnati, mentioned, in addition to the symptoms noted by Dr. Kurtz, the reflex pain from trouble in the vertebral column.

The Suppression of Fraudulent Advertising.

Dr. D. R. Silver, chairman of the Ohio League for the Prevention of Fraudulent Advertising, presented an excellent report of the league. The association was formed at the meeting of the Ohio State Medical Association at Canton, in May, 1906, and consisted of about ten members, subsequently increased to about thirty. The avowed object of the league is to enlist the medical men of the state, especially those interested in church work, in a protest against the use of religious publications by the American Proprietary Association for the furtherance of the schemes of fakirs and charlatans. The smallness of the committee and the meager fund necessitates concentration of effort on one point. The General Assembly, or great authoritative court, of the Presbyterian Church, which convened in Columbus, and its 600 delegates and other attendants to the number of 1,000, representing every state in the Union and many foreign countries, afforded an excellent opportunity for the work of the league. In order to instruct these people several hundred reprints were distributed among them, of the articles by Samuel Hopkins Adams, issued by the press of the American Medical Association, also copies of "The Great American Fraud." As a result, six presbyteries expressed themselves in unmistakable terms, declaring they would refuse endorsement to church publications which refused to comply with the request. The results are that the *Herald and Presbyter* is to-day entirely clean. A personal letter from the editor says: "We shall try to keep our paper free of fraudulent advertisements, medical, and all other kinds." The *Interior* of Chicago has but one such advertisement, and the publisher says that the contract will not be renewed when it expires. The conquest of these two great journals in one year may be regarded as a very great victory, and other papers of this denomination must now fall in line in self-defense. The league can now pass on in its work to other denominational papers, but whether it does so or not depends entirely on the support it receives at the hands of the profession, and judging from the work in the past year the executive committee feels justified in expecting this support. The executive committee, through Dr. Silver made a plea for general professional cooperation in this work, and as religious journalism is only a small part of its work, the real fight begins when the secular papers are attacked. It is almost useless to do this without education of the people, which can be done most effectively by the little book referred to—"The Great American Fraud," and by organization along the lines planned by the Public Health Defense League. This is an age of reform, and men will no longer tolerate exaggeration, fraud and deceit in the conduct of business. Trusts and corporations which propose to prey on the diseases and weakness, physical and mental, of suffering humanity will find themselves opposed by equally effective organization—the public Health Defense League—which has inscribed on its banner the words: "Onward for honesty, sobriety and truthfulness."

The Fallacy of Osteopathy.

Dr. Dana O. Weeks, Marion, prefaced his concluding remarks on the "Fallacy of Osteopathy," by quoting Justice Field of the Supreme Court at Washington, D. C. (the highest tribunal in this country), in giving the unanimous opinion of the Supreme Court as follows:

> Few professions require more careful preparation by one who seeks to enter it than that of medicine. It has to deal with all those subtle and mysterious influences on which health and life depend, and requires not only a knowledge of the property of vegetable and mineral substances, but of the human body in all its complicated parts, and their relations to each other, as well as their influence on the mind. The physician must be able to detect readily the presence of disease, and prescribe appropriate medicine for its removal. Every one may have occasion to consult him, but comparatively few can judge of the qualifications of learning and skill which he possesses. Reliance must be placed on the assurance given by his license that he possesses the requisite qualifications. Due consideration, therefore, for the protection of society may well induce the state to exclude from practice those who have not such a license, or who are found on examination not to be fully qualified. No one has the right to practice medicine without the necessary qualifications of learning and skill.

The theory of the osteopath, Dr. Weeks contends, is based on the presumption that there is some anatomic defect in each individual who has morbid symptoms, yet the great majority of osteopaths are not well educated even in anatomy, as is evidenced by the experience of physicians with them. Osteopathy of itself will not cure any known disease, and while it may be useful in selected cases as a part of physical therapy, like massage, Swedish movements, Delsarte, etc., there is no more reason to dignify the physical movements which they use as a "pathy" than to dignify the masseur and others who use a physical treatment by some "pathic" suffix. Dr. Weeks considers it evident that the simultaneous flood of osteopathic bills is the result of a well-planned effort to secure in each state legislation which will give the individual osteopath all the privileges of a member of the medical profession while expressly stating that he is not practicing medicine. The bills provide for unlimited and practically universal reciprocity, and also permit the board to substitute a variety of other qualifications for the educational requirements, thus allowing the licensing of practically any one whom the board may wish to license. The bills provide for a separate board of osteopathic examiners and an examination before licensing, but with so many exceptions as practically to nullify the examining features.

The Medical Fee Bill.

Dr. William B. Patton, Springfield, Ohio, after paying due consideration to the altruistic side of the profession and the practice of the individual members, asked consideration to the premise that it is time for every county society in the state to adopt and live up to a modern medical fee bill, simply for the purpose of uniformity and for the purpose of having something tangible for physicians to show their patrons or a court of justice if need be what is the usual and accepted standard of fees in the community. In June, 1906, the county society adopted a bill whereby the minimum fee for a house visit is $1.50 and for an office call 75 cents. Signatures of the members were secured to this bill, a plate thereof made, and now in practically every physician's reception room will be found a copy of the bill with *fac simile* signatures of members of the local profession. Referring to our relations to the clergy, Dr. Patton sums up his opinion: "The preacher who receives his medical services free of charge is expected to pay by using his influence in his church and community for the physician who rendered the service. The preacher who thus prostitutes his calling and the physician who attempts to get business by dangling to the coat tails of a preacher are about on a par, and neither of them is any great credit to two of the noblest callings of God among men." At a meeting of the Hamilton County Society a grievance committee was appointed to whom all complaints of violation of the fee bill shall be referred for investigation, and while it is too early to know what such a committee will accomplish, the very fact that it exists ought to have a tendency to stiffen the backbones of some of the weaker brethren.

Comparison of Homeopathy of Hahnemann with the Homeopathy of To-day.

Dr. Charles H. Higgins, Zanesville, after a brief biographical sketch of Samuel Hahnemann, compared briefly the homeopathy of Hahnemann's time with that of to-day. Hahnemann gave inappreciable doses at long intervals, while modern homeopathy gives appreciable doses for palliative effect and gives small doses frequently repeated. Hahnemann ignored pathology, while modern homeopathy recognizes pathology and teaches it in its colleges; it also recognizes material cause of disease, teaches bacteriology and microscopy, and makes use of modern serotherapy. Hahnemann did not believe in specific medication, except as prophylactic, like belladonna for scarlet fever. Modern homeopathy believes in specific medication to a certain extent, *i. e.*, belladonna for scarlet fever, modifying its course, preventing complication and protecting against infection. Bryonia is considered a specific for pneumonia if given early enough. Arsenic, copper and veratrum album are believed specifics for cholera, calcarea carb. for rickets, hepar sulphur for boils, etc. Hahnemann based his medication on the totality of symptoms, never giving drugs for the "antipathic" effect on a single symptom, while modern homeopathy usually bases its medication on the totality of symptoms, but frequently gives drugs for antipathic effect, such as morphin for pain. Also Hahnemann did not give tonics, while modern homeopathy gives tonics liberally. Hahnemann believed in the efficacy of vaccination as a preventive and alleviator of smallpox, while modern homeopathy advocates either giving potentized vaccine matter internally or the use of vaccination.

What the Profession May Do in Matters of State.

Dr. J. Morton Howell, Dayton, after considering the relation between theology and medicine, said that it is inspiring to those who believe in the Bible to find after the lapse of almost 2,000 years, in the greatest medical department or hospital, and perhaps in the world (Johns Hopkins), a statue of Christ, with the inscription at the base "The Great Physician." He believes this statue to be the protection of the sentiment and belief of the entire profession. After referring to the element of suggestion as employed in Christian science and osteopathy, Dr. Howell criticised the action of a United States Senator from Ohio for his assistance rendered toward the passing of a special law measure entitling osteopathy to a special consideration in the District of Columbia; and also for his attitude on the Food and Drugs Act and other legislation. In reference to quack doctors, nostrums, etc., he submitted the following measures for consideration by the legislative committee of the State Association:

He proposed a measure, suggesting that it be made a misdemeanor to cause to be inserted or printed, whether in press or by circular or otherwise, misleading and deceptive statements regarding the cure of disease. He urged on physicians the duty of taking an active interest in matters of state, instancing the part taken by physicians in France, and after eulogizing the services rendered to the cause of legislation on medical matters in the public interest by Dr. C. A. L. Reed, chairman of the Bureau of Medical Legislation of the American Medical Association, he suggested his nomination for United States Senator to succeed Charles Dick, on the expiration of his term, and called on the medical profession to rally to his support. Dr. Howell touched on needed legislation regarding the prevention and spread of tuberculosis and venereal disease, on marriage licensing, etc., and said that he looks forward to the time when communicable disease will be entirely under control and medical practice confined to prophylaxis and physiologic therapeutics.

The Rarity of Gastric Disease.

Dr. R. C. Cabot, Boston, said that many general diseases, and many local diseases originating outside the stomach, produce what are called gastric symptoms, although the stomach itself is sound, and hence, are to be cured, not by local treatment of the stomach, but by treatment directed to these extra-gastric causes—especially bad habits in neurasthenia. The grounds of these are: 1. The negative results of physical and chemical examination in a large number of cases at the Massachusetts General Hospital during the past ten years, in which gastric symptoms have been the chief complaint. 2. The favorable results of treatment, based on an attempt to better the patient's general condition and mental equilibrium, without any effort at local gastric treatment. 3. The demonstration that lesions of other organs can produce symptoms closely simulating those of local gastric disease. 4. The critical study of the local causative factors. Distinctly better results are obtained when we give up to a great extent the reliance on pepsin, HCl, anitfermentative drugs, and gastric sedation, and treat the patient with two main objects in view: The maintenance (a) of his nutrition and (b) of his courage. Forced feeding may have to be resorted to to accomplish the first, and to effect the second, it may be necessary to become the patient's friend and advisor, in matters so far afield from medicine as his love affairs, his financial worries, or his religious beliefs. Among the diseases which are responsible for many supposed cases of gastric trouble are phthisis, arteriosclerosis, angina pectoris, colelithiasis and others. Most of the causes of gastric troubles given in the text-books occur much more frequently without causing result than with. From these facts Cabot argues that if we leave out cancer, ulcer and obstructed dilatation, the causes of digestive anomalies are not to be found in local insults or local failures of the stomach.

Cooperation of the Profession and the Lay Public in Public Health.

Mr. Champe Andrews deprecated the hitherto prevailing pessimism and referred to the beginning of a new school of political economy and philosophy, represented by Professors Patten, Iriving Fisher, J. P. Norton and Russell H. Chittenden, the basis of which is a political economy, substituting for the history of the strong man trying to capture for himself the means wherewith to lead in an economic system that does not provide enough for everybody, that of a world where there is a surplus instead of a deficit, and where, when just methods of distribution of the surplus have been worked out, there will be more than enough for everybody, and consequently, time now occupied in the struggle for existence can be diverted to a development of the finer qualities of human nature. This school is constantly emphasizing the supreme fact that the greatest asset of a nation is the health of its people, and from this standpoint springs the necessity of the medical profession joining hands with the people to effect a common object. Mr. Andrews then referred to the origin and history of the public health defense league, and to the development of the work of the medical societies in New York State, in enforcing public health legislation. Public health laws will never be properly enforced until public opinion demands their enforcement, and the education of the public can not be accomplished by the physicians alone. The Public Health Defense League arose in answer to the demand for a society in which the doctor and layman can work side by side. Some of the ends of the league are the conquering of all forms of quackery, food adulteration, fraudulent sale of narcotics and alcohol, indecent and fraudulent medical advertisements, and the establishment of a national health bureau, together with other various steps tending to public enlightenment, on matters of public health.

Interdependence of Diseases of the Eye, Ear, Nose and Throat.

Dr. John E. Weeks, New York, urged the necessity of a broad knowledge of general medicine, preceded by a liberal non-medical education, as the foundation for a superstructure of specialization in medicine. Disturbances of the eye and its adnexa, due to disease of the nose and its accessory sinuses, are common. Obstruction of the lachrymal duct, rhinitis, syphilis, tuberculosis, pemphigus, influenza, deviated septum, polypi and foreign bodies in the meatus, all are liable to produce eye symptoms, while reflex ocular symptoms not infrequently develop from infections of the nose. The relation of diseases of the ear to diseases of the eye is less intimate, as is also that of infections of the pharynx and larynx. With regard to the relation between the presence of adenoids and hypertrophied tonsils, and phlyctenular conjunctivitis and keratitis. Weeks is somewhat uncertain, but he states that in his experience children suffering from phlyctenular conjunctivitis or keratitis, often suffer from adenoids and hypertrophied tonsils, and recover rapidly as a rule, after the adenoids and tonsils have been removed.

Doses of Diet and Drugs.

Dr. A. Jacobi, New York, pointed out that Nature is not inaccurate in her dosage. He admitted that nothing is better thought out than percentage feeding, but considered that, in its logical persistence, nothing is more fallacious, unnecessary or injurious. There is no equality or uniformity, either in cow's milk or woman's milk. Wherefore he considers that the mixed milk of a herd is safer than that of an individual cow may turn out to be. The persistent uniformity of the constituents of meals is a source of ill results. The infant's stomach is an organ endowed with physiologic freedom, not a test tube with chemicals of inalterable rules. With regard to the intervals between feedings, Jacobi says that every new text-book copies from the previous one, the rule of a meal every two hours for the newly born, and he asks why not two and a half or three hours? Altogether we feed too much and too often, both in health and disease. When he wishes to save cholera infantum babies, Jacobi practices what he practiced and taught fifty years ago, e. g., starving half a day, giving nothing for another half a day, except farinaceous waters, frequently in small quantities, then beginning with milk mixtures containing only 10 per cent., or with raw egg albumin mixtures, which do not add to intestinal putrefaction and intoxication. Milk skimmed by centrifuging in cases of moderate severity will be preferable to milk. After food has been refused in cholera infantum for a number of hours, teaspoon doses, one every five, ten, fifteen or twenty minutes, should be given. Jacobi considered the practice of adding cream to cow's milk incorrect. Babies thrive better on much less fat. He cited the experiences of the first of the four formulas supplied in Chicago, which contains only fat 1.5; milk sugar, 5; proteids, 0.5, on which little ones thrive with few diarrheal disorders. Asses' milk owes its value in digestive disorders to the fact that its fat percentage is low, as is also the case with buttermilk, the food of Holland's peasant babies, which contains only from 0.5 to 1 per cent., a surplus of indigestible fat undergoes decomposition in the intestinal tract. Babies digest but little fat. He deprecated the addition of milk sugar, notwithstanding the laboratory deductions of the professional pediatric journal contributor for the calcium phosphate in the serum, which keeps the casein of milk in solution, is decomposed by an excess of lactic acid, the result of milk sugar metabolism. He cites Sacherich and Finkelstein as supporting him in the avoidance of milk sugar, and the preference for plain sugar. He also recommends the addition of salt to the food of both the sick and the well. The addition of water is also required, for some 10 or 12 per cent. of the weight of an infant is lost within a week, as the result of excretion of large quantities of water, by the lungs, kidneys and skin. Many babies cry because they are thirsty, not hungry. If what they are given the first day or two is not pure water, the food should be diluted with water five or six times its quantity. Later dilution of milk should be as 1 to 3, the first month, 1 to 2 later, 1 to 1 at six months. There need be no fear of dilatation of the stomach. The amount of water to be given can not be told with accuracy, the baby will tell when he has had enough. Offer as much as he will take frequently. Jacobi considered the use of cereals, which some people decry, advantageous, for the transformation of starch in the sugar within a very few minutes in the mouths of babies has been well proved. Starchy foods act as an antifermentative in the bowels, authorities to the contrary notwithstanding, while albuminates, with occasional exception of egg albumin, are apt to cause intestinal putrefaction. Jacobi recommends one-half tablespoonful of barley, or when there is a tendency to constipation, oatmeal, slowly boiled in a quart of water down to a pint, with the addition of a little salt. Five parts of this, to one part of cow's milk, for the newly born. After a month, perhaps four parts; after two months, three parts; after three months, two parts; at six months one part. Flour of the whole barley should be used. If it is not obtainable, grind pearl barley in the coffee grinder. Jacobi concluded that if it were necessary the dilution of heated cow's milk with gelatin decoction is more digestible than cow's milk alone.

In regard to drugs, he cautioned against accepting the dicta of the text-books. Statements made in books, magazines and papers are copied and recopied. "When a mistake has been made a thousand times, we call it experience, and when it has been printed a thousand times and copied and read, it is called scientific truth." Take, as an example, the general statement that opium should not be given to babies and that the dose of the drug to be given to a baby of half a year or a year must be 1/20 or 1/15 of that of an adult person, or much less if the drug be an opiate. Yet for 54 years he has treated thousands of babies with enteritis in different forms, stopping the diarrhea, with 1/3 or ¼ of a grain of Dover's powder every two hours, with chalk or bismuth, subcarbonate or subgallate. He has never seen a case of opium poisoning of his own making. It would not be safe, on the contrary, to give adults fifteen or twenty times the dose he has used for a baby, repeating it every two hours. The author considered in detail the dosage of belladonna, calomel, corrosive sublimate, tincture of iron perchlorate, potassium chlorate, digitalis, spartein, camphor, caffein and strychnin.

The Enlarging Field of Opsonic or Bacterial Therapy.

Dr. A. P. Ohlmacher, Detroit, supplemented his previous reports on Wright's method of bacterial therapy with further experience, which, to his mind, assures for the new procedure a wider range of usefulness than that originally outlined by Wright and his followers. He referred to cases of puerperal infection, eczema, pruritus vulvæ, psoriasis, pyorrhea alveolaris, acute and chronic otitis media, rheumatoid affections, and even inherited defective immunity, under his own observation, successfully treated by bacterial therapy.

Medicolegal

Duty of Injured Person with Regard to Adhesions.

The Supreme Court of Rhode Island says that in the personal injury case of O'Donnell vs. Rhode Island Company, it was contended by the defendant that adhesions existing around the shoulder joint could be relieved by forcible rupture and manipulation—a process so painful as to require the administration of an anesthetic—and, further, that it was the duty of the plaintiff to submit to such an operation and so diminish the amount of damages. Much evidence was introduced to the effect that such an operation was not sure to be effectual, and might cause other harmful results. The trial court, in answer to a question of the jury, intructed them: "I can not advise you that it is the duty of the plaintiff, to undergo as a matter of law, to submit herself to etherization. It is a matter to be judged in the light of what a reasonable person would do. She must do all that a reasonable person would do to minimize those damages, and if you are of the opinion that a reasonable person would submit to be put under ether to have the arm manipulated, and that that would restore it in a period of three months, then I say to you it is her duty to do it. It is not her duty to do it, unless, in your opinion, that result would be accomplished; that to submit to that operation, putting herself under ether, for the purpose of breaking down those adhesions, and restoring the complete function of the arm, was such a thing that a reasonable person would do. It comes down to the question, in my view of the case, to whether a reasonable person would submit to it. She must do all that a reasonable person would do to reduce her injuries as much as possible, not only in the future, but she must have done it in the past; and, if there is evidence that shows that her claims of injuries have been increased (of the evidence, of course, you, gentlemen, are the judges), for such increase and her negligence, the defendant would not be liable. But, if she puts herself in the hands of the physicians and follows their advice, then the defendant would be liable, even though the physicians themselves lack in skill or may err in judgment." The Supreme Court thinks this instruction was correct. It cites Hooper vs. Bacon, 101 Me. 533.

Tuberculosis Patient at Sanitarium "Confined to the House" Under Insurance Policy—Throat Trouble.

The Court of Appeals of Maryland holds, in the case of Dulany vs. Fidelity and Casualty Company of New York, that a requested instruction that there was no evidence in the case legally sufficient to show that tuberculosis ever necessarily confined the plaintiff to the house was erroneous. It says that his insurance policy undoubtedly limited the disability from disease provided for by it to such as necessarily confined him to the house.

The expression "confined to the house" in the present case was used in a policy which on its face undertook for a consideration to insure against disability caused by diseases, not therein excepted (and consumption did not appear by the record to be excepted) for the obvious purpose of describing the duration of the period for which the insured, when totally disabled by disease from discharging the duties of his occupation, should be entitled to draw a weekly indemnity. That purpose, the court thinks, would be fully accomplished by construing "confined to the house" to mean confined to any part of the house, either inside of the doors or on the porches or verandas attached to it on the outside.

Furthermore, the court holds that the jury were erroneously instructed as matter of law that the failure to mention in the application for the policy the fact that the applicant had at different times within the prescribed period received medical attention for throat trouble constituted a breach of warranty material to the risk insured against relating to illness. The materiality of representations made in an appplication for a policy of insurance is ordinarily a question for the jury. The plaintiff testified, on cross-examination, that for five or six years he had a clearing of his throat, and during one winter had gone about once a week to a physician to have his throat and nostrils sprayed to get rid of it. He had also suffered now and then from a cold in the head, and had had the grip over three or four years before the trial, for which he had been treated by a physician. There was also testimony by his family physician that he had a chronic throat condition which is common to nine-tenths of the people in Baltimore, where what is known as a "throat climate" prevails, and that medical treatment is not ordinarily resorted to for that trouble, but that the plaintiff was rather prone to consulting physicians. The court does not think that the case fell within the class where the materiality of the representations were manifestly material to the risk, as here the only medical testimony appearing in the record as to the nature of the insured's throat trouble tended to prove that it was trivial and unimportant.

Valid Classification and Exceptions in Medical Practice Act.

The Court of Appeals of Maryland holds, in Watson vs. State, that the provision of the medical practice act of that state under which physicians who were practicing in the state prior to Jan. 1, 1898, and who were practicing at the passage of that act, and could prove by affidavit that within one year from that date that they had treated in a professional capacity at least twelve persons, should be exempt from the requirement to obtain a license, is not an unreasonable and arbitrary discrimination or classification forbidden by the fourteenth amendment to the Constitution of the United States. It says that the object sought to be accomplished by this law is to protect the public against incompetent and ignorant practitioners of medicine, while at the same time protecting actual practitioners of medicine against arbitrary and unreasonable exclusion from the practice of their profession. The law deals with that class of the people who have adopted and are engaged in the practice of the profession of medicine, and who are dependent on it for the support of themselves and their families, and with that other and larger class to whom competent medical practitioners are essential for the preservation of their health. These two classes are recognized classes, and each is entitled to consideration in framing the law.

In Dent. vs. West Virginia, 129 U. S. 21, the Supreme Court of the United States upheld a law which exempted from examination and license all physicians who had practiced medicine in that state continuously for ten years. The period of practice required under the Maryland statute under consideration at the time of its passage was a little more than four years, and that law has now been in force five years. If it was within the discretion of the legislature to fix a ten-year period, it was equally within its discretion to fix a four-year period, since the Supreme Court has said the legislature has a wide latitude in dealing with such classifications. To justify the striking down of such a classification it must be "obviously arbitrary," and must be shown "not to rest on some difference which bears a reasonable and just relation to the act—the thing—in respect to which the classification is proposed." This was not shown. On the contrary, re-examination of the authorities and a careful reading of the briefs convinces the court that the law is not open to this objection.

Nor does the court think the law unconstitutional because of the provision that nothing contained in the subtitle pertaining to practitioners of medicine should be construed to apply to: 1, Those rendering gratuitous services; 2, resident or assistant resident physicians or students at hospitals in the discharge of their hospital or dispensary duties, or in the office of physicians; 3, physicians or surgeons from another state or territory, when in actual consultation with a legal practitioner in this state; 4, to commissioned surgeons of the United States Army or Navy, or Marine-Hospital Service; 5, chiropodists; 6, to midwives; 7, to masseurs or other manual manipulators, who use no other means; 8, to physicians or surgeons residing on the borders of a neighboring state, and duly authorized to practice under its laws, and whose practice extends into the limits of the state, but not so as to permit them to maintain an office in this state. It thinks that it should be sufficient to say that they all come, in the court's judgment, within the wisdom and discretion of the legislature.

Manufacturing Company Not Liable for Continued Treatment of Person Injured on Its Premises.

The Supreme Court of Rhode Island says that the case of Burton vs. Fletcher Manufacturing Company was brought to recover the value of certain professional services as a physician and surgeon, rendered by the plaintiff for the defendant. The facts disclosed that one Charles S. Bray, a person not in the employ of the defendant, was injured on its premises; that the telephone of the defendant was used for the purpose of summoning the plaintiff, a physician; that the plaintiff rendered the necessary first aid to the injured person; that an ambulance was called, and in it the patient was removed. For all that was brought to the attention of the defendant, the services of the plaintiff ended there. Mr. Bray, it appeared, was seriously and severely injured, and his departure in the ambulance was as consistent with his removal to a hospital as it was to his being taken to his home.

The plaintiff received notice, either from the superintendent or acting superintendent, that the patient was not an employé of the defendant. If the notice came from the superintendent, as the plaintiff said, it was within a few days of the date of the injury; and if it came from the acting superintendent, as testified to by him, it was on the occasion of the first visit made by the plaintiff.

The justice presiding on the trial instructed the jury that the defendant was not liable for the continued treatment of the patient after giving notice that he was not their employé. To this ruling exceptions were taken.

The Supreme Court overrules exceptions to these instructions, holding that a verdict was properly directed for the defendant. It says that after the departure of the injured man from the premises of the defendant in the ambulance, if the plaintiff had intended to treat the patient at the expense of the defendant, it was his duty to inform the defendant of that fact, to the end that there might have been such a meeting of minds on the subject as would constitute a contract. The plaintiff, however, elected to remain silent on the subject, not only for months, but for years, although he had been previously instructed by the defendant, in another case, to render monthly statements of his services when rendered in its behalf; and when he finally brought his suit it was more than six years after the time when the defendant had notified him that Bray was not in its employ. There was evidence that there was no express contract, and there was no evidence, in such circumstances, from which a contract could be implied in favor of the plaintiff.

Medical Practice Act and Procedure Sustained.

The Supreme Court of Pennsylvania, in the case of Commonwealth vs. Clymer, affirms, on the opinion of the Superior Court, a conviction of practicing medicine without a license. The opinion referred to holds that the act of May 18, 1893, is not unconstitutional on the ground that the subject of legislation is not clearly expressed in the title. The particular objection was that the title gives no notice of the provision, contained in the fourteenth section, making a violation of any of the provisions of the act, especially those relating to practicing medicine or surgery without license and registration, a misdemeanor punishable by fine. But it is answered that, inasmuch as the subject of legislation, as expressed in the title, is the examination and licensing of practitioners of medicine and surgery, and the further regulation of the practice of medicine and surgery, any one would naturally suppose, from reading the title, that the act not only provided for the licensing of such practitioners, but declared the consequences of practicing without complying with its provisions.

The admission of the testimony of a statistical clerk, who assisted in keeping the records of the medical council and the state board of medical examiners, that he had examined them, and could not find the name of R. S. Clymer therein, was not prejudicial error, even though this mode of proving the contents of the record was open to objection. According to the doctrine of Commonwealth vs. Wenzel, 24 Pa. Superior Ct. 467, and in view of the state of the record produced from the prothonotary's office, it was not incumbent on the commonwealth to prove that the defendant had no license.

The record produced from the office of the prothonotary, taken in connection with the uncontradicted testimony of the deputy, showed that none of the papers exhibited by the defendant for the purpose of registration was a license issued by the medical council of Pennsylvania, and no such license was produced on the trial, or was proved, and its non-production accounted for. Moreover, in the affidavit filed by the defendant with these papers, the clauses of the blank relative to the exhibition of a license issued by the medical council, and to compliance with the provisions of the act of 1893, were all erased, thus showing that the defendant was careful not to assert that he had any such license, or that he had complied with the provisions of the act. In view of these facts the judge was justified in expressing to the jury his opinion as to what the verdict should be.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

September 14.

1 *Account of the Destruction of Mosquitoes in the Original Infected District in the New Orleans Epidemic of 1905. T. D. Berry, U. S. P. H. and M.-H. S.
2 *Intercurrent Typhoid Fever in Surgical and Renal Cases. G. F. Lydston, Chicago.
3 *Nutrition a Factor in Tooth Development. W. J. Lederer, New York.
4 *Phthisiotherapy by Means of Emulsion of Bacilli (Koch). W. Meyer, West Hoboken, N. J.
5 Morphinism. C. J. Douglas, Dorchester, Mass.
6 *Flatulence and Its Treatment. M. Einhorn, New York.
7 Removal of Large Thyroid Tumor of Neck. J. H. Wells, Pyengyang, Korea.
8 Cancer of the Head of the Pancreas. D. B. Allen, New York.

1. **Yellow Fever in New Orleans.**—Berry relates in an interesting fashion the measures undertaken during the epidemic of yellow fever in 1905, for the extermination of the mosquito. The problem of destruction of mosquitoes was met by a repeated fumigation of the houses, and the use of currents of live steam under high pressure, sprayed through a nozzle on vines, rubbish piles, etc. The unemployed theatrical bill posters proved immensely useful with paste and brush in closing up arch ways, leaky sheds, outhouses and even semi-closed places, passage ways. The agents used were sulphur, pyrethrum and tobacco; the first was burned in 10- and 12-inch skillets; pyrethrum was unsatisfactory; tobacco was ineffectual. Great tact was displayed in employing a sprinkling of Italians among the workers, one in each gang being interpreter. The education they thus received made them valuable missionaries. To avoid damage to many articles and furnishings that would be injured by sulphur fumes in the parlors of the better class, the room was first searched for objects such as flower vases that might contain water, and the room prepared as for fumigation by sealing, the door closed and sealed on the outside. On the termination of the case, and after complete fumigation of the rest of the house, this room could be opened in confidence that no mosquitoes had survived, for these insects can not exist without water for over three or four days. Mosquito traps were found to be useless. After all damagable articles had been removed and the cracks pasted up or chinked with cotton to make everything tight, a rough estimate of the cubic capacity of space was made and two pounds of sulphur to a cubic foot were ignited. The effect of the fumigation was shown by spreading a sheet over the floor in front of one window, all the other windows being darkened. Driven from their hiding places by the fumes, the mosquitoes flew toward the light until they fell asphyxiated on the sheet. "Afterward it was enough to convince the most skeptical doubter of the mosquito doctrine to see in a room where a patient had just died of the fever a dozen or two female stegomyias, dead on the sheet, with their abdomens in various stages of distension from the blood of the late patient, and to know the products of the absorption of this blood would have been duly injected into some one else's system had not the mosquitoes been arrested in their career." That the female stegomyia of sufficient age to transmit yellow fever works almost entirely by night, is shown by the fact that over 100 non-immunes working in the worst infected houses for eight hours daily had a morbidity of only 3 per cent., in no case attributable to daytime infection.

2. **Typhoid in Surgical Cases.**—Lydston records three cases, emphasizing the importance of being continually on the alert for medical complications, in cases primarily of a strictly surgical character. In the first case typhoid complicated a renal colic hematuria; in the second inguinal hernia and perineal section for bladder drainage; and in the third an acute primary nephritis.

3. **Nutrition and the Teeth.**—Lederer considers the effect of nutrition on the development of the teeth, and urges, among other things, insistence on mother's milk, when obtainable, and avoidance of carbohydrates and other foodstuffs, prior to the eruption of the temporary teeth. Milk should be the principal food for 18 months, starchy food should be withheld for about a year.

4. **Phthisiotherapy.**—Meyer tabulates 25 cases of pulmonary tuberculosis treated by means of Koch's emulsion of bacilli, which cases lead him to formulate the following conclusions:

1. An early diagnosis gives the greatest assurance of an early permanent cure (tuberculin being the means of such diagnosis).
2. The selection of cases has a direct bearing on the results; far-advanced cases are generally hopeless and second-stage cases doubtful.
3. A cure is possible by means of tuberculin, but the permanency of such cure is *sub judice* at present.
4. The dose is to be guarded in order to avoid reaction of a severe type and the intervals between the injections should be regulated according to reaction.
5. No ill effects have followed large doses, even in the beginning of the treatment; but it is advisable to give small doses, since the larger doses may cause symptoms which alarm both patient and physician.
6. In fever cases very minute doses have a tendency to reduce temperature; 3 of the 25 cases have acted that way.
7. Bacilli usually increase in number at first, and cough may be more severe for a time, but the improvement is early and rapid.
8. Under tuberculin the weight increases and the general condition improves, the symptoms disappear, and the patient feels in every respect better; this naturally pertains only to certain well-chosen cases.
9. These observations have conclusively shown that patients while remaining at home and at work can take the tuberculin treatment and receive a great deal of benefit from it.

6. **Flatulence.**—Einhorn classifies flatulence as (1) primary, (2) more frequently associated with other ailments. Clinicians have now convinced themselves that flatulence may exist without any serious consequences for a long time. In most instances there is no real augmented fermentation of the food. Often belching is explained as the result of swallowing air. In ischochymia, in which there is almost always undue fermentation and decomposition of food, patients do not suffer much from belching of gas. An increase in the formation of gas is encountered in acute and chronic gastric catarrh. Habit plays an important part in this trouble; when asleep or when the attention is actively occupied, belching is not liable to occur. The need for it occurs when the thoughts turn to the vegetative functions, but there is no necessity to respond to the temptation. In primary flatulence the patient should restrain

belching. No restriction of diet is necessary. Carbonic acid beverages and gas-forming foods should be avoided; nerve sedatives may be helpful. In secondary flatulence the primary trouble should be treated. Fluids should be aspirated. Iodids, digitalis, etc., should be administered, and the patient should take small and frequent meals.

New York Medical Journal, New York.

September 14.

9 Electrolysis and the Nervous System. Sir J. A. Grant, Ottawa, Can.
10 *The Ideal Ligature. A. D. Whiting, Philadelphia.
11 *Tuberculosis Classes. J. B. Hawes, Boston.
12 *Movable Kidney in Genesis of Bile Duct Disease. A. E. Gallant, New York.
13 Detection and Estimation of Reducing Sugars. S. R. Benedict, New Haven, Conn.
14 *Traumatic Edema of Cornea in New-Born Infant. A. Brav, Philadelphia.
15 Instruction to Those Having Chancroids. V. C. Pedersen, New York.
16 *Analysis of the Cardinal Symptoms of Ileus. A. P. Condon, Omaha, Neb.

10. **Ideal Ligature.**—Whiting goes into the history of ligatures and sutures, before detailing his investigations in search of the ideal ligature, which he defines as one absolutely free from germ life, remaining sterile so long as it is retained in the tissues of the body, strong and flexible, and absorbed or replaced by living tissues after it has fulfilled its function. He considers that he has found such a ligature, and closes his article as follows: 1. The ideal ligature is obtainable by treating catgut before it has been twisted into a solid cord or string. 2. Catgut treated before it is twisted is much stronger than catgut sterilized after it has been made into a solid cord or string. 3. It is possible thoroughly to impregnate the untwisted gut with a chemical which will become a component part of the catgut when twisted. 4. Silver iodid gut will remain sterile as long as it is retained in the living tissues and will possess germicidal powers until it has been absorbed or replaced by living cells, the fluids of the body breaking up the silver iodid into silver, iodin, and various compounds of these chemicals. 5. It is possible and practicable to produce catgut that is absolutely free from germ life and that has antiseptic and germicidal powers, by treating the gut with various chemicals before it is twisted into a solid string or cord..

In a footnote, Whiting calls attention to a paper by Kuhn and Rössler, in the Deutsche Zeitsch. f. Chir., lxxxvi, No. 2, an abstract of which appeared in The Journal, Aug. 10, 1907, page 529, in which they describe this method of treating catgut, and states that he had not heard of their work till after his paper was written. He also states that his first laboratory tests were made in May, 1906, about a year and a half after he first commenced investigating the subject, and that this method of treating catgut was registered in the Patent Office in Washington, D. C., though not by him, early in 1906.

11. **Tuberculosis Classes.**—Hawes goes at great length into the methods of the tuberculosis class, which consists of a group of consumptives, poor, but not so poor but that each can live at home, and attend strictly to the business of getting well. The main features of this method are: 1, The keeping of home records by each patient; 2, weekly meetings of the class as a whole; 3, visits in the homes of the patients by a nurse in charge of this work, or by volunteer friendly visitors. Each of these points is considered in great detail.

12. **Movable Kidney and Bile Duct Disease.**—Gallant describes 10 cases, from which he feels justified, at least tentatively, in adopting the following conclusions:

> 1. The inception of disorders of the biliary tracts arise from traction or pressure on the bile ducts by a prolonged kidney. At first there is but slight mobility, slight traction, and a slight attack, of a "bilious" nature, with or without jaundice. It is owing to the transitory nature of the attacks during its incipiency that examination is but seldom made, or the kidney can not be palpated because it has slipped back, as soon as the patient lies on her back, and the gall bladder empties itself as soon as the tension is released. The mobile kidney gradually increases in size and mobility, exerting greater traction, causing greater obstruction, greater bile stasis, greater colic and jaundice, with infection, precipitation, stone formation, ulceration, perforation.
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> 2. These attacks can almost always be arrested and the diagnosis established by placing the patient in a bed with the foot raised ten inches, and replacing the kidney by careful manipulation.
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> 3. By the early recognition of the kidney mobility as the cause, in the early stage of the disease, and the early wearing of a special corset, exacerbations can be prevented, further progress of duct disease avoided, gallstone formation eliminated, operations for their removal reduced to a minimum, and at the same time by the use of the corset we overcome the bad effects arising from ptosis of other abdominal viscera.
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> 4. When pain, fever, and jaundice do not diminish or subside within from twenty-four to forty-eight hours, or unmistakable signs of severe infection or peritoneal invasion are present, operate quickly and thoroughly.

14. **Edema of the Cornea in Infant.**—Brav reports a case of traumatic edema in a new-born infant, of a kind to which he is unable to find a parallel in the literature. It was difficult to distinguish between the following conditions: 1, Congenital corneal opacities resulting from a keratitis *in utero;* 2, anomalies of the cornea due to faulty embryonic development; 3, keratitis superficialis; and 4, hydrophthalmus. The treatment of the condition is expectant. In the present case a 1 per cent. solution of dionin was used with gratifying results. Brav thinks it increases the activity of the lymphatic elements and so hastens absorption of the exudate.

16. **Ileus.**—Condon concludes his paper as follows: When the physician understands the pathologic changes which occur at the seat of the obstruction, and that the principal factor in the causation of a fatal termination is the absorption of the toxins, he will spend no time in medical treatment, but will at once resort to surgical measures, for each hour of waiting puts the patient into a deeper state of intoxication and allows irreparable damage at the seat of the obstruction to occur, thereby lessening the possibility of a successful operation. Ileus is one of the accidents of medicine, and is a condition for emergency work, therefore every practitioner (when a surgeon is not available) should be able to do a laparotomy at the onset of an obstruction. If done in the early hours, it is not a serious operation, nor one that should be attended with much technical difficulty, nor a high mortality. It is only when the bowel becomes gangrenous and it is necessary to do a resection, or after the patient has developed a peritonitis, or is prostrated by long and continued vomiting, that the operation becomes formidable.

Boston Medical and Surgical Journal.

September 12.

17 *Operative Treatment of Varicose Veins of the Lower Extremity. J. T. Bottomley, Boston.
18 *Rectal Anesthesia. J. H. Cunningham, Jr., Boston.
19 Early Diagnosis of Pulmonary Tuberculosis by the General Practitioner. E. O. Otis, Boston.
20 Report on a Peculiar Disease of Tropical Africa Called Onyalai. F. C. Wellman, Benguella, West Africa.

17. **Varicose Veins.**—Bottomley thus sums up the substance of his article: 1. The important etiologic factor is a congenital one; in a small proportion of cases it is inflammatory. 2. The operation that will give the best results must have as its essential feature extirpation of the internal saphenous vein; but to this such other procedures must be added as are suitable to each individual case. 3. Before operative measures are undertaken it must be demonstrated that the deep venous circulation of the lower extremity is not obstructed to any marked degree. 4. In properly selected cases it is believed that a permanent cure may be promised. 5. The operation is almost but not entirely free from danger.

18. **Rectal Anesthesia.**—Cunningham describes the method of inducing ether anesthesia by rectum. A bottle, 7½ inches in height, of which 5 inches are used for ether space and 2½ inches for vapor space, is used. A tube penetrating the cork, and reaching nearly to the bottom of the bottle, is connected by means of a rubber tube with a cautery bulb. The efferent tube, which penetrates through the cork into the open space above the ether is connected also by another rubber tube with the rectal tube. The bottle is placed in a water bath with a temperature between 80 and 90 F.—below the boiling point of ether, which is 98.6 F. Inexpensive ether has been found quite as satisfactory as the most expensive. The patient lies on the back with the legs in slight flexion. The rectal tube is inserted from 10 to 14 inches, the efferent tube is connected with it and the vapor forced in by pressing the cautery bulb. Keeping the forefinger in the rectum beside the tube, unless it causes the patient pain, hastens expulsion of the rectal gases. The rectum must be distended to the point of emptying itself around the tube, otherwise ether is absorbed much more slowly. After all the gas has been expelled the ether should be forced in by a few squeezes of the bulb every five

or ten seconds. The breath becomes ether laden in from one to five minutes after the ether is started. The patient gradually becomes drowsy, the breathing stertorous, and he then passes into complete surgical narcosis without any stage of excitement. When narcosis is complete, the usual precautions of ether anesthesia must be observed. If too great narcosis has taken place, the efferent tube should be disconnected, and ether be forced through the rectal tube by abdominal massage. Of course, the rectum must be thoroughly cleaned out prior to the operation. Little ether is needed, vomiting seldom occurs, bronchial secretions are absent, there is a rapid recovery from the ether. A number of cases are reported and the opinions of other surgeons on the methods are cited.

Lancet-Clinic, Cincinnati.

September 14.

21 *Neurosis of the Stomach. F. L. Rattermann, Cincinnati.
22 *Phytolacca. F. Ellingwood, Chicago.
23 Care of the Stump of the Appendix. C. T. Souther, Cincinnati.

21. **Stomach Neuroses.**—Rattermann lays stress on the great importance of the nervous system as a factor in stomach trouble. He illustrates the harmful results of directing the attention too closely to the regulation of the physiologic functions of the body. The result of such a procedure is that the organs of the body are raised like hothouse plants, and are exceedingly reactive against abuses which an ordinary individual does not feel.

22.—This article also appears in the *Medical Fortnightly*, Sept. 10, 1907.

Medical Fortnightly, St. Louis.

August 26.

24 Dawn and Development of Urology. B. Lewis, St. Louis.
25 Strangulated Hernia. A. C. F. Brown, St. Louis.
26 Case of Extradural Abscess. S. Spencer, St. Louis.
27 Case of Papilloma of Caruncle. C. Loeb, St. Louis.

September 10.

28 Egypt and the Egyptians. R. G. Eccles, Brooklyn, N. Y.
29 *Handling and Conveyance of the Sick and Injured in St. Louis. G. Homan, St. Louis.
30 Phytolacca Decandra. F. Ellingwood, Chicago.
31 *Pentosuria. V. Vestling, Creston, Iowa.
32 Retropharyngeal Abscess. M. A. Goldstein, St. Louis.

29. **Handling of the Sick.**—Homan describes a street railway ambulance car, constructed for use in St. Louis, to collect patients from ambulance stations for transference to the various hospitals.

31. **Pentosuria.**—Vestling insists on the necessity of diagnosticating between diabetes, or true glycosuria, and pentosuria—the occurrence of sugars of the five-carbon series (pentoses) in the urine. The pentoses $C_5H_{10}O_5$ include the carbohydrates, arabinose, xylose and rhamose. He describes the method of testing for pentoses. The prognosis is much more favorable than in mild diabetes. The diabetic treatment is out of place in pentosuria. A milk diet is found to be particularly advantageous while a meat diet is not well borne. Though it is assumed to be rare, this condition is not a curiosity. It is possible that careful attention will now show that many cases formerly regarded as diabetes are really cases of pentosuria. Positive orcin test with negative fermentation test proves pure pentosuria. Positive orcin test with positive fermentation test denotes pentosuria and glycosuria.

Therapeutic Gazette, Detroit.

August.

33 *Etiology of Iritis. W. M. Zentmayer, Philadelphia.
34 *Iritis in General Disease. B. Chance, Philadelphia.
35 Symptoms of Iritis. S. D. Risley, Philadelphia.
36 *Treatment of Iritis. S. L. Ziegler, Philadelphia.
37 Stovain Spinal Anesthesia. G. Torrance, Birmingham, Ala.
38 *Relative Value of Obstetric Forceps and Version as Method of Delivery. W. H. Wells, Philadelphia.

33. **Iritis.**—Zentmayer, after describing the causes of iritis—syphilis, rheumatism, gout, tuberculosis, gonorrhea, diabetes and malaria, as well as those occurring in the course of infectious fevers, herpes zoster and cerebrospinal inflammations—emphasizes the point that disturbed metabolism has been shown as a factor in many cases formerly thought idiopathic, and particularly that form in which attacks are recurring or relapsing in otherwise healthy individuals is due to autointoxication. He considers the claims as to the extensive association of diseases of the accessory sinuses with ocular affections as being injudicious, since, notwithstanding that some observe the association of the affections of these organs frequently, other careful observers have failed to detect a single undoubted instance of uveal disease of accessory sinus origin.

34. **Id.**—Chance considers iritis in relation to general disease, particularly syphilis, rheumatism, gonorrhea, gout and lithemia, tuberculosis, acute infectious diseases, malaria, meningitis, whooping-cough, pyemia, infection from the mouth, diabetes, albuminuria. This list of diseases in which iritis has been present is not complete, but includes only those states most commonly seen.

36. **Treatment of Iritis.**—Ziegler discusses this under 1, local; 2, systemic; 3, surgical measures. 1. Local treatment: Atropin sulphate, 4 grains to an ounce, instilled until the pupil dilates widely, in order to prevent adhesions forming, or to break them if formed. The sedative action on the lymphatic stasis present Ziegler considers the real therapeutic factor. Symptoms of atropin poisoning should be looked for. Hyoscyamin sulphate may be substituted when atrophin is not well borne. For supraorbital neuralgia hyoscin hydrobromid, ¼ gr. to 1 fluidram, is instilled into the eye; hot stupes, leeching, dionin, 5 per cent., positive galvanism, an eye shade or London smoked glasses are also used. 2. Systemic treatment: Calomel ¼ gr., four times a day for five days, is the sheet anchor. If antisyphilitic treatment is indicated, daily inunctions of unguentum hydrargyrum, 1 dram, are given, and ascending doses of potassium iodid from 5 to 100 grains, well diluted, t. i. d., for from six months to two years. With a rheumatic tendency, antirheumatic remedies are indicated. He speaks highly of a formula used at the Wills Hospital, which is merely an emulsion of turpentine in 5 to 10 minim doses, with or without quinin. It is known as Dr. McClure's mixture, and Ziegler has seen this mixture clear up a case of sympathetic iritis that would not yield to any other treatment. To produce diaphoresis, a hypodermic of pilocarpin, ⅙ gr., guarded by strychnin nitrate, 1/30 gr., or vapor baths may be employed. In gummatous iritis specific treatment must be pushed to the full limit. In tuberculous iritis, Ziegler considers tuberculin not only a reliable diagnostic test, but a valuable therapeutic agent. He prefers Koch's old tuberculin to the more virulent and more dangerous tuberculin T.R. In traumatic iritis heat is contraindicated; cold compresses are efficient. Calomel, gr. 1/10, is given every hour or every two hours. Atropin, while generally indicated, may be contraindicated by increased tension. Thyroid extract may be used in gelatinoid iritis, also dry heat and galvanism. In chronic or recurrent iritis he advises looking for nasal obstruction and accessory sinus disease. 3. Surgical treatment: Chronic or recurrent iritis, with posterior synechiæ or pupillary exclusion, often indicates iridectomy. In traumatic iritis, if the iris is torn, bruised or prolapsed, it is better to excise the injured portion at once, and carefully to dress back the edges of the coloboma, so that no incarceration or blocking up of the corneal wound may occur.

38. **Forceps Versus Version.**—Wells summarizes his paper as follows:

> When rapid delivery is necessary, the pelvis being of normal size or flattened very slightly in the anteroposterior diameter, the transverse diameter being of normal size or increased, the cervix and vaginal canal dilated and well-softened, version is preferable to forceps when mechanical interference is necessary. Among the special indications for version may be classed the following: Brow or face presentations with no rotation of the chin; certain cases of occipitoposterior position; parietal presentations; placenta prævia, if the presenting part is high up in the pelvis and the soft parts dilate slowly; certain cases of deficient uterine contractions; prolapse of the cord; transverse positions; excessively large caput succedaneum; some cases of eclampsia.
>
> Forceps delivery gives best results in the largest number of labors delayed by weak uterine contractions in which interference is necessary, in the majority of cases of posterior rotation of the occiput. Forceps are also to be used in cases of rachitic, generally contracted, or in justominor pelves, providing the contraction is not great enough to prevent the head and shoulders of the child from passing through the inlet, and in those patients having certain constitutional diseases, when manual delivery is to be performed.
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> Neither forceps nor version should be attempted in any case of hydrocephalus or abnormally enlarged fetal body unless craniotomy or evisceration has first been performed.

Columbus Medical Journal.

August.

39 Practical Bacterial Therapy and Theory of Opsonins. A. P. Ohlmacher, Detroit, Mich.
40 *Quarantine in Rural Districts. R. Williams, Girard, Ohio.

40. **Rural Quarantine.**—Williams points out that quarantine in contagious diseases is of the same importance in rural districts as in urban, yet the different conditions make it much more difficult for the rural health officer, however assiduous, to carry it out effectively. When persons are placed under quarantine in rural districts they have the right to expect the same sanitary care as is given in the city. He reports instances of the difficulties in the country, and suggests that it would be better to change the health department from the various township and village health boards as now existing, to a county board of health, elected by popular vote, the board to be compensated for the time devoted to the work, with a county health officer and assistants, whose time will be entirely employed at a reasonable salary—the health officer to be appointed on the merit system and his term of office not subject to change with the personnel of the board of health.

Virginia Medical Semi-Monthly, Richmond.

August 23.

41 Significance of Pain in the Upper Abdomen. T. C. Witherspoon, Butte, Mont.
42 Report of Surgical Cases of the Southern Railroad Company Employés. G. B. Thornton, Memphis, Tenn.
43 Importance of Early Recognition in Nasal Obstruction with Relation to Disease in Other Regions. C. H. Knight, New York.
44 *Malaria as a Surgical Complication. T. M. Aderhold, Ziegler, Ill.
45 Treatment of Typhoid. J. W. McGehee, Reidsville, N. C.
46 A Promising Specialty of the Future. C. C. Miller, Chicago.
47 Principles of Surgery. S. McGuire, Richmond.

44.—Abstracted in The Journal, June 22, 1907, page 2150.

American Medicine, Philadelphia.

August.

48 Surgery of the Gall Bladder and Bile Ducts. H. C. Rooth, Buffalo, N. Y.
49 *Dementia Præcox. T. J. Orbison, Philadelphia.
50 *Statistical Study of the Relation Between the Height of the Longitudinal Arch and the Functions of the Foot. P. Hoffmann, St. Louis.
51 Bilateral Abductor Laryngeal Paralysis with Tabetic Manifestations. J. A. Patterson and L. G. Brown, Colorado Springs, Colo.
52 Trophoneurosis of the Hands Allied to Erythromelalgia and to Raynaud's Disease. A. Gordon, Philadelphia.
53 *Legal Control Necessary in Treatment of Drug Habits. F. H. Gerrish, Portland, Me.
54 Proper Time to Use Ultraviolet and Roentgen Rays in Tuberculosis. C. F. Gissler, Brooklyn, N. Y.

49. **Dementia Præcox.**—Orbison describes six cases of dementia præcox representing four of the more or less arbitrary clinical divisions of the disease, namely: 1, Incipient paranoia; 2, acute paranoia; 3, hebephrenia; 4, chronic paranoia. In two cases of acute and one of incipient paranoia recovery ensued and the patients have remained normal to the present, notwithstanding that the prognosis was bad in four cases. This kind of insanity is the most difficult to treat—difficult in the sense of "arduous, not easy, vexatious." The most important point is the choice of companions, on whom devolves the task of daily and hourly substituting the normal idea, thought and action, for the abnormal, illogical and bizarre. The method of attack must vary with each individual case. The removal of the patient from home and the placing in a suitable environment is important. Orbison's patients were placed in the home of a physician, who lived where city and country met. He believes this plan to possess many advantages over an institutional life in this class of cases. During the course of treatment, commendation should be freely given, such patients being susceptible to flattery and affected by blame. The alimentary canal, the skin, a carefully arranged routine for the day, including ample variety of exercise and amusement, should all receive attention. The author emphasizes the importance of the mental treatment as follows: "This to me is the kernel of the whole matter; repetition of the normal thought, word and act, until the normal habit is formed again. The time to get in the best work is during the patient's 'good days,' and between relapses." Drugs may be required for constipation, diarrhea, over-excitability and insomnia. The author emphasizes Clouston's advice of a course of thyroid extract in 60-grain doses a day, to produce a short five or six days' fever, as essential when danger signals begin to appear. Restraint is used only in cases of intense motor excitement and when danger is to be apprehended.

50.—This article appeared in the *Interstate Medical Journal*, August, 1907, and was abstracted in The Journal, August 24, 1907, page 719.

53. **Drug Habits.**—Gerrish urges the necessity of physical restraint of the victim of drug habits, and quotes the act of the state of Maine, 1905, as a suggestion, perhaps as a model, for legislation throughout the country.

Medical Standard, Chicago.

August.

55 Fifty Brief Biographic Clinics on Living Patients. G. M. Gould, Philadelphia.
56 Volvulus of the Sigmoid. B. Robinson, Chicago.
57 The Surgical Prostate. F. A. Leusman, Chicago.

Western Canada Medical Journal, Winnipeg.

July.

58 Rôle of the General Practitioner in the Advancement of Medical Science. J. Mackenzie, Burnley, Eng.
59 Displacement of the Uterus. C. N. Cobbett, Edmonton, Can.
60 Ectopic Pregnancy. E. G. Mason, Calgary, Can.

Journal of Outdoor Life, Trudeau, N. Y.

September.

61 Campaign Against Tuberculosis in Hartford. H. F. Stoll, Hartford, Conn.
62 What Cooperation and Hard Work Have Done at Washington to Stamp Out Tuberculosis. W. H. Baldwin, Washington, D. C.

Central States Medical Monitor, Indianapolis.

August.

63 Relation of Tuberculous Lesions to the Mode of Infection. R. W. Tuck, Arkansas City, Kan.
64 Pathology and Treatment of Hepatic Functions. H. Richardson, Baltimore.
65 Lobelia Inflata. J. W. Crismond, Anderson, Ind.
66 Estivoautumnal Fever. G. D. Marshall, Young America, Ind.

Pennsylvania Medical Journal, Athens.

August.

67 Case of Pernicious Anemia with Jaundice. J. G. Wilson, Montrose.
68 *Accidents and Complications of Perineal Prostatectomy. L. J. Hammond, Philadelphia.
69 Prostatectomy. J. B. Deaver, Philadelphia.
70 *Causes of Failure in Tendon Grafting. D. Silver, Pittsburg.
71 *Surgical Treatment of Chronic Colitis. W. M. Beach, Pittsburg.
72 *Peculiar Trophic Affection of the Skin in Neurotic Subject. R. Myers, Huntingdon.
73 Hypertrophic Pulmonary Osteoarthropathy. H. R. M. Landis, Philadelphia.
74 Fractures of Head and Neck of Radius. T. T. Thomas, Philadelphia.
75 *New Procedure for Treating Prolapse of the Iris Complicating Perforating Wounds of the Cornea. E. B. Heckel, Pittsburg.
76 Aids in Teaching Climatology and Climatotherapy. G. Hinsdale, Hot Springs, Va.
77 Consideration of Failing Cardiac Compensation. J. A. Lichty, Pittsburg.
78 Optic Neuritis in Tumor of Brain. B. Chance, Philadelphia.

68, 71.—Abstracted in The Journal, Oct. 13, 1906, page 1220.

70.—Abstracted in The Journal, Oct. 13, 1906, page 1221.

72.—Abstracted in The Journal, Oct. 20, 1906, page 1323.

75.—Abstracted in The Journal, Oct. 6, 1906, page 1130.

Northwest Medicine, Seattle.

August.

79 Cellular Cooperation and Conflict or the Ethics of Physiology. E. Crutcher, Seattle.
80 Etiology and Pathology of Salpingitis and Pyosalpingits. B. Elmore, Seattle.
81 Symptoms and Differential Diagnosis of Salpingitis and Pyosalpingitis. C. Smith, Spokane.
82 Palliative and Radical Treatment of Salpingitis and Pyosalpingitis. W. W. Mackenzie, Spokane.
83 Angina Pectoris, Pseudoangina and Palpitation. J. W. Bailey, Seattle.

Montreal Medical Journal.

August.

84 Immunity and Preventive Medicine. S. Ortenberg.
85 Bronchiectasis with Bacillus Influenza. E. T. F. Richards and F. B. Gurd, Montreal.
86 Case of Molluscum Contagiosum. W. E. Nelson, Montreal.
87 Perichondritis of Larynx Occurring During Typhoid. H. S. Birkett and H. S. Muckleston, Montreal.

Western Medical Review, Omaha.

August.

88 Therapeutics in Dermatology. A. Schaler, Omaha.
89 *Uterine Decidua as a Diagnostic Sign in Ectopic Pregnancy. A. P. Condon, Omaha.
90 Archeblosis and Heterogenesis. L. A. Merriam, Omaha.
91 *Stomach Symptoms But Not Stomach Disease. L. W. Littig, Iowa City, Iowa.

89, 91.—Abstracted in The Journal, June 8, 1907, page 1982.

Iowa Medical Journal, Des Moines.

August.

92 Education as an Adjuvant. E. E. Munger, Spencer.
93 Therapeutics of Lobar Pneumonia. F. J. Murphy, Sioux City.
94 The Opsonic Index and Vaccine Therapy. H. Albert, Iowa City.
95 Epidemic Cerebrospinal Meningitis. W. J. Fenton, Mystic.
96 The Cold Bath. L. Brown, Rockford.
97 Ophthalmology and Otology in England. P. R. Wood, London, Eng.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

August 31.

1 *Clinical Pathology in Its Relation to Diagnosis and Treatment. C. B. Lockwood.
2 *Open-Air Treatment of Acute Pneumonia. G. E. Rennie.
3 Need for the Inspection of all Residential Secondary Schools in Matters Relating to Sanitation and Hygiene. T. D. Acland.
4 *The Transformation of the British Medical Association. A. Cox.
5 President's Introductory Remarks, Naval and Military Section. J. Porter.
6 *Treatment of Wounded in Fleet Actions. A. Gaskell.
7 *Enteric Fever. A. M. Davies.
8 *Frequency of Aneurisms in the Royal Navy. P. W. Bassett-Smith.
9 *Treatment of Syphilis Afloat. C. K. Bushe.
10 Wireless Telegraphy and Hospital Ships. H. L. Norris.
11 *Enteric Fever During Active Service. R. Caldwell.
12 Position of the Volunteer Stretcher Bearer. P. B. Giles.
13 Disposal of Excreta in Camp and on the Line of March. P. B. Giles.
14 Water Supply in Camps, on the Line of March and in Battle. N. Falchnie.
15 Necessity for Trained Male Personnel in the Medical Services on Mobilization for War. E. M. Wilson.
16 *Teaching of Hygiene in the Army. R. J. Blackham.
17 *Treatment of Burns and Scalds Afloat. P. T. Sutcliffe.
18 *Trypsin Treatment in Malignant Disease. A. Cutfield.
19 *Two Unusual Fractures. R. Miller.
20 Lactic Acid and Digestive Disorders. T. B. Sellors.

1. **Clinical Pathology.**—Lockwood considers the relation of various micro-organisms to diagnosis and treatment, and of histologic sections in the diagnosis of cancer. Regarding the diphtheria bacillus, the point he makes is that by the systematic use of culture methods we now find the diphtheria bacillus very frequently under conditions where we should not expect it. He relates the case of a child with inflammation and suppuration of the scalp. Examination showed the pus to contain a micrococcus, probably from the hair follicles, a streptococcus, and the diphtheria bacillus. The child was treated afterward with therapeutic serum and recovered, after having paralysis of various groups of muscles. Other cases unexpectedly found dependent on the diphtheria bacillus were vulvitis, an empyema, and an abscess of the breast. "So that if you cease to think that you can diagnose these infective conditions on clinical evidence, and if you begin systematically to investigate them by modern scientific methods, I am sure you will find that most curious thing come to light." In regard to streptococcus poisoning, Lockwood reports an exceedingly interesting case, in which a woman was operated on for abdominal tumor in the region of the pylorus, which proved to be an inflamed kidney with a quantity of pus in the pelvis. The patient recovered with a small sinus in the right iliac fossa. Cultures inoculated from the sinus were sterile. She returned in a few weeks exceedingly ill; temperature, 104; pulse, 112; respiration, 28. A blood culture showed acute streptococcus poisoning, but notwithstanding serum treatment the patient died. The interesting point is that when she left the hospital she had no streptococci, as was shown by cultures. Inquiry elicited the fact that after leaving the hospital she slept in the next room to a patient who had died of puerperal septicemia, and had been attended by the same nurse. Lockwood's experience with *Staphylococcus aureus* leads him to conclude that vaccination with the culture of the staphylococcus materially shortens a staphylococcus infection of the breast. He describes the method. He has found the treatment of tubercle by vaccination disappointing.

2. **Acute Pneumonia.**—Rennie gives his experience with the Northrup method of open-air treatment in acute pneumonia, which he has adopted in every case of acute pneumonia occurring in the Royal Prince Albert Hospital, Sydney, N. S. W., during the last ten months. No unfavorable symptoms of any kind have appeared in any patient who has been treated. The temperature has never risen above 103.8 F.; the crisis has never been delayed beyond one week, and almost immediate improvement in the pulse has been noticed so that rarely has a cardiac stimulant been necessary. He has questioned the older and more experienced nurses as to their impressions of the results of this treatment, as compared with treatment on old lines in former years, and they are unanimously enthusiastic about the immense improvement. He has no hesitation in recommending its general adoption.

4. **British Medical Association.**—This is an admirable presentment of the advantages of organization of the medical profession. To quote only one instance, the association has effected an understanding that when the terms of some advertised medical appointment do not meet with the approval of the profession in that district, on the request of a branch or division (which corresponds to a state or county society in America) a "Warning Notice" is inserted in the *British Medical Journal*, calling attention to the facts of the case, and asking intending applicants to apply first of all to an association official in the district. The *Lancet*, also, generously supports the association's ethical committee in this matter by publishing the warnings and also by referring any doubtful looking advertisement offered to it to the association's medical secretary, and, further, the medical agents, who are numerous in Great Britain as intermediaries between medical employers and employés, have agreed not to have anything to do with appointments objected to by the British Medical Association.

6. **Treatment of Wounded in Fleet Action.**—Besides consideration as to hospital ships, first-aid dressings, ambulance drill and accommodation, etc., Gaskell makes two important suggestions: First, that if time allows, before going into action, every one in the ship should receive a hot antiseptic bath and be clothed in a complete war suit consisting of non-inflammable flannel impregnated with double cyanid salt, and that as much as possible of the body surface should be covered, even to the extent of wearing flannel masks with openings for mouth, nose and eyes. The war clothing should be sterilized and packed away until required. Gaskell appeals to Suzuki's book as testimony to the terrible sepsicity produced by clothing carried into wounds in the Chinese-Japanese war, and to the apparent results in the Russo-Japanese war of bathing and the adoption of clean clothing, preparatory to action. The other suggestion is with regard to the moving of the wounded. During a fierce action, they should not be moved. The details of their moving should be settled by the chief medical officer, according to whether the firing is at long range and desultory or short range and fierce, whether a victorious action or the reverse, and whether the physicians and stretcher parties, if killed, can be easily replaced.

7. **Spread of Typhoid.**—Davies discusses the question of the communicability of typhoid by direct contagion, and gives reasons based largely on military experience, for believing that it is directly contagious to a much greater extent than has hitherto been admitted. Such an assumption will be found to explain a large proportion of the incidence of enteric fever under active service conditions, and it is, therefore, justifiable to use it as a working hypothesis. He then proceeds to discuss its application to service conditions, especially in warfare.

8. **Aneurisms in the Navy.**—Bassett-Smith, as the result of statistical investigation, arrives at the conclusion that the conditions of life under which men in the royal navy work markedly favor the development of aneurismal tumors. He looks to the development of the body by means of the Swedish drill, now in vogue, to have a beneficial effect.

9. **Syphilis Afloat.**—Bushe examines all men joining the depot and if in any case syphilis has occurred within the two past years, antisyphilitic treatment is continued. All his patients receive mercury by intramuscular injection, using the cream supplied by the service: Mercury, 2 parts by weight; lanolin, 14 parts by weight; white petrolatum with phenol, 2 per cent., 20 parts by fluid weight. Ten minims of this preparation correspond to one grain of metallic mercury. It is heated and injected with a boiled glass syringe. The needles are dropped into boiling oil before use and cooled by dropping

into a 1 to 40 carbolic solution. The cream has to be constantly stirred, the mercury tending to fall to the bottom.

11. **Typhoid Fevers.**—Caldwell supports the views expressed by Davies in abstract No. 7.

16. **Hygiene in the Army.**—Blackham says that preventive medicine is now no longer a matter of sewers and drains, microscopes and test tubes, and a specialty practice for the few. We have advanced beyond the hygiene of mere environment to the hygiene of the individual. In future wars it should be the pride of the regimental officer not merely that he attended the wounded under the heaviest rifle fire, and tied arteries where shells fell thickest, but that his regiment contributed fewest cases of typhoid and dysentery to the field ambulance and that the camps occupied by his battalion were the most sanitary in the brigade.

17. **Burns and Scalds.**—Sutcliffe details the various modes of treatment and divides them into powders, oils and lotions. He gives the preference to lotions, and chooses above all others a 5 per cent. solution of picric acid, which, he states, has all the advantages of boric acid plus the most important one of relieving pain in superficial burns. While picric acid is explosive under certain conditions, he considers that if kept cool and unconfined it is free from danger.

18. **Trypsin in Malignant Disease.**—Cutfield reports the case of a patient with a malignant cystic growth, which was removed at Guy's Hospital, but which recurred. As Mr. Dunn, who had operated, said that nothing surgical would avail further, the patient was put on hypodermic injections of trypsin and amylopsin and very soon improvement set in and continued steadily. Vomiting, nausea and flatulence disappeared, appetite improved, swelling diminished, and body weight increased. At the end of three months the man was practically well.

19. **Unusual Fractures.**—Miller reports a fracture of the scaphoid bone of the left wrist, and a compound comminuted fracture of the distal phalanx of the left great toe.

The Lancet, London.

August 31.

21 *Students' Number, Session, 1907-1908.

21.—This issue of the *Lancet* is devoted to the usual address to students and information regarding regulations of medical examining bodies in Great Britain; hospitals and medical schools, metropolitan, provincial, Scottish and Irish; the public services; public health; dental surgery, and other information of service to the intending student of medicine.

Medical Press and Circular, London.

August 21.

22 Consequences and Treatment of Laceration of Female Perineum. R. J. Kinkead.
23 Phagocytosis and Bactericidal Action. G. Dean.
24 Indications for Operation in Intracranial Tumor. J. S. R. Russell.
25 Disinfection Considered from Medical, Chemical and Bacteriologic Standpoints. S. Rideal.
26 Reduction of Infant Mortality by Better Management and Control of Milk Supply. H. Kenwood.

Journal of Tropical Medicine and Hygiene, London.

August 15.

27 *Prevalence of Beriberi in Hong Kong. W. Hunter and W. V. M. Koch.

27. **Beriberi.**—Koch recommends the following measures to prevent the outbreak of beriberi among people who are liable to be confined in buildings for any long period of time: 1. The buildings should be well ventilated. 2. There should be no overcrowding. 3. The food supply should be ample in quantity and of good quality. 4. The drainage should be perfect. 5. The buildings should be so constructed as to get all the sunshine possible. 6. Damp in the buildings should be avoided. 7. The inmates should have regular exercise in the open air. 8. The greatest personal cleanliness should be insured. On the outbreak of the disease in an institution the inmates should be promptly removed from it and the following measures taken: 1. The building should be disinfected, and then all the doors and windows should be kept open and fresh air and sunlight allowed to enter. 2. The clothing should be disinfected. 3. The furniture should be disinfected. Treatment necessarily must be empirical and symptomatic, the cause of the disease being unknown. Iron, arsenic and strychnin have proved of benefit in the author's hands. The effect of mercury is variable. Massage and electricity have also proved useful.

Intercolonial Medical Journal of Australasia, Melbourne.

July 20.

28 Significance and Management of Fever in Pulmonary Tuberculosis. C. Reissmann.
29 Sanatorium for Open-Air Treatment of Pulmonary Tuberculosis and Its Methods. F. J. Drake.
30 Operative Treatment of Puerperal Pyemia. W. Moore.
31 *Dermoid Cyst in Pregnancy With Appendicitis. R. A. Stirling and H. B. Devine.
32 Treatment of Contractures in Children. W. MacKenzie.
33 *Fatal Case of Mushroom Poisoning. F. M. Johnson.
34 Bullet Wound of Axilla, Dividing Axillary Artery and Involving Axillary Vein. G. A. Syme.
35 Case of Compound Comminuted Fracture of Humerus. G. A. Syme.
36 Case of Sarcoma of the Breast. H. Laurie.
37 Hatpin in the Intestine. E. J. Roberts.

31. **Unusual Ectopic Gestation.**—Stirling and Devine report the case of a woman, aged 27, who was operated on for ectopic gestation, the peculiar points in the case being that with an abdomen practically full of blood, no source of tubal hemorrhage could be discovered; absence of any uterine symptoms; normal size of the uterus, and the fact that the lining membrane of the tube was perfectly normal from beginning to end.

33. **Mushroom Poisoning.**—Johnson reports a case of mushroom poisoning in a child aged 6, who, an hour after eating mushrooms, was attacked by vomiting. An hour or two later he fell asleep and slept for two hours, when he awoke hungry and asked for his dinner. He became much brighter and from 6 to 8 o'clock played in the street with other children, being apparently all right, but at 8:30 he again became sick, and died at 6 o'clock next morning. Johnson records the case as illustrating the deceptive nature of mushroom poisoning, and recalls Quain's statement that "the patient can not be considered safe for at least three days, unless the prominent symptoms have been markedly alleviated." Johnson, however, would substitute "even if" for "unless' in Quain's dictum.

Bulletin de l'Académie de Médecine, Paris.

June 11, LXXI, No. 24, pp. 717-752.

39 *Nucleinate of Sodium to Promote Phagocytosis in Peritoneal Infection. Chantemesse and Kahn.
40 Movable Kidney and Complications. (Rein mobile, tiraillement des capsules surrénales, accidents nerveux et folie.) Lucas-Championnière. Id. Reynier.

June 18, No. 25, pp. 753-792.

41 Obstetric Anatomy. (Anatomie et obstétrique.) Farabouef.

June 25, No. 26, pp. 793-814.

42 Intestinal Invagination in Infants. Kirmisson.

July 9, No. 28, pp. 31-65.

43 *Aseptic Purulent Pleurisy. (Pleurésies puriformes aseptiques.) Widal.
44 Infant Mortality. Vidal.
45 *A Danger from Atoxyl. Hallopeau.

July 23, No. 30, pp. 107-162.

46 Bacteriologic and Experimental Study of Smallpox Vaccine. (Vaccine antivariolique.) Kelsch, Camus and Tanon.
47 *Ocular Reaction in Diagnosis of Typhoid. (Ophthalmodiagnose de la fièvre tifoide.) A. Chantemesse.
48 Treatment of Pellagra with Atoxyl. V. Babes.
49 Diagnosis of Bronchial Glandular Affections in Chilren. (Adénopathie bronchique simple.) D'Espine.

July 30, No. 1, pp. 163-196.

50 Electricity in Treatment of Cancer. Keating-Hart and S. Pozzi.

39. **Nucleinate of Soda in Peritoneal Infections.**—Chantemesse and Kahn have found that nucleinate of soda, 1 to 100, injected hypodermically, at once arouses a rather lasting increased phagocytic action in peritoneal infections. In two cases they have even seen the classic symptoms of typhoid perforation ameliorated to such an extent as to render operation hopeful, by the two or three injections given from fifteen to eighteen hours after the first signs of the perforation. The patients refused operation, dying twelve days later of slow peritonitis, and the autopsy revealed a very marked defensive leucocytic and connective tissue process in the abdomen, the large perforations being almost thoroughly obliterated. They see a decided utility in the action of the drug in such conditions, and one not limited altogether to peritoneal inflammations, as they have seen it of value also in erysipelas and pneumonia. The reaction is moderately severe, which is to some extent a drawback.

43. **Aseptic Purulent Pleurisy.**—This subject was discussed editorially in The Journal, Sept. 7, 1907, p. 854. Widal relates two cases. The suppuration in each followed removal of the serous fluid from the chest. He has previously called attention to the same phenomenon of aseptic suppuration in the spinal meninges in the course of various acute and chronic affections. The integrity of the polynuclears reveals the absence of conflict with bacteria, so that a glance through the microscope will confirm the aseptic character of the suppuration and the favorable prognosis.

45. **A Danger of Atoxyl.**—Hallopeau reports a case that came to his knowledge through a confrère. A woman, aged 47, of previous intemperate habits and showing signs of alcoholic neuritis, had received within 26 days' treatment, a total of 5.10 grams of atoxyl by hypodermic injection. A few days after the last injection she began to suffer from disorders of vision, which culminated in complete amaurosis in fourteen days. Ophthalmoscopic examination gave negative results, aside from showing a slight localized chorioiditis. In this case the alcoholic record and neuritis and the possibility of impurities in the drug, such as have been found by Duret, are to be considered, but it is not the only instance of amaurosis from its use—similar effects have been noted by Ayres Kopke of Lisbon and were reported by him at the recent conference at London on sleeping sickness. By his method of administration, allowing time after a series of injections for a complete elimination of the arsenic before beginning a second series, Hallopeau has observed slight symptoms of gastric intolerance, but never until after the fourth injection. Hence it is advisable to stop with three, and he thinks treatment thus restricted will be effective.

47. **Ophthalmo-Diagnosis of Typhoid.**—This subject is discussed editorially in this issue of The Journal.

Semaine Médicale, Paris.

June 19, XXVII, No. 25.

51 *Relations Between Chronic Gastrointestinal Disorders and Anemic Conditions. (Troubles gastro-int. chron. et états anémiques.) L. Tixier.

June 26, No. 26.

52 *Mortality of Acquired Syphilis. C. Audry.

July 3, No. 27.

53 Appendices Epiploicæ in Hernias. H. Vulliet.

July 10, No. 28.

54 Distribution of Fluid in Vital Media. (Partage du liquide entre les milieux vitaux.) C. Achard.

July 17, No. 29.

55 Chronic Torsion and Incomplete Torsion of the Pedicles of Tumors in Uterus or Adnexa. Lejars.

July 24, No. 30.

56 Tendinitis and Peritendinitis. R. de Bovis.

July 31, No. 31.

57 Is There An Uremic Meningitis? R. Lépine.

August 14, No. 33.

58 *Arteriosclerosis of the Stomach. (Art. gastrique.) L. Cheinisse.

August 21, No. 34.

59 Drainage in Gynecology. R. de Bovis.

August 28, No. 35.

60 *Gastric Secretion in Nephritis. E. Enriquez and L. Ambard.

51. **Anemia from Gastrointestinal Disease.**—Tixier concludes that insufficiency of the blood-forming function is not, primarily at least, at fault in the production of the secondary anemias following chronic gastrointestinal disease. He considers the anemia more probably due to the existence in the blood serum of hemolytic substances, perhaps produced by chemical changes connected with functional disturbances in the digestive organs. Besides the indirect pathologic evidence of the existence of such hemolytic action, he has been able to demonstrate it directly by the action of the serum of anemic rabbits on the blood of normal ones. With its globulicidal power, it has a certain stimulant action on the blood-forming apparatus in the bone marrow, which, however, seems to be more quickly exhausted than is its destructive action. His study, he considers, emphasizes the importance of functional over anatomic gastric lesions in the production of anemia.

52. **The Mortality of Syphilis.**—From a critical study of life insurance and other statistics, the medical literature of the subject, clinical records and his own personal observations, Audry, while admitting that absolutely definite conclusions can not be drawn, formulates his "impressions" substantially as follows: The global mortality of syphilis, specific and deuteropathic, approximates from 14 to 15 per cent. That is to say, 14 or 15 per cent. of syphilitics die as a result of their disease sooner or later, though perhaps not till after a lapse of many years. The mortality, like the occurrence of tertiary manifestations, is influenced by a number of factors, age, treatment, hygiene, race, alcoholic habits, climate, etc. He believes that, in the climate of France, the mortality of syphilis, regularly treated and occurring in the young and temperate, ought not to exceed 4 or 5 per cent., while the proportion is ten times as large in the aged, the intemperate and in those subject to certain conditions of stress.

58. **Arteriosclerosis of the Stomach.**—Cheinisse presents evidence to show that the vessels of the stomach may become affected with arteriosclerosis without other manifestations of the affection elsewhere. This fact explains, he asserts, a certain number of cases of hematemesis hitherto regarded as idiopathic, as also certain cases of gastralgia and gastric spasms in elderly individuals. The indications for treatment are along the lines of prophylaxis. Preventive treatment of the arteriosclerosis with small doses of sodium iodid should be instituted, and everything tending to cause over-exertion of the circulation in the stomach should be avoided. The diet should be light, with small and frequent meals. If milk is taken, it should be in small amounts and never more than a quart a day. The patient should rest during digestion, and should avoid exposure to cold, which seems to favor the production of the vascular spasm. The condition in some cases, he states, might be likened to intermittent claudication, or the symptoms may simulate those of ulcer.

60. **The Gastric Secretion in Nephritis and Dechloridation.**—Enriquez and Ambard have found that deprivation of salt in the diet seems to have a leveling effect on the gastric secretion. In both hyperchlorhydria and hypochlorhydria the absence of salt from the diet brought the gastric secretion to practically a uniform level, very close to normal. Their tests further demonstrated that every nephritis, even the latent form, has a marked influence on the gastric secretion. When there are merely traces of albumin or even simple arterial hypertension in the kidney, hyperchlorhydria is observed. It is probably, they state, the result of the excess of salt in the organism, salt being the general stimulant par excellence of the gastric secretion. Retention exaggerates the gastric secretion while deprivation of salt reduces it. On the other hand, in nephritis with albuminuria the retention of salt seems to irritate the stomach mucosa just as it irritates the kidney lesion. In this case the stimulating action of the salt is overcome by its irritating and therefore depressing action, with hypochlorhydria as the result. But for the same reason that deprivation of salt has a beneficial action on the excessive secretion it also has a beneficial action on the deficient secretion. Deprivation of salt allows the stomach mucosa to recover its tone even before the general salt balance throughout the organism is restored, and thus dechloridation is liable to be followed by a brief, transient hyperchlorhydria. The effect of salt starvation on perverted secretions opens, they state, a new field for the study of the pathology of the stomach, while at the same time it suggests a rational mode of treatment for many forms of gastric affections which at first glance seem to have no connection with each other.

Archiv f. Gynäkologie, Berlin.

LXXXII, F. v. Winckel No., pp. 1-790. Last indexed, July 13, p. 193.

61 Drainage of Abdominal Cavity After Operations on Adnexa. (Bauchhöhlendrainage.) Osterloh.
62 Appendicitis and Pregnancy. (App. u. Gravidität.) H. Lindner.
63 Fever in Puerperium Uninfluenced by Drugs. (Therap. unbeeinflusste fieberhafte Wochenbetten.) A. Mermann.
64 Corpus Luteum as Source of Large Intraperitoneal Hemorrhage or Hematocele. (Entstehung von intraperit. Bluterguss.) O. Engstrom.
65 *Foreign Bodies Left After Operations. (Zurückgelassene Tupfer, etc.) F. v. Neugebauer.
66 Five Cases of Advanced Extrauterine Pregnancy. (Vorgeschrittene ektopische Schwangerschaft.) D. v. Szabo.
67 Biology of Normal Nursling. (Natürlich genährte Säugling.) R. Klemm.
68 *Sterility. (Sterilitätslehre.) L. Pincus.
69 Effect of Menstruation on Peritonitic Affections. (Perit. Erkrankungen im Menstruationsstadium.) T. Jaffé.

70 Influencing of Shape of Head by Birth Process. (Beeinflussung der Kopfform durch die Geburtsvorgange.) M. Stumpf. Id. A. Mueller.
71 Justification of Pubiotomy. (Berechtigung der Hebotomie.) W. Rühle.
72 Operation for Umbilical and Abdominal Hernia. (Nabel- und Bauchbruch.) F. Cahen.
73 Glycogen in the Placenta. L. F. Driessen.
74 *Importance of Phlebectasia and Its Consequences. O. Falk.
75 *New Standpoints for Pathology and Treatment of Osteomalacia. L. Seeligmann.
76 *Quinin as an Oxytocic. (Chinin als Wehenmittel.) L. Conitzer.
77 *Ovariotomy During Pregnancy. (Ov. während der Schwangerschaft.) S. Flatau.
78 *Imaginary Pregnancy and Missed Abortion. (Eingebildete Schwangerschaft.) M. Nassauer.
79 *Pyelitis Gravidarum. (Schwangerschaftspyelitiden.) S. Mirabeau.
80 *Exudates in Pelvis. (Beckenexudate.) F. Cohn.
81 *Symptoms of Pressure on Brain in the New-born Infant in Consequence of Intracranial Hemorrhage and Mechanical Injury of the Brain. (Hirndrucksymptome bei Neugeborenen.) L. Seitz.
82 Connective Tissue Fibers in Ovaries. (Bindegewebe der weibl. Geschlechtsorgane.) C. Hormann.
83 Postoperative Femoral and Crural Phlebitis. W. H. Morley.
84 *Experiences with Instrumental Dilatation. (Bossische Dilatator.) F. Weber.
85 Postmortem Cesarean Section. (Kaiserschnitt an der Toten.) E. v. Seuffert. Id. T. Wyder.
86 Sarcoma of the Vagina in Little Girls. (Sarkome der Scheide.) J. A. Amann.
87 Two Cases of Malignant Uterine Fibromyoma. Kynoch.
88 Premature Detachment of Normally Located Placenta. (Vorzeitige Ablösung.) A. Herzfeld.

65. **Foreign Bodies Left in Abdomen After Operations.**—In this third compilation Neugebauer gives the particulars of 40 cases. In 1899 he found records of 108 cases, and in 1904 he had collected 88 more—a total of 236 cases, not to mention a number of others in which the correct details are not known. He reviews the various measures advocated to prevent accidents. Examples are given of a printed formula to be signed by the patient and nearest relative before a major operation is attempted, and the advice is given that two witnesses should attest each document of the kind. The written permission would prevent the bringing of suits such as have annoyed Everke, Rühle, Riese, Dührssen, Kosinski and hundreds of other surgeons.

68. **Sterility and Sterilization.**—Pincus deplores the too frequent custom of treating a woman for sterility without examination of the husband. Investigation of 110 couples by Sänger revealed azoospermia or impotency in nearly 50 per cent. and in 10 per cent. more the sterility was the result of gonorrheal infection of the wife by the husband. In Pincus' practice he found permanent azoospermia in 12.5 per cent. of 488 cases in which both husband and wife were examined to determine the cause of the absence of conception. In 7.5 per cent. there was permanent oligospermia with spermatozoa with feeble vitality, and in 2.6 per cent. there was necrospermia, and impotency in 1.4 per cent.—a total of 119 cases, or 24.4 per cent., in which the husband was responsible for the sterility. In 77 cases, or 15 per cent., the sterility was the result of gonorrheal affections of the adnexa, and the husband was thus indirectly responsible. He found myoma in 16 cases, ovarian cysts in 2, retroversion of the uterus in 19, non-gonorrheal inflammatory conditions around the uterus in 23, and fungoid endometritis in 11—a total of 71 cases, or 14.5 per cent. In 221 cases, or 45.3 per cent., there were anomalies in development, acquired atrophy or other morbid conditions. Pincus discusses further whether or not to inform the parties of the true facts of the case when the diagnosis is finally assured. He prefers to have the husband tell the wife, but insists that, as a rule, both parties must be told the real state of affairs.

74. **Phlebectasia and Its Consequences.**—Falk reviews the history, anatomy and treatment of dilatation of the veins in women, describing a case in which a thrombus developed in the left labium, without preceding phlebectasia or trauma, in an anemic woman seven months pregnant; hemoglobin 25 per cent. The pain was intense, and the tumor, the size of a hen's egg, was extirpated. Nine days later a similar tumor developed in the other right labium, also requiring removal. Under a course of iron the patient was normally delivered at term. The discovery of spots and patches of blood on the new-born child has frequently led to the findings of a ruptured vein in the vagina. Brunet has recently reported a case in which a young primipara had hemorrhage a month before term, the entire anterior vaginal wall protruding, with blue knots of veins gleaming through the mucosa and blood escaping from two small holes. It proved impossible to arrest the hemorrhage with clamps or tamponade, and the patient would undoubtedly have bled to death if she had not been delivered at once by Cesarean section. The veins of the broad ligaments were found transformed into varices as thick as one's thumb. Mechanical factors are not solely responsible for the phlebectasia of pregnancy, but anomalies in nourishment and inherited anomalies in the vessel walls certainly contribute their share. Veit and others have reported a few cases of hematoma of the vulva occurring, without the action of trauma, in non-pregnant women, and Falk has encountered a similar case. He also reports a case of varix formation throughout the entire cervix, transforming it into a hemorrhagic, sponge-like, telangiectatic tumor, in a iii-para four months after the last childbirth. Phlebectasia in the broad ligaments is comparatively frequent, he states, and it has been likened to varicocele in men. The hematocele around or back of the uterus recurring after menstruation in some women is probably merely the varicose enlargement of the utero-ovarian plexus. A tumor in the left pelvis recurred in Richet's case just preceding the menses, but it subsided under rest in bed and cold applications. Falk had a patient who complained of pains in the left abdomen between the menses. She was a primipara of 28 who had suffered from dysmenorrhea until her pregnancy, two years before. A tender tumor was found in the left adnexa before each menstrual period, but it vanished afterward. Treatment with rest in bed, compresses, ichthyol tampons and mud baths failed to give relief, and the pain became so severe that the patient was unable to walk. Hysteria and gonorrhea could be excluded. After a year's deliberation a laparotomy was done. The adnexa were sound, but a thick network of dilated veins was seen in the broad ligament. The phlebectasia was excised and the patient was permanently freed from all disturbances. In Calais' experience the adnexa were always pathologic when the broad ligament was the seat of phlebectasia.

75. **Osteomalacia.**—Seeligmann reports the after-histories of several patients with osteomalacia treated by castration from 3 to 14 years ago. His experience suggests that there are two varieties of osteomalacia, the ovarian and the senile and presenile variety due to marasmus. The bones of the pelvis are affected mostly, and early in the ovarian form; and castration is liable to produce a permanent cure. In the other variety the bones of the pelvis are little changed, while the femur shows the most characteristic alterations, the pelvis being almost the last part of the skeleton to show the effects of the process. Poverty of the blood is the main factor in the affection, he thinks, and tonics are required in every case, with castration as the last resort in the ovarian form. He found extension very useful in the treatment after castration. The atrophy of the ovaries induced by Roentgen exposures might be utilized, he thinks, in treatment when removal of these organs is contraindicated by the general condition of the patient. In conclusion, he suggests that the ovarian form of osteomalacia might be successfully treated with the serum of ovariotomized animals, analogous to the treatment of exophthalmic goiter with the serum of thyroidectomized animals. (See abstract 113 below.)

76. **Quinin as an Oxytoxic.**—Conitzer used quinin in 66 cases and states that when it acts at all it seems to be more effectual than any other drug of which he has knowledge.

77. **Ovariotomy During Pregnancy.**—Flatau tabulates the details of 281 cases and adds 11 from his own experience. Abortion followed the ovariotomy in 42 out of a total of 277 cases, that is, in 15.1 per cent., but in many of these the abortion was the result of other causes rather than of the ovariotomy, as, for instance, when the ovary was found cancerous or the seat of dermoid cysts which seem to exert a specially unfavorable influence on the fetus and peritoneum. Unusually numerous and solid adhesions were encountered in a number of the cases. Omission of these leaves a percentage of abortion in only 10.3 per cent. of the total 277 cases, while the average of abortions under expectant treatment of ovar-

ian neoplasms is said to be about 17 per cent. The month of the pregnancy does not seem to affect the percentage of abortions. His material indicates further that anterior colpotomy is the most serious in respect to the pregnancy. He warns against raising the pelvis, as this procedure is liable to affect the pregnant uterus unfavorably, and insists that each vessel must be ligated separately and that the anesthetic should be chosen which induces the least tendency to vomiting and coughing.

78. **Imaginary Pregnancy and Missed Abortion.**—Nassauer calls attention to the fact that missed abortion seems to occur exclusively in women who have borne children. He thinks it probable that the trouble is in the innervation of the uterus—the absence of the excitation to contract being responsible for the lack of expulsion of the dead fetus. When this excitation is supplied from without by examination of the uterus or introduction of a sound, then the uterus responds with exceptionally violent labor and the rapid expulsion of the fetus. There is probably some underlying cause, he remarks, not only for imaginary pregnancies, but for other conditions which the physician classes as "imaginary," including even hysteria.

79. **Pyelitis in Pregnancy.**—Mirabeau describes ten cases of pyelitis and asserts that pyelitis in pregnancy may be due to gonorrheal or tuberculous infection or to infection with pus cocci or colon bacilli. Pregnancy, he states, alters the relations of parts of the urinary apparatus to neighboring structures, and the accompanying inflammation of the bladder mucosa disturbs the urinary flow, backing the urine into the kidney and thus altering its chemical character. He ascribes the more frequent involvement of the right kidney to pressure from the ascending colon, with resulting displacement, and states that in certain conditions colon bacilli may penetrate the wall of the intestine and find their way into the kidney. While acid urine, he states, is unfavorable for the development of the gonococcus, the conditions in pregnancy favor its growth, and cystitis is likely to result, with extension of the inflammation to the kidney. The symptoms may simulate appendicitis or pelvic peritonitis. The acute stage soon subsides, but may recur. After delivery the symptoms usually subside rapidly, but salpingitis may follow. Suppurative pyelitis is secondary to suppuration elsewhere, and is marked by sudden onset and localized pains in the lumbar region. Pyuria occurs within two or three days, and with the evacuation of the pus the patient's condition improves. Infection with the colon bacillus is manifested by stormy onset with the usual symptoms of sepsis, and the local symptoms suggestive of renal calculus or gallstones. In a few days pure cultures of the colon bacillus may be made from the urine. Abortion may occur, or delivery become necessary, after which recovery ensues, although the bacteriuria may persist for some time. Pregnancy aggravates renal tuberculosis. Mirabeau advocates the usual treatment for pyelitis complicating pregnancy. After delivery the primary cause should be looked after carefully because otherwise the pyelitis is likely to recur during later pregnancies.

80. **Treatment of Exudates in the Pelvis.**—Cohn reviews the experiences at Giessen in fifty-eight cases of exudate in the pelvis. No operative measures were applied in twenty-three cases, and the exudate became absorbed under hot douches and sitz baths and hydrotherapeutic packs, supplemented by energetic sweating in electric light and vapor baths. Even before the exudate was absorbed the general health showed marked improvement under these measures, some of the patients considering themselves subjectively cured, although the exudate still persisted. The benefit proved permanent.

81. **Intracranial Hemorrhage and Mechanical Injury of the Brain in the New-Born Infant.**—Seitz reports nineteen cases from his own experience, his conclusions being that the prognosis is unfavorable when convulsions and general signs of pressure on the brain indicate deep traumatic lesion of the brain substance or extensive extravasation of blood. Only 4 infants survived out of 18 in this group, and one of these has since died and another has nystagmus, athetosis and is a probable imbecile. The new-born infant with an intracranial hemorrhage is remarkably restless, screaming constantly, moving its hands, refusing the breast or dropping it at once, and vomiting. The skin is remarkably pale, even livid. Unusual tension in the fontanelles gives the clue to the diagnosis. By the third day at latest and generally during the first and second day, the child lies in a stupor, the breathing is rapid and shallow or deep and slow, the pulse is hard and sometimes slow, and tonic and clonic convulsions develop. No paralysis is observed at first. Treatment should be avoidance of all irritation; the use of an incubator is advisable. If feeding is deemed necessary it should be by a soft stomach sound to avoid danger of aspiration pneumonia. Lumbar puncture seems theoretically indicated and should not be neglected in diagnosis. He discusses the prospects for operative intervention and reports a case in which he made an extensive opening on account of cerebral hemorrhage. The child succumbed in 10 hours to a concomitant cerebellar hemorrhage.

84. **Experiences with Instrumental Dilatation.**—Weber found instrumental dilatation a great help in a number of cases requiring immediate delivery, especially in 16 cases of eclampsia. It renders Cesarean section unnecessary, as also incision of the cervix, and the woman is delivered in from 5 to 60 minutes. In some cases he used the dilator merely as a preliminary to the metreurynter. There is always danger that the cervix may tear with instrumental dilatation.

Archiv f. Kinderheilkunde, Stuttgart.

XLVI, Nos. 3-6, pp. 161-484. Last indexed, July 20, p. 284.

89 Importance of Colostrum. M. Hohlfeld.
90 *Pneumococcus Peritonitis in Children. A. v. Koos.
91 Epilepsy and Epileptoid Conditions in Children. G. Aschaffenburg.
92 Experimental Tests of Peptic Energy of Gastric Juice at Various Temperatures, and Its Importance for Infant Feeding. (Peptische Kraft des Magensaftes.) H. Roeder.
93 Presence in Blood of a Hemophilous Bacillus in Measles. (Hämoph. Bac. im Blut Masernkranker.) C. Giarré and Carlini
94 Albuminuria in the New-born Infant. (Alb. der Neugeborenen.) N. Gundobin.
95 Cystic Echinococcus Affections in Children. (Klinisch-geographische Skizze.) H. Klose.
96 Examination of Healthy Children, from 7 to 15, with the Sphygmograph and Tonometer. (Sphygmographie und Tonometrie bei gesunden Kindern.) P. P. Eminet.
97 Influence of Out-door Life on Pulse and Blood Pressure of Children. (Einfluss der Muskelübungen und des Aufenthalts in den Sommerschulkolonien.) Id.
98 Results of Precipitin Test with New-born Rabbits. (Präcipitation bei neugeb. Kaninchen.) A. Schkarin.

90. **Pneumococcus Peritonitis in Children.**—This affection begins suddenly with violent abdominal pain, high fever and vomiting. Watery, odorless stools are a less frequent symptom, and constipation was noted in one of the 3 cases reported by von Roos. In 10 of the 68 cases on record the stools were normal or the children were constipated, and diarrhea was noted in 41. Herpes labialis is an early sign of the affection. The encapsulated process sometimes breaks its way spontaneously through the umbilicus or vagina, but it is generally necessary to make an outlet for it. After the stormy onset the symptoms subside as the fluid accumulates in the abdomen. The pains may simulate appendicitis, but there is no rigidity of the abdominal wall. The spleen is not enlarged, the temperature is remittent, and there are bronchitic murmurs at first. During the second stage the encapsulated process may simulate tuberculous peritonitis. The prognosis of the encapsulated form is good, but general suppurative pneumococcus peritonitis proved fatal in 14 out of the 18 cases known, that is, in 77 per cent. Operative treatment should be delayed until there is distinct fluctuation, as the results have been almost invariably bad when the operation was done too early.

Centralblatt f. Chirurgie, Leipsic.

August 3, XXXIV, No. 31.

99 The Route Through the Mesocolon. (Cholecystojejunostomia, Gastroenterostomia transmesocolica.) Lotheissen.
100 Improved Forceps with Hooked Blades. (Hakenpinzette.) H. Hans.
101 Transactions of XXXVI Surgical Congress, 1907.

August 10, No. 32.

102 *Nail Method of Extension in Treatment of Fractures. (Nagelextension.) F. Steinmann.
103 Longitudinal Incision for Ligature of Subclavian Artery Above Clavicle. (Unterbindung der Art. subcl. mittels Längschnittes.) Riedel.
104 Anatomic Basis for High Shoulder. (Schulterblatthochstand.) M. Cohn.

105 Truss to Hold Drain Tube for Gastric Fistula. (Pelotte bei Magenfisteln.) M. Hartleib.

August 17, No. 33.

106 *Restorative Action of Suprarenal Extract in Severe, Acute Heart Failure. (Analeptische Wirkung des Nebennierenextraktes bei Herzkollaps.) R. Kothe.
107 *Sugar in Treatment of Recent Wounds . (Frische Wunden.) G. Meyer.
108 Technic of Cardiolysis. Blauel.

August 24, No. 34.

109 Suppurative Infectious Processes of Hand and Forearm. (Eitrige Inf.-Proz. der Hand und des Unterarms.) A. B. Kanavel.
110 Treatment After Removal of Mammary Cancer. (Nachbehandlung.) A. Schlesinger.
111 Scientific Orthopedic Last for Shoes. (Schuhleisten.) K. Lengfellner.

102. **Nail Extension Treatment of Fractures.**—Steinmann regards extension as the only means to correct dislocation and permanent elastic retraction of the muscles unless the knife is used. Most methods of extension, however, compel absolute rest of the fractured limb or there is too much pressure on parts of the limb or the traction is not strong enough. He thinks that he has simplified the technic and rendered it more practical by the use of two sharp, slender, nickeled steel nails, from 6 to 8 cm. long, with a broad head. In case of fracture of the shaft of the femur he drives these nails into the lower end of the femur through the soft parts into the condyle, at the upper margin of the condyle, with the nails pointing downward to the epicondyle of the opposite side. The heads project about 1 cm. above the skin, and traction is made on the nails at this point for the extension. The head of the nails can be made with a groove to hold the wire for the extension, or a special double hook can be placed on the projecting nail to hold the wire and to prevent it slipping down against the tissues. These nails take the place of Bardenheuer's adhesive plaster dressings to support the weights. Traction from the weights causes absolutely no pain, he asserts, when extension is applied to these nails, and all danger of decubitus, eczema, etc., is avoided, while the entire limb below the nails is left free and can be exercised. The nails loosen in time so that they can be easily pulled out. This loosening makes it necessary to drive the nails in a slanting direction. The more compact the bone, the less of this loosening, but the nails will not penetrate very compact bone. In case of fracture of the leg he drives the nails into the upper margin of the malleolus. The nail method does not require such constant supervision as other technics for extension with fractures, as there is no interference with the circulation.

106. **Restorative Action of Suprarenal Extract in Sudden Heart Failure.**—Kothe reports the success of intravenous injection of a suprarenal extract in two threatening cases of suspension of respiration and heart action during spinal anesthesia. All other means had failed to relieve and in both cases the effect was evident in ten seconds after the injection. He warns against the measure in pathologic conditions in the heart, but otherwise regards it as liable to be of life-saving import in case of acute heart failure.

107. **Sugar in Treatment of Recent Wounds.**—For two years Meyer has been using granulated sugar as a dressing for wounds. He heats the unblued sugar slowly in a well-ventilated hot-air apparatus to 140 C. and then mixes 2 gm. salicylic acid with each 100 gm. of the sugar. (Sugar does not fuse under 160 C.) Gauze applied above does not stick, and the sugar is readily washed off. The absence of pain and irritation demonstrates, he thinks, that the sugar is an efficient protection against invasion of the wound by germs, owing to the vigorous drying out of the wound. For this reason, however, the method is not applicable, he states, for suppurating or granulating wounds, its sphere being for recent wounds before granulation sets in.

Centralblatt f. Gynäkologie, Leipsic. '

August 24, XXXI, No. 34.

112 Operations Leaving Large Defects in Peritoneum. (Grosse Bauchfellverluste. T. v. Wenczel.
113 *Recovery in Severe Case of Osteomalacia Under Injection of Suprarenal Extract. (Osteomalakie geheilt mit den Adrenalineinspritzungen nach der Methode Bossi.) D. Tanturri.

113.—Bossi's announcements in regard to the specific action of suprarenal extract in osteomalacia were summarized in The Journal, April 20, 1907, page 1386.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

August 22, XXXIII, No. 34, pp. 1361-1400.

114 Arsenic Acid a Specific for Experimental Nagana. (Heilung der exp. Tsetsekrankheit.) F. Loeffler and K. Rühs.
115 Disinfectant Spray for the Hands. (Chirosoter.) Klapp and Dönitz.
116 *Alkalies in Treatment of Postoperative Intestinal Disturbances. (Postop. Darmstörungen.) Heile.
117 Operative Treatment in 3 Cases of Typhoid Perforation and Peritonitis. M. Kaehler.
118 Progress in Diagnosis of Nervous Affections. (Diagnostik der Nervenkrankheiten.) L. W. Weber.
119 *To Ensure Removal of All Compresses After Abdominal Operations. (Zurücklassen von Kompressen.) Wederhake.
120 The Medical Corps of the United States Army. (Militärsanitätswesen in den V. S. von Nordamerika.) A. C. Girard.

116. **Postoperative Intestinal Disturbances.**—Heile presents evidence to sustain his assertion that the real reason for the sluggish action or paralysis of the intestines after operations is a lack of alkali. When the acid in the intestines ceases to be neutralized by alkaline elements, the acids have an irritating action on the intestinal walls and catarrhal conditions result. The intestinal content as it passes from the small into the large intestine always exhibits an alkaline reaction in man and in the dog. The amount of alkali depends on the amount ingested and the amount of intestinal juice secreted. When the alkali ingested is not sufficient to keep up the balance while the intestinal juice is lost in diarrhea, the organism suffers from alkali poverty, and it is of the utmost importance to supply the alkali in sufficient amounts. In all cases of chronic inanition Heile declares that the urine should be examined for diacetic acid and acetone and the history studied for previous diarrhea. In such cases it must be borne in mind that the patient may suffer severely or succumb in coma from lack of alkali in case of an operation on the digestive tract. Such patients should be fed with carbohydrates, and sodium bicarbonate should be given in various ways, even by intravenous injection of a 3 to 10 per cent. solution. He describes some cases in which vigorous treatment with alkalies saved the apparently doomed patient. One patient operated on for suppurative peritonitis following inflammation of the cecum was already in coma from postoperative ileus followed by profuse diarrhea. Opium treatment of the diarrhea and administration of from 12 to 15 gm. (225 grains) of sodium citrate daily arrested the diarrhea and prompt recovery followed.

119. **To Avoid Leaving Compresses in Abdomen.**—Wederhake uses a square yard of gauze cut nearly into quarters, a small circle in the center of the square being left untouched. By this means the four quarters into which the gauze is cut are left attached to each other in the center. The square can be cut up to the center again from the four corners of the square, if desired, thus cutting it into eighths, all the parts united at the center, and the square can be of several thicknesses of gauze. He then uses these quarters and eighths as separate compresses, and finds them as convenient as if all were really separate. When ready to suture the abdomen, the entire set of compresses is lifted up together, not requiring any counting.

Jahrbuch f. Kinderheilkunde, Berlin.

June, LXV, No. 6, pp. 645-800.

121 *12 Cases of Adhesive Pericarditis in Children. (Obliterierende Herzbeutelentzündung.) M. Kob.
122 Pylorospasm in Infants and Its Congenital Features. (Säuglings-Pylorospasmus.) W. Wernstedt.
123 *Childhood from the Medical Standpoint. (Eigentümlichkeiten des Kindesalters.) N. Gundobin.
124 *Psychic and Association Secretion of Gastric Juice. (Magensaftsekretion.) H. Bogen.

Supplement, pp. 1-299.

125 Arrangements in New Children's Hospital at Vienna. (Isolierung und Kontaktverhütung in Kinderspitälen.) T. Escherich.
126 *Absorption of Albumin in Food. (Eiweissresorption bei der Ernährung.) F. Hamburger.
127 Streptococcus Enteritis and Its Complications. L. Jehle.
128 *Leukemia in Children. Chloroma. (Leukämie des Kindesalters.) E. Benjamin and E. Sluka.
129 Experimental-Clinical Study of Hemorrhage from the Skin in Children. (Hautblutungen.) A. F. Hecht.
130 *The Sequelæ of Scarlet Fever. (Nachkrankheiten des Scharlach.) B. Schick.
131 Behavior of Leucocytes in Serum Disease. (Leukozyten bei der Serumkrankheit.) B. Bienenfeld.
132 Etiology of Arteriosclerosis in the Young. (Arteriosklerose bei einem 13-jährigen Mädchen.) E. Rach.
133 Hydrotherapy in Measles. (Wirkung hydriatischer Prozeduren bei masernkranken Kindern.) A. F. Hecht.

121. **Adhesive Pericarditis in Children.**—Kob warns that chorea and acute articular rheumatism must be treated with the utmost care from the beginning. Every oversight or negligence during convalescence may avenge itself most ruthlessly, and tonic and strengthening after-treatment is of the utmost importance. Brauer's cardiolysis, he declares, is adapted only for cases of adherent pericarditis with much retraction of the chest wall, and offers scant prospects in children, owing to the progressive tendency of the pericarditis.

123. **Childhood from the Standpoint of the Physician.**—Gundobin declares that pediatrics is still in its infancy, and that better knowledge of it will throw light on many of the problems of medicine in general. He emphasizes the law that the growth of an organ is seldom paralleled by the development of its function. The liver, for example, attains a large size in the first three years of life, but its microscopic structure does not resemble that of the adult until toward the eighth year. In infancy the spleen may be affected with some chronic interstitial process, checking the development of its cellular elements, although the organ continues to grow in size and weight. The consequences of imperfect functioning of the spleen may not become apparent until some infectious disease occurs, possibly not until adult life. Inflammatory processes in the kidneys may impair their functional development, although they may present a normal appearance. Not only the etiology of certain chronic affections in adults, but also the explanation of various individual peculiarities in the course of the affection, are and remain a mystery, he declares, because physicians are blind to the importance of the study of pediatrics. Another general law is that too rapid growth may be accompanied by general morbid phenomena, and that acute diseases may accelerate growth. The study of all conditions that may influence the energy of growth is indispensable for the pediatrist. During periods of accelerated growth the organ involved or the general organism is least resistant to injurious influences. During early infancy and during puberty the organism is growing exceptionally fast. The greater or less use made of the rapidly growing organ has also an influence on its morbidity. Great demands are made on the digestive organs during early infancy, and it is very rare, he states, that an infant entirely escapes some stomach or bowel trouble, even with the most scrupulous hygienic care. The physician should learn whether or not the physical development of the child corresponds to its age; also, what period of growth the various organs have reached at the time, and what danger the present disease offers not only for the life of the child, but for the further development of its various organs. Children's tissues are peculiarly rich in cellular elements and fluid parts. This explains the preponderance of parenchymatous pathologic processes in the child's organs, and the tendency to hemorrhage in acute inflammatory processes. Chronic interstitial processes, on the other hand, are rare, Gundobin says, as there is comparatively little connective tissue, and as such processes require long-continued action of the causal agent. When they do occur, they have a disturbing action on the future functioning of the organ. Another point to be borne in mind is that the exceptionally active metabolism in children favors the distribution of an injurious agent throughout the body. His researches, he asserts, have shown that a child may be born with various acute disease processes in the internal organs. This explains the stillbirths and the cases of "congenital debility." He pleads for more extensive study of new-born infants and nurslings as a basis for better knowledge of intrauterine conditions and of the child later, emphasizing the fact that the child is not a small creature, but the future man.

124. **Psychic and Association Secretion of Gastric Juice.**—The experiments were made on a child with a gastric fistula and showed that secretion of gastric juice followed when the food was eaten and swallowed, but did not reach the stomach. While the child was being fed a toy trumpet was blown and in later tests the sound of the trumpet note alone, without food, caused the secretion of gastric juice.

126. **Absorption of Albumin in Food.**—Hamburger's experiments confirm those of others in regard to the absorption of albumin by the digestive tract of new-born infants and animals, but only in minimal proportions. The absorption of even a small amount of heterologous serum, as in cow's milk, may be directly injurious to the infant organism.

128. **Chloroma and Leukemia in Children.**—Benjamin and Sluka tabulate the details of 45 cases of chloroma which they have collected and report another case in a boy of 4 which they state is the first reported by a pediatrist, although the patients were children in 50 per cent. of the cases on record. Under Roentgen treatment the tumors retrogressed, but the fatal termination in the severe acute case could not be postponed. In a second article on leukemia in children they tabulate the details of 60 cases, omitting 100 others in which full particulars were not given. They have found 5 cases of lymphatic and 5 of myeloid leukemia in infants, and 35 of acute lymphatic leukemia in children, and 2 of the acute myeloid form and 8 of the chronic myeloid form. The lymphoid form always ran an acute course. The average age of the patient was 7 years, while the average age for the myeloid form was 10. They describe the clinical picture of a number of cases in their own experience. Roentgen treatment shows a remarkable difference in its effects in the lymphoid and the myeloid cases. In the personal case and in 4 in the literature, the course of the acute lymphatic leukemia was not prolonged under Roentgen treatment, but after a few days of latency the number of leucocytes suddenly dropped to normal or subnormal figures. During this period there may be cutaneous hemorrhages, with a certain euphoria; the glands, spleen and liver may shrink in size and the blood may return to its normal percentages, but all this does not prevent the regular, fatal termination of the affection, the leucocytes running up again to fabulous figures and the glands swelling. The results in myeloid leukemia, they state, are much more encouraging—this may be due to its more chronic form. Even when the patient seems to have entirely recovered under Roentgen treatment, the symptoms may return in an aggravated form. Flesch has reported a case in which the myeloid picture became suddenly typically lymphemic, after two and a half months of Roentgen treatment, and death soon followed.

130. **Theory of Post-Scarlatinal Affections.**—Schick reports a number of cases to show that post-scarlatinal nephritis and lymphadenitis never develop before the twelfth day and may not appear until the sixth week, the average being in the third and fourth week of the disease. They usually come on together, although the adenitis may appear alone. He has also observed a number of cases in which there was a period of remittent fever of sudden onset and of undiscoverable cause, at corresponding periods; also endocarditis, rheumatic affections and relapses of the scarlet fever or scarlatinal sore throat—all occurring at about the same interval after the first symptoms of the disease, almost always in the third or fourth week. He believes that the primary agent of the scarlet fever is checked in its proliferation in the course of the self-limited disease, but that, after a time, the organism becomes less resistant or ultra-susceptible, so that the primary agent still lurking in the tissues is able to commence to proliferate anew, causing a new series of symptoms of infectious or toxic nature, or there may be reinfection from without. By the end of the second week, in scarlet fever, a period of specific predisposition for post-scarlatinal affections sets in, which lasts up to the seventh week. The greatest tendency to the flaring up of the scarlatinal process is displayed in the third and fourth week, after which it rapidly subsides. A similar period of ultra-susceptibility has been noticed in typhoid fever and also in serum disease.

Münchener medizinische Wochenschrift.

July 9, LIV, No. 28, pp. 1361-1416.

134 *Diagnosis and Operative Treatment of Tumors in Spinal Membranes. (Rückenmarkshauttumoren.) F. Schultze.
135 Frambesia and the Spirochæta pertenuis. W. Schüffner.
136 Pubiotomy: Indications and Technic. (Hebosteotomie.) M. Henkel.
137 Concurrent Action of Antibodies. (Konkurrenz der Antikörper.) E. Brezina.
138 *Elimination of Endogenic Uric Acid in Attacks of Gout. (Harnsäure im Gichtanfall.) F. Soetbeer.
139 *Formula for Inhalations to Abort Asthma. (Asthma-Inhalationsmittel.) F. Schaefer.
140 Thiosinamin in Treatment of Dupuytren's Contracture. Langemak.

141 Experimental Study of Deep Action of Light. (Biolog. Tiefenwirkung des Lichtes der med. Quarzlampe und des Finsenapparates.) P. Wichmann.
142 Bier's Passive Hyperemia and Seasickness. (Stauung und Seekrankheit.) Schlaeger.

July 16, No. 29, pp. 1417-1464.

143 Constipating Action of Morphin. (Stopfende Wirkung des Morph.) R. Magnus.
144 Present Status of Roentgen Diagnosis of Gastrointestinal Affections. (Röntgendiagnostik bei Magen-Darmkrankheiten.) Joilasse.
145 Action of Sodium Taurocholate and of Bile on the Pneumococcus and Streptococcus. (Wirkung von taurocholsaurem Natrium and tierischer Galle, etc.) M. Mandelbaum.
146 Results of Pessary Treatment. M. Schwab.
147 Comparative Therapeutic Attempts in Rachitis. P. Sittler.

July 23, No. 30, pp. 1465-1512.

148 Indications and Technic for Pelvis-Enlarging Operations. (Beckenerweiterende Op.) Menge.
149 *Serum Diagnosis of Syphilis, Tabes and Paralysis. (Serologischer Luesnachweis.) F. Plaut. Id. Fornet and J. Schereschewsky.
150 *Removal of Appendix in Gynecologic Operations. (Warum muss bei gyn. Op. der Wurmfortsatz mit enfernt werden?) Pankow.
151 Importance of the Auricle for the Hearing. (Ohrmuschel und Hören.) Geigel.
152 *Operation for Rectal Cancer. (Mastdarmkarzinom.) F. Berndt.
153 Tests of Buchner's Albuminometer. (B. Eiweissbestimmung im Harn.) W. Engels.
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155 Treatment of Congenital Debility. (Lebensschwäche.) M. Pfaundler. (Concluded.)
156 *Diagnosis of Urogenital Tuberculosis. Rolly.
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161 *Gonorrhea Statistics. (Tripperstatistik.) W. Erb.
162 Hot Air in Treatment of Chilblains. (Frostbeulen.) Hornung.
163 Tercentennial of Giessen University. A. Jesionek.

134. **Tumors of Spinal Meninges.**—Schultze reports a case in which an extradural fibromyoma was successfully located and removed. The case was distinguished by the absence of the usual local tenderness and radiating neuralgia pains, and by the presence of girdle paresthesia. The paralytic symptoms were aggravated when the patient lay face downward. In another case the expected tumor was not found and the process proved to be tuberculous. In conclusion, he tabulates the details of 18 cases of non-malignant tumors of the spinal membranes. No operation was attempted in 3 cases, and the tumor was not found in 4; but 6 of the patients were cured by the removal of the tumor and another was greatly improved.

138. **Elimination of Uric Acid in Gout.**—Soetbeer found that ingestion of meat did not influence the elimination of uric acid in a certain gouty patient so much as in a healthy person, but that the elimination of uric acid reached an exceptionally high figure during an attack of gout, even when no meat had been ingested for a long time.

139. **Inhalations for Asthma.**—Schaefer has witnessed great symptomatic benefit in asthma from deep inhalation of a spray from a solution of 1.028 per cent. cocain nitrite and 0.581 per cent. of atropin nitrite in 32.16 per cent. glycerin and 66.23 per cent. water. He has found that it will effectually abort an attack if used at the first symptoms.

149. **Serodiagnosis of Syphilis, Tabes and General Paralysis.**—Fornet announces that serum from patients with general paralysis and tabes gave a positive precipitin reaction with serum taken from syphilitic patients and exclusively with this serum, and the reverse was also observed. The same exclusive positive reaction with serum from different stages of the same disease was obtained also in scarlet fever, measles and typhoid.

150. **Removal of Appendix in Gynecologic Operations.**—Pankow emphasizes the fact that in many cases in which pain is ascribed to the ovaries, the trouble is in reality the result of an acute appendicitis. His experience, he declares, has been that the appendix is inflamed in fully 60 per cent. of all women, even as early as puberty, and that it is responsible for gynecologic affections to an extent hitherto unrealized.

152. **Removal of Rectal Cancer**—Berndt suggests an operation in two sittings. At the first operation the anus is closed, then an incision is made along the left margin of the coccyx and sacrum down to the rectum and the wound is tamponed, then, through an abdominal incision, the rectum is mobilized and pushed out through the rear incision, the peritoneum being sutured carefully together over the intestine, the bladder reflection of the peritoneum or the uterus and broad ligament being drawn into the suture. The abdomen is then to be sutured and the exposed rectum is wrapped in gauze until there is demarcation of the gangrenous part, when it is excised, and the sigmoid flexure drawn down to the anus. He has had no clinical experience with this technic, but thinks that it would materially reduce the danger of such operations.

156. **Diagnosis of Urogenital Tuberculosis.**—Rolly remarks that the main point in diagnosis is to think of the possibility of a tuberculous affection. Certainty is obtained only by inoculation of animals with bacilli found in the urine or other excretions.

159. **Vicarious Respiration.**—Geigel applies this term to compensatory action of the sound lung when one lung is partially or wholly disabled.

161. **Prevalence of Gonorrhea.**—Erb states that further experience has confirmed his previous figures, gonorrhea being found in 51 per cent. of his last 400 male patients of all kinds, a total of 2,400 examined. The proportion of wives suffering from the consequences of gonorrhea is even less than in his former statistics.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers.

Insanity and Allied Neuroses. A Practical and Clinical Manual. By George H. Savage, M.D., F.R.C.P., Late Physician and Superintendent of Bethlehem Royal Hospital, etc., with the Assistance of Edwin Goodall, M.D. (Lond.), B.S., etc.; Medical Superintendent of the Cardiff City Hospital for Mental Diseases. Cloth. Pp. 624. Illustrated. New Edition. Price, $2.75 net. Chicago: W. T. Keener & Co., 1907.

Human Anatomy, Including Structure and Development and Practical Considerations. By Thomas Dwight, M.D., LL.D., Carl A. Hamann, M.D., J. P. McMurrich, Ph.D., G. A. Piersol, M.D., Sc.D., and J. W. White, M.D., Ph.D., LL.D. Illustrated by John C. Heisler, M.D. Edited by George A. Piersol. Cloth. Pp. 2088. Price, $7.50. Philadelphia and London: J. B. Lippincott Co., 1907.

Practical Diagnosis. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia, etc. Sixth Edition, Revised and Enlarged. Illustrated. Cloth. Pp. 616. Price, $4.50. Philadelphia and New York: Lea Bros. & Co., 1907.

The Principles and Practice of Modern Surgery. By Roswell Park, A.M., M.D., LL.D. (Yale), Professor of the Principles and Practice of Surgery and of Clinical Surgery in the Medical Department of the University of Buffalo: Illustrated. Cloth. Pp. 1074. Price, $700. Philadelphia and New York: Lea Bros. & Co., 1907.

Tracheo-Bronchoscopy, Esophagoscopy and Gastroscopy. By Chevalier Jackson, M.D., Laryngologist to the Western Pennsylvania Hospital, etc. With five colored plates and other illustrations. Cloth. Pp. 199. Price, $4.00. St. Louis: The Laryngoscope Co., 1907.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XXV. Edited by James Craig, M.D., F.R.C.P.I., General Secretary; Physician to the Meath Hospital and County Dublin Infirmary. Cloth. Pp. 491. Dublin: John Falconer, 1907.

Census of Manufactures, 1905. Printing and Publishing. Department of Commerce and Labor. Bureau of the Census. S. N. D. North, Director. Bulletin 79. Paper. Pp. 133. Washington: Government Printing Office, 1907.

Guide to the Current Periodicals and Serials of the United States and Canada. 1907. Compiled by Henry Ormal Severance, Librarian, University of Missouri. Cloth. Pp. 330. Ann Arbor: George Wahr, 1907.

Climatic Treatment of Children. By Frederick L. Wachenheim, M.D., Chief of Clinic, Children's Department, Mount Sinai Hospital Dispensary, New York. Cloth. Pp. 400. Price, $2.50. New York: Rebman Co., 1907.

Cause and Prevention of Beriberi. By W. Leonard Braddon, M.B., B.S., F.R.C.S., State Surgeon, Negri Sembilan, Federated Malay States. Cloth. Pp. 544. Price, $6.00. New York: Rebman Company, 1907.

The Sense of Touch in Mammals and Birds, with Special Reference to the Papillary Ridges. By Walter Kidd, M.D., F.Z.S. Illustrated. Cloth. Pp. 176. London: Adam and Charles Black, 1907.

Transpositions. A Practical Treatise for Optometrists and Opticians. By R. M. Lockwood, Author of the Lockwood Series, etc. Paper. Pp. 32. Price, 25c. New York: F. Boger Pub. Co., 1907.

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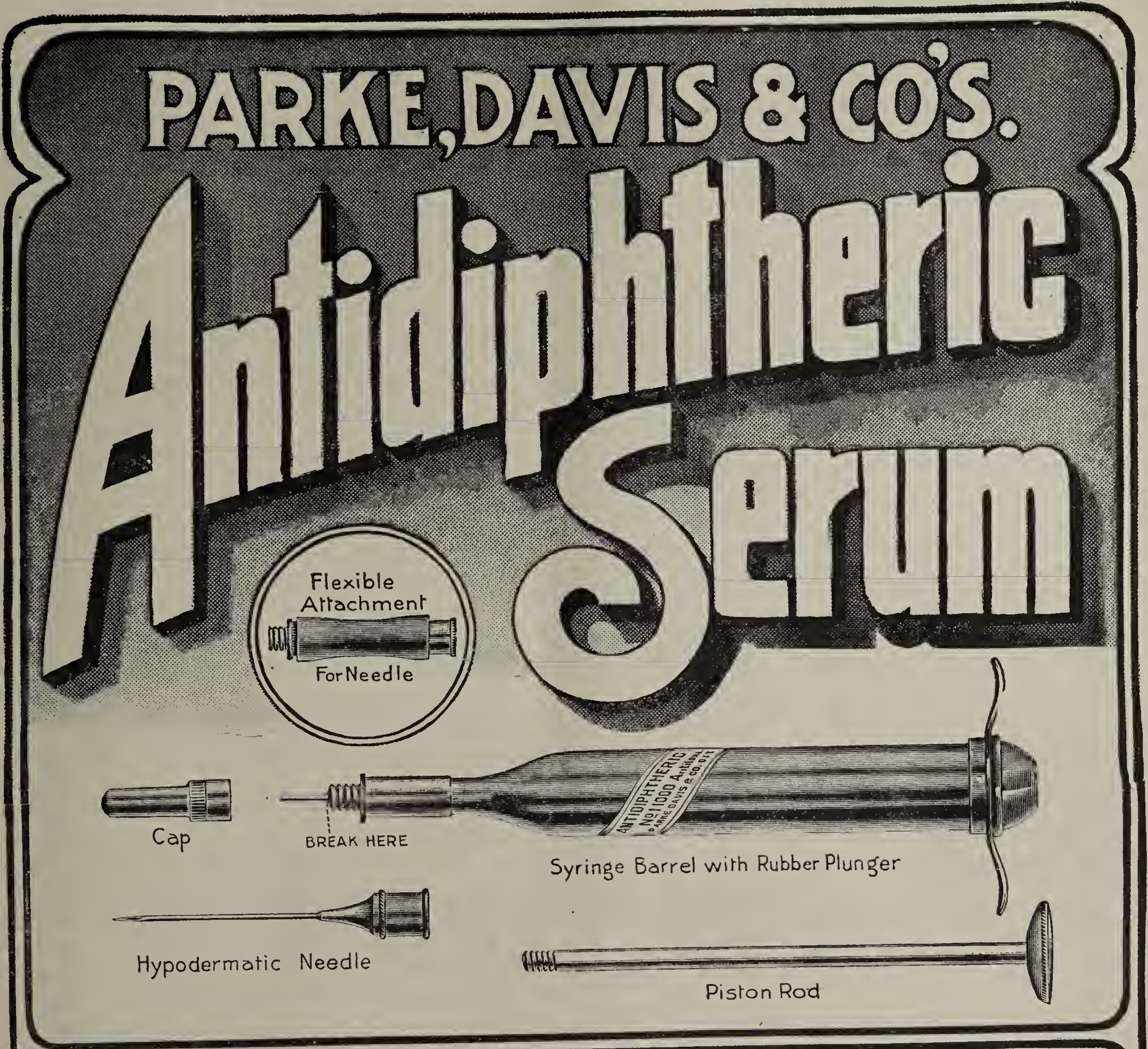

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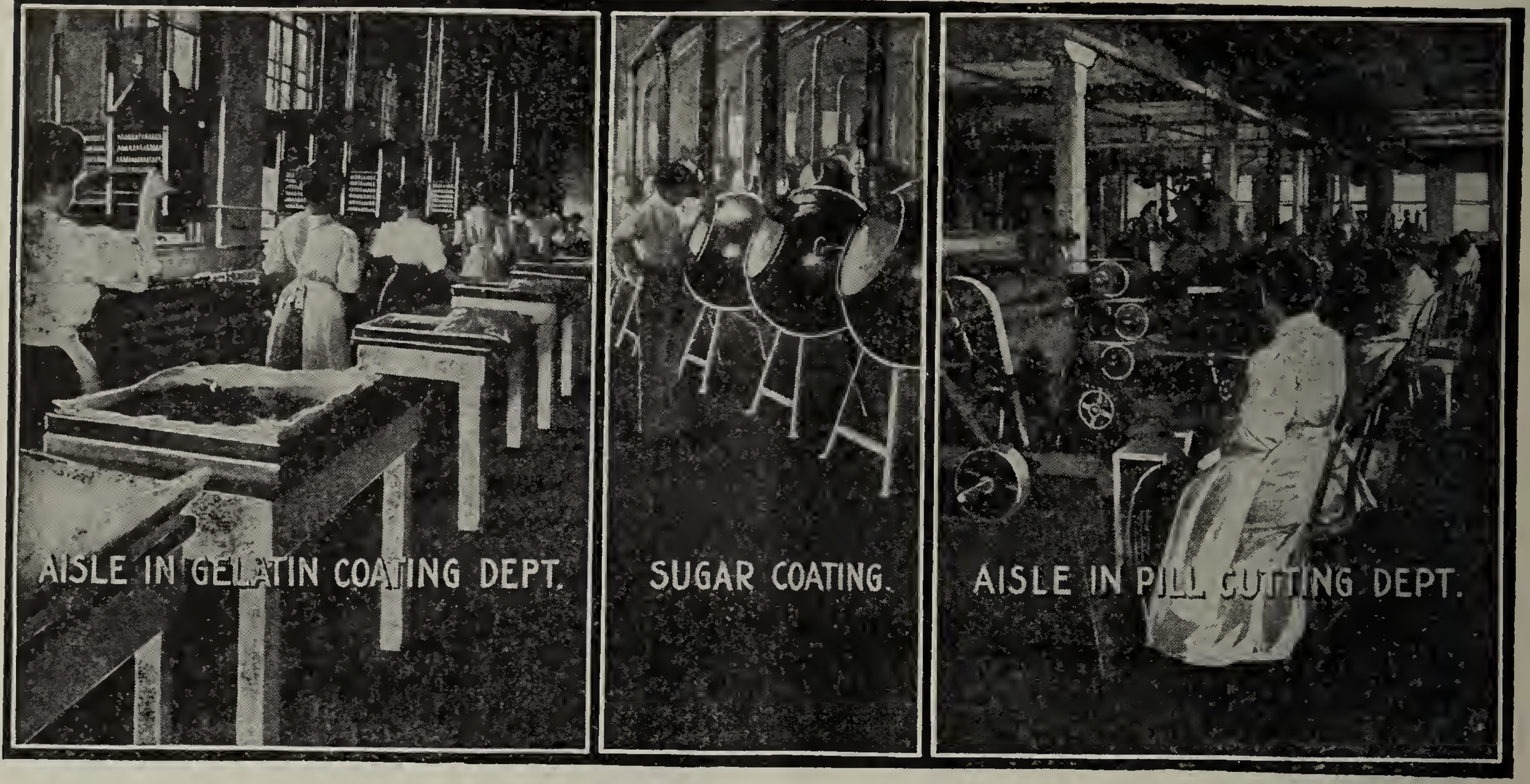

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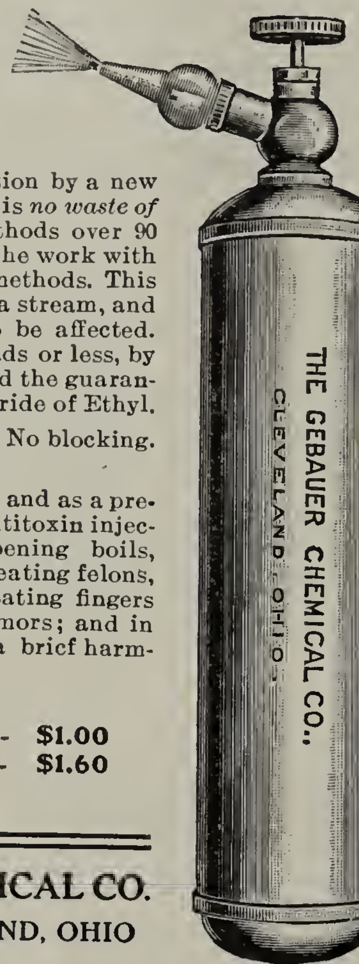

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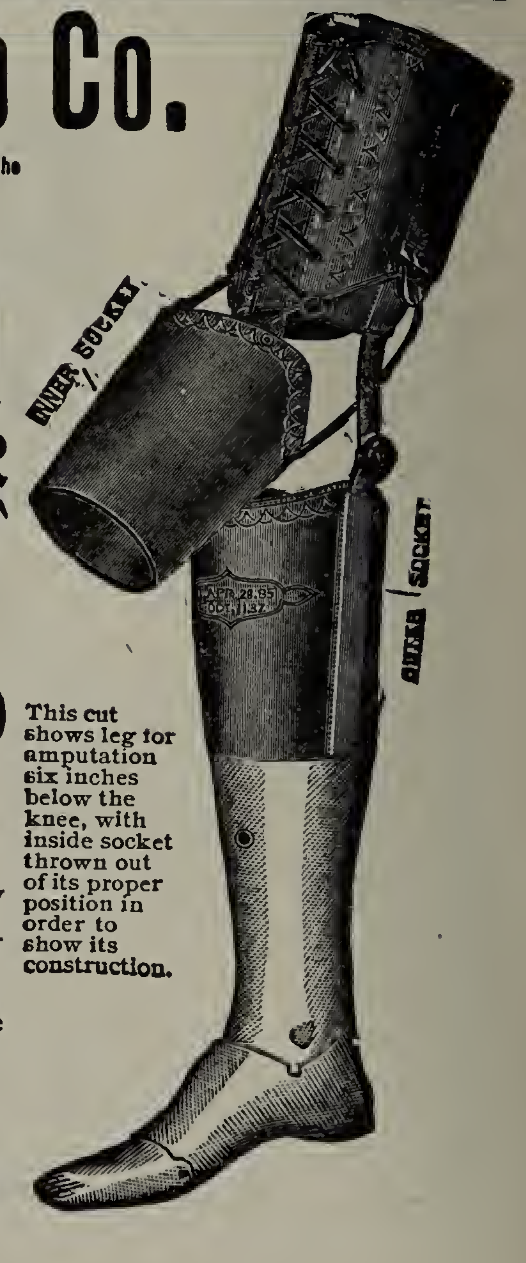

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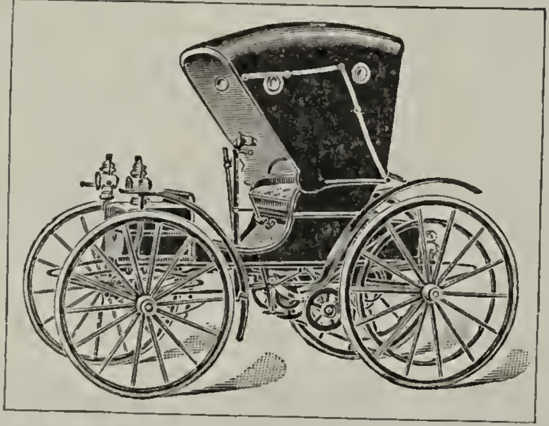

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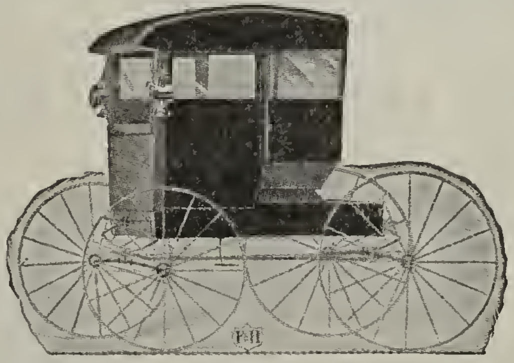

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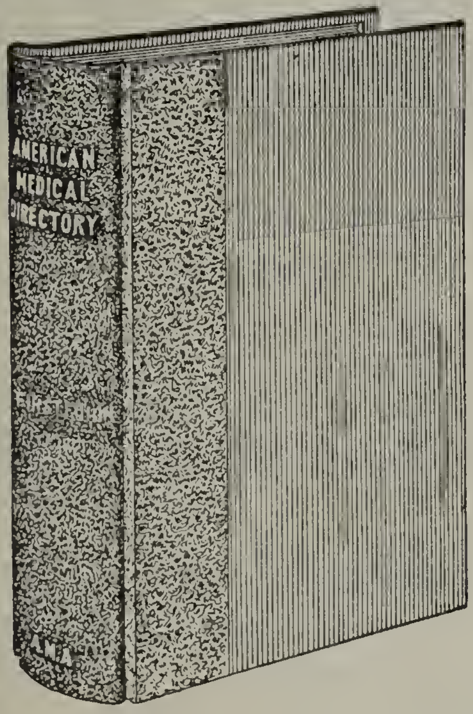

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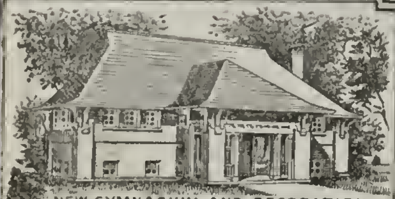

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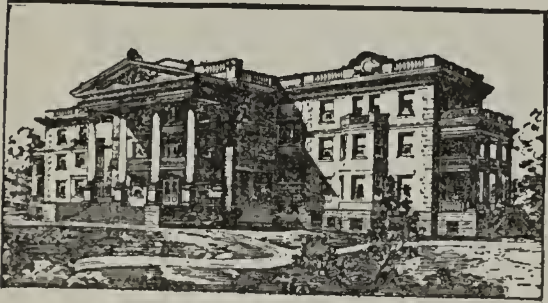

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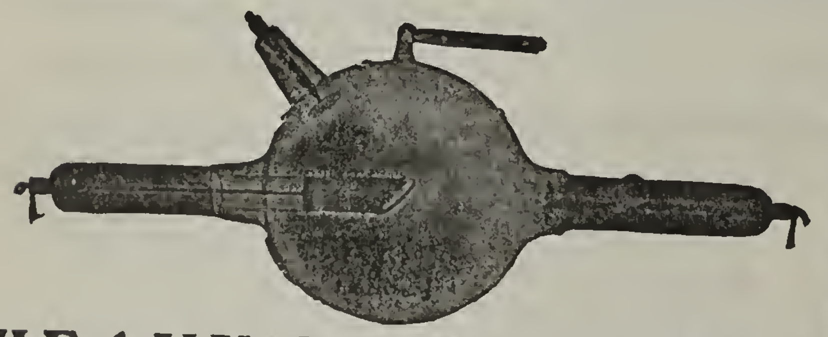

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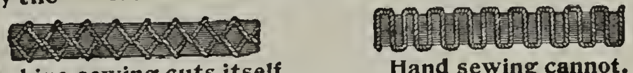

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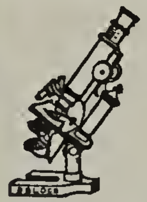

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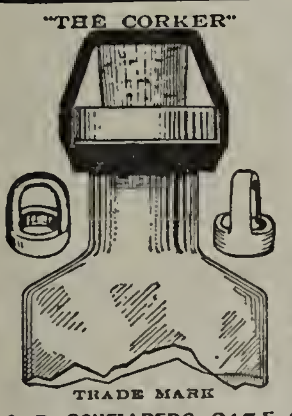

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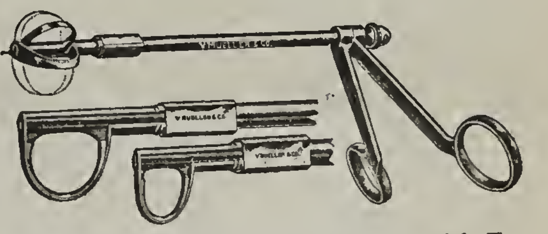

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ASSISTANTSHIPS
PARTNERSHIPS

PURCHASE OR
SELL PRACTICES
REAL ESTATE

AUTOMOBILES, BOOKS, CARRIAGES, ELECTRIC OR SURGICAL INSTRUMENTS, NEBULIZERS, STATIC MACHINES, TABLES, CHAIRS, ETC., will find it an advantage to place their announcements in these columns.

Charges are $1.50 for fifty words or less; additional words 3c each. A key number for transmission of replies through this office costs 25c extra—for postage.

When answers are transmitted through this office, no information regarding name, address or other particulars can be supplied by THE JOURNAL.

RESULTS are better when an advertisement receives several insertions, and to those who will remit $6.00 ($6.25 if answers are to be forwarded) for four insertions of a 50-word advertisement, we will give **FREE OF CHARGE** two more, if the first four do not accomplish the desired results. Notice for free insertions must be received within two weeks of date of last insertion.

Have You a Practice for Sale?

If so, the following queries will be of assistance in writing an advertisement.

(1) What is your practice worth per annum?
(2) Is your practice well established?
(3) In what state are you located? Nearest large city?
(4) Size of your city or town?
(5) Transportation facilities?
(6) Surrounding country? Describe.
(7) Roads? Churches? Schools?
(8) Nationality of people?
(9) Real estate? Describe.
(10) Office equipment—Medical—Surgical? Describe.
(11) Reason for selling?
(12) Price and terms of sale?

Remittance must accompany order. Have your return notice on envelope. To insure insertion in current issue, copy must be received by Monday noon.

We exclude from our columns all known questionable ads, and appreciate notification from our readers relative to any misrepresentation.

JOURNAL AMERICAN MEDICAL ASSOCIATION, 103 Dearborn Avenue, CHICAGO

POSITIONS WANTED.

WANTED—BY GRADUATE PHYSICIAN, position as assistant, two years' experience in laboratory work; served hospital internship; references given. Add. 4805, % AMA. B

WANTED — SALARIED POSITION IN hospital or sanitarium, or assistantship to surgeon by regular graduate; experience in mining practice; registered in Nevada; married, temperate, of good principles; age 32; best references. Add. 4853, % AMA. B

WANTED—WOMAN PHYSICIAN, WITH four years' private practice in New York City and hospital experience in a state hospital for the insane, desires position in a hospital or sanitarium, or as physician and companion to an invalid or insane person; give full particulars. Add 4865, % AMA. B

WANTED—POSITION IN NEW YORK City, by regular physician, age 26; hospital experience; 2 years' private practice, including six months' tubercular work in southwestern states; familiar with microscope, competent and willing to be of assistance; I desire three evenings each week for private work. Add. 4873, % AMA. B

WANTED — A SALARIED POSITION, mines, railroad, lumber company, or assistant to a general practitioner, prepared to do laboratory work; eight months' experience in a large surgical dispensary; some private practice; age 29, single; two languages, English and German. Add. 4863, % AMA. B

WANTED—BY A WOMAN PHYSICIAN, position as assistant to a city physician or surgeon, or in a sanitarium or hospital; capable, well qualified, with business training, and highest references; Northwestern University graduate; experienced in general private practice, surgery, sanitarium and hospital work.. Add. 4856, % AMA. B

LOCATIONS WANTED.

WANTED — YOUNG MARRIED PHYSICIAN practicing for past eight years in New York City wishes to secure location in town of 10,000 to 25,000 inhabitants in New York or New Jersey. Would purchase property if desired, or would consider temporary partnership. Add. 4804, % AMA. C

WANTED — PRACTICE OF NOT LESS than $5,000 net annually, in good town in southern Wisconsin, southern Michigan, southern Minnesota, northern Illinois, northern Indiana or Ohio; will buy home, office, etc., at actual value; must bear investigation; describe everything completely; will buy small hospital if on paying basis. Add. 4871, % AMA. C

ASSISTANTS WANTED.

WANTED — GENITO--URINARY DISeases; a regular practitioner, preferably hospital graduate, will be accepted as an assistant for one year in large, exclusively clinical work in New York; no salary, perquisites or time for other occupation. Add. 4826, % AMA. D

ARMY AND NAVY QUIZ 25th Year of This Work

OLDEST QUIZ CLASS IN THE U. S.

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Number limited to 12 students—6 men and 6 women. Next course will begin October 1, 1907.

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Pennsylvania Orthopaedic Institute and School of Mechano-Therapy,
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1711 Green Street, PHILADELPHIA, PA.

PARTNERSHIP WANTED.

WANTED — PHYSICIAN OF TWELVE years of successful work in eye, ear nose and throat, with large surgical and hospital experience in city of 40,000, desires partnership or assistantship with physician in same line of work with large practice and hospital opportunities in very large city of this country or England. Add. 4735, % AMA. E

PARTNERS WANTED.

WANTED — ASSISTANT OR PARTNER for eye, ear, nose and throat work; good, established business in southern city; prefer one who is financially able to pay cash for an active partnership; do not write unless you mean business. Add. 4862, % AMA. F

WANTED — ACTIVE PHYSICIAN AS partner to assist in incorporated Zander institute, established 15 years; must be first class in every respect; good salary and permanent position to right man; must invest $1,000 to $2,000 in business; references required in first letter. E. H. McCullers, M.D., 219 N. Cardinal Ave., St. Louis, Mo. F

MEDICAL BOOKS WANTED.

WANTED—BOUND VOLUMES JOURNAL American Medical Association; volumes 20 to 42, inclusive; also *British Medical Journal,* prior to 1887 and after 1893; must be in good condition; state price f. o. b. Add. 4848, % AMA. G

INTERNES WANTED.

WANTED — RESIDENT PHYSICIAN — Small hospital in eastern Massachusetts; salary and living; some time for outside work; must be fair surgeon; send addressed and stamped envelope for reply; also medical house officer for same hospital. H. C. Daggett, 176 Federal St., Boston, Mass. I

MISCELLANEOUS WANTED.

WANTED—MONTANA—PHYSICIAN TO locate in mining camp on railroad; population 400; electric lights, city waterworks; surrounding country will make about 1,000 population to draw from; no doctor within 40 miles; a good opening for the right party. For further information add. Wm. L. Cook, Neihart, Mont. K

WANTED — IOWA — SOUTHEASTERN part—Good location, free to a capable sober and industrious young surgeon and physician; small rich town, with an excellent location for a physician; none better; no expense to start, as everything is ready for him to begin; do not delay, but write at once. Add. 4852, % AMA. K

WANTED — IOWA — AN UP-TO-DATE physician or eye and ear specialist, to occupy a thoroughly modern suite of office rooms conjointly with a surgeon, physician, and dentist, in a new modern building, in the best location in a capital city of 100,000. Add. Room 306, Utica Bldg., Des Moines, Iowa. K

(*Continued on Next Page.*)

APPARATUS, ETC., WANTED.

WANTED — RETINOSCOPE AND OPHTHALMOSCOPE combined, also an ophthalmometer and a gynecological chair; when answering state whose model, date of model, condition and price. Add. Wm. A. Coy, M.D., 306 Camel St., Springfield, Mo. M

WANTED — IMPROVED, ADJUSTABLE optometer, tangent scale; trial case; gas bracket and chimney or condenser; specialist's cabinet; small incubator; Rochester sterilizer; will buy office fixtures and instruments of deceased eye and ear specialist, give make, when purchased; must be cheap; will pay cash, but goods must stand examination. Add. 4868, % AMA. M

APPARATUS, ETC., FOR SALE.

FOR SALE — McINTOSH 16-PLATE static machine, ordinary and glass electrodes, resonator, motor, Victor vibrator attachment, *x*-ray tube, all in good working order, $100 f. o. b., Reno; reason for selling, taking up another line of work. Add. M. R. Walker, M. D., Reno, Nev. N

FOR SALE — NELSON "IDEAL" 24-plate and Waite and Bartlett 12-plate static machines, double resonators for coil, leucodescent therapeutic lamp, style "F" special, Gould chair, Victor No. 1 vibrator for 110 volt D. C.; all the apparatus is in fine condition and will sell cheap, as I intend to retire from practice. F. C. Gundlach, M.D., 206 Grant St., Pittsburg, Pa. N

LOCATIONS FOR SALE.

FOR SALE—MICHIGAN — SOUTHERN part. An unopposed country practice, worth $2,500 a year. House, barn, 4 lots, all to purchaser of property worth the money. Add. 4625, % AMA. O

FOR SALE—IOWA—NORTH CENTRAL part, $3,500 practice, office building and fixtures; collections 95 per cent.; excellent schools and church; mostly well-educated American people; will thoroughly introduce purchaser. Add. 4860, % AMA. O

FOR SALE — ILLINOIS — MY NINE-room house and practice of $3,600, in town of 1,000 population, 40 miles from Chicago, also several good appointments; will sell for less than cost of property; competition light; good reason for selling. Add. 4825, % AMA. O

FOR SALE — NEW YORK — FINEST $3,500 village practice in New York state, practically all cash and absolutely transferrable to a good man; fine brick residence and barn with all modern improvements; price $8,500, $4,000 cash; will give thorough introduction. Add. 4783, % AMA. O

FOR SALE — INDIANA — CENTRAL part, town of 1,000; rich country, good schools and churches; good chance to practice medicine; will sell residence, horse, buggy, etc., $1,500; $900 cash, balance to suit purchaser; am going to city. Add. 4793, % AMA. O

FOR SALE—WISCONSIN—$2,000 PRACTICE given to purchaser of my property in village of 800; excellent high school, 4 churches, good roads and splendid railroad facilities; price, $2,700; which is less than cost; terms $1,500 cash, balance time. Add. 4849, % AMA. O

FOR SALE OR RENT—PENNSYLVANIA —Location, with office equipment of the late Dr. T. M. Livingston; in town of 13,000; annual collections, $4,000; price of property, $8,000; rental $40.00 a month; fine schools. Add. Mrs. T. M. Livingston, 138 N. Third St., Columbia, Pa. O

FOR SALE—IOWA—UNOPPOSED PRACTICE, established twelve years; railroad; population 200, mostly Americans; good 5-room house; 3 lots, 2-room office, barn; practice nets $2,200 to $2,700 annually; price, $1,800; drugs at invoice, about $150; 12 miles from county seat; going to city. Add. 4855, % AMA. O

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FOR SALE — IOWA — $3,200, UNOPPOSED practice; railroad town, 450; 10 miles to nearest doctor: free to the purchaser of my residence, barn, 3 lots, team, buggy, cutter, etc., office furniture, fixtures, and stock of dispensing drugs; price $2,500, one-half cash, balance on time; will give introduction. Add. 4830, % AMA. O

FOR SALE—IOWA—$3,200 UNOPPOSED practice, railroad town 450, free to purchaser of my residence, barn, 3 lots, team, buggy, cutter, harness, etc., office fixtures, furniture, stock of drugs; will give introduction. Price, $2,750, one-half cash, balance on time; 10 miles to nearest doctor; rare chance. Add. 4720, % AMA. O

FOR SALE—OHIO—SOUTHERN PART—$2,500 practice, good house and office; price, $1,500, easy terms; collections 95 per cent.; railroad town, population 500; no better place for country practice in the state; must be sold soon; if mean business answer quick. John Hoben, M.D., Gen. Delivery, Dayton, Ohio. O

FOR SALE — IOWA—PRACTICE THAT paid $2,200 in 1906; has paid as high as $4,800, same conditions now prevailing; office residence and barn; $1,400 takes all, $600 down, balance to suit; town 300; 98 per cent. accounts good; no competition; best one-man location in state; reasons given; must sell in 30 days. Add. 4829, % AMA. O

FOR SALE — MISSOURI — RICH AGRICULTURAL and fruit section, $2,500 practice; can be increased, 6-room residence, 3 lots in growing town of 1,000 for $1,800; competition light; collections splendid; will bear close investigation; option on interest in drug store, paying well; reason for selling, going to city to specialize. Add. 4813, % AMA. O

FOR SALE—IDAHO—SOUTHERN PART —$4,000 practice; collections excellent; county seat; 1,600 nice people; rich, well-populated farming valley; railroad, near Ogden; fixtures, horses, buggies, etc., with or without real estate; fine opening; splendid location for tubercular; am forming partnership in mining camp. Add. 4858, % AMA. O

FOR SALE—OHIO—UNOPPOSED PRACTICE, and property consisting of new 8-room house, gas, furnace, office in house, large barn; railroad village, 14 miles from Columbus, on pike; good schools, churches, telephones; good reasons; terms, $1,000 cash, $1,800 easy payments; money made from start. Charles Wells, M.D., Summit Station, Ohio. O

FOR SALE—OHIO—$3,000 CASH PRACTICE, 9-room house, barn and out-buildings in lively railroad town of 400, surrounded by rich farming land, fine pikes, good school and churches and society; price, $2,300, one-third cash, balance in one and two years; a bargain; will introduce purchaser; reasons for selling, going to school. Address Box 19, Highland, Ohio. O

FOR SALE — WISCONSIN—$3,000, ESTABLISHED practice, inland village of 200; good roads, churches and school; ten miles to nearest physician; collections 98 per cent.; fine office, 7-room house, two lots; all for less than actual value of property; going to specialize; a bargain if taken at once; price, $1,500, $800 cash; no triflers. Add. 4864, % AMA. O

FOR SALE — COLORADO—UNOPPOSED private and contract practice in a prosperous mining camp; business clears $3,000 yearly; furnished house, office, barn, carriage house, team and Stanhope; property valued at $3,000; good reason for selling; a bargain; will sell for $2,500 cash or trade for good property, unincumbered, in desirable locality. Add. 4798, % AMA. O

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(Continued on Next Page.)

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FOR SALE — WISCONSIN—SOUTHERN part—$3,000 practice, 6-room house, barn, large grounds, drugs, instruments, *x*-ray, microscope, office fixtures, etc., team, buggy, harness, robes, etc.; large territory, village of 800; one other doctor; collections 98 per cent.; price, $4,000, which is less than value of property; going to city. Add. 4837, % AMA. O

FOR SALE—MINNESOTA—$4,000 ELECtro-therapeutic practice; county seat, 6,000; 6 railroads; static machine, *x*-ray, high frequency leucodescent, hot air, wall plate, 3 rooms, a good chance for Scandinavian specialist; will sell furniture and apparatus for $600, one-half cash, balance to suit at 7 per cent. Add. Dr. M., 128 S. Broadway, Albert Lea, Minn. O

FOR SALE — ILLINOIS — CHICAGO— Completely equipped, established office for general practice and electrotherapeutic treament, south side, in excellent neighborhood, thickly populated, two drug stores, good money-making location; good-will aud introduction to purchaser, reason sickness; quick buyer will get bargain; don't write unless you mean business, enclose stamp. Add. 4730, % AMA. O

FOR SALE—OHIO—$3,000 CASH PRACtice, established 13 years, collections 95 per cent.; growing town of 1,200, rich country, roads piked, railroad and electric railway; competition light; $800 static machine, wall plate, microscope, office furniture; rent or sell office; driving outfit optional; going to city to practice specialty; purchaser given introduction. Add. 4869, % AMA. O

FOR SALE—TEXAS—$8,000 PRACTICE, population 3,000, 3 railroads, rice mills, sugar mill, fine farms, stock raising, town growing; mild climate, good roads, school, churches, lodges and society; complete office equipments; general practice and surgery; competitors old; $5,000 home and practice for price of property; recuperate your own health and make money besides. Add. 4764, % AMA. O

FOR SALE—OHIO—SOUTHERN PART— Village and country practice of $3,500; population, 1,000; new 8-room house, 2-room office attached, barn and outbuildings; office equipment, drugs and driving outfit. Price, $3,000; terms easy; a bargain; nearest competition, 3 miles; going to New Mexico. Will stay with purchaser until acquainted with practice. Add. Dr. A. E. Brosier, Santoy, Ohio. O

FOR SALE — NORTH DAKOTA—PRACtice averaging $3,824 gross past 4 years; collections over 90 per cent.; college town and county seat; population 2,000, doubled in past 4 years and will double again in 4 years; gas, water works and sewer; two railroads, 7 churches; office and contents and lot, $1,800, one-third down, or office contents and 3 years' lease of office, $900; retiring. Add. 4851, % AMA. O

FOR SALE — OKLAHOMA—FIVE-ROOM house, barn, fruit trees, 2-room office on main street; furnished complete, McDonald chair, driving horse, buggy, harness; practice established 7 years; surgeon can double it; now nets $1,800 to $2,200 annually; good schools, churches, railroad; population 350; large territory; collections 98 per cent.; $2,000 for everything; going to city. Add 4854, % AMA. O

FOR SALE—NEBRASKA—$3,500 PRACtice, established six years; population of town 1,000; surrounding territory large and thickly settled with German and American farmers; one of the best high schools in state; brick office building, 44x22; *x*-ray outfit and water motor, wall plate, surgical chair and other office fixtures; $2.000 takes all, or $800 for office fixtures and practice; easy competition; going to specialize; collections 98 per cent. Add. 4847, % AMA. O

FOR SALE — ILLINOIS—BRICK RESIdence and office on main street, ten rooms, barn on same lot; rich farming and mining community, established since 1890; churches —German and English, Catholic, Presbyterian, Methodist and German-Lutheran; prefer to sell, but would rent; most desirable location for practitioner speaking English and German, with a liking for surgical practice; reason for selling, recent poor health; price for property, $4,000, half cash; also have 31½ acres fine pasture land for sale; price, $2,000, one-half cash. Add. Philip Arnold, M.D., Elizabeth, Ill. O

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FOR SALE — NEBRASKA—NORTHERN part—$2,400 practice free to purchaser of new seven-room residence, barn and two lots; $1,600, part cash, balance to suit purchaser; nearest competition, 20 miles; largest unopposed territory in eastern part of state; good town, mostly Americans and Germans; 20 miles to railroad, daily mail; telephones in all directions; going to quit practice of medicine; this is a snap for a hustler. Add. 4773, % AMA. O

FOR SALE—NEW JERSEY—PRACTICE in city of 45,000, near New York City; established 11 years; collections, $5,000 annually; will sell practice and good-will for $2,000 cash; will stay and practice with purchaser one year, being away part of the time, for one-half of money collected; will rent or sell my house, with office attached, to purchaser; do not answer unless in position to accept these terms; reason for selling, wish to retire. Add. 4711, % AMA. O

FOR SALE—ILLINOIS—AT A BARGAIN price, the practice and office of an eye, ear, nose and throat specialist in a manufacturing city; the practice has paid from $3,500 to $5,000 a year for the last 15 years; office outfit complete has cost about $3,500; the sale carries with it probable hospital and R. R. appointments. Price, $2,000 cash. A capable man who is a good mixer can greatly increase the business; reasons for selling—to retire from practice. Add. Oculist, % F. A. Hardy & Co., Chicago. O

PRACTICES FOR SALE.

FOR SALE—WISCONSIN—NEAR MADISON, a $2,000, unopposed practice in a railroad village, together with office furniture, team, buggy, cutter, etc., for $500 cash, or will sell good-will and office furniture for $150. Add. 4836, % AMA. P

FOR SALE—IOWA—$150 FOR OFFICE fixtures and thorough introduction, two-year practice, $2,400 second year, growing; hospital, schools, churches, library, all high class; must be taken at once; going to city. For particulars, Add. 4838, % AMA. P

FOR SALE — MICHIGAN—A WELL-ESTABLISHED practice of $3,000 yearly, town of 2,300; office equipment and driving outfit fine; good-will and introduction; good roads, fine churches, and schools first class; no real estate; reason for selling and price given on request; good place for a hustler. Add. 4845, % AMA. P

FOR SALE—ONE OF THE BEST-KNOWN oculists in city of over 200,000 population, in northwesteru state, desiring to devote his time to foreign practice will sell his office fixtures and apparatus, in best condition and of highest class, worth over $5,000, $3,500 to cash purchaser. Add. 4818, % AMA. P

FOR SALE — KANSAS — WESTERN part, $2,000 practice, in good county-seat town of 1,800, on the Santa Fe R. R., good schools and churches; collections good; free to buyer of office equipment, drugs and instruments, $450 cash; will introduce; good reason for selling. Add. 4866, % AMA. P

FOR SALE — OHIO—SOUTHWESTERN part, well-established country practice; no opposition; inland village; cultured people; high school, church, 200 members; good roads; good collections; good telephone system; splendid field; $200 buys drugs and office furniture; all in good condition. Add. 4859, % AMA. P

JOUR. A. M. A.—GENTLEMEN: I SOLD my practice one week ago through the advertisement in THE JOURNAL. My new address will be ———, Colo. Thanking you for the success of my sale, I remain, ———.

(*Continued on Next Page.*)

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Cap - - - - -	*.35*
Collar, Straight Band	*.15*
Collar, Turnover -	*.20*
Cuffs, Per pair -	*.25*
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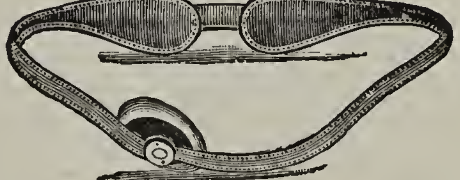

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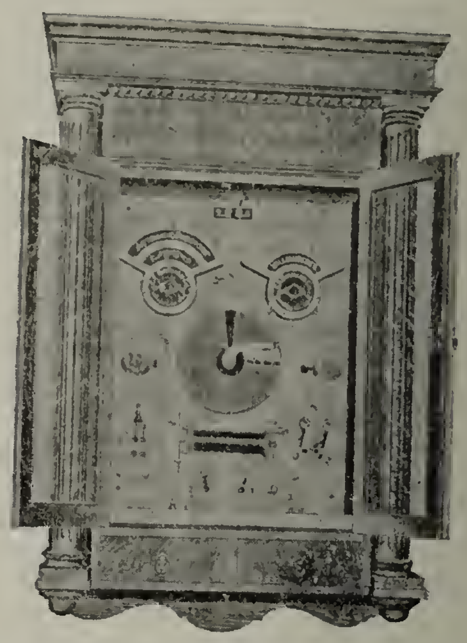

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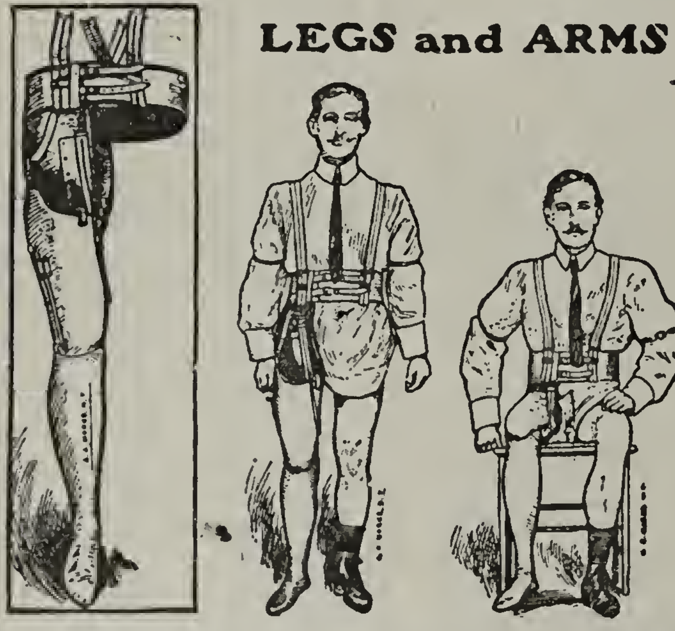

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